MAPS AND COMMANDS FOR LEGRAND/BTICINO ELECTRONIC CIRCUIT BREAKERS DMX^3 MPx.10/Megabreak AND DPX^3 /Megatiker

Revision of the present document:

REVISION: 2.0.0
DATE: 02/03/2026

Product involved:

- DMX^3 1600/2500/4000/6300 MP2.10/MP4.10
- DMX^3 4000 1000V MP2.10/MP4.10
- DMX^3 2500 800V MP2.10/MP4.10
- DMX-SP 2500/4000 MP2.10/MP4.10
- DPX^3 630/1600 S10
- DPX^3 250HP S10
- DPX^3 250 S2/Sg
- DPX^3/EMS interface

- Megabreak 1600/2500/4000/6300 (with configurable protection unit)
- Megatiker M4/M5 (with configurable protection unit)
- Megatiker M3 250
- Megatiker M2 LSI/LSIg
- Megatiker/EMS interface

Revisions:

REVISION	RELEASE DATE	REMARKS
1.0.0	17/12/2024	First release
2.0.0	06/03/2026	- multibrand extension (Legrand -->> Legrand + Bticino) - simplified configuration map names - contracted lines of consecutive non-significant registers - fixed some configuration maps - fixed wrong links in pdf version - minor modifications

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GENERAL INFORMATION

MODBUS OVER SERIAL DETAILS

Physical Layer	Standard EIA/TIA 485 (RS-485) two-wire configuration
Device Addressing	1÷247 (1 default)
Trasmission Modes	RTU / ASCII (RTU default)
Baud Rates (bit/s)	Programmable 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 (19200 default)
Data Bits	8 (default)
Data bits trasmission sequence	Least significant bit first
Parity	NONE / ODD / EVEN (NONE default)
Stop Bits	1 / 2 (1 default)

MASTER/SLAVE COMMUNICATION TIMING

Timer Description	Timer Value (msec)
Inter-character time-out	< 1,5 character times
Response delay (from master request)	-
Delay Time (between two master trasmissions)	-

TIME OUT INTERFACE DEVICES

Legrand Device	Time out [ms] (Default)	Programmable
Web Server	1200	YES
Gateway	1000	YES
Interface RS485 / EMS	850	NO
Interface circuit breaker/ EMS	500	NO
Interface RS485 / MODBUS	800	NO

MODBUS PROTOCOL DETAILS

Function Code (HEX)	Exception Codes (HEX)
02 (Read Discrete Inputs)	01, 02, 03
01 (Read Coils)	01, 02, 03
05 / 0F (Write Single / Multiple Coils)	01, 02, 03
04 (Read Input Registers)	01, 02, 03
03 (Read Holding register)	01, 02, 03
06 / 10 (Write Single / Multiple Holding register)	01, 02, 03
Data Encoding	Big Endian (most significant byte first)

MODBUS COMMUNICATION ERROR TABLE

Error Code (hex)	Description
01	Function not implemented
02	Data address not implemented
03	Wrong data value
04	Error in function execution (NACK)
05	ACK for longer operations
06	Device is busy
08	“Memory Parity Error”
0A	Gateway: gateway path unavailable
0B	Gateway: target device failed to response
10*	Session already in the requested state
11*	Checksum Error (Firmware update)
12*	Writing error (Memory total reset)
13*	Wrong packet number
14*	Request of re-sending packet

* internal errors

STRUCTURE

[ADDR] [80h+Function Code] [Error code] [DATA1] [DATA2] [CKS]

NOTE

With error codes 11h, 12h and 13h,
[DATA1] and [DATA2] contain the address of last accepted packet.
If the packet is the first, default value is 0xFFFFFFFF

NUMERIC CODING

DESCRIPTION

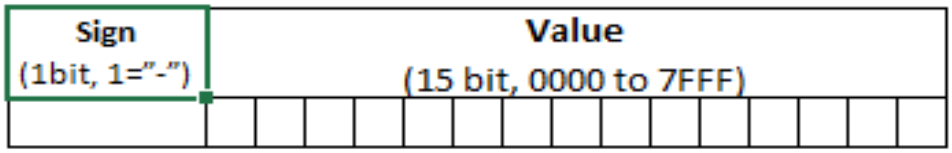
All the registers containing numerical values are expressed as "whole with sign".
Any factors of scale can be indicated in the notes of the mapping together with units of measurement.

CODING

- The most significant bit attributes the sign to the magnitude;
- the remaining bits define the value;
- the significance of the "non-available parameter" (N/A) is attributed to the value corresponding to "0" (zero negative);

The rules indicated above are valid for all the registers regardless of their size (1,2,3 or n-word)

Example 1 word



If the parameter is not available (N/A) the value will be:
1000000000000000b = 0x8000h

"AIR CIRCUIT BREAKER ACB" MAPS AND COMMANDS

Revision of Support maps and Commands

REVISION: 3.0.0
DATE: 29/10/2024

Revision of Support maps and Commands for ACB devices

REVISION: 1.1.2
DATE: 29/11/2024

Product involved:

- DMX^3 1600/2500/4000/6300 MP2.10/MP4.10
- DMX^3 4000 1000V MP2.10/MP4.10
- DMX^3 2500 800V MP2.10/MP4.10
- DMX-SP 2500/4000 MP2.10/MP4.10

- Megabreak 1600/2500/4000/6300 with configurable protection unit

Protection units associated:

PROTECTION UNIT	DESCRIPTION	COMPATIBILITY	OBJECT CODE
LG-028300 BT-MP210S	MP2.10 integrated LED matrix screen to show electrical values and settings Adjustment via rotating encoder	Legrand: - DMX^3 1600 (MP2.10/MP4.10) - DMX-SP 2500 (MP2.10/MP4.10) Bticino: - Megatiker 1600 (with configurable protection unit)	0x0008
LG-028301 BT-MP210SM	MP2.10 integrated LED matrix screen to show electrical values and settings Adjustment via rotating encoder With measure function		0x0007
LG-028302 BT-MP410S	MP4.10 integrated LCD screen for displaying electrical values, settings and log Equipped with batteries for powering in case of mains fault or when the breaker is open or not connected		0x0006
LG-028303 BT-MP410SM	MP4.10 integrated LCD screen for displaying electrical values, settings and log Equipped with batteries for powering in case of mains fault or when the breaker is open or not connected With measure function		0x0005
LG-028304 BT-MP210A	MP2.10 integrated LED matrix screen to show electrical values and settings Adjustment via rotating encoder	Legrand: - DMX^3 2500/4000/6300 (MP2.10/MP4.10) - DMX^3 4000 1000V (MP2.10/MP4.10) - DMX^3 2500 800V MP2.10/MP4.10 - DMX-SP 4000 (MP2.10/MP4.10) Bticino: - Megatiker 2500/4000/6300 (with configurable protection unit)	0x0008
LG-028305 BT-MP210AM	MP2.10 integrated LED matrix screen to show electrical values and settings Adjustment via rotating encoder With measure function		0x0007
LG-028306 BT-MP410A	MP4.10 integrated LCD screen for displaying electrical values, settings and log Equipped with batteries for powering in case of mains fault or when the breaker is open or not connected		0x0006
LG-028307 BT-MP410AM	MP4.10 integrated LCD screen for displaying electrical values, settings and log Equipped with batteries for powering in case of mains fault or when the breaker is open or not connected With measure function		0x0005

Standard function codes

COMMUNICATION CHANNEL → / COMMANDS ↓	EMS	USB	REMARKS
Read coils **(0x01)**	x	x	
Read discrete inputs **(0x02)**	x	x	
Read holding register **(0x03)**	x	x	
Read input register **(0x04)**	x	x	
Write single coil **(0x05)**	x	x	
Write single register **(0x06)**	x	x	
Write multiple coils **(0x0F)**	x	x	
Write multiple registers **(0x10)**	x	x	

Possible maps per configurations

PROTECTION UNIT →		LG-028300/BT-MP210S LG-028304/BT-MP210A			LG-028301/ BT-MP210SM LG-028305/ BT-MP210AM			LG-028302/BT-MP410S LG-028306/BT-MP410A			LG-028303/ BT-MP410SM LG-028307/ BT-MP410AM		
OBJECT CODE →		0x0008			0x0007			0x0006			0x0005		
CONFIGURATION →		3 poles	4 poles	3 Poles +N_{ext}	3 poles	4 poles	3 Poles +N_{ext}	3 poles	4 poles	3 Poles +N_{ext}	3 poles	4 poles	3 Poles +N_{ext}
MAP↓	N°												
Calendar Settings	[1]	X	X	X	X	X	X	X	X	X	X	X	X
Switch Status	[2]	X	X	X				X	X	X			
Switch Status + Measure	[3]				X	X	X				X	X	X
3P + Measure	[4]				X						X		
4P + Measure	[5]					X	X					X	X
3P	[6]	X						X					
4P	[7]		X	X					X	X			
Elect Proct S 3P	[8]	X			X			X			X		
Elect Proct S 4P	[9]		X	X		X	X		X	X		X	X
Thermal Measurement	[10]	X	X	X	X	X	X	X	X	X	X	X	X

Map lists

[N°1] - Calendar Settings (Calendar Settings Functionality) - BASE

RETURN TO TABLE OF MAPS

Read&Write Registers – Modbus Functions 03-06-16

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
144	0090	3	Current date and time		(1),(5)	x

REMARKS:

(1)	**DEFAULT** (0001 010C 0000h) **WORD2:** chronology, “year” (MSB) and “month” (LSB); is the word that is returned first of the threee words – Most significant word **WORD1:** chronology, “day” (MSB) and ”hour” (LSB) **WORD0:** chronology, “minutes” (MSB) and “seconds” (LSB)
(5)	Register value when is not available: 0x800000000000

ADDITIONAL INFORMATION:

Rules are checked every minute and executed starting from rule 1 to rule 10 (1 rule every second).
The rule with the highest ID (1-10) is the last to be executed and then has the highest priority.

[N°2] - Switch Status (switch Status Functionality) - BASE

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Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
16384	4000	1	Open		(1)	
16385	4001	1	Closed		(1)	
16386	4002	1	Single tripped switch/ Tripped group of switches		(1),(2)	

REMARKS:

(1)	the information shown here “autorestores” when the condition that has generated it is lost (E.G.: TRIPPED is the faithful response of the device's mechanical contact Where there is a MAN/AUT operating mode selector switch, this notification can only persist if MAN is set);
(2)	if this functionality is used in switch group tripped mode (panel tripped), the bit contains the OR of the tripped of the switches belonging to the group.

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
16385	4001	1	Intervention Meter (total, cannot be reset at zero by the customer)			x
16386	4002	1	Maximum Manoeuvre Number (cannot be configured by the customer)			x
16387	4003	1	Switch Features – Rated current	[A]	(1)	x
16388	4004	1	Switch features – Type/Poles		(2)	x
16389	4005	1	Switch features – Breaking capacity	[kA]/100	(3)	x

REMARKS:

(1)	RATED CURRENT (numeric coding, [A])
(2)	TYPE/POLES • MSB – DEVICE TYPE Bit 0=insulator (0)/int. Automatic (1), Bit 1=repulsive switch (0)/ not repulsive switch (1) Bit 7-2=“0” • LSB – POLES Bit 0 to 3: Number of poles: numeric value (1 to 4) Bit 4 Neutral position (left(1)/right(0)) Bit 5 :Neutral external (1) (only 3 poles) Bit 7-6= “0”
(3)	BREAKING CAPACITY: (numeric coding, [kA/100]. Example: 4,5kA is coded in “hundredths of kA”, therefore 4.5 becomes 450)

[N°3] - Switch Status + Measure (switch Status Functionality) - BASE

RETURN TO TABLE OF MAPS

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
16384	4000	1	Open		(1)	
16385	4001	1	Closed		(1)	
16386	4002	1	Single tripped switch/ Tripped group of switches		(1),(2)	

REMARKS:

(1)	the information shown here “autorestores” when the condition that has generated it is lost (E.G.: TRIPPED is the faithful response of the device's mechanical contact Where there is a MAN/AUT operating mode selector switch, this notification can only persist if MAN is set);
(2)	if this functionality is used in switch group tripped mode (panel tripped), the bit contains the OR of the tripped of the switches belonging to the group.

Read & Write Bit - Modbus Functions 01-05-15

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
16384	4000	1	Direction of switch supply (if the direction is HIGH -> LOW the bit is = 0, default; if it is LOW -> HIGH the bit is = 1)			x

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
16385	4001	1	Intervention Meter (total, cannot be reset at zero by the customer)			x
16386	4002	1	Maximum Manoeuvre Number (cannot be configured by the customer)			x
16387	4003	1	Switch Features – Rated current	[A]	(1)	x
16388	4004	1	Switch features – Type/Poles		(2)	x
16389	4005	1	Switch features – Breaking capacity	[kA]/100	(3)	x

REMARKS:

(1)	RATED CURRENT (numeric coding, [A])
(2)	TYPE/POLES • MSB – DEVICE TYPE Bit 0=insulator (0)/int. Automatic (1), Bit 1=repulsive switch (0)/ not repulsive switch (1) Bit 7-2=“0” • LSB – POLES Bit 0 to 3: Number of poles: numeric value (1 to 4) Bit 4 Neutral position (left(1)/right(0)) Bit 5 :Neutral external (1) (only 3 poles) Bit 7-6= “0”
(3)	BREAKING CAPACITY: (numeric coding, [kA/100]. Example: 4,5kA is coded in “hundredths of kA”, therefore 4.5 becomes 450)

[N°4] - 3P + Measure (Three-phase Electrical Measurement Functionality ("PMD I")) - EVOLVED

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Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	Measurement 1 alarm/event			
20481	5001	1	Measurement 2 alarm/event			
20482	5002	1	Measurement 3 alarm/event			
20483	5003	1	Measurement 4 alarm/event			
20484	5004	1	Measurement 5 alarm/event			
20485	5005	1	Measurement 6 alarm/event			
20486	5006	1	Measurement 7 alarm/event			
20487	5007	1	Measurement 8 alarm/event			
20488	5008	1	Measurement 9 alarm/event			
20489	5009	1	Measurement 10 alarm/event			
20490	500A	1	Error on voltage phase sequence			

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	Phase current value 1 (R)	[A]	(2),(4)	
20481	5001	1	Phase 2 current value (S)	[A]	(2),(4)	
20482	5002	1	Phase 3 Current Value (T)	[A]	(2),(4)	
20483	5003	1	***not significant***			
20484	5004	1	Earth Current Value	[A]	(2)	
20485	5005	12	***not significant***			
20497	5011	1	Voltage 1-2	[V]	(2),(4)	
20498	5012	1	Voltage1-3	[V]	(2),(4)	
20499	5013	1	Voltage 2-3	[V]	(2),(4)	
20500	5014	12	***not significant***			
20512	5020	1	THD Phase 1 (R) vs. fundamental current	%	(2)	
20513	5021	1	THD Phase 2 (S) vs. fundamental current	%	(2)	
20514	5022	1	THD Phase 3 (T) vs. fundamental current	%	(2)	
20515	5023	4	***not significant***			
20519	5027	1	THD Voltage 1-2 vs. fundamental	%	(2)	
20520	5028	1	THD Voltage 1-3 vs. fundamental	%	(2)	
20521	5029	1	THD Voltage 2-3 vs. fundamental	%	(2)	
20522	502A	1	Three-phase active power	[kW]	(1),(4)	
20523	502B	1	Three-phase reactive power	[kVar]	(1),(4)	
20524	502C	2	***not significant***			
20526	502E	1	Three-phase Apparent Power	[kVA]	(1),(4)	
20527	502F	1	Three-phase power factor (PF)	1/100	(1),(3)	
20528	5030	1	***not significant***			
20529	5031	1	Three-phase Frequency	[Hz]/100	(1),(3)	
20530	5032	2	***not significant***			
20532	5034	2	Positive Three-phase Active Energy	[kWh]	(2),(4)	x
20534	5036	2	Negative Three-phase Active Energy	[kWh]	(2),(4)	x
20536	5038	2	***not significant***			
20538	503A	2	Positive Three-phase Reactive Energy	[kVar]	(2),(4)	x
20540	503C	2	Negative Three-phase Reactive Energy	[kVar]	(2),(4)	x
20542	503E	2	***not significant***			
20544	5040	1	Phase 1 Active Power (R)	[kW]	(1),(4)	

20545	5041	1	Phase 2 Active Power (S)	[kW]	(1),(4)	
20546	5042	1	Phase 3 active power (T)	[kW]	(1),(4)	
20547	5043	1	Reactive Power phase 1 (R)	[kVar]	(1),(4)	
20548	5044	1	Reactive Power phase 2 (S)	[kVar]	(1),(4)	
20549	5045	1	Reactive Power phase 3 (T)	[kVar]	(1),(4)	
20550	5046	6	***not significant***			
20556	504C	1	Apparent Power Phase 1 (R)	[kVA]	(1),(4)	
20557	504D	1	Apparent Power Phase 2 (S)	[kVA]	(1),(4)	
20558	504E	1	Apparent Power Phase 3 (T)	[kVA]	(1),(4)	
20559	504F	6	***not significant***			
20565	5055	2	Active Energy phase 1 (R) Positive	[kWh]	(2),(4)	x
20567	5057	2	Active Energy phase 2 (S) Positive	[kWh]	(2),(4)	x
20569	5059	2	Active Energy phase 3 (T) Positive	[kWh]	(2),(4)	x
20571	505B	2	Active Energy phase 1 (R) Negative	[kWh]	(2),(4)	x
20573	505D	2	Active Energy phase 2 (S) Negative	[kWh]	(2),(4)	x
20575	505F	2	Active Energy phase 3 (T) Negative	[kWh]	(2),(4)	x
20577	5061	2	Reactive Energy phase 1 (R) Positive	[kVarh]	(2),(4)	x
20579	5063	2	Reactive Energy phase 2 (S) Positive	[kVarh]	(2),(4)	x
20581	5065	2	Reactive Energy phase 3 (T) Positive	[kVarh]	(2),(4)	x
20583	5067	2	Reactive Energy phase 1 (R) Negative	[kVarh]	(2),(4)	x
20585	5069	2	Reactive Energy phase 2 (S) Negative	[kVarh]	(2),(4)	x
20587	506B	2	Reactive Energy phase 3 (T) Negative	[kVarh]	(2),(4)	x
20589	506D	14	***not significant***			x
20603	507B	1	harmonic I1 row 3	%	(2)	x
20604	507C	1	harmonic I2 row 3	%	(2)	x
20605	507D	1	harmonic I3 row 3	%	(2)	x
20606	507E	1	***not significant***			
20607	507F	1	harmonic I1 row 5	%	(2)	x
20608	5080	1	harmonic I2 row 5	%	(2)	x
20609	5081	1	harmonic I3 row 5	%	(2)	x
20610	5082	1	***not significant***			
20611	5083	1	harmonic I1 row 7	%	(2)	x
20612	5084	1	harmonic I2 row 7	%	(2)	x
20613	5085	1	harmonic I3 row 7	%	(2)	x
20614	5086	1	***not significant***			
20615	5087	1	harmonic I1 row 9	%	(2)	x
20616	5088	1	harmonic I2 row 9	%	(2)	x
20617	5089	1	harmonic I3 row 9	%	(2)	x
20618	508A	1	***not significant***			
20619	508B	1	harmonic I1 row 11	%	(2)	x
20620	508C	1	harmonic I2 row 11	%	(2)	x
20621	508D	1	harmonic I3 row 11	%	(2)	x
20622	508E	1	***not significant***			
20623	508F	1	harmonic I1 row 13	%	(2)	x
20624	5090	1	harmonic I2 row 13	%	(2)	x
20625	5091	1	harmonic I3 row 13	%	(2)	x
20626	5092	1	***not significant***			
20627	5093	1	harmonic I1 row 15	%	(2)	x
20628	5094	1	harmonic I2 row 15	%	(2)	x
20629	5095	1	harmonic I3 row 15	%	(2)	x

REMARKS:

(1)	Expressed in “numeric coding”; including sign (most significant bit=sign)
(2)	Expressed in “numeric coding”; without sign
(3)	Example: PF=0,85, is expressed as 85 (Measurement unit 1/100)
(4)	the value must be divided by the corresponding multiplying factor indicated in the read and write registers, if the register is not present it must be considered as multiplication factor 1 Example: I1 [A] = Phase 1 Current Value (R) / Current multiplication factor = 1023 / 100 = 10.23A

Read&Write Registers – Modbus Functions 03-06-16

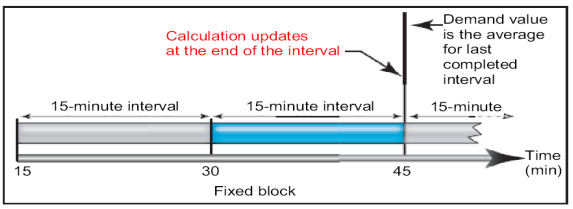
Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	Measurement System Features		(3)	x
20481	5001	6	***not significant***			
20487	5007	1	Voltage multiplication factor		(1)	x
20488	5008	1	Current multiplication factor		(1)	x
20489	5009	1	Total Power multiplication factor		(1)	x
20490	500A	1	Phase Power multiplication factor		(1)	x
20491	500B	1	Total Energy multiplication factor		(1)	x
20492	500C	1	Phase Energy multiplication factor		(1)	x
20493	500D	1	Alarm/event 1 magnitude		(5)	x
20494	500E	2	alarm/event threshold 1		(1),(4)	x
20496	5010	1	Delay alarm/event 1	s	(1)	x
20497	5011	1	Alarm/event 1 hysteresis	0.1%	(1)	x
20498	5012	1	Event type 1		(6)	x
20499	5013	1	Alarm/event 2 magnitude		(5)	x
20500	5014	2	Alarm/event 2 threshold		(1),(4)	x
20502	5016	1	Alarm/event 2 delay	s	(1)	x
20503	5017	1	Alarm/event 2 hysteresis	0.1%	(1)	x
20504	5018	1	Event type 2		(6)	x
20505	5019	1	Alarm/event 3 magnitude		(5)	x
20506	501A	2	Alarm/event 3 threshold		(1),(4)	x
20508	501C	1	Alarm/event 3 delay	s	(1)	x
20509	501D	1	Alarm/event 3 hysteresis	0.1%	(1)	x
20510	501E	1	Event type 3		(6)	x
20511	501F	1	Alarm/event 4 magnitude		(5)	x
20512	5020	2	Alarm/event 4 threshold		(1),(4)	x
20514	5022	1	Alarm/event 4 delay	s	(1)	x
20515	5023	1	Alarm/event 4 hysteresis	0.1%	(1)	x
20516	5024	1	Event type 4		(6)	x
20517	5025	1	Alarm/event 5 magnitude		(5)	x
20518	5026	2	Alarm/event 5 threshold		(1),(4)	x
20520	5028	1	Alarm/event 5 delay	s	(1)	x
20521	5029	1	Alarm/event 5 hysteresis	0.1%	(1)	x
20522	502A	1	Event type 5		(6)	x
20523	502B	1	Alarm/event 6 magnitude		(5)	x
20524	502C	2	threshold alarm/event 6		(1),(4)	x
20526	502E	1	Delay alarm/event 6	s	(1)	x
20527	502F	1	hysteresis alarm/event 6	0.1%	(1)	x
20528	5030	1	Type event 6		(6)	x
20529	5031	1	Magnitude alarm/event 7		(5)	x
20530	5032	2	Alarm/event 7 threshold		(1),(4)	x

20532	5034	1	Alarm/event 7 delay	s	(1)	x
20533	5035	1	Alarm/event 7 hysteresis	0.1%	(1)	x
20534	5036	1	Event 7 type		(6)	x
20535	5037	1	Alarm/event 8 magnitude		(5)	x
20536	5038	2	alarm/event 8 threshold		(1),(4)	x
20538	503A	1	Alarm/event 8 delay	s	(1)	x
20539	503B	1	Alarm/event 8 hysteresis	0.1%	(1)	x
20540	503C	1	Event type 8		(6)	x
20541	503D	1	Alarm/event magnitude 9		(5)	x
20542	503E	2	alarm/event 9 threshold		(1),(4)	x
20544	5040	1	Alarm/event delay 9	s	(1)	x
20545	5041	1	Alarm/event 9 hysteresis	0.1%	(1)	x
20546	5042	1	Event 9 type		(6)	x
20547	5043	1	Alarm/event 10 magnitude		(5)	x
20548	5044	2	Alarm/event 10 threshold		(1),(4)	x
20550	5046	1	Alarm/event 10 delay	s	(1)	x
20551	5047	1	Alarm/event 10 hysteresis	0.1%	(1)	x
20552	5048	1	Event 10 type		(6)	x

REMARKS:

(1)	Expressed in “numeric coding” with sign (most significant bit=sign)
(2)	Expressed in “numeric coding” with sign (always positive value, most significant bit=0)
(3)	**BYTE1 (MSB)** •**11**”: system 1V-1I unipolar •**33**”: system 3V-3I without information on the neutral •**34**”: system 3V-4I **BYTE0 (LSB)** •**00**”: if the active power flows in the normal/indicated direction (“upstream to downstream” or in accordance with the polarity indicated for the connection), “default” •**01**”: if the active power flows in the reverse direction (“downstream to upstream” or vice versa with regard to the polarity indicated for the connection)
(4)	Measurement unit compatible with the magnitude configured to the previous register, multiplied by the reference multiplication factor for that magnitude
(5)	address of the register (absolute value) of the desired magnitude
(6)	**BIT 0** : 1 = The event triggers an alarm, 0 = The event does not trigger the alarm **BIT 1** : 1 = The event generates a Link action, 0 = The event does not generate a Link action **BIT 2** : 0 = alarm activated when value is > of threshold, 1= alarm activated when value is < of threshold
(7)	**BYTE0 (LSB)**: calculation mode •**0**" (”default”): fixed window or “fixed block interval” •**1**": mobile window or “sliding block interval” **BYTE1 (MSB)**: calculation window (value in [sec], 1 to 60, “default”=15)

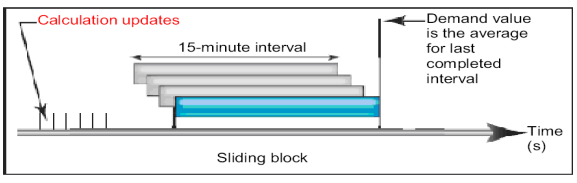
- fixed block interval: the intervals are consecutive; the PMD calculates and updates the demand at the end of each interval;



IEC 1284/07

NOTE 15 min is only an example.

- sliding block interval: the intervals are sliding; the PMD calculates and updates the demand at the sliding speed.



IEC 1285/07

NOTE 15 min is only an example.

[N°5] - 4P + Measure (Three-phase Electrical Measurement Functionality ("PMD I")) - EVOLVED

RETURN TO TABLE OF MAPS

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	Measurement 1 alarm/event			
20481	5001	1	Measurement 2 alarm/event			
20482	5002	1	Measurement 3 alarm/event			
20483	5003	1	Measurement 4 alarm/event			
20484	5004	1	Measurement 5 alarm/event			
20485	5005	1	Measurement 6 alarm/event			
20486	5006	1	Measurement 7 alarm/event			
20487	5007	1	Measurement 8 alarm/event			
20488	5008	1	Measurement 9 alarm/event			
20489	5009	1	Measurement 10 alarm/event			
20490	500A	1	Error on voltage phase sequence			

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	Phase current value 1 (R)	[A]	(2),(4)	
20481	5001	1	Phase 2 current value (S)		(2),(4)	
20482	5002	1	Phase 3 Current Value (T)		(2),(4)	
20483	5003	1	Neutral Current Value		(2),(4)	
20484	5004	1	Earth Current Value		(2)	
20485	5005	9	***not significant***			
20494	500E	1	Voltage 1-N		(2),(4)	
20495	500F	1	Voltage 2-N		(2),(4)	
20496	5010	1	Voltage 3-N		(2),(4)	
20497	5011	1	Voltage 1-2		(2),(4)	
20498	5012	1	Voltage1-3		(2),(4)	
20499	5013	1	Voltage 2-3		(2),(4)	
20500	5014	12	***not significant***			
20512	5020	1	THD Phase 1 (R) vs. fundamental current		(2)	
20513	5021	1	THD Phase 2 (S) vs. fundamental current		(2)	
20514	5022	1	THD Phase 3 (T) vs. fundamental current		(2)	
20515	5023	1	THD Neutral vs. fundamental current		(2)	
20516	5024	1	THD Voltage 1-N vs. fundamental		(2)	
20517	5025	1	THD Voltage 2-N vs. fundamental		(2)	
20518	5026	1	THD Voltage 3-N vs. fundamental		(2)	
20519	5027	3	***not significant***			
20522	502A	1	Three-phase active power		(1),(4)	
20523	502B	1	Three-phase reactive power		(1),(4)	
20524	502C	2	***not significant***			
20526	502E	1	Three-phase Apparent Power		(1),(4)	
20527	502F	1	Three-phase power factor (PF)		(1),(3)	
20528	5030	1	***not significant***			
20529	5031	1	Three-phase Frequency		(1),(3)	
20530	5032	2	***not significant***			
20532	5034	2	Positive Three-phase Active Energy		(2),(4)	x
20534	5036	2	Negative Three-phase Active Energy		(2),(4)	x
20536	5038	2	***not significant***			
20538	503A	2	Positive Three-phase Reactive Energy		(2),(4)	x
20540	503C	2	Negative Three-phase Reactive Energy		(2),(4)	x

20542	503E	2	***not significant***			
20544	5040	1	Phase 1 Active Power (R)		(1),(4)	
20545	5041	1	Phase 2 Active Power (S)		(1),(4)	
20546	5042	1	Phase 3 active power (T)		(1),(4)	
20547	5043	1	Reactive Power phase 1 (R)		(1),(4)	
20548	5044	1	Reactive Power phase 2 (S)		(1),(4)	
20549	5045	1	Reactive Power phase 3 (T)		(1),(4)	
20550	5046	6	***not significant***			
20556	504C	1	Apparent Power Phase 1 (R)		(1),(4)	
20557	504D	1	Apparent Power Phase 2 (S)		(1),(4)	
20558	504E	1	Apparent Power Phase 3 (T)		(1),(4)	
20559	504F	6	***not significant***			
20565	5055	2	Active Energy phase 1 (R) Positive		(2),(4)	x
20567	5057	2	Active Energy phase 2 (S) Positive		(2),(4)	x
20569	5059	2	Active Energy phase 3 (T) Positive		(2),(4)	x
20571	505B	2	Active Energy phase 1 (R) Negative		(2),(4)	x
20573	505D	2	Active Energy phase 2 (S) Negative		(2),(4)	x
20575	505F	2	Active Energy phase 3 (T) Negative		(2),(4)	x
20577	5061	2	Reactive Energy phase 1 (R) Positive		(2),(4)	x
20579	5063	2	Reactive Energy phase 2 (S) Positive		(2),(4)	x
20581	5065	2	Reactive Energy phase 3 (T) Positive		(2),(4)	x
20583	5067	2	Reactive Energy phase 1 (R) Negative		(2),(4)	x
20585	5069	2	Reactive Energy phase 2 (S) Negative		(2),(4)	x
20587	506B	2	Reactive Energy phase 3 (T) Negative		(2),(4)	x
20589	506D	14	***not significant***			
20603	507B	1	harmonic I1 row 3		(2)	x
20604	507C	1	harmonic I2 row 3		(2)	x
20605	507D	1	harmonic I3 row 3		(2)	x
20606	507E	1	harmonic IN row 3		(2)	x
20607	507F	1	harmonic I1 row 5		(2)	x
20608	5080	1	harmonic I2 row 5		(2)	x
20609	5081	1	harmonic I3 row 5		(2)	x
20610	5082	1	harmonic IN row 5		(2)	x
20611	5083	1	harmonic I1 row 7		(2)	x
20612	5084	1	harmonic I2 row 7		(2)	x
20613	5085	1	harmonic I3 row 7		(2)	x
20614	5086	1	harmonic IN row 7		(2)	x
20615	5087	1	harmonic I1 row 9		(2)	x
20616	5088	1	harmonic I2 row 9		(2)	x
20617	5089	1	harmonic I3 row 9		(2)	x
20618	508A	1	harmonic IN row 9		(2)	x
20619	508B	1	harmonic I1 row 11		(2)	x
20620	508C	1	harmonic I2 row 11		(2)	x
20621	508D	1	harmonic I3 row 11		(2)	x
20622	508E	1	harmonic IN row 11		(2)	x
20623	508F	1	harmonic I1 row 13		(2)	x
20624	5090	1	harmonic I2 row 13		(2)	x
20625	5091	1	harmonic I3 row 13		(2)	x
20626	5092	1	harmonic IN row 13		(2)	x
20627	5093	1	harmonic I1 row 15		(2)	x
20628	5094	1	harmonic I2 row 15		(2)	x
20629	5095	1	harmonic I3 row 15		(2)	x
20630	5096	1	harmonic IN row 15		(2)	x
20631	5097	56	***not significant***			
20687	50CF	1	harmonic V1 row 3		(2)	x
20688	50D0	1	harmonic V2 row 3		(2)	x
20689	50D1	1	harmonic V3 row 3		(2)	x
20690	50D2	1	harmonic V1 row 5		(2)	x
20691	50D3	1	harmonic V2 row 5		(2)	x
20692	50D4	1	harmonic V3 row 5		(2)	x

20693	50D5	1	harmonic V1 row 7		(2)	x
20694	50D6	1	harmonic V2 row 7		(2)	x
20695	50D7	1	harmonic V3 row 7		(2)	x
20696	50D8	1	harmonic V1 row 9		(2)	x
20697	50D9	1	harmonic V2 row 9		(2)	x
20698	50DA	1	harmonic V3 row 9		(2)	x
20699	50DB	1	harmonic V1 row 11		(2)	x
20700	50DC	1	harmonic V2 row 11		(2)	x
20701	50DD	1	harmonic V3 row 11		(2)	x
20702	50DE	1	harmonic V1 row 13		(2)	x
20703	50DF	1	harmonic V2 row 13		(2)	x
20704	50E0	1	harmonic V3 row 13		(2)	x
20705	50E1	1	harmonic V1 row 15		(2)	x
20706	50E2	1	harmonic V2 row 15		(2)	x
20707	50E3	1	harmonic V3 row 15		(2)	x

REMARKS:

(1)	Expressed in “numeric coding”; including sign (most significant bit=sign)
(2)	Expressed in “numeric coding”; without sign
(3)	Example: PF=0,85, is expressed as 85 (Measurement unit 1/100)
(4)	the value must be divided by the corresponding multiplying factor indicated in the read and write registers, if the register is not present it must be considered as multiplication factor 1 Example: I1 [A] = Phase 1 Current Value (R) / Current multiplication factor = 1023 / 100 = 10.23A

Read&Write Registers – Modbus Functions 03-06-16

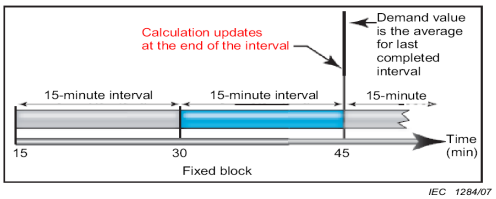
Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	Measurement System Features		(3)	x
20481	5001	6	***not significant***			
20487	5007	1	Voltage multiplication factor		(1)	x
20488	5008	1	Current multiplication factor		(1)	x
20489	5009	1	Total Power multiplication factor		(1)	x
20490	500A	1	Phase Power multiplication factor		(1)	x
20491	500B	1	Total Energy multiplication factor		(1)	x
20492	500C	1	Phase Energy multiplication factor		(1)	x
20493	500D	1	Alarm/event 1 magnitude		(5)	x
20494	500E	2	alarm/event threshold 1		(1),(4)	x
20496	5010	1	Delay alarm/event 1	s	(1)	x
20497	5011	1	Alarm/event 1 hysteresis	0.1%	(1)	x
20498	5012	1	Event type 1		(6)	x
20499	5013	1	Alarm/event 2 magnitude		(5)	x
20500	5014	2	Alarm/event 2 threshold		(1),(4)	x
20502	5016	1	Alarm/event 2 delay	s	(1)	x
20503	5017	1	Alarm/event 2 hysteresis	0.1%	(1)	x
20504	5018	1	Event type 2		(6)	x
20505	5019	1	Alarm/event 3 magnitude		(5)	x
20506	501A	2	Alarm/event 3 threshold		(1),(4)	x
20508	501C	1	Alarm/event 3 delay	s	(1)	x
20509	501D	1	Alarm/event 3 hysteresis	0.1%	(1)	x
20510	501E	1	Event type 3		(6)	x
20511	501F	1	Alarm/event 4 magnitude		(5)	x
20512	5020	2	Alarm/event 4 threshold		(1),(4)	x
20514	5022	1	Alarm/event 4 delay	s	(1)	x
20515	5023	1	Alarm/event 4 hysteresis	0.1%	(1)	x
20516	5024	1	Event type 4		(6)	x
20517	5025	1	Alarm/event 5 magnitude		(5)	x
20518	5026	2	Alarm/event 5 threshold		(1),(4)	x
20520	5028	1	Alarm/event 5 delay	s	(1)	x
20521	5029	1	Alarm/event 5 hysteresis	0.1%	(1)	x
20522	502A	1	Event type 5		(6)	x
20523	502B	1	Alarm/event 6 magnitude		(5)	x
20524	502C	2	threshold alarm/event 6		(1),(4)	x
20526	502E	1	Delay alarm/event 6	s	(1)	x
20527	502F	1	hysteresis alarm/event 6	0.1%	(1)	x
20528	5030	1	Type event 6		(6)	x
20529	5031	1	Magnitude alarm/event 7		(5)	x
20530	5032	2	Alarm/event 7 threshold		(1),(4)	x
20532	5034	1	Alarm/event 7 delay	s	(1)	x
20533	5035	1	Alarm/event 7 hysteresis	0.1%	(1)	x
20534	5036	1	Event 7 type		(6)	x
20535	5037	1	Alarm/event 8 magnitude		(5)	x
20536	5038	2	alarm/event 8 threshold		(1),(4)	x
20538	503A	1	Alarm/event 8 delay	s	(1)	x
20539	503B	1	Alarm/event 8 hysteresis	0.1%	(1)	x
20540	503C	1	Event type 8		(6)	x
20541	503D	1	Alarm/event magnitude 9		(5)	x
20542	503E	2	alarm/event 9 threshold		(1),(4)	x
20544	5040	1	Alarm/event delay 9	s	(1)	x
20545	5041	1	Alarm/event 9 hysteresis	0.1%	(1)	x
20546	5042	1	Event 9 type		(6)	x
20547	5043	1	Alarm/event 10 magnitude		(5)	x
20548	5044	2	Alarm/event 10 threshold		(1),(4)	x

20550	5046	1	Alarm/event 10 delay	s	(1)	x
20551	5047	1	Alarm/event 10 hysteresis	0.1%	(1)	x
20552	5048	1	Event 10 type		(6)	x

REMARKS:

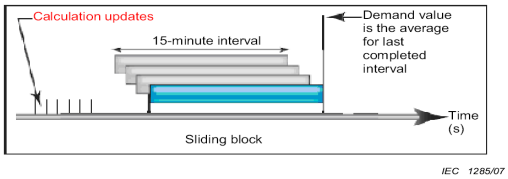
(1)	Expressed in “numeric coding” with sign (most significant bit=sign)
(2)	Expressed in “numeric coding” with sign (always positive value, most significant bit=0)
(3)	**BYTE1 (MSB)** •**11**”: system 1V-1I unipolar •**33**”: system 3V-3I without information on the neutral •**34**”: system 3V-4I **BYTE0 (LSB)** •**00**”: if the active power flows in the normal/indicated direction (“upstream to downstream” or in accordance with the polarity indicated for the connection), “default” •**01**”: if the active power flows in the reverse direction (“downstream to upstream” or vice versa with regard to the polarity indicated for the connection)
(4)	Measurement unit compatible with the magnitude configured to the previous register, multiplied by the reference multiplication factor for that magnitude
(5)	address of the register (absolute value) of the desired magnitude
(6)	**BIT 0** : 1 = The event triggers an alarm, 0 = The event does not trigger the alarm **BIT 1** : 1 = The event generates a Link action, 0 = The event does not generate a Link action **BIT 2** : 0 = alarm activated when value is > of threshold, 1= alarm activated when value is < of threshold
(7)	**BYTE0 (LSB)**: calculation mode •**0**" (”default”): fixed window or “fixed block interval” •**1**": mobile window or “sliding block interval” **BYTE1 (MSB)**: calculation window (value in [sec], 1 to 60, “default”=15)

- fixed block interval: the intervals are consecutive; the PMD calculates and updates the demand at the end of each interval;



NOTE 15 min is only an example.

- sliding block interval: the intervals are sliding; the PMD calculates and updates the demand at the sliding speed.



NOTE 15 min is only an example.

[N°6] - 3P (Three-phase Electrical Measurement Functionality ("PMD I")) - EVOLVED

RETURN TO TABLE OF MAPS

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	Phase current value 1 (R)	[A]	(2),(4)	
20481	5001	1	Phase 2 current value (S)	[A]	(2),(4)	
20482	5002	1	Phase 3 Current Value (T)	[A]	(2),(4)	
20483	5003	1	***not significant***			
20484	5004	1	Earth Current Value	[A]	(2)	

REMARKS:

(1)	Expressed in "numeric coding"; including sign (most significant bit=sign)
(2)	Expressed in "numeric coding"; without sign
(3)	Example: PF=0,85, is expressed as 85 (Measurement unit 1/100)
(4)	the value must be divided by the corresponding multiplying factor indicated in the read and write registers, if the register is not present it must be considered as multiplication factor 1 Example: I1 [A] = Phase 1 Current Value (R) / Current multiplication factor = 1023 / 100 = 10.23A

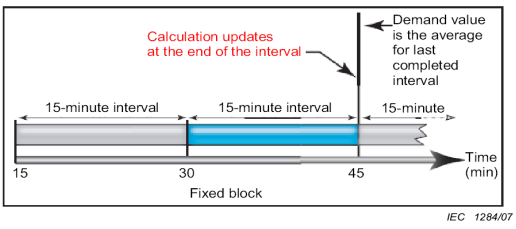
Read&Write Registers – Modbus Functions 03-06-16

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20488	5008	1	Current multiplication factor		(1)	X

REMARKS:

(1)	Expressed in "numeric coding"; including sign (most significant bit=sign)

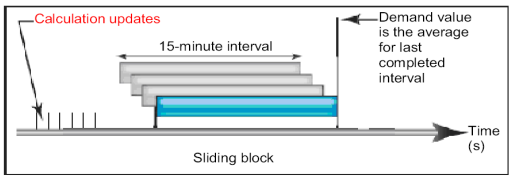
- fixed block interval: the intervals are consecutive; the PMD calculates and updates the demand at the end of each interval;



IEC 1284/07

NOTE 15 min is only an example.

- sliding block interval: the intervals are sliding; the PMD calculates and updates the demand at the sliding speed.



IEC 1285/07

NOTE 15 min is only an example.

[7] - 4P (Three-phase Electrical Measurement Functionality ("PMD I")) - EVOLVED

RETURN TO TABLE OF MAPS

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	Phase current value 1 (R)	[A]	(2),(4)	
20481	5001	1	Phase 2 current value (S)	[A]	(2),(4)	
20482	5002	1	Phase 3 Current Value (T)	[A]	(2),(4)	
20483	5003	1	Neutral Current Value	[A]	(2),(4)	
20484	5004	1	Earth Current Value	[A]	(2)	

REMARKS:

(1)	Expressed in "numeric coding"; including sign (most significant bit=sign)
(2)	Expressed in "numeric coding"; without sign
(3)	Example: PF=0,85, is expressed as 85 (Measurement unit 1/100)
(4)	the value must be divided by the corresponding multiplying factor indicated in the read and write registers, if the register is not present it must be considered as multiplication factor 1 Example: I1 [A] = Phase 1 Current Value (R) / Current multiplication factor = 1023 /

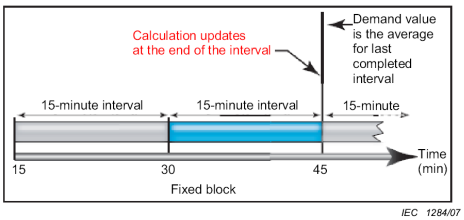
Read&Write Registers – Modbus Functions 03-06-16

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20488	5008	1	Current multiplication factor		(1)	X

REMARKS:

(1)	Expressed in "numeric coding"; including sign (most significant bit=sign)

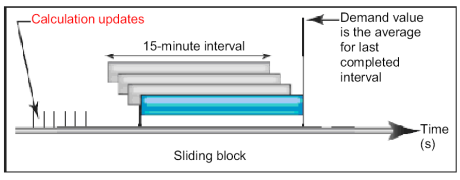
- fixed block interval: the intervals are consecutive; the PMD calculates and updates the demand at the end of each interval;



IEC 1284/07

NOTE 15 min is only an example.

- sliding block interval: the intervals are sliding; the PMD calculates and updates the demand at the sliding speed.



IEC 1285/07

NOTE 15 min is only an example.

[8] - Elect Proct S 3P (Three-phase ("3P+N") Electrical Protection Functionality) - STANDARD

RETURN TO TABLE OF MAPS

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	leasurement uni	Remarks	Maintenance without power supply
29184	7200	1	Overload Prealarm (>threshold I1)		(1)	
29185	7201	1	Overload alarm (>thresholdI2)		(1)	
29186	7202	1	0		(1)	
29187	7203	1	0		(1)	
29188	7204	1	Alarm 1 Overtemperature (>threshold T)		(1)	
29189	7205	1	0		(1)	
29190	7206	1	0		(1)	
29191	7207	1	0		(1)	
29192	7208	1	Alarm 2 Overtemperature (>threshold2)		(1)	
29193	7209	1	Overload Tripped relay P. (no indication of phase)		(2)	x
29194	720A	1	Short-circuit Tripped relay P. (no indications of phase)		(2)	x
29195	720B	1	Device Protection Tripped relay ("III element", no indications of phase)		(2)	x
29196	720C	1	Earth Tripped relay P.		(2)	x
29197	720D	1	Tripped relay P. Overtemperature		(2)	x
29198	720E	1	Phase 1 Overload Tripped relay P.		(2)	x
29199	720F	1	Phase Overload Tripped relay P 2		(2)	x
29200	7210	1	Phase Overload Tripped relay P 3		(2)	x
29201	7211	1	0		(2)	x
29202	7212	1	Tripped relay P. delayable short-circuit phase 1		(2)	x
29203	7213	1	Delayable Short-circuit Tripped relay P phase 2		(2)	x
29204	7214	1	Delayable Short-circuit Tripped relay P. phase 3		(2)	x
29205	7215	1	0		(2)	x
29206	7216	1	Instantaneous Short-circuit Tripped relay phase 1		(2)	x
29207	7217	1	Instantaneous Short-circuit Tripped relay phase 2		(2)	x
29208	7218	1	Instantaneous Short-circuit Tripped relay phase 3		(2)	x
29209	7219	1	0		(2)	x
29210	721A	1	Device Tripped relay protection phase 1("III element")		(2)	x
29211	721B	1	Device Tripped relay protection phase 2 ("III element")		(2)	x
29212	721C	1	Device Tripped relay Protection phase 3 ("III element")		(2)	x
29213	721D	1	0		(2)	x
29214	721E	1	0		(2)	x
29215	721F	1	0		(2)	x
29216	7220	1	0		(2)	x
29217	7221	1	0		(2)	x
29218	7222	1	0		(2)	x
29219	7223	1	0		(2)	x
29220	7224	1	0		(2)	x

29221	7225	1	0		(1)	
29222	7226	1	0		(1)	
29223	7227	1	0		(1)	
29224	7228	1	0		(1)	
29225	7229	1	0		(1)	
29226	722A	1	Deactivated instantaneous Short-circuit Alarm P. (Ii=Icw)		(1)	
29227	722B	1	0		(1)	
29228	722C	1	Deactivated Earth Alarm P.(Ig=OFF)		(1)	
29229	722D	1	0		(1)	
29230	722E	1	Deactivated Overload Alarm P. (only magnetic)		(1)	
29231	722F	1	Alarm P. delayable short-circuit deactivated (Im=10In)		(1)	

REMARKS:

(1)	The information shown here “restores” itself when the condition that has generated it no longer applies
(2)	The information shown here applies even when the condition generating it has disappeared. the "restore" conditions can be (equivalent, alternatively): • The measurement of the Closed Status of the Device • The measurement of a minimum current value on the phases. The Switch Status Functionality is therefore not binding (Example : if the switch is returned to Open => the Tripped relay notification must be kept until the restore condition kicks in).
(3)	It indicates that an anomaly has been detected in the “Dual Setting” settings, in particular one or more levels have been found to be greater than the corresponding “Main Setting”.

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
29194	720A	1	Overload Tripped relay P counter (total) (no indication of phase)			x
29195	720B	1	Delayable Short-circuit Tripped relay P counter (total) (no indications of phase)			x
29196	720C	1	Instantaneous Short-circuit Tripped relay P counter (total) (no indications of phase)			x
29197	720D	1	Device protection Tripped relay counter (total) ("III element", no indications of phase)			x
29198	720E	1	Earth Tripped relay P counter (total)			x
29199	720F	1	Overtemperature Tripped relay P counter (total)			x
29200	7210	10	Last Release Data Buffer		(2),(9)	x
29210	721A	10	Last 20 (most recent) Releases Data Buffer		(2),(9)	x
29220	7224	10	Last 20 Releases Data Buffer		(2),(9)	x
29230	722E	10	Last 20 Releases Data Buffer		(2),(9)	x
29240	7238	10	Last 20 Releases Data Buffer		(2),(9)	x
29250	7242	10	Last 20 Releases Data Buffer		(2),(9)	x

29260	724C	10	Last 20 Releases Data Buffer		(2),(9)	x
29270	7256	10	Last 20 Releases Data Buffer		(2), (9)	x
29280	7260	10	Last 20 Releases Data Buffer		(2),(9)	x
29290	726A	10	Last 20 Releases Data Buffer		(2),(9)	x
29300	7274	10	Last 20 Releases Data Buffer		(2),(9)	x
29310	727E	10	Last 20 Releases Data Buffer		(2),(9)	x
29320	7288	10	Last 20 Releases Data Buffer		(2),(9)	x
29330	7292	10	Last 20 Releases Data Buffer		(2),(9)	x
29340	729C	10	Last 20 Releases Data Buffer		(2),(9)	x
29350	72A6	10	Last 20 Releases Data Buffer		(2),(9)	x
29360	72B0	10	Last 20 Releases Data Buffer		(2),(9)	x
29370	72BA	10	Last 20 Releases Data Buffer		(2),(9)	x
29380	72C4	10	Last 20 Releases Data Buffer		(2),(9)	x
29390	72CE	10	Last 20 releases data buffer		(2),(9)	x
29400	72D8	10	Last 20 releases data buffer (less recent)		(2),(9)	x
29410	72E2	1	G1 ("main setting")- Overload: levels	[A]/[%]	(1),(3)	x
29411	72E3	1	G1 - Overload: Times	[msec]	(1)	x
29412	72E4	1	G1 - Overload: options		(3)	x
29413	72E5	2	G1 - delayable short-circuit: levels	[A]/[%]	(1),(4)	x
29415	72E7	1	G1 - delayable short-circuit: Times	[msec]	(1)	x
29416	72E8	1	G1 - delayable short-circuit: options		(4)	x
29417	72E9	2	G1 - instantaneous short-circuit: levels	[A]/[%]	(1),(5)	x
29419	72EB	1	G1 - instantaneous short-circuit: Times	[msec]	(1)	x
29420	72EC	1	G1 - instantaneous short-circuit: options		(5)	x
29421	72ED	2	G1 - device protection: levels	[A]	(1),(6)	x
29423	72EF	1	G1 - device protection: Times	[msec]	(1)	x
29424	72F0	1	G1 - device protection: options		(6)	x
29425	72F1	1	G1 - earth: levels	[A]/[%]	(1),(7)	x
29426	72F2	1	G1 - earth: times	[msec]	(1)	x
29427	72F3	1	G1 - earth: options		(7)	x
29428	72F4	3	***not significant***			
29431	72F7	1	G1 - overtemperature protection: levels	[°C]	(1)	x

REMARKS:

(1)	Expressed in “numeric coding”
(2)	**DATA BUFFER** Last releases: by reading all the ten words the values are returned in the values indicated below •WORD9 : chronology, “year” (MSB) and “month ” (LSB); it is the word that is returned first of all in the 10 – MSW block. •WORD8: chronology, “day” (MSB) and ”time” (LSB) •WORD7: chronology, “minutes” (MSB) and ”seconds” (LSB) •WORD6 and 5: current interrupted or temperature (“numeric coding” , [mA] or [°C], WORD6 is returned before WORD5) •WORD4:detail of protection settings that has caused the Trip (reply read only register of the of the “levels” type, see note (1)) •WORD3: detail of protection settings that has caused the Trip (reply Read Only register of the “Times” type , see note (1)) •WORD2: detail of protection settings that has caused the Trip (reply Read Only register of the “options” type, see note (3)to(6)) •WORD1: reply Read Only Bit of the “Tripped” type •WORD0: reply Read Only Bit of the “Tripped” type **N.B.:** WORDs FROM 2 to 4 constitute a single datum and must be read and written in a block. The same applies to WORD 5 and 6, for WORD 7-8-9 and for WORD 0-1. WORD 1: •Bit0 Instantaneous short-circuit relay tripped neutral •Bit1 Device Protection Relay Tripped phase 1(“III element”) •Bit2 Device Protection Relay Tripped phase 2 (“III element”) •Bit3 Device Protection Relay Tripped phase 3 (“III element”) •Bit4 Device Protection Relay Tripped neutral (“III element”) •Bit5 Tripped relay in “Main Setting” Mode •Bit6 Tripped relay in “Dual Setting” Mode •Bit7 Tripped relay in “MEM=OFF” Mode on Overload •Bit8 Tripped relay in “I2t=k” mode on delayable short-circuit •Bit 9 Tripped relay in “Logic Selectivity” mode on delayable short-circuit (intervention performed with Tm Delay) •Bit 10 Tripped relay in “Logic Selectivity” Mode on device protection (intervention carried out with with Delay •SEL=High) •Bit 11 Tripped relay in “I2t=k” Mode on earth •Bit 12 Earth leakage Tripped •Bit 13 ND •Bit 14 ND •Bit 15 Test Tripped (if Electronic Test only Bit15, if Earth Lekeage Test Bit15 and Bit12) WORD 0: •Bit0 Overload Tripped relay P. (no indication of phase) •Bit1 Short-circuit Tripped relay P. (no indications of phase) •Bit2 Device Protection Tripped relay (“III element”, no indications of phase) •Bit3 Earth Tripped relay P. •Bit4 Overtemperature Tripped relay P. •Bit5 Overload phase 1 Tripped relay P. •Bit6 Overload phase 2 Tripped relay P. •Bit7 Overload phase 3 Tripped relay P. •Bit8 Overload neutral Tripped relay P. •Bit9 Delayable short-circuit phase 1 Tripped relay P. •Bit10 Delayable short-circuit phase 2 Tripped relay P. •Bit11 Delayable short-circuit phase 3 Tripped relay P. •Bit12 Delayable short-circuit neutral Tripped relay P. •Bit13 Instantaneous short-circuit phase 1 Tripped relay •Bit14 Instantaneous short-circuit Tripped relay phase 2 •Bit15 Instant short-circuit phase 3 Tripped relay

(3)	Overload options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2=I2t=k MEM OFF(001)/I2t=k MEM ON(000)/Not Defined(111) •Bit7 to 5= “0” •Bit15 to 8=work point for curve I2t, multiple of Ir)
(4)	Delayable short-circuit options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%Ir(0) •Bit4 to 2=curve t=k(001)/I2t=k(000)/Not Defined(111) •Bit7 to 5= “0” •Bit15 to 8=work point for curve I2t, multiple of Ir)
(5)	Instantaneous short-circuit options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2=curve t=k(001)/I2t=k(000)/Not Defined(111) •Bit5= absolute val. divided by 10(1)/absolute value(0) •Bit7 to 6= “0” •Bit15 to 8=work point for curve I2t, multiple of In)
(6)	Device Protection options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2= “0” •Bit5= absolute val. divided by 10(1)/absolute value(0)
(7)	Earth Options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2=curve t=k(001)/I2t=k(000)/Not Defined(111) •Bit7 to 5= “0” •Bit15 to 8=work point for curve I2t, multiple of Ig)
(8)	Neutral options •Bit0=disabled(1)/active(0) •Bit1=”0” (%phase) •Bit4 to 2=”0” (curve phase) •Bit7 to 5= “0” •Bit15 to 8=”0”)
(9)	If number of faults < 20, fill the chronology word with 0x0000

[9] - Elect Proct S 4P (Three-phase ("3P+N") Electrical Protection Functionality) - STANDARD

RETURN TO TABLE OF MAPS

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
29184	7200	1	Overload Prealarm (>threshold I1)		(1)	
29185	7201	1	Overload alarm (>thresholdI2)		(1)	
29186	7202	1	0		(1)	
29187	7203	1	0		(1)	
29188	7204	1	Alarm 1 Overtemperature (>threshold T)		(1)	
29189	7205	1	0		(1)	
29190	7206	1	0		(1)	
29191	7207	1	0		(1)	
29192	7208	1	Alarm 2 Overtemperature (>threshold2)		(1)	
29193	7209	1	Overload Tripped relay P. (no indication of phase)		(2)	x
29194	720A	1	Short-circuit Tripped relay P. (no indications of phase)		(2)	x
29195	720B	1	Device Protection Tripped relay ("III element", no indications of phase)		(2)	x
29196	720C	1	Earth Tripped relay P.		(2)	x
29197	720D	1	Tripped relay P. Overtemperature		(2)	x
29198	720E	1	Phase 1 Overload Tripped relay P.		(2)	x
29199	720F	1	Phase Overload Tripped relay P 2		(2)	x
29200	7210	1	Phase Overload Tripped relay P 3		(2)	x
29201	7211	1	Overload Tripped relay P neutral		(2)	x
29202	7212	1	Tripped relay P. delayable short-circuit phase 1		(2)	x
29203	7213	1	Delayable Short-circuit Tripped relay P phase 2		(2)	x
29204	7214	1	Delayable Short-circuit Tripped relay P. phase 3		(2)	x
29205	7215	1	Delayable Short-circuit Tripped relay P neutral		(2)	x
29206	7216	1	Instantaneous Short-circuit Tripped relay phase 1		(2)	x
29207	7217	1	Instantaneous Short-circuit Tripped relay phase 2		(2)	x
29208	7218	1	Instantaneous Short-circuit Tripped relay phase 3		(2)	x
29209	7219	1	Instantaneous Short-circuit Tripped relay P neutral		(2)	x
29210	721A	1	Device Tripped relay protection phase 1("III element")		(2)	x
29211	721B	1	Device Tripped relay protection phase 2 ("III element")		(2)	x
29212	721C	1	Device Tripped relay Protection phase 3 ("III element")		(2)	x
29213	721D	1	Tripped relay device protection neutral("III element")		(2)	x
29214	721E	1	0		(2)	x
29215	721F	1	0		(2)	x
29216	7220	1	0		(2)	x
29217	7221	1	0		(2)	x

29218	7222	1	0		(2)	x
29219	7223	1	0		(2)	x
29220	7224	1	0		(2)	x
29221	7225	1	Deactivated Neutral Protection Alarm (neutral=non protected)		(1)	
29222	7226	1	0		(1)	
29223	7227	1	0		(1)	
29224	7228	1	0		(1)	
29225	7229	1	0		(1)	
29226	722A	1	Deactivated instantaneous Short-circuit Alarm P. (Ii=Icw)		(1)	
29227	722B	1	0		(1)	
29228	722C	1	Deactivated Earth Alarm P.(Ig=OFF)		(1)	
29229	722D	1	0		(1)	
29230	722E	1	Deactivated Overload Alarm P. (only magnetic)		(1)	
29231	722F	1	Alarm P. delayable short-circuit deactivated (Im=10In)			

REMARKS:

(1)	The information shown here “restores” itself when the condition that has generated it no longer applies
(2)	The information shown here applies even when the condition generating it has disappeared. the "restore" conditions can be (equivalent, alternatively): •The measurement of the Closed Status of the Device •The measurement of a minimum current value on the phases. The Switch Status Functionality is therefore not binding (Example : if the switch is returned to Open => the Tripped relay notification must be kept until the restore condition kicks in).
(3)	It indicates that an anomaly has been detected in the “Dual Setting” settings, in particular one or more levels have been found to be greater than the corresponding “Main Setting”.

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
29194	720A	1	Overload Tripped relay P counter (total) (no indication of phase)			x
29195	720B	1	Delayable Short-circuit Tripped relay P counter (total) (no indications of phase)			x
29196	720C	1	Instantaneous Short-circuit Tripped relay P counter (total) (no indications of phase)			x
29197	720D	1	Device protection Tripped relay counter (total) ("III element", no indications of phase)			x
29198	720E	1	Earth Tripped relay P counter (total)			x
29199	720F	1	Overtemperature Tripped relay P counter (total)			x
29200	7210	10	Last Release Data Buffer		(2),(9)	x
29210	721A	10	Last 20 (most recent) Releases Data Buffer		(2),(9)	x
29220	7224	10	Last 20 Releases Data Buffer		(2),(9)	x
29230	722E	10	Last 20 Releases Data Buffer		(2),(9)	x
29240	7238	10	Last 20 Releases Data Buffer		(2),(9)	x

29250	7242	10	Last 20 Releases Data Buffer		(2),(9)	x
29260	724C	10	Last 20 Releases Data Buffer		(2),(9)	x
29270	7256	10	Last 20 Releases Data Buffer		(2),(9)	x
29280	7260	10	Last 20 Releases Data Buffer		(2),(9)	x
29290	726A	10	Last 20 Releases Data Buffer		(2),(9)	x
29300	7274	10	Last 20 Releases Data Buffer		(2),(9)	x
29310	727E	10	Last 20 Releases Data Buffer		(2),(9)	x
29320	7288	10	Last 20 Releases Data Buffer		(2),(9)	x
29330	7292	10	Last 20 Releases Data Buffer		(2),(9)	x
29340	729C	10	Last 20 Releases Data Buffer		(2),(9)	x
29350	72A6	10	Last 20 Releases Data Buffer		(2),(9)	x
29360	72B0	10	Last 20 Releases Data Buffer		(2),(9)	x
29370	72BA	10	Last 20 Releases Data Buffer		(2),(9)	x
29380	72C4	10	Last 20 Releases Data Buffer		(2),(9)	x
29390	72CE	10	Last 20 releases data buffer		(2),(9)	x
29400	72D8	10	Last 20 releases data buffer (less recent)		(2),(9)	x
29410	72E2	1	G1 ("main setting")- Overload: levels	[A]/[%]	(1),(3)	x
29411	72E3	1	G1 - Overload: Times	[msec]	(1)	x
29412	72E4	1	G1 - Overload: options		(3)	x
29413	72E5	2	G1 - delayable short-circuit: levels	[A]/[%]	(1),(4)	x
29415	72E7	1	G1 - delayable short-circuit: Times	[msec]	(1)	x
29416	72E8	1	G1 - delayable short-circuit: options		(4)	x
29417	72E9	2	G1 - instantaneous short-circuit: levels	[A]/[%]	(1),(5)	x
29419	72EB	1	G1 - instantaneous short-circuit: Times	[msec]	(1)	x
29420	72EC	1	G1 - instantaneous short-circuit: options		(5)	x
29421	72ED	2	G1 - device protection: levels	[A]	(1),(6)	x
29423	72EF	1	G1 - device protection: Times	[msec]	(1)	x
29424	72F0	1	G1 - device protection: options		(6)	x
29425	72F1	1	G1 - earth: levels	[A]/[%]	(1),(7)	x
29426	72F2	1	G1 - earth: times	[msec]	(1)	x
29427	72F3	1	G1 - earth: options		(7)	x
29428	72F4	1	G1 - neutral protection: levels	[%]	(1),(8)	x
29429	72F5	1	***not significant***			
29430	72F6	1	G1 - neutral protection: options		(8)	x
29431	72F7	1	G1 - overtemperature protection: levels	[°C]	(1)	x

REMARKS:

(1)	Expressed in “numeric coding”
(2)	**DATA BUFFER** Last releases: by reading all the ten words the values are returned in the values indicated below •WORD9 : chronology, “year” (MSB) and “month ” (LSB); it is the word that is returned first of all in the 10 – MSW block. •WORD8: chronology, “day” (MSB) and ”time” (LSB) •WORD7: chronology, “minutes” (MSB) and ”seconds” (LSB) •WORD6 and 5: current interrupted or temperature (“numeric coding” , [mA] or [°C], WORD6 is returned before WORD5) •WORD4:detail of protection settings that has caused the Trip (reply read only register of the of the “levels” type, see note (1)) •WORD3: detail of protection settings that has caused the Trip (reply Read Only register of the “Times” type , see note (1)) •WORD2: detail of protection settings that has caused the Trip (reply Read Only register of the “options” type, see note (3)to(6)) •WORD1: reply Read Only Bit of the “Tripped” type •WORD0: reply Read Only Bit of the “Tripped” type **N.B.:** WORDs FROM 2 to 4 constitute a single datum and must be read and written in a block. The same applies to WORD 5 and 6, for WORD 7-8-9 and for WORD 0-1. WORD 1: •Bit0 Instantaneous short-circuit relay tripped neutral •Bit1 Device Protection Relay Tripped phase 1(“III element”) •Bit2 Device Protection Relay Tripped phase 2 (“III element”) •Bit3 Device Protection Relay Tripped phase 3 (“III element”) •Bit4 Device Protection Relay Tripped neutral (“III element”) •Bit5 Tripped relay in “Main Setting” Mode •Bit6 Tripped relay in “Dual Setting” Mode •Bit7 Tripped relay in “MEM=OFF” Mode on Overload •Bit8 Tripped relay in “I2t=k” mode on delayable short-circuit •Bit 9 Tripped relay in “Logic Selectivity” mode on delayable short-circuit (intervention performed with Tm Delay) •Bit 10 Tripped relay in “Logic Selectivity” Mode on device protection (intervention carried out with with Delay •SEL=High) •Bit 11 Tripped relay in “I2t=k” Mode on earth •Bit 12 Earth leakage Tripped •Bit 13 ND •Bit 14 ND •Bit 15 Test Tripped (if Electronic Test only Bit15, if Earth Lekeage Test Bit15 and Bit12) WORD 0: •Bit0 Overload Tripped relay P. (no indication of phase) •Bit1 Short-circuit Tripped relay P. (no indications of phase) •Bit2 Device Protection Tripped relay (“III element”, no indications of phase) •Bit3 Earth Tripped relay P. •Bit4 Overtemperature Tripped relay P. •Bit5 Overload phase 1 Tripped relay P. •Bit6 Overload phase 2 Tripped relay P. •Bit7 Overload phase 3 Tripped relay P. •Bit8 Overload neutral Tripped relay P. •Bit9 Delayable short-circuit phase 1 Tripped relay P. •Bit10 Delayable short-circuit phase 2 Tripped relay P. •Bit11 Delayable short-circuit phase 3 Tripped relay P. •Bit12 Delayable short-circuit neutral Tripped relay P. •Bit13 Instantaneous short-circuit phase 1 Tripped relay •Bit14 Instantaneous short-circuit Tripped relay phase 2 •Bit15 Instant short-circuit phase 3 Tripped relay

(3)	Overload options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2=I2t=k MEM OFF(001)/I2t=k MEM ON(000)/Not Defined(111) •Bit7 to 5= “0” •Bit15 to 8=work point for curve I2t, multiple of Ir)
(4)	Delayable short-circuit options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%Ir(0) •Bit4 to 2=curve t=k(001)/I2t=k(000)/Not Defined(111) •Bit7 to 5= “0” •Bit15 to 8=work point for curve I2t, multiple of Ir)
(5)	Instantaneous short-circuit options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2=curve t=k(001)/I2t=k(000)/Not Defined(111) •Bit5= absolute val. divided by 10(1)/absolute value(0) •Bit7 to 6= “0” •Bit15 to 8=work point for curve I2t, multiple of In)
(6)	Device Protection options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2= “0” •Bit5= absolute val. divided by 10(1)/absolute value(0)
(7)	Earth Options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2=curve t=k(001)/I2t=k(000)/Not Defined(111) •Bit7 to 5= “0” •Bit15 to 8=work point for curve I2t, multiple of Ig)
(8)	Neutral options •Bit0=disabled(1)/active(0) •Bit1=”0” (%phase) •Bit4 to 2=”0” (curve phase) •Bit7 to 5= “0” •Bit15 to 8=”0”)
(9)	If number of faults < 20, fill the chronology word with 0x0000

[10] - Thermal Measurement (Single Channel Thermal Measurement Functionality ("from IC Probe") - BASE

RETURN TO TABLE OF MAPS

Read Only Bit - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
32768	8000	1	Sensor 1 temperature value	[°C]	(1)	

REMARKS:

(1)	Expressed in "numeric coding"

"MOLDED CASE CIRCUIT BREAKER 630/1600" MAPS AND COMMANDS

Revision of Support maps and Commands

REVISION: 1.0.0
DATE: 04/07/2022

Revision of Support maps and Commands for MCCB 630/1600 devices

- DPX^3 630 S10 / Megatiker M4 with configurable protection unit

REVISION: 1.0.1
DATE: 01/09/2023

- DPX^3 1600 S10 / Megatiker M5 with configurable protection unit

REVISION: 1.0.3
DATE: 01/09/2023

Product involved:

- DPX^3 630/1600 S10

- Megatiker M4/M5 with configurable protection unit

Products associated:

PRODUCT ITEMS	DESCRIPTION	OBJECT CODE
Legrand: 422820; 422821; 422822; 422823; 422824; 422825; 422826; 422827; 422828; 422829; 422830; 422831; 422832; 422833; 422834; 422835; 422836; 422837; 422838; 422839; 422840; 422841; 422842; 422843; 422844; 422845; 422846; 422847; 422848; 422849; 422850; 422851; 422852; 422853; 422854; 422855; 422856; 422857; 422858; 422859 Bticino: T743F250E10; T743F320E10; T743F400E10; T743F500E10; T743F630E10; T744F250E10; T744F320E10; T744F400E10; T744F500E10; T744F630E10; T743N250E10; T743N320E10; T743N400E10; T743N500E10; T743N630E10; T744N250E10; T744N320E10; T744N400E10; T744N500E10; T744N630E10; T743H250E10; T743H320E10; T743H400E10; T743H500E10; T743H630E10; T744H250E10; T744H320E10; T744H400E10; T744H500E10; T744H630E10; T743L250E10; T743L320E10; T743L400E10; T743L500E10; T743L630E10; T744L250E10; T744L320E10; T744L400E10; T744L500E10; T744L630E10	Legrand: all circuit breakers DPX^3 630 with selective electronic S10, and earth fault protection Bticino: all Megatiker M4 with configurable protection unit	0x1209

Legrand: 422860; 422861; 422862; 422863; 422864; 422865; 422866; 422867; 422868; 422869; 422870; 422871; 422872; 422873; 422874; 422875; 422876; 422877; 422878; 422879; 422880; 422881; 422882; 422883; 422884; 422885; 422886; 422887; 422888; 422889; 422890; 422891; 422892; 422893; 422894; 422895; 422896; 422897; 422898; 422899 Bticino: T743F250M10; T743F320M10; T743F400M10; T743F500M10; T743F630M10; T744F250M10; T744F320M10; T744F400M10; T744F500M10; T744F630M10; T743N250M10; T743N320M10; T743N400M10; T743N500M10; T743N630M10; T744N250M10; T744N320M10; T744N400M10; T744N500M10; T744N630M10; T743H250M10; T743H320M10; T743H400M10; T743H500M10; T743H630M10; T744H250M10; T744H320M10; T744H400M10; T744H500M10; T744H630M10; T743L250M10; T743L320M10; T743L400M10; T743L500M10; T743L630M10; T744L250M10; T744L320M10; T744L400M10; T744L500M10; T744L630M10	Legrand: all circuit breakers DPX^3 630 with selective electronic S10, and earth fault protection and measurement function Bticino: all Megatiker M4 with configurable protection unit and measurement function	0x120A
Legrand: 422920; 422921; 422922; 422923; 422924; 422925; 422926; 422927; 422928; 422929; 422930; 422931; 422932; 422933; 422934; 422935; 422936; 422937; 422938; 422939; 422940; 422941; 422942; 422943; 422944; 422945; 422946; 422947; 422948; 422949; 422950; 422951; 422952; 422953; 422955; 422956; 422957; 422958; 422900; 422901; 422902; 422903; 422904; 422905; 422906; 422907 Bticino: T753F630E10; T753F800E10; T753F1000E10; T753F1250E10; T753F1600E10; T754F630E10; T754F800E10; T754F1000E10; T754F1250E10; T754F1600E10; T753N630E10; T753N800E10; T753N1000E10; T753N1250E10; T753N1600E10; T754N630E10; T754N800E10; T754N1000E10; T754N1250E10; T754N1600E10; T753H630E10; T753H800E10; T753H1000E10; T753H1250E10; T753H1600E10; T754H630E10; T754H800E10; T754H1000E10; T754H1250E10; T754H1600E10; T753L630E10; T753L800E10; T753L1000E10; T753L1250E10; T754L630E10; T754L800E10; T754L1000E10; T754L1250E10; T753F500E10; T754F500E10; T753N500E10; T754N500E10; T753H500E10; T754H500E10; T753L500E10; T754L500E10	Legrand: all circuit breakers DPX^3 1600 with selective electronic S10, and earth fault protection Bticino: all Megatiker M5 with configurable protection unit	0x1109
Legrand: 422960; 422961; 422962; 422963; 422964; 422965; 422966; 422967; 422968; 422969; 422970; 422971; 422972; 422973; 422974; 422975; 422976; 422977; 422978; 422979; 422980; 422981; 422982; 422983; 422984; 422985; 422986; 422987; 422988; 422989; 422990; 422991; 422992; 422993; 422995; 422996; 422997; 422998; 422908; 422909; 422910; 422911; 422912; 422913; 422914; 422915 Bticino: T753F630M10; T753F800M10; T753F1000M10; T753F1250M10; T753F1600M10; T754F630M10; T754F800M10; T754F1000M10; T754F1250M10; T754F1600M10; T753N630M10; T753N800M10; T753N1000M10; T753N1250M10; T753N1600M10; T754N630M10; T754N800M10; T754N1000M10; T754N1250M10; T754N1600M10; T753H630M10; T753H800M10; T753H1000M10; T753H1250M10; T753H1600M10; T754H630M10; T754H800M10; T754H1000M10; T754H1250M10; T754H1600M10; T753L630M10; T753L800M10; T753L1000M10; T753L1250M10; T754L630M10; T754L800M10; T754L1000M10; T754L1250M10; T753F500M10; T754F500M10; T753N500M10; T754N500M10; T753H500M10; T754H500M10; T753L500M10; T754L500M10	Legrand: all circuit breakers DPX^3 1600 with selective electronic S10, and earth fault protection and measurement function Bticino: all Megatiker M5 with configurable protection unit and measurement function	0x110A

Standard function codes

COMMUNICATION CHANNEL → / COMMANDS ↓	EMS	USB	REMARKS
Read discrete inputs **(0x02)**	x	x	
Read holding register **(0x03)**	x	x	
Read input register **(0x04)**	x	x	
Write multiple coils **(0x0F)**	x	x	

Possible maps per configurations

OBJECT CODE →		0x1209 / 0x1109		0x120A / 0x110A	
CONFIGURATION →		3 poles	4 poles	3 poles	4 poles
MAP↓	N°				
Switch Status	[1]*	X	X	X	X
Elect Proct S 3P	[2]*	X		X	
3P	[3]*	X			
Elect Proct S 4P	[4]*		X		X
4P	[5]*		X		
3P + Measure	[6]*			X	
4P + Measure	[7]*				X
Thermal Measurement	[8]*	X	X	X	X

**** Maps from [1] to [8] are identical to the corresponding ones for DPX^3 250HP / Megatiker M3 250. However, for easy of consultation, they are listed here also.***

Map lists

[N°1] - Switch Status (switch Status Functionality) - BASE

RETURN TO TABLE OF MAPS

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
16384	4000	1	Open		(1)	
16385	4001	1	Closed		(1)	
16386	4002	1	Single tripped switch/ Tripped group of switches		(1),(2)	
16387	4003	1	0		(1)	
16388	4004	1	0		(1)	

REMARKS:

(1)	the information shown here “autorestores” when the condition that has generated it is lost (E.G.: TRIPPED is the faithful response of the device's mechanical contact Where there is a MAN/AUT operating mode selector switch, this notification can only persist if MAN is set);
(5)	if this functionality is used in switch group tripped mode (panel tripped), the bit contains the OR of the tripped of the switches belonging to the group.

Read & Write Bit - Modbus Functions 01-05-15

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
16384	4000	1	0			X

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
16384	4000	1	***not significant***			
16385	4001	1	Intervention Meter (total, cannot be reset at zero by the customer)			x
16386	4002	1	Maximum Manoeuvre Number (cannot be configured by the customer)			x
16387	4003	1	Switch Features – Rated current	[A]	(1)	x
16388	4004	1	Switch features – Type/Poles		(2)	x
16389	4005	1	Switch features – Breaking capacity	[kA]/100	(3)	x

REMARKS:

(1)	RATED CURRENT (numeric coding, [A])
(2)	TYPE/POLES • MSB – DEVICE TYPE bit 0=insulator (0)/int. Automatic (1), bit 1=repulsive switch (0)/ not repulsive switch (1) bit 7-2="0" • LSB – POLES bit 0 to 3: Number of poles: numeric value (1 to 4) bit 4 Neutral position (left(1)/right(0)) bit 5 :Neutral external (1) (only 3 poles) bit 7-6= "0"
(3)	BREAKING CAPACITY: (numeric coding, [kA/100]. Example: 4,5kA is coded in "hundredths of kA", therefore 4.5 becomes 450)

Read&Write Registers – Modbus Functions 03-06-16

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
16384	4000	1	***not significant***			

REMARKS:

(1)	bit 0: Open Status active high = 0, input active low = 1 (default = 0) bit 1: Closed Status active high = 0, input active low = 1 (default = 0) bit 2: Tripped Status active high = 0, input active low = 1 (default = 0) bit 3: Alarm on Status Open active = 1, deactivated = 0 (default = 0) bit 4: Alarm on Status Closed active = 1, deactivated = 0 (default = 0) bit 5: Alarm on Tripped Status active = 1, deactivated = 0 (default = 1) bit 15-6 : Not used

[N°2] - Elect Proct S 3P

RETURN TO TABLE OF MAPS

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
29184	7200	1	Overload Prealarm (>threshold I1)		(1)	
29185	7201	1	Overload alarm (>thresholdI2)		(1)	
29186	7202	1	0		(1)	
29187	7203	1	0		(1)	
29188	7204	1	Alarm 1 Overtemperature (>threshold T)		(1)	
29189	7205	1	0		(1)	
29190	7206	1	0		(1)	
29191	7207	1	0		(1)	
29192	7208	1	0		(1)	
29193	7209	1	Overload Tripped relay P. (no indication of phase)		(2)	x
29194	720A	1	Short-circuit Tripped relay P. (no indications of phase)		(2)	x
29195	720B	1	Device Protection Tripped relay (“III element”, no indications of phase)		(2)	x
29196	720C	1	Earth Tripped relay P.		(2)	x
29197	720D	1	Tripped relay P. Overtemperature		(2)	x
29198	720E	1	0		(2)	x
29199	720F	1	0		(2)	x
29200	7210	1	0		(2)	x
29201	7211	1	0		(2)	x
29202	7212	1	0		(2)	x
29203	7213	1	0		(2)	x
29204	7214	1	0		(2)	x
29205	7215	1	0		(2)	x
29206	7216	1	0		(2)	x
29207	7217	1	0		(2)	x
29208	7218	1	0		(2)	x
29209	7219	1	0		(2)	x
29210	721A	1	0		(2)	x
29211	721B	1	0		(2)	x
29212	721C	1	0		(2)	x
29213	721D	1	0		(2)	x
29214	721E	1	0		(2)	x
29215	721F	1	0		(2)	x
29216	7220	1	0		(2)	x
29217	7221	1	0		(2)	x
29218	7222	1	0		(2)	x
29219	7223	1	0		(2)	x
29220	7224	1	0		(2)	x
29221	7225	1	0		(1)	
29222	7226	1	0		(1)	
29223	7227	1	0		(1)	
29224	7228	1	0		(1)	
29225	7229	1	0		(1)	
29226	722A	1	0		(1)	
29227	722B	1	0		(1)	
29228	722C	1	0		(1)	
29229	722D	1	0		(1)	
29230	722E	1	0		(1)	
29231	722F	1	0		(1)	
29232	7230	1	0		(3)	

REMARKS:

(1)	The information shown here “restores” itself when the condition that has generated it no longer applies
(2)	The information shown here applies even when the condition generating it has disappeared. the "restore" conditions can be (equivalent, alternatively): • the measurement of the Closed Status of the Device • the measurement of a minimum current value on the phases. The Switch Status Functionality is therefore not binding (Example : if the switch is returned to Open => the Tripped relay notification must be kept until the restore condition kicks in).
(3)	It indicates that an anomaly has been detected in the “Dual Setting” settings, in particular one or more levels have been found to be greater than the corresponding “Main Setting”.

Read & Write Bit - Modbus Functions 01-05-15

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
29184	7200	1	0			
29185	7201	1	0			

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
29184	7200	10	***not significant***			
29194	720A	1	Overload Tripped relay P counter (total) (no indication of phase)			x
29195	720B	1	Delayable Short-circuit Tripped relay P counter (total) (no indications of phase)			x
29196	720C	1	Instantaneous Short-circuit Tripped relay P counter (total) (no indications of phase)			x
29197	720D	1	Device protection Tripped relay counter (total) ("III element", no indications of phase)			x
29198	720E	1	Earth Tripped relay P counter (total)			x
29199	720F	1	Overtemperature Tripped relay P counter (total)			x
29200	7210	10	Last Release Data Buffer		(2), (9)	x
29210	721A	10	Last 20 (most recent) Releases Data Buffer		(2), (9)	x
29220	7224	10	Last 20 Releases Data Buffer		(2), (9)	x
29230	722E	10	Last 20 Releases Data Buffer		(2), (9)	x
29240	7238	10	Last 20 Releases Data Buffer		(2), (9)	x
29250	7242	10	Last 20 Releases Data Buffer		(2), (9)	x
29260	724C	10	Last 20 Releases Data Buffer		(2), (9)	x
29270	7256	10	Last 20 Releases Data Buffer		(2), (9)	x
29280	7260	10	Last 20 Releases Data Buffer		(2), (9)	x
29290	726A	10	Last 20 Releases Data Buffer		(2), (9)	x

29300	7274	10	Last 20 Releases Data Buffer		(2), (9)	x
29310	727E	100	***not significant***			
29410	72E2	1	G1 ("main setting")- Overload: levels	[A]/[%]	(1), (3)	x
29411	72E3	1	G1 - Overload: Times	[msec]	(1)	x
29412	72E4	1	G1 - Overload: options		(3)	x
29413	72E5	2	G1 - delayable short-circuit: levels	[A]/[%]	(1), (4)	x
29415	72E7	1	G1 - delayable short-circuit: Times	[msec]	(1)	x
29416	72E8	1	G1 - delayable short-circuit: options		(4)	x
29417	72E9	2	G1 - instantaneous short-circuit: levels	[A]/[%]	(1), (5)	x
29419	72EB	1	G1 - instantaneous short-circuit: Times	[msec]	(1)	x
29420	72EC	1	G1 - instantaneous short-circuit: options		(5)	x
29421	72ED	2	G1 - device protection: levels	[A]	(1), (6)	x
29423	72EF	1	G1 - device protection: Times	[msec]	(1)	x
29424	72F0	1	G1 - device protection: options		(6)	x
29425	72F1	1	G1 - earth: levels	[A]/[%]	(1), (7)	x
29426	72F2	1	G1 - earth: times	[msec]	(1)	x
29427	72F3	1	G1 - earth: options		(7)	x
29428	72F4	3	***not significant***			
29431	72F7	1	G1 - overtemperature protection: levels	[°C]	(1)	x
29432	72F8	11	***not significant***			

REMARKS:

(1)	Expressed in “numeric coding”
	DATA BUFFER Last releases: by reading all the ten words the values are returned in the values indicated below •WORD9 : chronology, “year” (MSB) and “month ” (LSB); it is the word that is returned first of all in the 10 – MSW block. •WORD8: chronology, “day” (MSB) and ”time” (LSB) •WORD7: chronology, “minutes” (MSB) and ”seconds” (LSB) •WORD6 and 5: current interrupted or temperature (“numeric coding” , [mA] or [°C], WORD6 is returned before WORD5) •WORD4:detail of protection settings that has caused the Trip (reply read only register of the of the “levels” type, see note (1)) •WORD3: detail of protection settings that has caused the Trip (reply Read Only register of the “Times” type , see note (1)) •WORD2: detail of protection settings that has caused the Trip (reply Read Only register of the “options” type, see note (3)to(6)) •WORD1: reply Read Only Bit of the “Tripped” type •WORD0: reply Read Only Bit of the “Tripped” type N.B.: WORDs FROM 2 to 4 constitute a single datum and must be read and written in a block. The same applies to WORD 5 and 6, for WORD 7-8-9 and for WORD 0-1. WORD 1: •Bit0 Instantaneous short-circuit relay tripped neutral •Bit1 Device Protection Relay Tripped phase 1(“III element”)

(2)	•Bit1 Device Protection Relay Tripped phase 1("III element") •Bit2 Device Protection Relay Tripped phase 2 ("III element") •Bit3 Device Protection Relay Tripped phase 3 ("III element") •Bit4 Device Protection Relay Tripped neutral ("III element") •Bit5 Tripped relay in "Main Setting" Mode •Bit6 Tripped relay in "Dual Setting" Mode •Bit7 Tripped relay in "MEM=OFF" Mode on Overload •Bit8 Tripped relay in "I2t=k" mode on delayable short-circuit •Bit 9 Tripped relay in "Logic Selectivity" mode on delayable short-circuit (intervention performed with Tm Delay) •Bit 10 Tripped relay in "Logic Selectivity" Mode on device protection (intervention carried out with with Delay •SEL=High) •Bit 11 Tripped relay in "I2t=k" Mode on earth •Bit 12 Earth leakage Tripped •Bit 13 ND •Bit 14 ND •Bit 15 Test Tripped (if Electronic Test only Bit15, if Earth Lekeage Test Bit15 and Bit12) WORD 0: •Bit0 Overload Tripped relay P. (no indication of phase) •Bit1 Short-circuit Tripped relay P. (no indications of phase) •Bit2 Device Protection Tripped relay ("III element", no indications of phase) •Bit3 Earth Tripped relay P. •Bit4 Overtemperature Tripped relay P. •Bit5 Overload phase 1 Tripped relay P. •Bit6 Overload phase 2 Tripped relay P. •Bit7 Overload phase 3 Tripped relay P. •Bit8 Overload neutral Tripped relay P. •Bit9 Delayable short-circuit phase 1 Tripped relay P. •Bit10 Delayable short-circuit phase 2 Tripped relay P. •Bit11 Delayable short-circuit phase 3 Tripped relay P. •Bit12 Delayable short-circuit neutral Tripped relay P. •Bit13 Instantaneous short-circuit phase 1 Tripped relay •Bit14 Instantaneous short-circuit Tripped relay phase 2 •Bit15 Instant short-circuit phase 3 Tripped relay
(3)	Overload options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2=I2t=k MEM OFF(001)/I2t=k MEM ON(000)/Not Defined(111) •Bit7 to 5= "0" •Bit15 to 8=work point for curve I2t, multiple of Ir)
(4)	Delayable short-circuit options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%Ir(0) •Bit4 to 2=curve t=k(001)/I2t=k(000)/Not Defined(111) •Bit7 to 5= "0" •Bit15 to 8=work point for curve I2t, multiple of Ir)
(5)	Instantaneous short-circuit options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2=curve t=k(001)/I2t=k(000)/Not Defined(111) •Bit5= absolute val. divided by 10(1)/absolute value(0) •Bit7 to 6= "0" •Bit15 to 8=work point for curve I2t, multiple of In)

(6)	Device Protection options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2= "0" •Bit5= absolute val. divided by 10(1)/absolute value(0)
(7)	Earth Options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2=curve t=k(001)/I2t=k(000)/Not Defined(111) •Bit7 to 5= "0" •Bit15 to 8=work point for curve I2t, multiple of Ig)
(8)	Neutral options •Bit0=disabled(1)/active(0) •Bit1="0" (%phase) •Bit4 to 2="0" (curve phase) •Bit7 to 5= "0" •Bit15 to 8="0")
(9)	If number of faults < 20, fill the chronology word with 0x0000

Read&Write Registers – Modbus Functions 03-06-16

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
29184	7200	1	***not significant***			

REMARKS:

(1)	"Dual Setting" Command Configuration •Bit10 to 0=activation time ("default"=60 sec, "0"=infinite) •Bit11 to 15="0"

[N°3] - 3P - EVOLVED

RETURN TO TABLE OF MAPS

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	0			
20481	5001	1	0			
20482	5002	1	0			
20483	5003	1	0			
20484	5004	1	0			
20485	5005	1	0			
20486	5006	1	0			
20487	5007	1	0			
20488	5008	1	0			
20489	5009	1	0			
20490	500A	1	0			

Read & Write Bit - Modbus Functions 01-05-15

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	0			
20481	5001	1	0			

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	Phase current value 1 (R)	[A]	(2),(4)	
20481	5001	1	Phase 2 current value (S)	[A]	(2),(4)	
20482	5002	1	Phase 3 Current Value (T)	[A]	(2),(4)	
20483	5003	1	***not significant***			
20484	5004	1	Earth Current Value	[A]	(2)	
20485	5005	238	***not significant***			

REMARKS:

(1)	Expressed in “numeric coding”; including sign (most significant bit=sign)
(5)	Expressed in “numeric coding”; without sign
(3)	Example: PF=0,85, is expressed as 85 (Measurement unit 1/100)
(4)	the value must be divided by the corresponding multiplying factor indicated in the read and write registers, if the register is not present it must be considered as multiplication factor 1 Example: I1 [A] = Phase 1 Current Value (R) / Current multiplication factor = 1023 / 100 = 10.23A

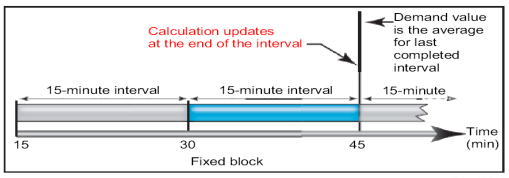
Read&Write Registers – Modbus Functions 03-06-16

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	8	***not significant***			
20488	5008	1	Current multiplication factor		(1)	x
20489	5009	102	***not significant***			

REMARKS:

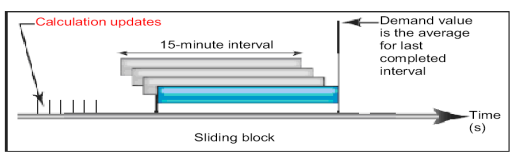
(1)	Expressed in “numeric coding” with sign (most significant bit=sign)
(2)	Expressed in “numeric coding” with sign (always positive value, most significant bit=0)
(3)	**BYTE1 (MSB)** •**11**”: system 1V-1I unipolar •**33**”: system 3V-3I without information on the neutral •**34**”: system 3V-4I **BYTE0 (LSB)** •**00**”: if the active power flows in the normal/indicated direction (“upstream to downstream” or in accordance with the polarity indicated for the connection), “default” •**01**”: if the active power flows in the reverse direction (“downstream to upstream” or vice versa with regard to the polarity indicated for the connection)
(4)	Measurement unit compatible with the magnitude configured to the previous register, multiplied by the reference multiplication factor for that magnitude
(5)	address of the register (absolute value) of the desired magnitude
(6)	**BIT 0** : 1 = The event triggers an alarm, 0 = The event does not trigger the alarm **BIT 1** : 1 = The event generates a Link action, 0 = The event does not generate a Link action **BIT 2** : 0 = alarm activated when value is > of threshold, 1= alarm activated when value is < of threshold
(7)	**BYTE0 (LSB)**: calculation mode •0" (”default”): fixed window or “fixed block interval” •1": mobile window or “sliding block interval” **BYTE1 (MSB)**: calculation window (value in [sec], 1 to 60, “default”=15)

- fixed block interval: the intervals are consecutive; the PMD calculates and updates the demand at the end of each interval;



NOTE 15 min is only an example.

- sliding block interval: the intervals are sliding; the PMD calculates and updates the demand at the sliding speed.



NOTE 15 min is only an example.

[N°4] - Elect Proct S 4P - STANDARD

RETURN TO TABLE OF MAPS

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
29184	7200	1	Overload Prealarm (>threshold I1)		(1)	
29185	7201	1	Overload alarm (>thresholdI2)		(1)	
29186	7202	1	0		(1)	
29187	7203	1	0		(1)	
29188	7204	1	Alarm 1 Overtemperature (>threshold T)		(1)	
29189	7205	1	0		(1)	
29190	7206	1	0		(1)	
29191	7207	1	0		(1)	
29192	7208	1	0		(1)	
29193	7209	1	Overload Tripped relay P. (no indication of phase)		(2)	x
29194	720A	1	Short-circuit Tripped relay P. (no indications of phase)		(2)	x
29195	720B	1	Device Protection Tripped relay (“III element”, no indications of phase)		(2)	x
29196	720C	1	Earth Tripped relay P.		(2)	x
29197	720D	1	Tripped relay P. Overtemperature		(2)	x
29198	720E	1	0		(2)	x
29199	720F	1	0		(2)	x
29200	7210	1	0		(2)	x
29201	7211	1	0		(2)	x
29202	7212	1	0		(2)	x
29203	7213	1	0		(2)	x
29204	7214	1	0		(2)	x
29205	7215	1	0		(2)	x
29206	7216	1	0		(2)	x
29207	7217	1	0		(2)	x
29208	7218	1	0		(2)	x
29209	7219	1	0		(2)	x
29210	721A	1	0		(2)	x
29211	721B	1	0		(2)	x
29212	721C	1	0		(2)	x
29213	721D	1	0		(2)	x
29214	721E	1	0		(2)	x
29215	721F	1	0		(2)	x
29216	7220	1	0		(2)	x
29217	7221	1	0		(2)	x
29218	7222	1	0		(2)	x
29219	7223	1	0		(2)	x
29220	7224	1	0		(2)	x
29221	7225	1	0		(1)	
29222	7226	1	0		(1)	
29223	7227	1	0		(1)	
29224	7228	1	0		(1)	
29225	7229	1	0		(1)	
29226	722A	1	0		(1)	
29227	722B	1	0		(1)	
29228	722C	1	0		(1)	
29229	722D	1	0		(1)	
29230	722E	1	0		(1)	

29231	722F	1	0		(1)	
29232	7230	1	0		(3)	

REMARKS:

(1)	The information shown here “restores” itself when the condition that has generated it no longer applies
(2)	The information shown here applies even when the condition generating it has disappeared. the "restore" conditions can be (equivalent, alternatively): •The measurement of the Closed Status of the Device •The measurement of a minimum current value on the phases. The Switch Status Functionality is therefore not binding (Example : if the switch is returned to Open => the Tripped relay notification must be kept until the restore condition kicks in).
(3)	It indicates that an anomaly has been detected in the “Dual Setting” settings, in particular one or more levels have been found to be greater than the corresponding “Main Setting”.

Read & Write Bit - Modbus Functions 01-05-15

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
29184	7200	1	0		0	
29185	7201	1	0		(1)	

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
29184	7200	10	***not significant***			
29194	720A	1	Overload Tripped relay P counter (total) (no indication of phase)			x
29195	720B	1	Delayable Short-circuit Tripped relay P counter (total) (no indications of phase)			x
29196	720C	1	Instantaneous Short-circuit Tripped relay P counter (total) (no indications of phase)			x
29197	720D	1	Device protection Tripped relay counter (total) ("III element", no indications of phase)			x
29198	720E	1	Earth Tripped relay P counter (total)			x
29199	720F	1	Overtemperature Tripped relay P counter (total)			x
29200	7210	10	Last Release Data Buffer		(2), (9)	x
29210	721A	10	Last 20 (most recent) Releases Data Buffer		(2), (9)	x
29220	7224	10	Last 20 Releases Data Buffer		(2), (9)	x
29230	722E	10	Last 20 Releases Data Buffer		(2), (9)	x
29240	7238	10	Last 20 Releases Data Buffer		(2), (9)	x
29250	7242	10	Last 20 Releases Data Buffer		(2), (9)	x
29260	724C	10	Last 20 Releases Data Buffer		(2), (9)	x
29270	7256	10	Last 20 Releases Data Buffer		(2), (9)	x
29280	7260	10	Last 20 Releases Data Buffer		(2), (9)	x
29290	726A	10	Last 20 Releases Data Buffer		(2), (9)	x

29300	7274	10	Last 20 Releases Data Buffer		(2), (9)	x
29310	727E	100	***not significant***			
29410	72E2	1	G1 ("main setting")- Overload: levels	[A]/[%]	(1), (3)	x
29411	72E3	1	G1 - Overload: Times	[msec]	(1)	x
29412	72E4	1	G1 - Overload: options		(3)	x
29413	72E5	2	G1 - delayable short-circuit: levels	[A]/[%]	(1), (4)	x
29415	72E7	1	G1 - delayable short-circuit: Times	[msec]	(1)	x
29416	72E8	1	G1 - delayable short-circuit: options		(4)	x
29417	72E9	2	G1 - instantaneous short-circuit: levels	[A]/[%]	(1), (5)	x
29419	72EB	1	G1 - instantaneous short-circuit: Times	[msec]	(1)	x
29420	72EC	1	G1 - instantaneous short-circuit: options		(5)	x
29421	72ED	2	G1 - device protection: levels	[A]	(1), (6)	x
29423	72EF	1	G1 - device protection: Times	[msec]	(1)	x
29424	72F0	1	G1 - device protection: options		(6)	x
29425	72F1	1	G1 - earth: levels	[A]/[%]	(1), (7)	x
29426	72F2	1	G1 - earth: times	[msec]	(1)	x
29427	72F3	1	G1 - earth: options		(7)	x
29428	72F4	1	G1 - neutral protection: levels	[%]	(1), (8)	x
29429	72F5	1	***not significant***			
29430	72F6	1	G1 - neutral protection: options		(8)	x
29431	72F7	1	G1 - overtemperature protection: levels	[°C]	(1)	x
29432	72F8	11	***not significant***			

REMARKS:

(1)	Expressed in “numeric coding”
	DATA BUFFER Last releases: by reading all the ten words the values are returned in the values indicated below •WORD9 : chronology, “year” (MSB) and “month ” (LSB); it is the word that is returned first of all in the 10 – MSW block. •WORD8: chronology, “day” (MSB) and ”time” (LSB) •WORD7: chronology, “minutes” (MSB) and ”seconds” (LSB) •WORD6 and 5: current interrupted or temperature (“numeric coding” , [mA] or [°C], WORD6 is returned before WORD5) •WORD4:detail of protection settings that has caused the Trip (reply read only register of the of the “levels” type, see note (1)) •WORD3: detail of protection settings that has caused the Trip (reply Read Only register of the “Times” type , see note (1)) •WORD2: detail of protection settings that has caused the Trip (reply Read Only register of the “options” type, see note (3)to(6)) •WORD1: reply Read Only Bit of the “Tripped” type •WORD0: reply Read Only Bit of the “Tripped” type **N.B.:** WORDs FROM 2 to 4 constitute a single datum and must be read and written in a block. The same applies to WORD 5 and 6, for WORD 7-8-9 and for WORD 0-1. WORD 1: •Bit0 Instantaneous short-circuit relay tripped neutral •Bit1 Device Protection Relay Tripped phase 1(“III element”)

(2)	•Bit1 Device Protection Relay Tripped phase 1("III element") •Bit2 Device Protection Relay Tripped phase 2 ("III element") •Bit3 Device Protection Relay Tripped phase 3 ("III element") •Bit4 Device Protection Relay Tripped neutral ("III element") •Bit5 Tripped relay in "Main Setting" Mode •Bit6 Tripped relay in "Dual Setting" Mode •Bit7 Tripped relay in "MEM=OFF" Mode on Overload •Bit8 Tripped relay in "I2t=k" mode on delayable short-circuit •Bit 9 Tripped relay in "Logic Selectivity" mode on delayable short-circuit (intervention performed with Tm Delay) •Bit 10 Tripped relay in "Logic Selectivity" Mode on device protection (intervention carried out with with Delay •SEL=High) •Bit 11 Tripped relay in "I2t=k" Mode on earth •Bit 12 Earth leakage Tripped •Bit 13 ND •Bit 14 ND •Bit 15 Test Tripped (if Electronic Test only Bit15, if Earth Lekeage Test Bit15 and Bit12) WORD 0: •Bit0 Overload Tripped relay P. (no indication of phase) •Bit1 Short-circuit Tripped relay P. (no indications of phase) •Bit2 Device Protection Tripped relay ("III element", no indications of phase) •Bit3 Earth Tripped relay P. •Bit4 Overtemperature Tripped relay P. •Bit5 Overload phase 1 Tripped relay P. •Bit6 Overload phase 2 Tripped relay P. •Bit7 Overload phase 3 Tripped relay P. •Bit8 Overload neutral Tripped relay P. •Bit9 Delayable short-circuit phase 1 Tripped relay P. •Bit10 Delayable short-circuit phase 2 Tripped relay P. •Bit11 Delayable short-circuit phase 3 Tripped relay P. •Bit12 Delayable short-circuit neutral Tripped relay P. •Bit13 Instantaneous short-circuit phase 1 Tripped relay •Bit14 Instantaneous short-circuit Tripped relay phase 2 •Bit15 Instant short-circuit phase 3 Tripped relay
(3)	Overload options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2=I2t=k MEM OFF(001)/I2t=k MEM ON(000)/Not Defined(111) •Bit7 to 5= "0" •Bit15 to 8=work point for curve I2t, multiple of Ir)
(4)	Delayable short-circuit options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%Ir(0) •Bit4 to 2=curve t=k(001)/I2t=k(000)/Not Defined(111) •Bit7 to 5= "0" •Bit15 to 8=work point for curve I2t, multiple of Ir)
(5)	Instantaneous short-circuit options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2=curve t=k(001)/I2t=k(000)/Not Defined(111) •Bit5= absolute val. divided by 10(1)/absolute value(0) •Bit7 to 6= "0" •Bit15 to 8=work point for curve I2t, multiple of In)

(6)	Device Protection options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2= "0" •Bit5= absolute val. divided by 10(1)/absolute value(0)
(7)	Earth Options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2=curve t=k(001)/I2t=k(000)/Not Defined(111) •Bit7 to 5= "0" •Bit15 to 8=work point for curve I2t, multiple of Ig)
(8)	Neutral options •Bit0=disabled(1)/active(0) •Bit1="0" (%phase) •Bit4 to 2="0" (curve phase) •Bit7 to 5= "0" •Bit15 to 8="0")
(9)	If number of faults < 20, fill the chronology word with 0x0000

Read&Write Registers – Modbus Functions 03-06-16

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
29184	7200	1	***not significant***			

REMARKS:

(1)	"Dual Setting" Command Configuration •Bit10 to 0=activation time ("default"=60 sec, "0"=infinite) •Bit11 to 15="0"

[5] - 4P - EVOLVED

RETURN TO TABLE OF MAPS

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	0			
20481	5001	1	0			
20482	5002	1	0			
20483	5003	1	0			
20484	5004	1	0			
20485	5005	1	0			
20486	5006	1	0			
20487	5007	1	0			
20488	5008	1	0			
20489	5009	1	0			
20490	500A	1	0			

Read & Write Bit - Modbus Functions 01-05-15

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	0			
20481	5001	1	0			

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	Phase current value 1 (R)	[A]	(2),(4)	
20481	5001	1	Phase 2 current value (S)	[A]	(2),(4)	
20482	5002	1	Phase 3 Current Value (T)	[A]	(2),(4)	
20483	5003	1	Neutral Current Value	[A]	(2),(4)	
20484	5004	1	Earth Current Value	[A]	(2)	
20485	5005	238	***not significant***			

REMARKS:

(1)	Expressed in “numeric coding”; including sign (most significant bit=sign)
(2)	Expressed in “numeric coding”; without sign
(3)	Example: PF=0,85, is expressed as 85 (Measurement unit 1/100)
(3)	the value must be divided by the corresponding multiplying factor indicated in the read and write registers, if the register is not present it must be considered as multiplication factor 1 Example: I1 [A] = Phase 1 Current Value (R) / Current multiplication factor = 1023 / 100 = 10.23A

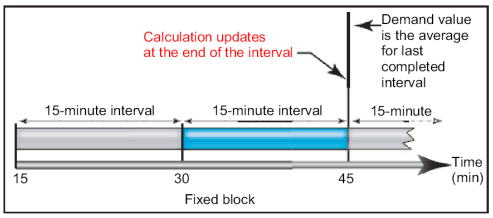
Read&Write Registers – Modbus Functions 03-06-16

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	8	***not significant***			
20488	5008	1	Current multiplication factor		(1)	x
20489	5009	102	***not significant***			

REMARKS:

(1)	Expressed in “numeric coding” with sign (most significant bit=sign)
(2)	Expressed in “numeric coding” with sign (always positive value, most significant bit=0)
(3)	**BYTE1 (MSB)** •**11**”: system 1V-1I unipolar •**33**”: system 3V-3I without information on the neutral •**34**”: system 3V-4I **BYTE0 (LSB)** •**00**”: if the active power flows in the normal/indicated direction (“upstream to downstream” or in accordance with the polarity indicated for the connection), “default” •**01**”: if the active power flows in the reverse direction (“downstream to upstream” or vice versa with regard to the polarity indicated for the connection)
(4)	Measurement unit compatible with the magnitude configured to the previous register, multiplied by the reference multiplication factor for that magnitude
(5)	address of the register (absolute value) of the desired magnitude
(6)	**BIT 0** : 1 = The event triggers an alarm, 0 = The event does not trigger the alarm **BIT 1** : 1 = The event generates a Link action, 0 = The event does not generate a Link action **BIT 2** : 0 = alarm activated when value is > of threshold, 1= alarm activated when value is < of threshold
(7)	**BYTE0 (LSB)**: calculation mode •**0**" (”default”): fixed window or “fixed block interval” •**1**": mobile window or “sliding block interval” **BYTE1 (MSB)**: calculation window (value in [sec], 1 to 60, “default”=15)

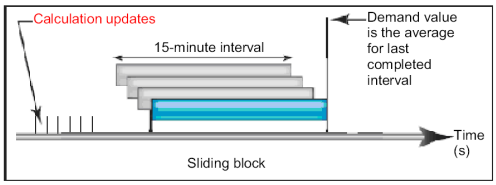
- fixed block interval: the intervals are consecutive; the PMD calculates and updates the demand at the end of each interval;



IEC 1284/07

NOTE 15 min is only an example.

- sliding block interval: the intervals are sliding; the PMD calculates and updates the demand at the sliding speed.



IEC 1285/07

NOTE 15 min is only an example.

[6] - 3P + Measure - EVOLVED

RETURN TO TABLE OF MAPS

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	0			
20481	5001	1	0			
20482	5002	1	0			
20483	5003	1	0			
20484	5004	1	0			
20485	5005	1	0			
20486	5006	1	0			
20487	5007	1	0			
20488	5008	1	0			
20489	5009	1	0			
20490	500A	1	0			

Read & Write Bit - Modbus Functions 01-05-15

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	0			
20481	5001	1	0			

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	Phase current value 1 (R)	[A]	(2),(4)	
20481	5001	1	Phase 2 current value (S)	[A]	(2),(4)	
20482	5002	1	Phase 3 Current Value (T)	[A]	(2),(4)	
20483	5003	1	***not significant***			
20484	5004	1	Earth Current Value	[A]	(2)	
20485	5005	12	***not significant***	[mA]	(2)	
20497	5011	1	Voltage 1-2	[V]	(2),(4)	
20498	5012	1	Voltage1-3	[V]	(2),(4)	
20499	5013	1	Voltage 2-3	[V]	(2),(4)	
20500	5014	1	***not significant***			
20512	5020	1	THD Phase 1 (R) vs. fundamental current	%	(2)	
20513	5021	1	THD Phase 2 (S) vs. fundamental current	%	(2)	
20514	5022	1	THD Phase 3 (T) vs. fundamental current	%	(2)	
20515	5023	4	***not significant***			
20519	5027	1	THD Voltage 1-2 vs. fundamental	%	(2)	
20520	5028	1	THD Voltage 1-3 vs. fundamental	%	(2)	
20521	5029	1	THD Voltage 2-3 vs. fundamental	%	(2)	
20522	502A	1	Three-phase active power	[kW]	(1),(4)	
20523	502B	1	Three-phase reactive power	[kvar]	(1),(4)	
20524	502C	2	***not significant***			
20526	502E	1	Three-phase Apparent Power	[kVA]	(1),(4)	
20527	502F	1	Three-phase power factor (PF)	1/100	(1),(3)	
20528	5030	1	***not significant***			

20529	5031	1	Three-phase Frequency	[Hz]/100	(1),(3)	
20530	5032	2	***not significant***			
20532	5034	2	Positive Three-phase Active Energy	[kWh]	(2),(4)	x
20534	5036	2	Negative Three-phase Active Energy	[kWh]	(2),(4)	x
20536	5038	2	***not significant***			
20538	503A	2	Positive Three-phase Reactive Energy	[kvarh]	(2),(4)	x
20540	503C	2	Negative Three-phase Reactive Energy	[kvarh]	(2),(4)	x
20542	503E	2	***not significant***			
20544	5040	1	Phase 1 Active Power (R)	[kW]	(1),(4)	
20545	5041	1	Phase 2 Active Power (S)	[kW]	(1),(4)	
20546	5042	1	Phase 3 active power (T)	[kW]	(1),(4)	
20547	5043	1	Reactive Power phase 1 (R)	[kvar]	(1),(4)	
20548	5044	1	Reactive Power phase 2 (S)	[kvar]	(1),(4)	
20549	5045	1	Reactive Power phase 3 (T)	[kvar]	(1),(4)	
20550	5046	173	***not significant***			

REMARKS:

(1)	Expressed in “numeric coding”; including sign (most significant bit=sign)
(2)	Expressed in “numeric coding”; without sign
(3)	Example: PF=0,85, is expressed as 85 (Measurement unit 1/100)
(3)	the value must be divided by the corresponding multiplying factor indicated in the read and write registers, if the register is not present it must be considered as multiplication factor 1 Example: I1 [A] = Phase 1 Current Value (R) / Current multiplication factor = 1023 / 100 = 10.23A

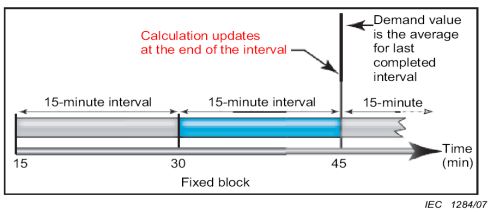
Read&Write Registers – Modbus Functions 03-06-16

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	Measurement System Features		(3)	x
20481	5001	6	***not significant***			
20487	5007	1	Voltage multiplication factor		(1)	x
20488	5008	1	Current multiplication factor		(1)	x
20489	5009	1	Total Power multiplication factor		(1)	x
20490	500A	1	Phase Power multiplication factor		(1)	x
20491	500B	1	Total Energy multiplication factor		(1)	x
20492	500C	1	Phase Energy multiplication factor		(1)	x
20493	500D	98	***not significant***			

REMARKS:

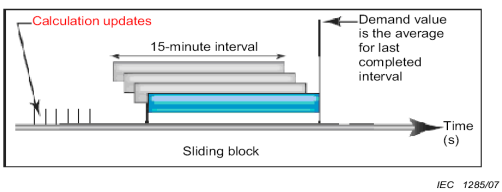
(1)	Expressed in “numeric coding” with sign (most significant bit=sign)
(2)	Expressed in “numeric coding” with sign (always positive value, most significant bit=0)
(3)	**BYTE1 (MSB)** •**11**”: system 1V-1I unipolar •**33**”: system 3V-3I without information on the neutral •**34**”: system 3V-4I **BYTE0 (LSB)** •**00**”: if the active power flows in the normal/indicated direction (“upstream to downstream” or in accordance with the polarity indicated for the connection), “default” •**01**”: if the active power flows in the reverse direction (“downstream to upstream” or vice versa with regard to the polarity indicated for the connection)
(4)	Measurement unit compatible with the magnitude configured to the previous register, multiplied by the reference multiplication factor for that magnitude
(5)	address of the register (absolute value) of the desired magnitude
(6)	**BIT 0** : 1 = The event triggers an alarm, 0 = The event does not trigger the alarm **BIT 1** : 1 = The event generates a Link action, 0 = The event does not generate a Link action **BIT 2** : 0 = alarm activated when value is > of threshold, 1= alarm activated when value is < of threshold
(7)	**BYTE0 (LSB)**: calculation mode •**0**" (”default”): fixed window or “fixed block interval” •**1**": mobile window or “sliding block interval” **BYTE1 (MSB)**: calculation window (value in [sec], 1 to 60, “default”=15)

- fixed block interval: the intervals are consecutive; the PMD calculates and updates the demand at the end of each interval;



NOTE 15 min is only an example.

- sliding block interval: the intervals are sliding; the PMD calculates and updates the demand at the sliding speed.



NOTE 15 min is only an example.

[7] - 4P + Measure - EVOLVED

RETURN TO TABLE OF MAPS

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	0			
20481	5001	1	0			
20482	5002	1	0			
20483	5003	1	0			
20484	5004	1	0			
20485	5005	1	0			
20486	5006	1	0			
20487	5007	1	0			
20488	5008	1	0			
20489	5009	1	0			
20490	500A	1	0			

Read & Write Bit - Modbus Functions 01-05-15

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	0			
20481	5001	1	0			

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	Phase current value 1 (R)	[A]	(2),(4)	
20481	5001	1	Phase 2 current value (S)	[A]	(2),(4)	
20482	5002	1	Phase 3 Current Value (T)	[A]	(2),(4)	
20483	5003	1	Neutral Current Value	[A]	(2),(4)	
20484	5004	1	Earth Current Value	[A]	(2)	
20485	5005	9	***not significant***			
20494	500E	1	Voltage 1-N	[V]	(2),(4)	
20495	500F	1	Voltage 2-N	[V]	(2),(4)	
20496	5010	1	Voltage 3-N	[V]	(2),(4)	
20497	5011	1	Voltage 1-2	[V]	(2),(4)	
20498	5012	1	Voltage1-3	[V]	(2),(4)	
20499	5013	1	Voltage 2-3	[V]	(2),(4)	
20500	5014	12	***not significant***	[V]	(2)	
20512	5020	1	THD Phase 1 (R) vs. fundamental current	%	(2)	
20513	5021	1	THD Phase 2 (S) vs. fundamental current	%	(2)	
20514	5022	1	THD Phase 3 (T) vs. fundamental current	%	(2)	
20515	5023	1	THD Neutral vs. fundamental current	%	(2)	
20516	5024	1	THD Voltage 1-N vs. fundamental	%	(2)	
20517	5025	1	THD Voltage 2-N vs. fundamental	%	(2)	
20518	5026	1	THD Voltage 3-N vs. fundamental	%	(2)	
20519	5027	3	***not significant***			

20522	502A	1	Three-phase active power	[kW]	(1),(4)	
20523	502B	1	Three-phase reactive power	[kvar]	(1),(4)	
20524	502C	2	***not significant***			
20526	502E	1	Three-phase Apparent Power	[kVA]	(1),(4)	
20527	502F	1	Three-phase power factor (PF)	1/100	(1),(3)	
20528	5030	1	***not significant***			
20529	5031	1	Three-phase Frequency	[Hz]/100	(1),(3)	
20530	5032	2	***not significant***			
20532	5034	2	Positive Three-phase Active Energy	[kWh]	(2),(4)	x
20534	5036	2	Negative Three-phase Active Energy	[kWh]	(2),(4)	x
20536	5038	2	***not significant***			
20538	503A	2	Positive Three-phase Reactive Energy			
20540	503C	2	Negative Three-phase Reactive Energy	[kvarh]	(2),(4)	x
20542	503E	2	***not significant***			
20544	5040	1	Phase 1 Active Power (R)	[kW]	(1),(4)	
20545	5041	1	Phase 2 Active Power (S)	[kW]	(1),(4)	
20546	5042	1	Phase 3 active power (T)	[kW]	(1),(4)	
20547	5043	1	Reactive Power phase 1 (R)	[kvar]	(1),(4)	
20548	5044	1	Reactive Power phase 2 (S)	[kvar]	(1),(4)	
20549	5045	1	Reactive Power phase 3 (T)	[kvar]	(1),(4)	
20550	5046	173	***not significant***			

REMARKS:

(1)	Expressed in “numeric coding”; including sign (most significant bit=sign)
(2)	Expressed in “numeric coding”; without sign
(3)	Example: PF=0,85, is expressed as 85 (Measurement unit 1/100)
(3)	the value must be divided by the corresponding multiplying factor indicated in the read and write registers, if the register is not present it must be considered as multiplication factor 1 Example: I1 [A] = Phase 1 Current Value (R) / Current multiplication factor = 1023 / 100 = 10.23A

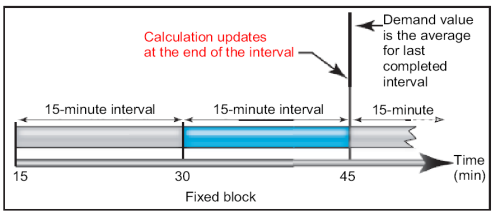
Read&Write Registers – Modbus Functions 03-06-16

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	Measurement System Features		(3)	x
20481	5001	6	***not significant***			
20487	5007	1	Voltage multiplication factor		(1)	x
20488	5008	1	Current multiplication factor		(1)	x
20489	5009	1	Total Power multiplication factor		(1)	x
20490	500A	1	Phase Power multiplication factor		(1)	x
20491	500B	1	Total Energy multiplication factor		(1)	x
20492	500C	1	Phase Energy multiplication factor		(1)	x
20493	500D	98	***not significant***			

REMARKS:

(1)	Expressed in “numeric coding” with sign (most significant bit=sign)
(2)	Expressed in “numeric coding” with sign (always positive value, most significant bit=0)
(3)	**BYTE1 (MSB)** •**11**”: system 1V-1I unipolar •**33**”: system 3V-3I without information on the neutral •**34**”: system 3V-4I **BYTE0 (LSB)** •**00**”: if the active power flows in the normal/indicated direction (“upstream to downstream” or in accordance with the polarity indicated for the connection), “default” •**01**”: if the active power flows in the reverse direction (“downstream to upstream” or vice versa with regard to the polarity indicated for the connection)
(4)	Measurement unit compatible with the magnitude configured to the previous register, multiplied by the reference multiplication factor for that magnitude
(5)	address of the register (absolute value) of the desired magnitude
(6)	**BIT 0** : 1 = The event triggers an alarm, 0 = The event does not trigger the alarm **BIT 1** : 1 = The event generates a Link action, 0 = The event does not generate a Link action **BIT 2** : 0 = alarm activated when value is > of threshold, 1= alarm activated when value is < of threshold
(7)	**BYTE0 (LSB)**: calculation mode •0" (”default”): fixed window or “fixed block interval” •1": mobile window or “sliding block interval” **BYTE1 (MSB)**: calculation window (value in [sec], 1 to 60, “default”=15)

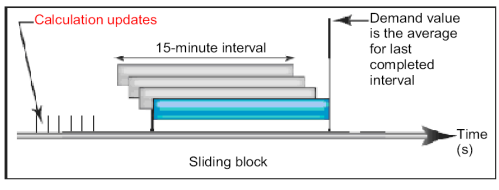
- fixed block interval: the intervals are consecutive; the PMD calculates and updates the demand at the end of each interval;



IEC 1284/07

NOTE 15 min is only an example.

- sliding block interval: the intervals are sliding; the PMD calculates and updates the demand at the sliding speed.



IEC 1285/07

NOTE 15 min is only an example.

[8] - Thermal Measurement - BASE

RETURN TO TABLE OF MAPS

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
32768	8000	1	0	[°C]	(1)	
32769	8000	1	0	[°C]		

REMARKS:

(1)	The relative address register 0 MUST NOT BE USED to prevent the corresponding absolute address (“default” position of the Thermal Measurement Functionality = 8000h) coinciding with the “non implemented/non significant” value in the Automation Functionality (always 8000h)î

Read & Write Bit - Modbus Functions 01-05-15

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
32768	8000	1	0			
32769	8000	1	0			

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
32768	8000	1	Sensor 1 temperature value	[°C]	(1)	

REMARKS:

(1)	Expressed in “numeric coding”

Read&Write Registers – Modbus Functions 03-06-16

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
32768	8000	2	***not significant***			

"MOLDED CASE CIRCUIT BREAKER 250 (with configurable protection unit)" MAPS AND COMMANDS

Revision of Support maps and Commands

REVISION: 1.0.0
DATE: 04/07/2022

Revision of Support maps and Commands for MCCB 250 (with configurable protection unit) devices

- DPX^3 250HP S10 / Megatiker M3 250 (with configurable protection unit)
REVISION: 1.2.0
DATE: 17/12/2022

Product involved:

- DPX^3 250HP S10

- Megatiker M3 250

Products associated:

PRODUCT ITEMS	DESCRIPTION	OBJECT CODE
Legrand: 423400; 423401; 423402; 423403; 423405; 423406; 423407; 423408; 423420; 423421; 423422; 423423; 423425; 423426; 423427; 423428; 423440; 423441; 423442; 423443; 423445; 423446; 423447; 423448; 423450; 423451; 423452; 423453; 423455; 423456; 423457; 423458 Bticino: T733F40E10; T733F100E10; T733F160E10; T733F250E10; T734F40E10; T734F100E10; T734F160E10; T734F250E10; T733N40E10; T733N100E10; T733N160E10; T733N250E10; T734N40E10; T734N100E10; T734N160E10; T734N250E10; T733H40E10; T733H100E10; T733H160E10; T733H250E10; T734H40E10; T734H100E10; T734H160E10; T734H250E10; T733L40E10; T733L100E10; T733L160E10; T733L250E10; T734L40E10; T734L100E10; T734L160E10; T734L250E10	Legrand: all DPX^3 250HP with selective electronic S10 (display version), without earth leakage protection Bticino: all Megatiker M3 250 with configurable protection unit, without earth leakage protection	0x1302
Legrand: 423415; 423416; 423417; 423418; 423435; 423436; 423437; 423438 Bticino: T734F40ED10; T734F100ED10; T734F160ED10; T734F250ED10; T734N40ED10; T734N100ED10; T734N160ED10; T734N250ED10	Legrand: all DPX^3 250HP with selective electronic S10 (display version), with earth leakage protection Bticino: all Megatiker M3 250 with configurable protection unit, with earth leakage protection	0x1304

Legrand: 423460; 423461; 423462; 423463; 423465; 423466; 423467; 423468; 423480; 423481; 423482; 423483; 423485; 423486; 423487; 423488; 423500; 423501; 423502; 423503; 423505; 423506; 423507; 423508; 423510; 423511; 423512; 423513; 423515; 423516; 423517; 423518 Bticino: T733F40M10; T733F100M10; T733F160M10; T733F250M10; T734F40M10; T734F100M10; T734F160M10; T734F250M10; T733N40M10; T733N100M10; T733N160M10; T733N250M10; T734N40M10; T734N100M10; T734N160M10; T734N250M10; T733H40M10; T733H100M10; T733H160M10; T733H250M10; T734H40M10; T734H100M10; T734H160M10; T734H250M10; T733L40M10; T733L100M10; T733L160M10; T733L250M10; T734L40M10; T734L100M10; T734L160M10; T734L250M10	Legrand: all DPX^3 250HP with selective electronic S10 (display version), without earth leakage protection, with measurement function Bticino: all Megatiker M3 250 with configurable protection unit, without earth leakage protection, with measurement function	0x1305
Legrand: 423475; 423476; 423477; 423478; 423495; 423496; 423497; 423498 Bticino: T734F40MD10; T734F100MD10; T734F160MD10; T734F250MD10; T734N40MD10; T734N100MD10; T734N160MD10; T734N250MD10	Legrand: all DPX^3 250HP with selective electronic S10 (display version), with earth leakage protection, with measurement function Bticino: all Megatiker M3 250 with configurable protection unit, with earth leakage protection, with measurement function	0x1306

Standard function codes

COMMUNICATION CHANNEL → / COMMANDS ↓	EMS	USB	REMARKS
Read discrete inputs **(0x02)**	x	x	
Read holding register **(0x03)**	x	x	
Read input register **(0x04)**	x	x	
Write multiple coils **(0x0F)**	x	x	

Possible maps per configurations

OBJECT CODE →		0x1302		0x1304	0x1305		0x1306
CONFIGURATION →		3 poles	4 poles	4 poles	3 poles	4 poles	4 poles
MAP↓	N°						
Switch Status	[1]*	X	X	X	X	X	X
Elect Proct S 3P	[2]*	X			X		
3P	[3]*	X					
Elect Proct S 4P	[4]*		X			X	
4P	[5]*		X				
3P + Measure	[6]*				X		
4P + Measure	[7]*					X	X
Thermal Measurement	[8]*	X	X	X	X	X	X
Elect Proct S D	[9]			X			X
Measure E_ED	[10]			X			
Measure E_MD	[11]						X
Earth leakage Elec. Protec.	[12]						X

**** Maps from [1] to [8] are identical to the corresponding ones for DPX³ 630/1600 / Megatiker M3 250. However, for easy of consultation, they are listed here also.***

Map lists

[N°1] - Switch Status (switch Status Functionality) - BASE

RETURN TO TABLE OF MAPS

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
16384	4000	1	Open		(1)	
16385	4001	1	Closed		(1)	
16386	4002	1	Single tripped switch/ Tripped group of switches		(1),(2)	
16387	4003	1	0		(1)	
16388	4004	1	0		(1)	

REMARKS:

(1)	the information shown here “autorestores” when the condition that has generated it is lost (E.G.: TRIPPED is the faithful response of the device's mechanical contact Where there is a MAN/AUT operating mode selector switch, this notification can only persist if MAN is set);
(5)	if this functionality is used in switch group tripped mode (panel tripped), the bit contains the OR of the tripped of the switches belonging to the group.

Read & Write Bit - Modbus Functions 01-05-15

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
16384	4000	1	0			X

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
16384	4000	1	***not significant***			
16385	4001	1	Intervention Meter (total, cannot be reset at zero by the customer)			x
16386	4002	1	Maximum Manoeuvre Number (cannot be configured by the customer)			x
16387	4003	1	Switch Features – Rated current	[A]	(1)	x
16388	4004	1	Switch features – Type/Poles		(2)	x
16389	4005	1	Switch features – Breaking capacity	[kA]/100	(3)	x

REMARKS:

(1)	RATED CURRENT (numeric coding, [A])
(2)	TYPE/POLES • MSB – DEVICE TYPE bit 0=insulator (0)/int. Automatic (1), bit 1=repulsive switch (0)/ not repulsive switch (1) bit 7-2="0" • LSB – POLES bit 0 to 3: Number of poles: numeric value (1 to 4) bit 4 Neutral position (left(1)/right(0)) bit 5 :Neutral external (1) (only 3 poles) bit 7-6= "0"
(3)	BREAKING CAPACITY: (numeric coding, [kA/100]. Example: 4,5kA is coded in "hundredths of kA", therefore 4.5 becomes 450)

Read&Write Registers – Modbus Functions 03-06-16

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
16384	4000	1	***not significant***			

REMARKS:

(1)	bit 0: Open Status active high = 0, input active low = 1 (default = 0) bit 1: Closed Status active high = 0, input active low = 1 (default = 0) bit 2: Tripped Status active high = 0, input active low = 1 (default = 0) bit 3: Alarm on Status Open active = 1, deactivated = 0 (default = 0) bit 4: Alarm on Status Closed active = 1, deactivated = 0 (default = 0) bit 5: Alarm on Tripped Status active = 1, deactivated = 0 (default = 1) bit 15-6 : Not used

[N°2] - Elect Proct S 3P

RETURN TO TABLE OF MAPS

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
29184	7200	1	Overload Prealarm (>threshold I1)		(1)	
29185	7201	1	Overload alarm (>thresholdI2)		(1)	
29186	7202	1	0		(1)	
29187	7203	1	0		(1)	
29188	7204	1	Alarm 1 Overtemperature (>threshold T)		(1)	
29189	7205	1	0		(1)	
29190	7206	1	0		(1)	
29191	7207	1	0		(1)	
29192	7208	1	0		(1)	
29193	7209	1	Overload Tripped relay P. (no indication of phase)		(2)	x
29194	720A	1	Short-circuit Tripped relay P. (no indications of phase)		(2)	x
29195	720B	1	Device Protection Tripped relay (“III element”, no indications of phase)		(2)	x
29196	720C	1	Earth Tripped relay P.		(2)	x
29197	720D	1	Tripped relay P. Overtemperature		(2)	x
29198	720E	1	0		(2)	x
29199	720F	1	0		(2)	x
29200	7210	1	0		(2)	x
29201	7211	1	0		(2)	x
29202	7212	1	0		(2)	x
29203	7213	1	0		(2)	x
29204	7214	1	0		(2)	x
29205	7215	1	0		(2)	x
29206	7216	1	0		(2)	x
29207	7217	1	0		(2)	x
29208	7218	1	0		(2)	x
29209	7219	1	0		(2)	x
29210	721A	1	0		(2)	x
29211	721B	1	0		(2)	x
29212	721C	1	0		(2)	x
29213	721D	1	0		(2)	x
29214	721E	1	0		(2)	x
29215	721F	1	0		(2)	x
29216	7220	1	0		(2)	x
29217	7221	1	0		(2)	x
29218	7222	1	0		(2)	x
29219	7223	1	0		(2)	x
29220	7224	1	0		(2)	x
29221	7225	1	0		(1)	
29222	7226	1	0		(1)	
29223	7227	1	0		(1)	
29224	7228	1	0		(1)	
29225	7229	1	0		(1)	
29226	722A	1	0		(1)	
29227	722B	1	0		(1)	
29228	722C	1	0		(1)	
29229	722D	1	0		(1)	
29230	722E	1	0		(1)	
29231	722F	1	0		(1)	
29232	7230	1	0		(3)	

REMARKS:

(1)	The information shown here “restores” itself when the condition that has generated it no longer applies
(2)	The information shown here applies even when the condition generating it has disappeared. the "restore" conditions can be (equivalent, alternatively): • the measurement of the Closed Status of the Device • the measurement of a minimum current value on the phases. The Switch Status Functionality is therefore not binding (Example : if the switch is returned to Open => the Tripped relay notification must be kept until the restore condition kicks in).
(3)	It indicates that an anomaly has been detected in the “Dual Setting” settings, in particular one or more levels have been found to be greater than the corresponding “Main Setting”.

Read & Write Bit - Modbus Functions 01-05-15

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
29184	7200	1	0			
29185	7201	1	0			

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
29184	7200	10	***not significant***			
29194	720A	1	Overload Tripped relay P counter (total) (no indication of phase)			x
29195	720B	1	Delayable Short-circuit Tripped relay P counter (total) (no indications of phase)			x
29196	720C	1	Instantaneous Short-circuit Tripped relay P counter (total) (no indications of phase)			x
29197	720D	1	Device protection Tripped relay counter (total) ("III element", no indications of phase)			x
29198	720E	1	Earth Tripped relay P counter (total)			x
29199	720F	1	Overtemperature Tripped relay P counter (total)			x
29200	7210	10	Last Release Data Buffer		(2), (9)	x
29210	721A	10	Last 20 (most recent) Releases Data Buffer		(2), (9)	x
29220	7224	10	Last 20 Releases Data Buffer		(2), (9)	x
29230	722E	10	Last 20 Releases Data Buffer		(2), (9)	x
29240	7238	10	Last 20 Releases Data Buffer		(2), (9)	x
29250	7242	10	Last 20 Releases Data Buffer		(2), (9)	x
29260	724C	10	Last 20 Releases Data Buffer		(2), (9)	x
29270	7256	10	Last 20 Releases Data Buffer		(2), (9)	x
29280	7260	10	Last 20 Releases Data Buffer		(2), (9)	x
29290	726A	10	Last 20 Releases Data Buffer		(2), (9)	x
29300	7274	10	Last 20 Releases Data Buffer		(2), (9)	x
29310	727E	100	***not significant***			
29410	72E2	1	G1 ("main setting")- Overload: levels	[A]/[%]	(1), (3)	x
29411	72E3	1	G1 - Overload: Times	[msec]	(1)	x
29412	72E4	1	G1 - Overload: options		(3)	x
29413	72E5	2	G1 - delayable short-circuit: levels	[A]/[%]	(1), (4)	x
29415	72E7	1	G1 - delayable short-circuit: Times	[msec]	(1)	x
29416	72E8	1	G1 - delayable short-circuit: options		(4)	x
29417	72E9	2	G1 - instantaneous short-circuit: levels	[A]/[%]	(1), (5)	x
29419	72EB	1	G1 - instantaneous short-circuit: Times	[msec]	(1)	x
29420	72EC	1	G1 - instantaneous short-circuit: options		(5)	x
29421	72ED	2	G1 - device protection: levels	[A]	(1), (6)	x
29423	72EF	1	G1 - device protection: Times	[msec]	(1)	x
29424	72F0	1	G1 - device protection: options		(6)	x
29425	72F1	1	G1 - earth: levels	[A]/[%]	(1), (7)	x
29426	72F2	1	G1 - earth: times	[msec]	(1)	x
29427	72F3	1	G1 - earth: options		(7)	x
29428	72F4	3	***not significant***	[%]	(1), (8)	x
29431	72F7	1	G1 - overtemperature protection: levels	[°C]	(1)	x
29432	72F8	11	***not significant***			

REMARKS:

(1)	Expressed in “numeric coding”
(2)	DATA BUFFER Last releases: by reading all the ten words the values are returned in the values indicated below •WORD9 : chronology, “year” (MSB) and “month ” (LSB); it is the word that is returned first of all in the 10 – MSW block. •WORD8: chronology, “day” (MSB) and ”time” (LSB) •WORD7: chronology, “minutes” (MSB) and ”seconds” (LSB) •WORD6 and 5: current interrupted or temperature (“numeric coding” , [mA] or [°C], WORD6 is returned before WORD5) •WORD4:detail of protection settings that has caused the Trip (reply read only register of the of the “levels” type, see note (1)) •WORD3: detail of protection settings that has caused the Trip (reply Read Only register of the “Times” type , see note (1)) •WORD2: detail of protection settings that has caused the Trip (reply Read Only register of the “options” type, see note (3)to(6)) •WORD1: reply Read Only Bit of the “Tripped” type •WORD0: reply Read Only Bit of the “Tripped” type N.B.: WORDs FROM 2 to 4 constitute a single datum and must be read and written in a block. The same applies to WORD 5 and 6, for WORD 7-8-9 and for WORD 0-1. WORD 1: •Bit0 Instantaneous short-circuit relay tripped neutral •Bit1 Device Protection Relay Tripped phase 1(“III element”) •Bit2 Device Protection Relay Tripped phase 2 (“III element”) •Bit3 Device Protection Relay Tripped phase 3 (“III element”) •Bit4 Device Protection Relay Tripped neutral (“III element”) •Bit5 Tripped relay in “Main Setting” Mode •Bit6 Tripped relay in “Dual Setting” Mode •Bit7 Tripped relay in “MEM=OFF” Mode on Overload •Bit8 Tripped relay in “I2t=k” mode on delayable short-circuit •Bit 9 Tripped relay in “Logic Selectivity” mode on delayable short-circuit (intervention performed with Tm Delay) •Bit 10 Tripped relay in “Logic Selectivity” Mode on device protection (intervention carried out with with Delay •SEL=High) •Bit 11 Tripped relay in “I2t=k” Mode on earth •Bit 12 Earth leakage Tripped •Bit 13 ND •Bit 14 ND •Bit 15 Test Tripped (if Electronic Test only Bit15, if Earth Lekeage Test Bit15 and Bit12) WORD 0: •Bit0 Overload Tripped relay P. (no indication of phase) •Bit1 Short-circuit Tripped relay P. (no indications of phase) •Bit2 Device Protection Tripped relay (“III element”, no indications of phase) •Bit3 Earth Tripped relay P. •Bit4 Overtemperature Tripped relay P. •Bit5 Overload phase 1 Tripped relay P. •Bit6 Overload phase 2 Tripped relay P.

	•Bit6 Overload phase 2 Tripped relay P. •Bit7 Overload phase 3 Tripped relay P. •Bit8 Overload neutral Tripped relay P. •Bit9 Delayable short-circuit phase 1 Tripped relay P. •Bit10 Delayable short-circuit phase 2 Tripped relay P. •Bit11 Delayable short-circuit phase 3 Tripped relay P. •Bit12 Delayable short-circuit neutral Tripped relay P. •Bit13 Instantaneous short-circuit phase 1 Tripped relay •Bit14 Instantaneous short-circuit Tripped relay phase 2 •Bit15 Instant short-circuit phase 3 Tripped relay
(3)	Overload options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2=I2t=k MEM OFF(001)/I2t=k MEM ON(000)/Not Defined(111) •Bit7 to 5= “0” •Bit15 to 8=work point for curve I2t, multiple of Ir)
(4)	Delayable short-circuit options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%Ir(0) •Bit4 to 2=curve t=k(001)/I2t=k(000)/Not Defined(111) •Bit7 to 5= “0” •Bit15 to 8=work point for curve I2t, multiple of Ir)
(5)	Instantaneous short-circuit options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2=curve t=k(001)/I2t=k(000)/Not Defined(111) •Bit5= absolute val. divided by 10(1)/absolute value(0) •Bit7 to 6= “0” •Bit15 to 8=work point for curve I2t, multiple of In)
(6)	Device Protection options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2= “0” •Bit5= absolute val. divided by 10(1)/absolute value(0)

(7)	Earth Options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2=curve t=k(001)/I2t=k(000)/Not Defined(111) •Bit7 to 5= "0" •Bit15 to 8=work point for curve I2t, multiple of Ig)
(8)	Neutral options •Bit0=disabled(1)/active(0) •Bit1="0" (%phase) •Bit4 to 2="0" (curve phase) •Bit7 to 5= "0" •Bit15 to 8="0")
(9)	If number of faults < 20, fill the chronology word with 0x0000

Read&Write Registers – Modbus Functions 03-06-16

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
29184	7200	1	***not significant***			

REMARKS:

(1)	"Dual Setting" Command Configuration •Bit10 to 0=activation time ("default"=60 sec, "0"=infinite) •Bit11 to 15="0"

[N°3] - 3P - EVOLVED

RETURN TO TABLE OF MAPS

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	0			
20481	5001	1	0			
20482	5002	1	0			
20483	5003	1	0			
20484	5004	1	0			
20485	5005	1	0			
20486	5006	1	0			
20487	5007	1	0			
20488	5008	1	0			
20489	5009	1	0			
20490	500A	1	0			

Read & Write Bit - Modbus Functions 01-05-15

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	0			
20481	5001	1	0			

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	Phase current value 1 (R)	[A]	(2),(4)	
20481	5001	1	Phase 2 current value (S)	[A]	(2),(4)	
20482	5002	1	Phase 3 Current Value (T)	[A]	(2),(4)	
20483	5003	1	***not significant***			
20484	5004	1	Earth Current Value	[A]	(2)	
20485	5005	238	***not significant***			

REMARKS:

(1)	Expressed in “numeric coding”; including sign (most significant bit=sign)
(5)	Expressed in “numeric coding”; without sign
(3)	Example: PF=0,85, is expressed as 85 (Measurement unit 1/100)
(4)	the value must be divided by the corresponding multiplying factor indicated in the read and write registers, if the register is not present it must be considered as multiplication factor 1 Example: I1 [A] = Phase 1 Current Value (R) / Current multiplication factor = 1023 / 100 = 10.23A

Read&Write Registers – Modbus Functions 03-06-16

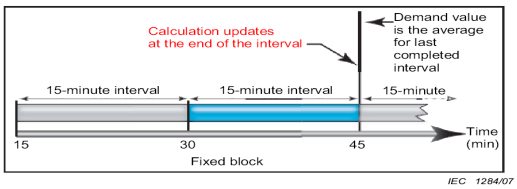
Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	8	***not significant***			

20488	5008	1	Current multiplication factor		(1)	x
20489	5009	102	***not significant***			

REMARKS:

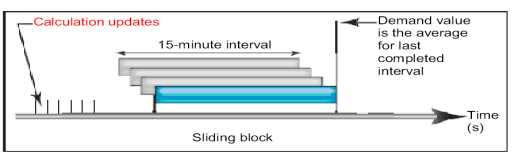
(1)	Expressed in “numeric coding” with sign (most significant bit=sign)
(2)	Expressed in “numeric coding” with sign (always positive value, most significant bit=0)
(3)	**BYTE1 (MSB)** •**11**”: system 1V-1I unipolar •**33**”: system 3V-3I without information on the neutral •**34**”: system 3V-4I **BYTE0 (LSB)** •**00**”: if the active power flows in the normal/indicated direction (“upstream to downstream” or in accordance with the polarity indicated for the connection), “default” •**01**”: if the active power flows in the reverse direction (“downstream to upstream” or vice versa with regard to the polarity indicated for the connection)
(4)	Measurement unit compatible with the magnitude configured to the previous register, multiplied by the reference multiplication factor for that magnitude
(5)	address of the register (absolute value) of the desired magnitude
(6)	**BIT 0** : 1 = The event triggers an alarm, 0 = The event does not trigger the alarm **BIT 1** : 1 = The event generates a Link action, 0 = The event does not generate a Link action **BIT 2** : 0 = alarm activated when value is > of threshold, 1= alarm activated when value is < of threshold
(7)	**BYTE0 (LSB)**: calculation mode •**0**" (”default”): fixed window or “fixed block interval” •**1**": mobile window or “sliding block interval” **BYTE1 (MSB)**: calculation window (value in [sec], 1 to 60, “default”=15)

- fixed block interval: the intervals are consecutive; the PMD calculates and updates the demand at the end of each interval;



NOTE 15 min is only an example.

- sliding block interval: the intervals are sliding; the PMD calculates and updates the demand at the sliding speed.



NOTE 15 min is only an example.

[N°4] - Elect Proct S 4P - STANDARD

RETURN TO TABLE OF MAPS

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
29184	7200	1	Overload Prealarm (>threshold I1)		(1)	
29185	7201	1	Overload alarm (>thresholdI2)		(1)	
29186	7202	1	0		(1)	
29187	7203	1	0		(1)	
29188	7204	1	Alarm 1 Overtemperature (>threshold T)		(1)	
29189	7205	1	0		(1)	
29190	7206	1	0		(1)	
29191	7207	1	0		(1)	
29192	7208	1	0		(1)	
29193	7209	1	Overload Tripped relay P. (no indication of phase)		(2)	x
29194	720A	1	Short-circuit Tripped relay P. (no indications of phase)		(2)	x
29195	720B	1	Device Protection Tripped relay (“III element”, no indications of phase)		(2)	x
29196	720C	1	Earth Tripped relay P.		(2)	x
29197	720D	1	Tripped relay P. Overtemperature		(2)	x
29198	720E	1	0		(2)	x
29199	720F	1	0		(2)	x
29200	7210	1	0		(2)	x
29201	7211	1	0		(2)	x
29202	7212	1	0		(2)	x
29203	7213	1	0		(2)	x
29204	7214	1	0		(2)	x
29205	7215	1	0		(2)	x
29206	7216	1	0		(2)	x
29207	7217	1	0		(2)	x
29208	7218	1	0		(2)	x
29209	7219	1	0		(2)	x
29210	721A	1	0		(2)	x
29211	721B	1	0		(2)	x
29212	721C	1	0		(2)	x
29213	721D	1	0		(2)	x
29214	721E	1	0		(2)	x
29215	721F	1	0		(2)	x
29216	7220	1	0		(2)	x
29217	7221	1	0		(2)	x
29218	7222	1	0		(2)	x
29219	7223	1	0		(2)	x
29220	7224	1	0		(2)	x
29221	7225	1	0		(1)	
29222	7226	1	0		(1)	
29223	7227	1	0		(1)	
29224	7228	1	0		(1)	
29225	7229	1	0		(1)	
29226	722A	1	0		(1)	

29227	722B	1	0		(1)	
29228	722C	1	0		(1)	
29229	722D	1	0		(1)	
29230	722E	1	0		(1)	
29231	722F	1	0		(1)	
29232	7230	1	0		(3)	

REMARKS:

(1)	The information shown here “restores” itself when the condition that has generated it no longer applies
(2)	The information shown here applies even when the condition generating it has disappeared. the "restore" conditions can be (equivalent, alternatively): • the measurement of the Closed Status of the Device • the measurement of a minimum current value on the phases. The Switch Status Functionality is therefore not binding (Example : if the switch is returned to Open => the Tripped relay notification must be kept until the restore condition kicks in).
(3)	It indicates that an anomaly has been detected in the “Dual Setting” settings, in particular one or more levels have been found to be greater than the corresponding “Main Setting”.

Read & Write Bit - Modbus Functions 01-05-15

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
29184	7200	1	0			
29185	7201	1	0			

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
29184	7200	10	***not significant***			
29194	720A	1	Overload Tripped relay P counter (total) (no indication of phase)			x
29195	720B	1	Delayable Short-circuit Tripped relay P counter (total) (no indications of phase)			x
29196	720C	1	Instantaneous Short-circuit Tripped relay P counter (total) (no indications of phase)			x
29197	720D	1	Device protection Tripped relay counter (total) ("III element", no indications of phase)			x
29198	720E	1	Earth Tripped relay P counter (total)			x
29199	720F	1	Overtemperature Tripped relay P counter (total)			x
29200	7210	10	Last Release Data Buffer		(2), (9)	x
29210	721A	10	Last 20 (most recent) Releases Data Buffer		(2), (9)	x
29220	7224	10	Last 20 Releases Data Buffer		(2), (9)	x
29230	722E	10	Last 20 Releases Data Buffer		(2), (9)	x
29240	7238	10	Last 20 Releases Data Buffer		(2), (9)	x
29250	7242	10	Last 20 Releases Data Buffer		(2), (9)	x

29260	724C	10	Last 20 Releases Data Buffer		(2), (9)	x
29270	7256	10	Last 20 Releases Data Buffer		(2), (9)	x
29280	7260	10	Last 20 Releases Data Buffer		(2), (9)	x
29290	726A	10	Last 20 Releases Data Buffer		(2), (9)	x
29300	7274	10	Last 20 Releases Data Buffer		(2), (9)	x
29310	727E	100	***not significant***			
29410	72E2	1	G1 ("main setting")- Overload: levels	[A]/[%]	(1), (3)	x
29411	72E3	1	G1 - Overload: Times	[msec]	(1)	x
29412	72E4	1	G1 - Overload: options		(3)	x
29413	72E5	2	G1 - delayable short-circuit: levels	[A]/[%]	(1), (4)	x
29415	72E7	1	G1 - delayable short-circuit: Times	[msec]	(1)	x
29416	72E8	1	G1 - delayable short-circuit: options		(4)	x
29417	72E9	2	G1 - instantaneous short-circuit: levels	[A]/[%]	(1), (5)	x
29419	72EB	1	G1 - instantaneous short-circuit: Times	[msec]	(1)	x
29420	72EC	1	G1 - instantaneous short-circuit: options		(5)	x
29421	72ED	2	G1 - device protection: levels	[A]	(1), (6)	x
29423	72EF	1	G1 - device protection: Times	[msec]	(1)	x
29424	72F0	1	G1 - device protection: options		(6)	x
29425	72F1	1	G1 - earth: levels	[A]/[%]	(1), (7)	x
29426	72F2	1	G1 - earth: times	[msec]	(1)	x
29427	72F3	1	G1 - earth: options		(7)	x
29428	72F4	1	G1 - neutral protection: levels	[%]	(1), (8)	x
29429	72F5	1	***not significant***			
29430	72F6	1	G1 - neutral protection: options		(8)	x
29431	72F7	1	G1 - overtemperature protection: levels	[°C]	(1)	x
29432	72F8	11	***not significant***			

REMARKS:

(1)	Expressed in “numeric coding”
(2)	**DATA BUFFER** Last releases: by reading all the ten words the values are returned in the values indicated below •WORD9 : chronology, “year” (MSB) and “month ” (LSB); it is the word that is returned first of all in the 10 – MSW block. •WORD8: chronology, “day” (MSB) and ”time” (LSB) •WORD7: chronology, “minutes” (MSB) and ”seconds” (LSB) •WORD6 and 5: current interrupted or temperature (“numeric coding” , [mA] or [°C], WORD6 is returned before WORD5) •WORD4:detail of protection settings that has caused the Trip (reply read only register of the of the “levels” type, see note (1)) •WORD3: detail of protection settings that has caused the Trip (reply Read Only register of the “Times” type , see note (1)) •WORD2: detail of protection settings that has caused the Trip (reply Read Only register of the “options” type, see note (3)to(6)) •WORD1: reply Read Only Bit of the “Tripped” type •WORD0: reply Read Only Bit of the “Tripped” type **N.B.:** WORDs FROM 2 to 4 constitute a single datum and must be read and written in a block. The same applies to WORD 5 and 6, for WORD 7-8-9 and for WORD 0-1. WORD 1: •Bit0 Instantaneous short-circuit relay tripped neutral •Bit1 Device Protection Relay Tripped phase 1(“III element”) •Bit2 Device Protection Relay Tripped phase 2 (“III element”) •Bit3 Device Protection Relay Tripped phase 3 (“III element”) •Bit4 Device Protection Relay Tripped neutral (“III element”) •Bit5 Tripped relay in “Main Setting” Mode •Bit6 Tripped relay in “Dual Setting” Mode •Bit7 Tripped relay in “MEM=OFF” Mode on Overload •Bit8 Tripped relay in “I2t=k” mode on delayable short-circuit •Bit 9 Tripped relay in “Logic Selectivity” mode on delayable short-circuit (intervention performed with Tm Delay) •Bit 10 Tripped relay in “Logic Selectivity” Mode on device protection (intervention carried out with with Delay •SEL=High) •Bit 11 Tripped relay in “I2t=k” Mode on earth •Bit 12 Earth leakage Tripped •Bit 13 ND •Bit 14 ND •Bit 15 Test Tripped (if Electronic Test only Bit15, if Earth Lekeage Test Bit15 and Bit12) WORD 0: •Bit0 Overload Tripped relay P. (no indication of phase) •Bit1 Short-circuit Tripped relay P. (no indications of phase) •Bit2 Device Protection Tripped relay (“III element”, no indications of phase) •Bit3 Earth Tripped relay P. •Bit4 Overtemperature Tripped relay P. •Bit5 Overload phase 1 Tripped relay P. •Bit6 Overload phase 2 Tripped relay P.

	•Bit0 Overload phase 2 Tripped relay P. •Bit7 Overload phase 3 Tripped relay P. •Bit8 Overload neutral Tripped relay P. •Bit9 Delayable short-circuit phase 1 Tripped relay P. •Bit10 Delayable short-circuit phase 2 Tripped relay P. •Bit11 Delayable short-circuit phase 3 Tripped relay P. •Bit12 Delayable short-circuit neutral Tripped relay P. •Bit13 Instantaneous short-circuit phase 1 Tripped relay •Bit14 Instantaneous short-circuit Tripped relay phase 2 •Bit15 Instant short-circuit phase 3 Tripped relay
(3)	Overload options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2=I2t=k MEM OFF(001)/I2t=k MEM ON(000)/Not Defined(111) •Bit7 to 5= “0” •Bit15 to 8=work point for curve I2t, multiple of Ir)

(4)	Delayable short-circuit options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%Ir(0) •Bit4 to 2=curve t=k(001)/I2t=k(000)/Not Defined(111) •Bit7 to 5= "0" •Bit15 to 8=work point for curve I2t, multiple of Ir)
(5)	Instantaneous short-circuit options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2=curve t=k(001)/I2t=k(000)/Not Defined(111) •Bit5= absolute val. divided by 10(1)/absolute value(0) •Bit7 to 6= "0" •Bit15 to 8=work point for curve I2t, multiple of In)
(6)	Device Protection options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2= "0" •Bit5= absolute val. divided by 10(1)/absolute value(0)
(7)	Earth Options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2=curve t=k(001)/I2t=k(000)/Not Defined(111) •Bit7 to 5= "0" •Bit15 to 8=work point for curve I2t, multiple of Ig)
(8)	Neutral options •Bit0=disabled(1)/active(0) •Bit1="0" (%phase) •Bit4 to 2="0" (curve phase) •Bit7 to 5= "0" •Bit15 to 8="0")
(9)	If number of faults < 20, fill the chronology word with 0x0000

Read&Write Registers – Modbus Functions 03-06-16

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
29184	7200	1	***not significant***			

REMARKS:

(1)	"Dual Setting" Command Configuration •Bit10 to 0=activation time ("default"=60 sec, "0"=infinite) •Bit11 to 15="0"

[5] - 4P - EVOLVED

RETURN TO TABLE OF MAPS

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	0			
20481	5001	1	0			
20482	5002	1	0			
20483	5003	1	0			
20484	5004	1	0			
20485	5005	1	0			
20486	5006	1	0			
20487	5007	1	0			
20488	5008	1	0			
20489	5009	1	0			
20490	500A	1	0			

Read & Write Bit - Modbus Functions 01-05-15

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	0			
20481	5001	1	0			

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	Phase current value 1 (R)	[A]	(2),(4)	
20481	5001	1	Phase 2 current value (S)	[A]	(2),(4)	
20482	5002	1	Phase 3 Current Value (T)	[A]	(2),(4)	
20483	5003	1	Neutral Current Value	[A]	(2),(4)	
20484	5004	1	Earth Current Value	[A]	(2)	
20485	5005	238	***not significant***			

REMARKS:

(1)	Expressed in “numeric coding”; including sign (most significant bit=sign)
(2)	Expressed in “numeric coding”; without sign
(3)	Example: PF=0,85, is expressed as 85 (Measurement unit 1/100)
(3)	the value must be divided by the corresponding multiplying factor indicated in the read and write registers, if the register is not present it must be considered as multiplication factor 1 Example: I1 [A] = Phase 1 Current Value (R) / Current multiplication factor = 1023 / 100 = 10.23A

Read&Write Registers – Modbus Functions 03-06-16

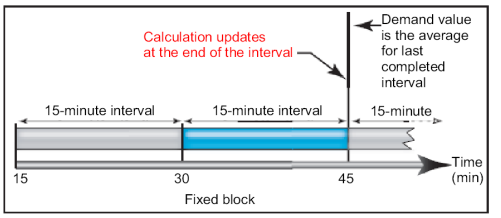
Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	8	***not significant***			
20488	5008	1	Current multiplication factor		(1)	x
20489	5009	102	***not significant***			

REMARKS:

(1)	Expressed in “numeric coding” with sign (most significant bit=sign)
(2)	Expressed in “numeric coding” with sign (always positive value, most significant bit=0)
(3)	**BYTE1 (MSB)** •**11**”: system 1V-1I unipolar •**33**”: system 3V-3I without information on the neutral •**34**”: system 3V-4I **BYTE0 (LSB)** •**00**”: if the active power flows in the normal/indicated direction (“upstream to downstream” or in accordance with the polarity indicated for the connection), “default” •**01**”: if the active power flows in the reverse direction (“downstream to upstream” or vice versa with regard to the polarity indicated for the connection)
(4)	Measurement unit compatible with the magnitude configured to the previous register, multiplied by the reference multiplication factor for that magnitude
(5)	address of the register (absolute value) of the desired magnitude
(6)	**BIT 0** : 1 = The event triggers an alarm, 0 = The event does not trigger the alarm **BIT 1** : 1 = The event generates a Link action, 0 = The event does not generate a Link action **BIT 2** : 0 = alarm activated when value is > of threshold, 1= alarm activated when value is < of threshold

(7)	**BYTE0 (LSB)**: calculation mode •"0" ("default"): fixed window or "fixed block interval" •"1": mobile window or "sliding block interval" **BYTE1 (MSB)**: calculation window (value in [sec], 1 to 60, "default"=15)

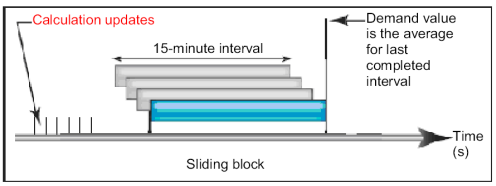
- fixed block interval: the intervals are consecutive; the PMD calculates and updates the demand at the end of each interval;



IEC 1284/07

NOTE 15 min is only an example.

- sliding block interval: the intervals are sliding; the PMD calculates and updates the demand at the sliding speed.



IEC 1285/07

NOTE 15 min is only an example.

[6] - 3P + Measure - EVOLVED

RETURN TO TABLE OF MAPS

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	0			
20481	5001	1	0			
20482	5002	1	0			
20483	5003	1	0			
20484	5004	1	0			
20485	5005	1	0			
20486	5006	1	0			
20487	5007	1	0			
20488	5008	1	0			
20489	5009	1	0			
20490	500A	1	0			

Read & Write Bit - Modbus Functions 01-05-15

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	0			
20481	5001	1	0			

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	Phase current value 1 (R)	[A]	(2),(4)	
20481	5001	1	Phase 2 current value (S)	[A]	(2),(4)	
20482	5002	1	Phase 3 Current Value (T)	[A]	(2),(4)	
20483	5003	1	***not significant***			
20484	5004	1	Earth Current Value	[A]	(2)	
20485	5005	12	***not significant***			
20497	5011	1	Voltage 1-2	[V]	(2),(4)	
20498	5012	1	Voltage1-3	[V]	(2),(4)	
20499	5013	1	Voltage 2-3	[V]	(2),(4)	
20500	5014	12	***not significant***			
20512	5020	1	THD Phase 1 (R) vs. fundamental current	%	(2)	
20513	5021	1	THD Phase 2 (S) vs. fundamental current	%	(2)	
20514	5022	1	THD Phase 3 (T) vs. fundamental current	%	(2)	
20515	5023	4	***not significant***			
20519	5027	1	THD Voltage 1-2 vs. fundamental	%	(2)	
20520	5028	1	THD Voltage 1-3 vs. fundamental	%	(2)	
20521	5029	1	THD Voltage 2-3 vs. fundamental	%	(2)	
20522	502A	1	Three-phase active power	[kW]	(1),(4)	
20523	502B	1	Three-phase reactive power	[kvar]	(1),(4)	
20524	502C	2	***not significant***			
20526	502E	1	Three-phase Apparent Power	[kVA]	(1),(4)	
20527	502F	1	Three-phase power factor (PF)	1/100	(1),(3)	

20528	5030	1	***not significant***			
20529	5031	1	Three-phase Frequency	[Hz]/100	(1),(3)	
20530	5032	2	***not significant***			
20532	5034	2	Positive Three-phase Active Energy	[kWh]	(2),(4)	x
20534	5036	2	Negative Three-phase Active Energy	[kWh]	(2),(4)	x
20536	5038	2	***not significant***			
20538	503A	2	Positive Three-phase Reactive Energy	[kvarh]	(2),(4)	x
20540	503C	2	Negative Three-phase Reactive Energy	[kvarh]	(2),(4)	x
20542	503E	2	***not significant***			
20544	5040	1	Phase 1 Active Power (R)	[kW]	(1),(4)	
20545	5041	1	Phase 2 Active Power (S)	[kW]	(1),(4)	
20546	5042	1	Phase 3 active power (T)	[kW]	(1),(4)	
20547	5043	1	Reactive Power phase 1 (R)	[kvar]	(1),(4)	
20548	5044	1	Reactive Power phase 2 (S)	[kvar]	(1),(4)	
20549	5045	1	Reactive Power phase 3 (T)	[kvar]	(1),(4)	
20550	5046	173	***not significant***			

REMARKS:

(1)	Expressed in “numeric coding”; including sign (most significant bit=sign)
(2)	Expressed in “numeric coding”; without sign
(3)	Example: PF=0,85, is expressed as 85 (Measurement unit 1/100)
(3)	the value must be divided by the corresponding multiplying factor indicated in the read and write registers, if the register is not present it must be considered as multiplication factor 1 Example: I1 [A] = Phase 1 Current Value (R) / Current multiplication factor = 1023 / 100 = 10.23A

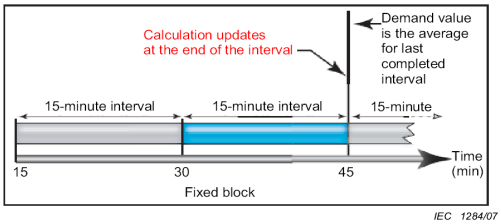
Read&Write Registers – Modbus Functions 03-06-16

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	Measurement System Features		(3)	x
20481	5001	6	***not significant***			
20487	5007	1	Voltage multiplication factor		(1)	x
20488	5008	1	Current multiplication factor		(1)	x
20489	5009	1	Total Power multiplication factor		(1)	x
20490	500A	1	Phase Power multiplication factor		(1)	x
20491	500B	1	Total Energy multiplication factor		(1)	x
20492	500C	1	Phase Energy multiplication factor		(1)	x
20493	500D	98	***not significant***			

REMARKS:

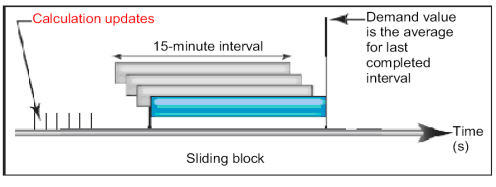
(1)	Expressed in “numeric coding” with sign (most significant bit=sign)
(2)	Expressed in “numeric coding” with sign (always positive value, most significant bit=0)
(3)	**BYTE1 (MSB)** •**11**”: system 1V-1I unipolar •**33**”: system 3V-3I without information on the neutral •**34**”: system 3V-4I **BYTE0 (LSB)** •**00**”: if the active power flows in the normal/indicated direction (“upstream to downstream” or in accordance with the polarity indicated for the connection), “default” •**01**”: if the active power flows in the reverse direction (“downstream to upstream” or vice versa with regard to the polarity indicated for the connection)
(4)	Measurement unit compatible with the magnitude configured to the previous register, multiplied by the reference multiplication factor for that magnitude
(5)	address of the register (absolute value) of the desired magnitude
(6)	**BIT 0** : 1 = The event triggers an alarm, 0 = The event does not trigger the alarm **BIT 1** : 1 = The event generates a Link action, 0 = The event does not generate a Link action **BIT 2** : 0 = alarm activated when value is > of threshold, 1= alarm activated when value is < of threshold
(7)	**BYTE0 (LSB)**: calculation mode •**0**" (”default”): fixed window or “fixed block interval” •**1**": mobile window or “sliding block interval” **BYTE1 (MSB)**: calculation window (value in [sec], 1 to 60, “default”=15)

- fixed block interval: the intervals are consecutive; the PMD calculates and updates the demand at the end of each interval;



NOTE 15 min is only an example.

- sliding block interval: the intervals are sliding; the PMD calculates and updates the demand at the sliding speed.



NOTE 15 min is only an example.

[7] - 4P + Measure - EVOLVED

RETURN TO TABLE OF MAPS

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	0			
20481	5001	1	0			
20482	5002	1	0			
20483	5003	1	0			
20484	5004	1	0			
20485	5005	1	0			
20486	5006	1	0			
20487	5007	1	0			
20488	5008	1	0			
20489	5009	1	0			
20490	500A	1	0			

Read & Write Bit - Modbus Functions 01-05-15

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	0			
20481	5001	1	0			

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	Phase current value 1 (R)	[A]	(2),(4)	
20481	5001	1	Phase 2 current value (S)	[A]	(2),(4)	
20482	5002	1	Phase 3 Current Value (T)	[A]	(2),(4)	
20483	5003	1	Neutral Current Value	[A]	(2),(4)	
20484	5004	1	Earth Current Value	[A]	(2)	
20485	5005	9	***not significant***			
20494	500E	1	Voltage 1-N	[V]	(2),(4)	
20495	500F	1	Voltage 2-N	[V]	(2),(4)	
20496	5010	1	Voltage 3-N	[V]	(2),(4)	
20497	5011	1	Voltage 1-2	[V]	(2),(4)	
20498	5012	1	Voltage1-3	[V]	(2),(4)	
20499	5013	1	Voltage 2-3	[V]	(2),(4)	
20500	5014	12	***not significant***			
20512	5020	1	THD Phase 1 (R) vs. fundamental current	%	(2)	
20513	5021	1	THD Phase 2 (S) vs. fundamental current	%	(2)	
20514	5022	1	THD Phase 3 (T) vs. fundamental current	%	(2)	
20515	5023	1	THD Neutral vs. fundamental current	%	(2)	
20516	5024	1	THD Voltage 1-N vs. fundamental	%	(2)	
20517	5025	1	THD Voltage 2-N vs. fundamental	%	(2)	
20518	5026	1	THD Voltage 3-N vs. fundamental	%	(2)	
20519	5027	3	***not significant***			
20522	502A	1	Three-phase active power	[kW]	(1),(4)	
20523	502B	1	Three-phase reactive power	[kvar]	(1),(4)	

20524	502C	2	***not significant***			
20526	502E	1	Three-phase Apparent Power	[kVA]	(1),(4)	
20527	502F	1	Three-phase power factor (PF)	1/100	(1),(3)	
20528	5030	1	***not significant***			
20529	5031	1	Three-phase Frequency	[Hz]/100	(1),(3)	
20530	5032	2	***not significant***			
20532	5034	2	Positive Three-phase Active Energy	[kWh]	(2),(4)	x
20534	5036	2	Negative Three-phase Active Energy	[kWh]	(2),(4)	x
20536	5038	2	***not significant***			
20538	503A	2	Positive Three-phase Reactive Energy	[kvarh]	(2),(4)	x
20540	503C	2	Negative Three-phase Reactive Energy	[kvarh]	(2),(4)	x
20542	503E	2	***not significant***			
20544	5040	1	Phase 1 Active Power (R)	[kW]	(1),(4)	
20545	5041	1	Phase 2 Active Power (S)	[kW]	(1),(4)	
20546	5042	1	Phase 3 active power (T)	[kW]	(1),(4)	
20547	5043	1	Reactive Power phase 1 (R)	[kvar]	(1),(4)	
20548	5044	1	Reactive Power phase 2 (S)	[kvar]	(1),(4)	
20549	5045	1	Reactive Power phase 3 (T)	[kvar]	(1),(4)	
20550	5046	173	***not significant***			

REMARKS:

(1)	Expressed in “numeric coding”; including sign (most significant bit=sign)
(2)	Expressed in “numeric coding”; without sign
(3)	Example: PF=0,85, is expressed as 85 (Measurement unit 1/100)
(3)	the value must be divided by the corresponding multiplying factor indicated in the read and write registers, if the register is not present it must be considered as multiplication factor 1 Example: I1 [A] = Phase 1 Current Value (R) / Current multiplication factor = 1023 / 100 = 10.23A

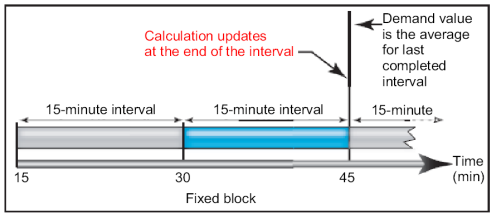
Read&Write Registers – Modbus Functions 03-06-16

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	Measurement System Features		(3)	x
20481	5001	6	***not significant***		(2)	x
20487	5007	1	Voltage multiplication factor		(1)	x
20488	5008	1	Current multiplication factor		(1)	x
20489	5009	1	Total Power multiplication factor		(1)	x
20490	500A	1	Phase Power multiplication factor		(1)	x
20491	500B	1	Total Energy multiplication factor		(1)	x
20492	500C	1	Phase Energy multiplication factor		(1)	x
20493	500D	98	***not significant***			

REMARKS:

(1)	Expressed in “numeric coding” with sign (most significant bit=sign)
(2)	Expressed in “numeric coding” with sign (always positive value, most significant bit=0)
(3)	**BYTE1 (MSB)** •**11**”: system 1V-1I unipolar •**33**”: system 3V-3I without information on the neutral •**34**”: system 3V-4I **BYTE0 (LSB)** •**00**”: if the active power flows in the normal/indicated direction (“upstream to downstream” or in accordance with the polarity indicated for the connection), “default” •**01**”: if the active power flows in the reverse direction (“downstream to upstream” or vice versa with regard to the polarity indicated for the connection)
(4)	Measurement unit compatible with the magnitude configured to the previous register, multiplied by the reference multiplication factor for that magnitude
(5)	address of the register (absolute value) of the desired magnitude
(6)	**BIT 0** : 1 = The event triggers an alarm, 0 = The event does not trigger the alarm **BIT 1** : 1 = The event generates a Link action, 0 = The event does not generate a Link action **BIT 2** : 0 = alarm activated when value is > of threshold, 1= alarm activated when value is < of threshold
(7)	**BYTE0 (LSB)**: calculation mode •**0**" (”default”): fixed window or “fixed block interval” •**1**": mobile window or “sliding block interval” **BYTE1 (MSB)**: calculation window (value in [sec], 1 to 60, “default”=15)

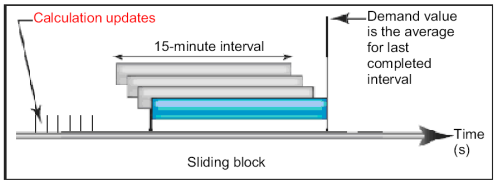
- fixed block interval: the intervals are consecutive; the PMD calculates and updates the demand at the end of each interval;



IEC 1284/07

NOTE 15 min is only an example.

- sliding block interval: the intervals are sliding; the PMD calculates and updates the demand at the sliding speed.



IEC 1285/07

NOTE 15 min is only an example.

[8] - Thermal Measurement - BASE

RETURN TO TABLE OF MAPS

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
32768	8000	1	0	[°C]	(1)	
32769	8000	1	0	[°C]		

REMARKS:

(1)	The relative address register 0 MUST NOT BE USED to prevent the corresponding absolute address (“default” position of the Thermal Measurement Functionality = 8000h) coinciding with the “non implemented/non significant” value in the Automation Functionality (always 8000h)

Read & Write Bit - Modbus Functions 01-05-15

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
32768	8000	1	0			
32769	8000	1	0			

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
32768	8000	1	Sensor 1 temperature value	[°C]	(1)	

REMARKS:

(1)	Expressed in “numeric coding”

Read&Write Registers – Modbus Functions 03-06-16

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
32768	8000	2	***not significant***			

[N°9] - Elect Proct S D

RETURN TO TABLE OF MAPS

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
29184	7200	1	Overload Prealarm (>threshold I1)		(1)	
29185	7201	1	Overload alarm (>thresholdI2)		(1)	
29186	7202	1	0		(1)	
29187	7203	1	0		(1)	
29188	7204	1	Alarm 1 Overtemperature (>threshold T)		(1)	
29189	7205	1	0		(1)	
29190	7206	1	0		(1)	
29191	7207	1	0		(1)	
29192	7208	1	0		(1)	
29193	7209	1	Overload Tripped relay P. (no indication of phase)		(2)	x
29194	720A	1	Short-circuit Tripped relay P. (no indications of phase)		(2)	x
29195	720B	1	Device Protection Tripped relay (“III element”, no indications of phase)		(2)	x
29196	720C	1	0		(2)	x
29197	720D	1	Tripped relay P. Overtemperature		(2)	x
29198	720E	1	0		(2)	x
29199	720F	1	0		(2)	x
29200	7210	1	0		(2)	x
29201	7211	1	0		(2)	x
29202	7212	1	0		(2)	x
29203	7213	1	0		(2)	x
29204	7214	1	0		(2)	x
29205	7215	1	0		(2)	x
29206	7216	1	0		(2)	x
29207	7217	1	0		(2)	x
29208	7218	1	0		(2)	x
29209	7219	1	0		(2)	x
29210	721A	1	0		(2)	x
29211	721B	1	0		(2)	x
29212	721C	1	0		(2)	x
29213	721D	1	0		(2)	x
29214	721E	1	0		(2)	x
29215	721F	1	0		(2)	x
29216	7220	1	0		(2)	x
29217	7221	1	0		(2)	x
29218	7222	1	0		(2)	x
29219	7223	1	0		(2)	x
29220	7224	1	0		(2)	x
29221	7225	1	0		(1)	
29222	7226	1	0		(1)	
29223	7227	1	0		(1)	
29224	7228	1	0		(1)	
29225	7229	1	0		(1)	

29226	722A	1	0		(1)	
29227	722B	1	0		(1)	
29228	722C	1	0		(1)	
29229	722D	1	0		(1)	
29230	722E	1	0		(1)	
29231	722F	1	0		(1)	
29232	7230	1	0		(3)	

REMARKS:

(1)	The information shown here “restores” itself when the condition that has generated it no longer applies
(2)	The information shown here applies even when the condition generating it has disappeared. the "restore" conditions can be (equivalent, alternatively): • The measurement of the Closed Status of the Device • The measurement of a minimum current value on the phases. The Switch Status Functionality is therefore not binding (Example : if the switch is returned to Open => the Tripped relay notification must be kept until the restore condition kicks in).
(3)	It indicates that an anomaly has been detected in the “Dual Setting” settings, in particular one or more levels have been found to be greater than the corresponding “Main Setting”.

Read & Write Bit - Modbus Functions 01-05-15

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
29184	7200	1	0			
29185	7201	1	0			

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
29184	7200	10	***not significant***			
29194	720A	1	Overload Tripped relay P counter (total) (no indication of phase)			x
29195	720B	1	Delayable Short-circuit Tripped relay P counter (total) (no indications of phase)			x
29196	720C	1	Instantaneous Short-circuit Tripped relay P counter (total) (no indications of phase)			x
29197	720D	1	Device protection Tripped relay counter (total) ("III element", no indications of phase)			x
29198	720E	1	***not significant***			
29199	720F	1	Overtemperature Tripped relay P counter (total)			x
29200	7210	10	Last Release Data Buffer		(2), (9)	x
29210	721A	10	Last 20 (most recent) Releases Data Buffer		(2), (9)	x
29220	7224	10	Last 20 Releases Data Buffer		(2), (9)	x
29230	722E	10	Last 20 Releases Data Buffer		(2), (9)	x
29240	7238	10	Last 20 Releases Data Buffer		(2), (9)	x

29250	7242	10	Last 20 Releases Data Buffer		(2), (9)	x
29260	724C	10	Last 20 Releases Data Buffer		(2), (9)	x
29270	7256	10	Last 20 Releases Data Buffer		(2), (9)	x
29280	7260	10	Last 20 Releases Data Buffer		(2), (9)	x
29290	726A	10	Last 20 Releases Data Buffer		(2), (9)	x
29300	7274	10	Last 20 Releases Data Buffer		(2), (9)	x
29310	727E	100	***not significant***			
29410	72E2	1	G1 ("main setting")- Overload: levels	[A]/[%]	(1), (3)	x
29411	72E3	1	G1 - Overload: Times	[msec]	(1)	x
29412	72E4	1	G1 - Overload: options		(3)	x
29413	72E5	2	G1 - delayable short-circuit: levels	[A]/[%]	(1), (4)	x
29415	72E7	1	G1 - delayable short-circuit: Times	[msec]	(1)	x
29416	72E8	1	G1 - delayable short-circuit: options		(4)	x
29417	72E9	2	G1 - instantaneous short-circuit: levels	[A]/[%]	(1), (5)	x
29419	72EB	1	G1 - instantaneous short-circuit: Times	[msec]	(1)	x
29420	72EC	1	G1 - instantaneous short-circuit: options		(5)	x
29421	72ED	2	G1 - device protection: levels	[A]	(1), (6)	x
29423	72EF	1	G1 - device protection: Times	[msec]	(1)	x
29424	72F0	1	G1 - device protection: options		(6)	x
29425	72F1	3	***not significant***			
29428	72F4	1	G1 - neutral protection: levels	[%]	(1), (8)	x
29429	72F5	1	***not significant***			
29430	72F6	1	G1 - neutral protection: options		(8)	x
29431	72F7	1	G1 - overtemperature protection: levels	[°C]	(1)	x
29432	72F8	11	***not significant***			

REMARKS:

(1)	Expressed in “numeric coding”
	DATA BUFFER Last releases: by reading all the ten words the values are returned in the values indicated below •WORD9 : chronology, “year” (MSB) and “month ” (LSB); it is the word that is returned first of all in the 10 – MSW block. •WORD8: chronology, “day” (MSB) and ”time” (LSB) •WORD7: chronology, “minutes” (MSB) and ”seconds” (LSB) •WORD6 and 5: current interrupted or temperature (“numeric coding” , [mA] or [°C], WORD6 is returned before WORD5) •WORD4:detail of protection settings that has caused the Trip (reply read only register of the of the “levels” type, see note (1)) •WORD3: detail of protection settings that has caused the Trip (reply Read Only register of the “Times” type , see note (1)) •WORD2: detail of protection settings that has caused the Trip (reply Read Only register of the “options” type, see note (3)to(6)) •WORD1: reply Read Only Bit of the “Tripped” type •WORD0: reply Read Only Bit of the “Tripped” type **N.B.:** WORDs FROM 2 to 4 constitute a single datum and must be read and written in a block. The same applies to WORD 5 and 6, for WORD 7-8-9 and for WORD 0-1. WORD 1: •Bit0 Instantaneous short-circuit relay tripped neutral •Bit1 Device Protection Relay Tripped phase 1(“III element”)

(2)	•Bit1 Device Protection Relay Tripped phase 1(“III element”) •Bit2 Device Protection Relay Tripped phase 2 (“III element”) •Bit3 Device Protection Relay Tripped phase 3 (“III element”) •Bit4 Device Protection Relay Tripped neutral (“III element”) •Bit5 Tripped relay in “Main Setting” Mode •Bit6 Tripped relay in “Dual Setting” Mode •Bit7 Tripped relay in “MEM=OFF” Mode on Overload •Bit8 Tripped relay in “I2t=k” mode on delayable short-circuit •Bit 9 Tripped relay in “Logic Selectivity” mode on delayable short-circuit (intervention performed with Tm Delay) •Bit 10 Tripped relay in “Logic Selectivity” Mode on device protection (intervention carried out with with Delay •SEL=High) •Bit 11 Tripped relay in “I2t=k” Mode on earth •Bit 12 Earth leakage Tripped •Bit 13 ND •Bit 14 ND •Bit 15 Test Tripped (if Electronic Test only Bit15, if Earth Lekeage Test Bit15 and Bit12) WORD 0: •Bit0 Overload Tripped relay P. (no indication of phase) •Bit1 Short-circuit Tripped relay P. (no indications of phase) •Bit2 Device Protection Tripped relay (“III element”, no indications of phase) •Bit3 Earth Tripped relay P. •Bit4 Overtemperature Tripped relay P. •Bit5 Overload phase 1 Tripped relay P. •Bit6 Overload phase 2 Tripped relay P. •Bit7 Overload phase 3 Tripped relay P. •Bit8 Overload neutral Tripped relay P. •Bit9 Delayable short-circuit phase 1 Tripped relay P. •Bit10 Delayable short-circuit phase 2 Tripped relay P. •Bit11 Delayable short-circuit phase 3 Tripped relay P. •Bit12 Delayable short-circuit neutral Tripped relay P. •Bit13 Instantaneous short-circuit phase 1 Tripped relay •Bit14 Instantaneous short-circuit Tripped relay phase 2 •Bit15 Instant short-circuit phase 3 Tripped relay
(3)	Overload options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2=I2t=k MEM OFF(001)/I2t=k MEM ON(000)/Not Defined(111) •Bit7 to 5= “0” •Bit15 to 8=work point for curve I2t, multiple of Ir)
(4)	Delayable short-circuit options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%Ir(0) •Bit4 to 2=curve t=k(001)/I2t=k(000)/Not Defined(111) •Bit7 to 5= “0” •Bit15 to 8=work point for curve I2t, multiple of Ir)
(5)	Instantaneous short-circuit options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2=curve t=k(001)/I2t=k(000)/Not Defined(111) •Bit5= absolute val. divided by 10(1)/absolute value(0) •Bit7 to 6= “0” •Bit15 to 8=work point for curve I2t, multiple of In)

(6)	Device Protection options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2= "0" •Bit5= absolute val. divided by 10(1)/absolute value(0)
(7)	Earth Options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2=curve t=k(001)/I2t=k(000)/Not Defined(111) •Bit7 to 5= "0" •Bit15 to 8=work point for curve I2t, multiple of Ig)
(8)	Neutral options •Bit0=disabled(1)/active(0) •Bit1="0" (%phase) •Bit4 to 2="0" (curve phase) •Bit7 to 5= "0" •Bit15 to 8="0")
(9)	If number of faults < 20, fill the chronology word with 0x0000

Read&Write Registers – Modbus Functions 03-06-16

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
29184	7200	1	***not significant***			

REMARKS:

(1)	"Dual Setting" Command Configuration •Bit10 to 0=activation time ("default"=60 sec, "0"=infinite) •Bit11 to 15="0"

[10] - Measure E_ED

RETURN TO TABLE OF MAPS

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	0			
20481	5001	1	0			
20482	5002	1	0			
20483	5003	1	0			
20484	5004	1	0			
20485	5005	1	0			
20486	5006	1	0			
20487	5007	1	0			
20488	5008	1	0			
20489	5009	1	0			
20490	500A	1	0			

Read & Write Bit - Modbus Functions 01-05-15

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	0			
20481	5001	1	0			

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	Phase current value 1 (R)	[A]	(2),(4)	
20481	5001	1	Phase 2 current value (S)	[A]	(2),(4)	
20482	5002	1	Phase 3 Current Value (T)	[A]	(2),(4)	
20483	5003	1	Neutral Current Value	[A]	(2),(4)	
20484	5004	1	***not significant***			
20485	5005	1	Earth leakage Current Value	[mA]	(2)	
20486	5006	237	***not significant***			

REMARKS:

(1)	Expressed in “numeric coding”; including sign (most significant bit=sign)
(2)	Expressed in “numeric coding”; without sign
(3)	Example: PF=0,85, is expressed as 85 (Measurement unit 1/100)
(3)	the value must be divided by the corresponding multiplying factor indicated in the read and write registers, if the register is not present it must be considered as multiplication factor 1 Example: I1 [A] = Phase 1 Current Value (R) / Current multiplication factor = 1023 / 100 = 10.23A

Read&Write Registers – Modbus Functions 03-06-16

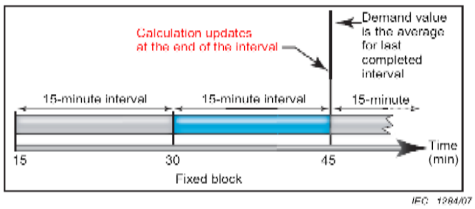
Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	8	***not significant***			
20488	5008	1	Current multiplication factor		(1)	x

20489	5009	102	***not significant***			

REMARKS:

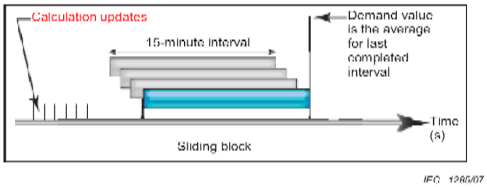
(1)	Expressed in “numeric coding” with sign (most significant bit=sign)
(2)	Expressed in “numeric coding” with sign (always positive value, most significant bit=0)
(3)	**BYTE1 (MSB)** •**11**”: system 1V-1I unipolar •**33**”: system 3V-3I without information on the neutral •**34**”: system 3V-4I **BYTE0 (LSB)** •**00**”: if the active power flows in the normal/indicated direction (“upstream to downstream” or in accordance with the polarity indicated for the connection), “default” •**01**”: if the active power flows in the reverse direction (“downstream to upstream” or vice versa with regard to the polarity indicated for the connection)
(4)	Measurement unit compatible with the magnitude configured to the previous register, multiplied by the reference multiplication factor for that magnitude
(5)	address of the register (absolute value) of the desired magnitude
(6)	**BIT 0** : 1 = The event triggers an alarm, 0 = The event does not trigger the alarm **BIT 1** : 1 = The event generates a Link action, 0 = The event does not generate a Link action **BIT 2** : 0 = alarm activated when value is > of threshold, 1= alarm activated when value is < of threshold
(7)	**BYTE0 (LSB)**: calculation mode •**0**" (”default”): fixed window or “fixed block interval” •**1**": mobile window or “sliding block interval” **BYTE1 (MSB)**: calculation window (value in [sec], 1 to 60, “default”=15)

- fixed block interval: the intervals are consecutive; the PMD calculates and updates the demand at the end of each interval;



NOTE 15 min is only an example.

- sliding block interval: the intervals are sliding; the PMD calculates and updates the demand at the sliding speed.



NOTE 15 min is only an example.

[11] - Measure E_MD

RETURN TO TABLE OF MAPS

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	0			
20481	5001	1	0			
20482	5002	1	0			
20483	5003	1	0			
20484	5004	1	0			
20485	5005	1	0			
20486	5006	1	0			
20487	5007	1	0			
20488	5008	1	0			
20489	5009	1	0			
20490	500A	1	0			

Read & Write Bit - Modbus Functions 01-05-15

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	0			
20481	5001	1	0			

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	Phase current value 1 (R)	[A]	(2),(4)	
20481	5001	1	Phase 2 current value (S)	[A]	(2),(4)	
20482	5002	1	Phase 3 Current Value (T)	[A]	(2),(4)	
20483	5003	1	Neutral Current Value	[A]	(2),(4)	
20484	5004	1	***not significant***			
20485	5005	1	Earth leakage Current Value	[mA]	(2)	
20486	5006	8	***not significant***			
20494	500E	1	Voltage 1-N	[V]	(2),(4)	
20495	500F	1	Voltage 2-N	[V]	(2),(4)	
20496	5010	1	Voltage 3-N	[V]	(2),(4)	
20497	5011	1	Voltage 1-2	[V]	(2),(4)	
20498	5012	1	Voltage1-3	[V]	(2),(4)	
20499	5013	1	Voltage 2-3	[V]	(2),(4)	
20500	5014	12	***not significant***			
20512	5020	1	THD Phase 1 (R) vs. fundamental current	%	(2)	
20513	5021	1	THD Phase 2 (S) vs. fundamental current	%	(2)	
20514	5022	1	THD Phase 3 (T) vs. fundamental current	%	(2)	
20515	5023	1	THD Neutral vs. fundamental current	%	(2)	
20516	5024	1	THD Voltage 1-N vs. fundamental	%	(2)	
20517	5025	1	THD Voltage 2-N vs. fundamental	%	(2)	
20518	5026	1	THD Voltage 3-N vs. fundamental	%	(2)	

20519	5027	3	***not significant***			
20522	502A	1	Three-phase active power	[kW]	(1),(4)	
20523	502B	1	Three-phase reactive power	[kvar]	(1),(4)	
20524	502C	2	***not significant***			
20526	502E	1	Three-phase Apparent Power	[kVA]	(1),(4)	
20527	502F	1	Three-phase power factor (PF)	1/100	(1),(3)	
20528	5030	1	***not significant***			
20529	5031	1	Three-phase Frequency	[Hz]/100	(1),(3)	
20530	5032	2	***not significant***			
20532	5034	2	Positive Three-phase Active Energy	[kWh]	(2),(4)	x
20534	5036	2	Negative Three-phase Active Energy	[kWh]	(2),(4)	x
20536	5038	2	***not significant***			
20538	503A	2	Positive Three-phase Reactive Energy	[kvarh]	(2),(4)	x
20540	503C	2	Negative Three-phase Reactive Energy	[kvarh]	(2),(4)	x
20542	503E	2	***not significant***			
20544	5040	1	Phase 1 Active Power (R)	[kW]	(1),(4)	
20545	5041	1	Phase 2 Active Power (S)	[kW]	(1),(4)	
20546	5042	1	Phase 3 active power (T)	[kW]	(1),(4)	
20547	5043	1	Reactive Power phase 1 (R)	[kvar]	(1),(4)	
20548	5044	1	Reactive Power phase 2 (S)	[kvar]	(1),(4)	
20549	5045	1	Reactive Power phase 3 (T)	[kvar]	(1),(4)	
20550	5046	173	***not significant***			

REMARKS:

(1)	Expressed in “numeric coding”; including sign (most significant bit=sign)
(2)	Expressed in “numeric coding”; without sign
(3)	Example: PF=0,85, is expressed as 85 (Measurement unit 1/100)
(3)	the value must be divided by the corresponding multiplying factor indicated in the read and write registers, if the register is not present it must be considered as multiplication factor 1 Example: I1 [A] = Phase 1 Current Value (R) / Current multiplication factor = 1023 / 100 = 10.23A

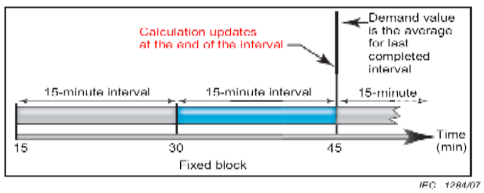
Read&Write Registers – Modbus Functions 03-06-16

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	8	***not significant***			
20488	5008	1	Current multiplication factor		(1)	x
20489	5009	102	***not significant***			

REMARKS:

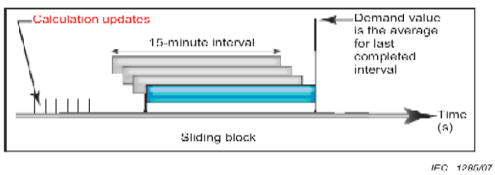
(1)	Expressed in “numeric coding” with sign (most significant bit=sign)
(2)	Expressed in “numeric coding” with sign (always positive value, most significant bit=0)
(3)	**BYTE1 (MSB)** •**11**”: system 1V-1I unipolar •**33**”: system 3V-3I without information on the neutral •**34**”: system 3V-4I **BYTE0 (LSB)** •**00**”: if the active power flows in the normal/indicated direction (“upstream to downstream” or in accordance with the polarity indicated for the connection), “default” •**01**”: if the active power flows in the reverse direction (“downstream to upstream” or vice versa with regard to the polarity indicated for the connection)
(4)	Measurement unit compatible with the magnitude configured to the previous register, multiplied by the reference multiplication factor for that magnitude
(5)	address of the register (absolute value) of the desired magnitude
(6)	**BIT 0** : 1 = The event triggers an alarm, 0 = The event does not trigger the alarm **BIT 1** : 1 = The event generates a Link action, 0 = The event does not generate a Link action **BIT 2** : 0 = alarm activated when value is > of threshold, 1= alarm activated when value is < of threshold
(7)	**BYTE0 (LSB)**: calculation mode •**0**" (”default”): fixed window or “fixed block interval” •**1**": mobile window or “sliding block interval” **BYTE1 (MSB)**: calculation window (value in [sec], 1 to 60, “default”=15)

- fixed block interval: the intervals are consecutive; the PMD calculates and updates the demand at the end of each interval;



NOTE 15 min is only an example.

- sliding block interval: the intervals are sliding; the PMD calculates and updates the demand at the sliding speed.



NOTE 15 min is only an example.

[N°12] - Earth leakage Elec. Protec.

RETURN TO TABLE OF MAPS

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
28672	7000	1	Earth leakage Prealarm (>threshold I_1)		(1)	
28673	7001	1	Earth leakage alarm (>threshold I_2)		(1)	
28674	7002	1	0		(1)	
28675	7003	1	0		(1)	
28676	7004	1	Earth leakage P. Tripped relay		(2)	x
28677	7005	1	0		(2)	x

REMARKS:

(1)	The information shown here “autorestores” when the condition that has generated it no longer applies
(2)	The information shown here is retained even when the condition that has generated it no longer applies. the “restore” condition can only be the reading of the device's closed status. It is therefore necessary that the Switch Status Functionality is present; if it is not, the Tripped Relay information MUST NOT BE IMPLEMENTED (E.g.: if the switch is brought back to Open => the Tripped Relay notification must be maintained until the restore condition kicks in)

Read & Write Bit - Modbus Functions 01-05-15

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
28672	7000	1	0			
28673	7001	1	0			

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
28672	7000	1	Earth leakage P. Tripped Relay (total) counter			x
28673	7001	4	***not significant***			
28677	7005	1	G1 "main setting"- Earth leakage: levels	[mA]	(2)	x
28678	7006	1	G1 - Earth leakage: Times	[msec]	(2)	x
28679	7007	2	***not significant***			

REMARKS:

(1)	Type: reply Read Only Bit of the “Tripped” type : •Bit0=reply of Earth leakage Tripped Relay P. •Bit1=reply of Overtemperature Tripped Relay P. •Bit15-2=0
(2)	VALUE: current interrupted or temperature (“numeric coding” , [mA] or [°C], first of all returns most significant word – MSW) Expressed as "numeric coding"
(3)	In case of devices that SIMULTANEOUSLY implement Three-Phase and Earth leakage Protection this register MUST NOT BE IMPLEMENTED for the purposes of guaranteeing a unique management of “Last Release data Buffer”. the information about the “Earth leakage Protection Tripped Relay”, "Overtemperature P. tripped Relay” and relative values in mA or °C is made available in this case in the register of the same name in Three-phase Protection.

Read&Write Registers – Modbus Functions 03-06-16

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
28672	7000	2	***not significant***			

"MOLDED CASE CIRCUIT BREAKER 250 (without configurable protection unit)" MAPS AND COMMANDS

Revision of Support maps and Commands

REVISION: 1.2.3
DATE: 08/01/2023

Revision of Support maps and Commands for MCCB 250 (without configurable protection unit) devices

- DPX^3 250 S2/Sg / Megatiker M2 LSI/LSIg
REVISION: 2.6.2
DATE: 13/12/2024

Product involved:

- DPX^3 250 S2/Sg

- Megatiker M2 LSI/LSIg (without configurable protection unit)

Product associated:

PRODUCT ITEMS	DESCRIPTION	OBJECT CODE
Legrand: 420302; 420305; 420307; 420309; 420312; 420315; 420317; 420319; 420332; 420335; 420337; 420339; 420342; 420345; 420347; 420349; 420362; 420365; 420367; 420369; 420372; 420375; 420377; 420379; 420635; 420637; 420638; 420639; 420645; 420647; 420648; 420649 Btcino: T723B40E; T723B100E; T723B160E; T723B250E; T724B40E; T724B100E; T724B160E; T724B250E; T723F40E; T723F100E; T723F160E; T723F250E; T724F40E; T724F100E; T724F160E; T724F250E; T723N40E; T723N100E; T723N160E; T723N250E; T724N40E; T724N100E; T724N160E; T724N250E; T723H40E; T723H100E; T723H160E; T723H250E; T724H40E; T724H100E; T724H160E; T724H250E	Legrand: all DPX^3 250 S2 without earth leakage protection Bticino: all Megatiker M2 LSI (without configurable protection unit), without earth leakage protection	0x**140A**
Legrand: 420502; 420505; 420507; 420509; 420512; 420515; 420517; 420519; 420522; 420525; 420527; 420529; 420532; 420535; 420537; 420539; 420542; 420545; 420547; 420549; 420552; 420555; 420557; 420559; 420692; 420695; 420697; 420699; 420702; 420705; 420707; 420709 Bticino: T723B40T; T723B100T; T723B160T; T723B250T; T724B40T; T724B100T; T724B160T; T724B250T; T723F40T; T723F100T; T723F160T; T723F250T; T724F40T; T724F100T; T724F160T; T724F250T; T723N40T; T723N100T; T723N160T; T723N250T; T724N40T; T724N100T; T724N160T; T724N250T; T723H40T; T723H100T; T723H160T; T723H250T; T724H40T; T724H100T; T724H160T; T724H250T	Legrand: all DPX^3 250 Sg with ground fault protection Bticino: all Megatiker M2 LSIg (without configurable protection unit), with ground fault protection	0x**140A**
Legrand: 420322; 420325; 420327; 420329; 420352; 420355; 420357; 420359; 420382; 420385; 420387; 420389; 420655; 420657; 420658; 420659 Bticino: T724B40ED; T724B100ED; T724B160ED; T724B250ED; T724F40ED; T724F100ED; T724F160ED; T724F250ED; T724N40ED; T724N100ED; T724N160ED; 724N250ED; T724H40ED; T724H100ED; T724H160ED; T724H250ED	Legrand: all DPX^3 250 S2 with earth leakage protection Bticino: all Megatiker M2 LSI (without configurable protection unit), with earth leakage protection	0x**140B**

Legrand: 420402; 420405; 420407; 420409; 420412; 420415; 420417; 420419; 420432; 420435; 420437; 420439; 420442; 420445; 420447; 420449; 420462; 420465; 420467; 420469; 420472; 420475; 420477; 420479; 420665; 420667; 420668; 420669; 420675; 420677; 420678; 420679 Bticino: T723B40M; T723B100M; T723B160M; T723B250M; T724B40M; T724B100M; T724B160M; T724B250M; T723F40M; T723F100M; T723F160M; T723F250M; T724F40M; T724F100M; T724F160M; T724F250M; T723N40M; T723N100M; T723N160M; T723N250M; T724N40M; T724N100M; T724N160M; T724N250M; T723H40M; T723H100M; T723H160M; T723H250M; T724H40M; T724H100M; T724H160M; T724H250M	Legrand: all DPX^3 250 S2 without earth leakage protection + measurement Bticino: all Megatiker M2 LSI (without configurable protection unit), without earth leakage protection + measurement	0x**140C**
Legrand: no product available Bticino: T723H40MT; T723H100MT; T723H160MT; T723H250MT; T724H40MT; T724H100MT; T724H160MT; T724H250MT; T723B40MT; T723B100MT; T723B160MT; T723B250MT; T724B40MT; T724B100MT; T724B160MT; T724B250MT; T723F40MT; T723F100MT; T723F160MT; T723F250MT; T724F40MT; T724F100MT; T724F160MT; T724F250MT	Legrand: no product available Bticino: all Megatiker M2 LSIg (without configurable protection unit), with ground fault protection + measurement	0x**140C**
Legrand: 420422; 420425; 420427; 420429; 420452; 420455; 420457; 420459; 420482; 420485; 420487; 420489; 420685; 420687; 420688; 420689 Bticino: T724B40MD; T724B100MD; T724B160MD; T724B250MD; T724F40MD; T724F100MD; T724F160MD; T724F250MD; T724N40MD; T724N100MD; T724N160MD; T724N250MD; T724H40MD; T724H100MD; T724H160MD; T724H250MD	Legand: all DPX^3 250 S2 with earth leakage protection + measurement Bticino: all Megatiker M2 LSI (without configurable protection unit), with earth leakage protection + measurement	0x**140D**

Standard function codes

COMMUNICATION CHANNEL → / COMMANDS ↓	EMS	USB	REMARKS
Read discrete inputs **(0x02)**	x	x	
Read input register **(0x04)**	x	x	

Possible maps per configurations

OBJECT CODE →		0x140A				0x140B	0x140C				0x140D
CONFIGURATION →		3 poles		4 poles		4 poles	3 poles		4 poles		4 poles
MAP↓	N°	S2/LSI	Sg/LSIg	S2/LSI	Sg/LSIg	S2/LSI	S2/LSI	Sg/LSIg	S2/LSI	Sg/LSIg	S2/LSI
Switch Status	[1]	X	X	X	X	X	X	X	X	X	X
Elect Proct S 3P	[2]	X					X				
3P	[3]	X									
Elect Proct S 4P	[4]			X		X			X		X
4P	[5]			X							
3P + Measure	[6]						X				
4P + Measure	[7]								X		
Thermal Measurement	[8]	X	X	X	X	X	X	X	X	X	X
4P + Ground	[9]				X						
RCD Base	[10]					X					X
4P + RCD	[11]					X					
3P + Ground + Measure	[12]							X			
Elect Proct S 3P + Ground	[13]		X					X			
3P + Ground	[14]		X								
Elect Proct S 4P + Ground	[15]				X					X	
4P + Ground + Measure	[16]									X	
4P RCD + Measure	[17]										X

Map lists

[N°1] - Switch Status (switch Status Functionality) - BASE

RETURN TO TABLE OF MAPS

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
16384	4000	1	Open		(1)	
16385	4001	1	Closed		(1)	
16386	4002	1	Single tripped switch/ Tripped group of switches		(1),(2)	
16387	4003	1	0		(1)	
16388	4004	1	0		(1)	

REMARKS:

(1)	the information shown here “autorestores” when the condition that has generated it is lost (E.G.: TRIPPED is the faithful response of the device's mechanical contact Where there is a MAN/AUT operating mode selector switch, this notification can only persist if MAN is set);
(5)	if this functionality is used in switch group tripped mode (panel tripped), the bit contains the OR of the tripped of the switches belonging to the group.

Read & Write Bit - Modbus Functions 01-05-15

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
16384	4000	1	0			X

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
16384	4000	1	***not significant***			
16385	4001	1	Intervention Meter (total, cannot be reset at zero by the customer)			x
16386	4002	1	Maximum Manoeuvre Number (cannot be configured by the customer)			x
16387	4003	1	Switch Features – Rated current	[A]	(1)	x
16388	4004	1	Switch features – Type/Poles		(2)	x
16389	4005	1	Switch features – Breaking capacity	[kA]/100	(3)	x

REMARKS:

(1)	RATED CURRENT (numeric coding, [A])
(2)	TYPE/POLES •MSB – DEVICE TYPE Bit 0=insulator (0)/int. Automatic (1), Bit 1=repulsive switch (0)/ not repulsive switch (1) Bit 7-2="0" •LSB – POLES Bit 0 to 3: Number of poles: numeric value (1 to 4) Bit 4 Neutral position (left(1)/right(0)) Bit 5 :Neutral external (1) (only 3 poles) Bit 7-6= "0"
(3)	BREAKING CAPACITY: (numeric coding, [kA/100]. Example: 4,5kA is coded in "hundredths of kA", therefore 4.5 becomes 450)

Read&Write Registers – Modbus Functions 03-06-16

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
16384	4000	1	***not significant***			

REMARKS:

(1)	bit 0: Open Status active high = 0, input active low = 1 (default = 0) bit 1: Closed Status active high = 0, input active low = 1 (default = 0) bit 2: Tripped Status active high = 0, input active low = 1 (default = 0) bit 3: Alarm on Status Open active = 1, deactivated = 0 (default = 0) bit 4: Alarm on Status Closed active = 1, deactivated = 0 (default = 0) bit 5: Alarm on Tripped Status active = 1, deactivated = 0 (default = 1) bit 15-6 : Not used

[N°2] - Elect Proct S 3P

RETURN TO TABLE OF MAPS

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
29184	7200	1	Overload Prealarm (>threshold I1)		(1)	
29185	7201	1	Overload alarm (>thresholdI2)		(1)	
29186	7202	1	0		(1)	
29187	7203	1	0		(1)	
29188	7204	1	Alarm 1 Overtemperature (>threshold T)		(1)	
29189	7205	1	0		(1)	
29190	7206	1	0		(1)	
29191	7207	1	0		(1)	
29192	7208	1	0		(1)	
29193	7209	1	Overload Tripped relay P. (no indication of phase)		(2)	x
29194	720A	1	Short-circuit Tripped relay P. (no indications of phase)		(2)	x
29195	720B	1	Device Protection Tripped relay (“III element”, no indications of phase)		(2)	x
29196	720C	1	0		(2)	x
29197	720D	1	Tripped relay P. Overtemperature		(2)	x
29198	720E	1	0		(2)	x
29199	720F	1	0		(2)	x
29200	7210	1	0		(2)	x
29201	7211	1	0		(2)	x
29202	7212	1	0		(2)	x
29203	7213	1	0		(2)	x
29204	7214	1	0		(2)	x
29205	7215	1	0		(2)	x
29206	7216	1	0		(2)	x
29207	7217	1	0		(2)	x
29208	7218	1	0		(2)	x
29209	7219	1	0		(2)	x
29210	721A	1	0		(2)	x
29211	721B	1	0		(2)	x
29212	721C	1	0		(2)	x
29213	721D	1	0		(2)	x
29214	721E	1	0		(2)	x
29215	721F	1	0		(2)	x
29216	7220	1	0		(2)	x
29217	7221	1	0		(2)	x
29218	7222	1	0		(2)	x
29219	7223	1	0		(2)	x
29220	7224	1	0		(2)	x
29221	7225	1	0		(1)	
29222	7226	1	0		(1)	
29223	7227	1	0		(1)	
29224	7228	1	0		(1)	
29225	7229	1	0		(1)	
29226	722A	1	0		(1)	
29227	722B	1	0		(1)	
29228	722C	1	0		(1)	
29229	722D	1	0		(1)	
29230	722E	1	0		(1)	
29231	722F	1	0		(1)	
29232	7230	1	0		(3)	

REMARKS:

(1)	The information shown here “restores” itself when the condition that has generated it no longer applies
(2)	The information shown here applies even when the condition generating it has disappeared. the "restore" conditions can be (equivalent, alternatively): • the measurement of the Closed Status of the Device • the measurement of a minimum current value on the phases. The Switch Status Functionality is therefore not binding (Example : if the switch is returned to Open => the Tripped relay notification must be kept until the restore condition kicks in).
(3)	It indicates that an anomaly has been detected in the “Dual Setting” settings, in particular one or more levels have been found to be greater than the corresponding “Main Setting”.

Read & Write Bit - Modbus Functions 01-05-15

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
29184	7200	1	0			
29185	7201	1	0			

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
29184	7200	10	***not significant***			
29194	720A	1	Overload Tripped relay P counter (total) (no indication of phase)			x
29195	720B	1	Delayable Short-circuit Tripped relay P counter (total) (no indications of phase)			x
29196	720C	1	***not significant***			
29197	720D	1	Device protection Tripped relay counter (total) ("III element", no indications of phase)			x
29198	720E	1	***not significant***			
29199	720F	1	Overtemperature Tripped relay P counter (total)			x
29200	7210	10	Last Release Data Buffer		(2),(9),(10)	x
29210	721A	10	Last 20 (most recent) Releases Data Buffer		(2),(9),(10)	x
29220	7224	10	Last 20 Releases Data Buffer		(2),(9),(10)	x
29230	722E	10	Last 20 Releases Data Buffer		(2),(9),(10)	x
29240	7238	10	Last 20 Releases Data Buffer		(2),(9),(10)	x
29250	7242	10	Last 20 Releases Data Buffer		(2),(9),(10)	x
29260	724C	10	Last 20 Releases Data Buffer		(2),(9),(10)	x
29270	7256	10	Last 20 Releases Data Buffer		(2),(9),(10)	x
29280	7260	10	Last 20 Releases Data Buffer		(2),(9),(10)	x
29290	726A	10	Last 20 Releases Data Buffer		(2),(9),(10)	x
29300	7274	10	Last 20 Releases Data Buffer		(2),(9),(10)	x
29310	727E	10	Not available, see note (10)		(2),(9),(10)	x

29320	7288	10	Not available, see note (10)		(2),(9),(10)	x
29330	7292	10	Not available, see note (10)		(2),(9),(10)	x
29340	729C	10	Not available, see note (10)		(2),(9),(10)	x
29350	72A6	10	Not available, see note (10)		(2),(9),(10)	x
29360	72B0	10	Not available, see note (10)		(2),(9),(10)	x
29370	72BA	10	Not available, see note (10)		(2),(9),(10)	x
29380	72C4	10	Not available, see note (10)		(2),(9),(10)	x
29390	72CE	10	Not available, see note (10)		(2),(9),(10)	x
29400	72D8	10	Not available, see note (10)		(2),(9),(10)	x
29410	72E2	1	G1 ("main setting")- Overload: levels	[A]/[%]	(1),(3)	x
29411	72E3	1	G1 - Overload: Times	[msec]	(1)	x
29412	72E4	1	G1 - Overload: options		(3)	x
29413	72E5	2	G1 - delayable short-circuit: levels	[A]/[%]	(1),(4)	x
29415	72E7	1	G1 - delayable short-circuit: Times	[msec]	(1)	x
29416	72E8	1	G1 - delayable short-circuit: options		(4)	x
29417	72E9	4	***not significant***			
29421	72ED	2	G1 - device protection: levels	[A]	(1),(6)	x
29423	72EF	1	G1 - device protection: Times	[msec]	(1)	x
29424	72F0	1	G1 - device protection: options		(6)	x
29425	72F1	6	***not significant***			
29431	72F7	1	G1 - overtemperature protection: levels	[°C]	(1)	x
29432	72F8	11	***not significant***			

REMARKS:

(1)	Expressed in “numeric coding”
(2)	DATA BUFFER Last releases: by reading all the ten words the values are returned in the values indicated below •WORD9 : chronology, “year” (MSB) and “month ” (LSB); it is the word that is returned first of all in the 10 – MSW block. •WORD8: chronology, “day” (MSB) and ”time” (LSB) •WORD7: chronology, “minutes” (MSB) and ”seconds” (LSB) •WORD6 and 5: current interrupted or temperature (“numeric coding” , [mA] or [°C], WORD6 is returned before WORD5) •WORD4:detail of protection settings that has caused the Trip (reply read only register of the of the “levels” type, see note (1)) •WORD3: detail of protection settings that has caused the Trip (reply Read Only register of the “Times” type , see note (1)) •WORD2: detail of protection settings that has caused the Trip (reply Read Only register of the “options” type, see note (3)to(6)) •WORD1: reply Read Only Bit of the “Tripped” type •WORD0: reply Read Only Bit of the “Tripped” type N.B.: WORDs FROM 2 to 4 constitute a single datum and must be read and written in a block. The same applies to WORD 5 and 6, for WORD 7-8-9 and for WORD 0-1. WORD 1: •Bit0 Instantaneous short-circuit relay tripped neutral •Bit1 Device Protection Relay Tripped phase 1(“III element”) •Bit2 Device Protection Relay Tripped phase 2 (“III element”) •Bit3 Device Protection Relay Tripped phase 3 (“III element”) •Bit4 Device Protection Relay Tripped neutral (“III element”) •Bit5 Tripped relay in “Main Setting” Mode •Bit6 Tripped relay in “Dual Setting” Mode •Bit7 Tripped relay in “MEM=OFF” Mode on Overload •Bit8 Tripped relay in “I2t=k” mode on delayable short-circuit •Bit 9 Tripped relay in “Logic Selectivity” mode on delayable short-circuit (intervention performed with Tm Delay) •Bit 10 Tripped relay in “Logic Selectivity” Mode on device protection (intervention carried out with with Delay •SEL=High) •Bit 11 Tripped relay in “I2t=k” Mode on earth •Bit 12 Earth leakage Tripped •Bit 13 ND •Bit 14 ND •Bit 15 Test Tripped (if Electronic Test only Bit15, if Earth Lekeage Test Bit15 and Bit12) WORD 0: •Bit0 Overload Tripped relay P. (no indication of phase) •Bit1 Short-circuit Tripped relay P. (no indications of phase) •Bit2 Device Protection Tripped relay (“III element”, no indications of phase) •Bit3 Earth Tripped relay P. •Bit4 Overtemperature Tripped relay P. •Bit5 Overload phase 1 Tripped relay P. •Bit6 Overload phase 2 Tripped relay P.

	•Bit6 Overload phase 2 Tripped relay P. •Bit7 Overload phase 3 Tripped relay P. •Bit8 Overload neutral Tripped relay P. •Bit9 Delayable short-circuit phase 1 Tripped relay P. •Bit10 Delayable short-circuit phase 2 Tripped relay P. •Bit11 Delayable short-circuit phase 3 Tripped relay P. •Bit12 Delayable short-circuit neutral Tripped relay P. •Bit13 Instantaneous short-circuit phase 1 Tripped relay •Bit14 Instantaneous short-circuit Tripped relay phase 2 •Bit15 Instant short-circuit phase 3 Tripped relay
(3)	Overload options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2=I2t=k MEM OFF(001)/I2t=k MEM ON(000)/Not Defined(111) •Bit7 to 5= “0” •Bit15 to 8=work point for curve I2t, multiple of Ir)
(4)	Delayable short-circuit options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%Ir(0) •Bit4 to 2=curve t=k(001)/I2t=k(000)/Not Defined(111) •Bit7 to 5= “0” •Bit15 to 8=work point for curve I2t, multiple of Ir)
(5)	Instantaneous short-circuit options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2=curve t=k(001)/I2t=k(000)/Not Defined(111) •Bit5= absolute val. divided by 10(1)/absolute value(0) •Bit7 to 6= “0” •Bit15 to 8=work point for curve I2t, multiple of In)
(6)	Device Protection options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2= “0” •Bit5= absolute val. divided by 10(1)/absolute value(0)
(7)	Earth Options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2=curve t=k(001)/I2t=k(000)/Not Defined(111) •Bit7 to 5= “0” •Bit15 to 8=work point for curve I2t, multiple of Ig)
(8)	Neutral options •Bit0=disabled(1)/active(0) •Bit1=”0” (%phase) •Bit4 to 2=”0” (curve phase) •Bit7 to 5= “0” •Bit15 to 8=”0”)
(9)	If number of faults < 20, fill the chronology word with 0x0000
(10)	Register value when is not available: 0x80000000000080000000800000000000080000000

Read&Write Registers – Modbus Functions 03-06-16

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
29184	7200	1	"Dual Setting" Command Configuration	[sec]	(1)	X

REMARKS:

(1)	"Dual Setting" Command Configuration •Bit10 to 0=activation time ("default"=60 sec, "0"=infinite) •Bit11 to 15="0"

[N°3] - 3P - EVOLVED

RETURN TO TABLE OF MAPS

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	0			
20481	5001	1	0			
20482	5002	1	0			
20483	5003	1	0			
20484	5004	1	0			
20485	5005	1	0			
20486	5006	1	0			
20487	5007	1	0			
20488	5008	1	0			
20489	5009	1	0			
20490	500A	1	0			

Read & Write Bit - Modbus Functions 01-05-15

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	0			
20481	5001	1	0			

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	Phase current value 1 (R)	[A]	(2),(4)	
20481	5001	1	Phase 2 current value (S)	[A]	(2),(4)	
20482	5002	1	Phase 3 Current Value (T)	[A]	(2),(4)	
20483	5003	240	***not significant***			

REMARKS:

(1)	Expressed in “numeric coding”; including sign (most significant bit=sign)
(5)	Expressed in “numeric coding”; without sign
(3)	Example: PF=0,85, is expressed as 85 (Measurement unit 1/100)
(4)	the value must be divided by the corresponding multiplying factor indicated in the read and write registers, if the register is not present it must be considered as multiplication factor 1 Example: I1 [A] = Phase 1 Current Value (R) / Current multiplication factor = 1023 / 100 = 10.23A

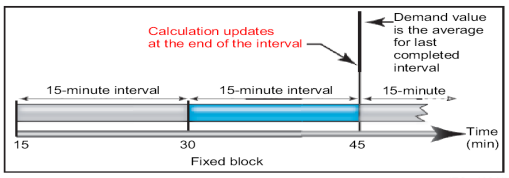
Read&Write Registers – Modbus Functions 03-06-16

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	111	***not significant***			

REMARKS:

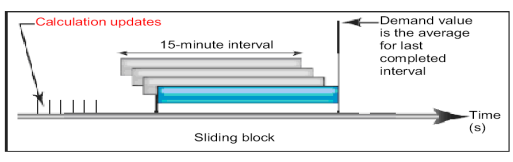
(1)	Expressed in “numeric coding” with sign (most significant bit=sign)
(2)	Expressed in “numeric coding” with sign (always positive value, most significant bit=0)
(3)	**BYTE1 (MSB)** •**11**”: system 1V-1I unipolar •**33**”: system 3V-3I without information on the neutral •**34**”: system 3V-4I **BYTE0 (LSB)** •**00**”: if the active power flows in the normal/indicated direction (“upstream to downstream” or in accordance with the polarity indicated for the connection), “default” •**01**”: if the active power flows in the reverse direction (“downstream to upstream” or vice versa with regard to the polarity indicated for the connection)
(4)	Measurement unit compatible with the magnitude configured to the previous register, multiplied by the reference multiplication factor for that magnitude
(5)	address of the register (absolute value) of the desired magnitude
(6)	**BIT 0** : 1 = The event triggers an alarm, 0 = The event does not trigger the alarm **BIT 1** : 1 = The event generates a Link action, 0 = The event does not generate a Link action **BIT 2** : 0 = alarm activated when value is > of threshold, 1= alarm activated when value is < of threshold
(7)	**BYTE0 (LSB)**: calculation mode •0" (”default”): fixed window or “fixed block interval” •1": mobile window or “sliding block interval” **BYTE1 (MSB)**: calculation window (value in [sec], 1 to 60, “default”=15)

- fixed block interval: the intervals are consecutive; the PMD calculates and updates the demand at the end of each interval;



NOTE 15 min is only an example.

- sliding block interval: the intervals are sliding; the PMD calculates and updates the demand at the sliding speed.



NOTE 15 min is only an example.

[N°4] - Elect Proct S 4P - STANDARD

RETURN TO TABLE OF MAPS

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
29184	7200	1	Overload Prealarm (>threshold I1)		(1)	
29185	7201	1	Overload alarm (>thresholdI2)		(1)	
29186	7202	1	0		(1)	
29187	7203	1	0		(1)	
29188	7204	1	Alarm 1 Overtemperature (>threshold T)		(1)	
29189	7205	1	0		(1)	
29190	7206	1	0		(1)	
29191	7207	1	0		(1)	
29192	7208	1	0		(1)	
29193	7209	1	Overload Tripped relay P. (no indication of phase)		(2)	x
29194	720A	1	Short-circuit Tripped relay P. (no indications of phase)		(2)	x
29195	720B	1	Device Protection Tripped relay (“III element”, no indications of phase)		(2)	x
29196	720C	1	0		(2)	x
29197	720D	1	Tripped relay P. Overtemperature		(2)	x
29198	720E	1	0		(2)	x
29199	720F	1	0		(2)	x
29200	7210	1	0		(2)	x
29201	7211	1	0		(2)	x
29202	7212	1	0		(2)	x
29203	7213	1	0		(2)	x
29204	7214	1	0		(2)	x
29205	7215	1	0		(2)	x
29206	7216	1	0		(2)	x
29207	7217	1	0		(2)	x
29208	7218	1	0		(2)	x
29209	7219	1	0		(2)	x
29210	721A	1	0		(2)	x
29211	721B	1	0		(2)	x
29212	721C	1	0		(2)	x
29213	721D	1	0		(2)	x
29214	721E	1	0		(2)	x
29215	721F	1	0		(2)	x
29216	7220	1	0		(2)	x
29217	7221	1	0		(2)	x
29218	7222	1	0		(2)	x
29219	7223	1	0		(2)	x
29220	7224	1	0		(2)	x
29221	7225	1	0		(1)	

29222	7226	1	0		(1)	
29223	7227	1	0		(1)	
29224	7228	1	0		(1)	
29225	7229	1	0		(1)	
29226	722A	1	0		(1)	
29227	722B	1	0		(1)	
29228	722C	1	0		(1)	
29229	722D	1	0		(1)	
29230	722E	1	0		(1)	
29231	722F	1	0		(1)	
29232	7230	1	0		(3)	

REMARKS:

(1)	The information shown here “restores” itself when the condition that has generated it no longer applies
(2)	The information shown here applies even when the condition generating it has disappeared. the "restore" conditions can be (equivalent, alternatively): • The measurement of the Closed Status of the Device • The measurement of a minimum current value on the phases. The Switch Status Functionality is therefore not binding (Example : if the switch is returned to Open => the Tripped relay notification must be kept until the restore condition kicks in).
(3)	It indicates that an anomaly has been detected in the “Dual Setting” settings, in particular one or more levels have been found to be greater than the corresponding “Main Setting”.

Read & Write Bit - Modbus Functions 01-05-15

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
29184	7200	1	0			
29185	7201	1	0			

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
29184	7200	10	***not significant***			
29194	720A	1	Overload Tripped relay P counter (total) (no indication of phase)			x
29195	720B	1	Delayable Short-circuit Tripped relay P counter (total) (no indications of phase)			x
29196	720C	1	***not significant***			
29197	720D	1	Device protection Tripped relay counter (total) ("III element", no indications of phase)			x
29198	720E	1	***not significant***			
29199	720F	1	Overtemperature Tripped relay P counter (total)			x
29200	7210	10	Last Release Data Buffer		(2),(9),(10)	x
29210	721A	10	Last 20 (most recent) Releases Data Buffer		(2),(9),(10)	x
29220	7224	10	Last 20 Releases Data Buffer		(2),(9),(10)	x

29230	722E	10	Last 20 Releases Data Buffer		(2),(9),(10)	x
29240	7238	10	Last 20 Releases Data Buffer		(2),(9),(10)	x
29250	7242	10	Last 20 Releases Data Buffer		(2),(9),(10)	x
29260	724C	10	Last 20 Releases Data Buffer		(2),(9),(10)	x
29270	7256	10	Last 20 Releases Data Buffer		(2),(9),(10)	x
29280	7260	10	Last 20 Releases Data Buffer		(2),(9),(10)	x
29290	726A	10	Last 20 Releases Data Buffer		(2),(9),(10)	x
29300	7274	10	Last 20 Releases Data Buffer		(2),(9),(10)	x
29310	727E	10	Not available, see note (10)		(2),(9),(10)	x
29320	7288	10	Not available, see note (10)		(2),(9),(10)	x
29330	7292	10	Not available, see note (10)		(2),(9),(10)	x
29340	729C	10	Not available, see note (10)		(2),(9),(10)	x
29350	72A6	10	Not available, see note (10)		(2),(9),(10)	x
29360	72B0	10	Not available, see note (10)		(2),(9),(10)	x
29370	72BA	10	Not available, see note (10)		(2),(9),(10)	x
29380	72C4	10	Not available, see note (10)		(2),(9),(10)	x
29390	72CE	10	Not available, see note (10)		(2),(9),(10)	x
29400	72D8	10	Not available, see note (10)		(2),(9),(10)	x
29410	72E2	1	G1 ("main setting")- Overload: levels	[A]/[%]	(1),(3)	x
29411	72E3	1	G1 - Overload: Times	[msec]	(1)	x
29412	72E4	1	G1 - Overload: options		(3)	x
29413	72E5	2	G1 - delayable short-circuit: levels	[A]/[%]	(1),(4)	x
29415	72E7	1	G1 - delayable short-circuit: Times	[msec]	(1)	x
29416	72E8	1	G1 - delayable short-circuit: options		(4)	x
29417	72E9	4	***not significant***			
29421	72ED	2	G1 - device protection: levels	[A]	(1),(6)	x
29423	72EF	1	G1 - device protection: Times	[msec]	(1)	x
29424	72F0	1	G1 - device protection: options		(6)	x
29425	72F1	3	***not significant***			
29428	72F4	1	G1 - neutral protection: levels	[%]	(1),(8)	x
29429	72F5	1	***not significant***			
29430	72F6	1	G1 - neutral protection: options		(8)	x
29431	72F7	1	G1 - overtemperature protection: levels	[°C]	(1)	x
29432	72F8	11	***not significant***	[msec]	(1)	x

REMARKS:

(1)	Expressed in “numeric coding”
(2)	**DATA BUFFER** Last releases: by reading all the ten words the values are returned in the values indicated below •WORD9 : chronology, “year” (MSB) and “month ” (LSB); it is the word that is returned first of all in the 10 – MSW block. •WORD8: chronology, “day” (MSB) and ”time” (LSB) •WORD7: chronology, “minutes” (MSB) and ”seconds” (LSB) •WORD6 and 5: current interrupted or temperature (“numeric coding” , [mA] or [°C], WORD6 is returned before WORD5) •WORD4:detail of protection settings that has caused the Trip (reply read only register of the of the “levels” type, see note (1)) •WORD3: detail of protection settings that has caused the Trip (reply Read Only register of the “Times” type , see note (1)) •WORD2: detail of protection settings that has caused the Trip (reply Read Only register of the “options” type, see note (3)to(6)) •WORD1: reply Read Only Bit of the “Tripped” type •WORD0: reply Read Only Bit of the “Tripped” type **N.B.:** WORDs FROM 2 to 4 constitute a single datum and must be read and written in a block. The same applies to WORD 5 and 6, for WORD 7-8-9 and for WORD 0-1. WORD 1: •Bit0 Instantaneous short-circuit relay tripped neutral •Bit1 Device Protection Relay Tripped phase 1(“III element”) •Bit2 Device Protection Relay Tripped phase 2 (“III element”) •Bit3 Device Protection Relay Tripped phase 3 (“III element”) •Bit4 Device Protection Relay Tripped neutral (“III element”) •Bit5 Tripped relay in “Main Setting” Mode •Bit6 Tripped relay in “Dual Setting” Mode •Bit7 Tripped relay in “MEM=OFF” Mode on Overload •Bit8 Tripped relay in “I2t=k” mode on delayable short-circuit •Bit 9 Tripped relay in “Logic Selectivity” mode on delayable short-circuit (intervention performed with Tm Delay) •Bit 10 Tripped relay in “Logic Selectivity” Mode on device protection (intervention carried out with with Delay •SEL=High) •Bit 11 Tripped relay in “I2t=k” Mode on earth •Bit 12 Earth leakage Tripped •Bit 13 ND •Bit 14 ND •Bit 15 Test Tripped (if Electronic Test only Bit15, if Earth Lekeage Test Bit15 and Bit12) WORD 0: •Bit0 Overload Tripped relay P. (no indication of phase) •Bit1 Short-circuit Tripped relay P. (no indications of phase) •Bit2 Device Protection Tripped relay (“III element”, no indications of phase) •Bit3 Earth Tripped relay P. •Bit4 Overtemperature Tripped relay P. •Bit5 Overload phase 1 Tripped relay P. •Bit6 Overload phase 2 Tripped relay P.

	•Bit6 Overload phase 2 Tripped relay P. •Bit7 Overload phase 3 Tripped relay P. •Bit8 Overload neutral Tripped relay P. •Bit9 Delayable short-circuit phase 1 Tripped relay P. •Bit10 Delayable short-circuit phase 2 Tripped relay P. •Bit11 Delayable short-circuit phase 3 Tripped relay P. •Bit12 Delayable short-circuit neutral Tripped relay P. •Bit13 Instantaneous short-circuit phase 1 Tripped relay •Bit14 Instantaneous short-circuit Tripped relay phase 2 •Bit15 Instant short-circuit phase 3 Tripped relay
(3)	Overload options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2=I2t=k MEM OFF(001)/I2t=k MEM ON(000)/Not Defined(111) •Bit7 to 5= “0” •Bit15 to 8=work point for curve I2t, multiple of Ir)
(4)	Delayable short-circuit options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%Ir(0) •Bit4 to 2=curve t=k(001)/I2t=k(000)/Not Defined(111) •Bit7 to 5= “0” •Bit15 to 8=work point for curve I2t, multiple of Ir)
(5)	Instantaneous short-circuit options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2=curve t=k(001)/I2t=k(000)/Not Defined(111) •Bit5= absolute val. divided by 10(1)/absolute value(0) •Bit7 to 6= “0” •Bit15 to 8=work point for curve I2t, multiple of In)
(6)	Device Protection options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2= “0” •Bit5= absolute val. divided by 10(1)/absolute value(0)

(7)	Earth Options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2=curve t=k(001)/I2t=k(000)/Not Defined(111) •Bit7 to 5= “0” •Bit15 to 8=work point for curve I2t, multiple of Ig)
(8)	Neutral options •Bit0=disabled(1)/active(0) •Bit1=”0” (%phase) •Bit4 to 2=”0” (curve phase) •Bit7 to 5= “0” •Bit15 to 8=”0”)
(9)	If number of faults < 20, fill the chronology word with 0x0000
(10)	Register value when is not available: 0x8000000000008000000080000000000080000000

Read&Write Registers – Modbus Functions 03-06-16

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
29184	7200	1	“Dual Setting” Command Configuration	[sec]	(1)	X

REMARKS:

(1)	“Dual Setting” Command Configuration •Bit10 to 0=activation time (“default”=60 sec, “0”=infinite) •Bit11 to 15=”0”

[5] - 4P - EVOLVED

RETURN TO TABLE OF MAPS

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	0			
20481	5001	1	0			
20482	5002	1	0			
20483	5003	1	0			
20484	5004	1	0			
20485	5005	1	0			
20486	5006	1	0			
20487	5007	1	0			
20488	5008	1	0			
20489	5009	1	0			
20490	500A	1	0			

Read & Write Bit - Modbus Functions 01-05-15

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	0			
20481	5001	1	0			

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	Phase current value 1 (R)	[A]	(2),(4)	
20481	5001	1	Phase 2 current value (S)	[A]	(2),(4)	
20482	5002	1	Phase 3 Current Value (T)	[A]	(2),(4)	
20483	5003	1	Neutral Current Value	[A]	(2),(4)	
20484	5004	239	***not significant***			

REMARKS:

(1)	Expressed in “numeric coding”; including sign (most significant bit=sign)
(2)	Expressed in “numeric coding”; without sign
(3)	Example: PF=0,85, is expressed as 85 (Measurement unit 1/100)
(3)	the value must be divided by the corresponding multiplying factor indicated in the read and write registers, if the register is not present it must be considered as multiplication factor 1 Example: I1 [A] = Phase 1 Current Value (R) / Current multiplication factor = 1023 / 100 = 10.23A

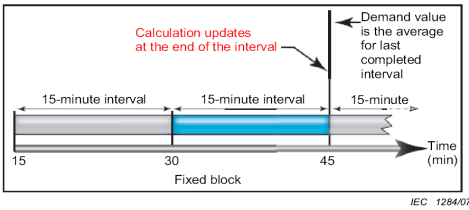
Read&Write Registers – Modbus Functions 03-06-16

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	111	***not significant***			

REMARKS:

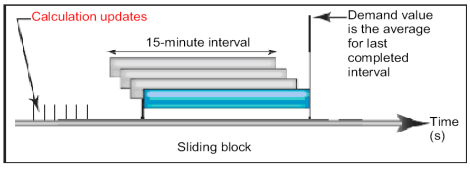
(1)	Expressed in “numeric coding” with sign (most significant bit=sign)
(2)	Expressed in “numeric coding” with sign (always positive value, most significant bit=0)
(3)	**BYTE1 (MSB)** •**11**”: system 1V-1I unipolar •**33**”: system 3V-3I without information on the neutral •**34**”: system 3V-4I **BYTE0 (LSB)** •**00**”: if the active power flows in the normal/indicated direction (“upstream to downstream” or in accordance with the polarity indicated for the connection), “default” •**01**”: if the active power flows in the reverse direction (“downstream to upstream” or vice versa with regard to the polarity indicated for the connection)
(4)	Measurement unit compatible with the magnitude configured to the previous register, multiplied by the reference multiplication factor for that magnitude
(5)	address of the register (absolute value) of the desired magnitude
(6)	**BIT 0** : 1 = The event triggers an alarm, 0 = The event does not trigger the alarm **BIT 1** : 1 = The event generates a Link action, 0 = The event does not generate a Link action **BIT 2** : 0 = alarm activated when value is > of threshold, 1= alarm activated when value is < of threshold
(7)	**BYTE0 (LSB)**: calculation mode •**0**" (”default”): fixed window or “fixed block interval” •**1**": mobile window or “sliding block interval” **BYTE1 (MSB)**: calculation window (value in [sec], 1 to 60, “default”=15)

- fixed block interval: the intervals are consecutive; the PMD calculates and updates the demand at the end of each interval;



NOTE 15 min is only an example.

- sliding block interval: the intervals are sliding; the PMD calculates and updates the demand at the sliding speed.



NOTE 15 min is only an example.

[6] - 3P + Measure - EVOLVED

RETURN TO TABLE OF MAPS

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	0			
20481	5001	1	0			
20482	5002	1	0			
20483	5003	1	0			
20484	5004	1	0			
20485	5005	1	0			
20486	5006	1	0			
20487	5007	1	0			
20488	5008	1	0			
20489	5009	1	0			
20490	500A	1	0			

Read & Write Bit - Modbus Functions 01-05-15

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	0			
20481	5001	1	0			

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	Phase current value 1 (R)	[A]	(2),(4)	
20481	5001	1	Phase 2 current value (S)	[A]	(2),(4)	
20482	5002	1	Phase 3 Current Value (T)	[A]	(2),(4)	
20483	5003	14	***not significant***			
20497	5011	1	Voltage 1-2	[V]	(2),(4)	
20498	5012	1	Voltage1-3	[V]	(2),(4)	
20499	5013	1	Voltage 2-3	[V]	(2),(4)	
20500	5014	12	***not significant***			
20512	5020	1	THD Phase 1 (R) vs. fundamental current	%	(2)	
20513	5021	1	THD Phase 2 (S) vs. fundamental current	%	(2)	
20514	5022	1	THD Phase 3 (T) vs. fundamental current	%	(2)	
20515	5023	4	***not significant***			
20519	5027	1	THD Voltage 1-2 vs. fundamental	%	(2)	
20520	5028	1	THD Voltage 1-3 vs. fundamental	%	(2)	
20521	5029	1	THD Voltage 2-3 vs. fundamental	%	(2)	
20522	502A	1	Three-phase active power	[kW]	(1),(4)	
20523	502B	1	Three-phase reactive power	[kVar]	(1),(4)	
20524	502C	2	***not significant***			
20526	502E	1	Three-phase Apparent Power	[kVA]	(1),(4)	
20527	502F	1	Three-phase power factor (PF)	1/100	(1),(3)	

20528	5030	1	***not significant***			
20529	5031	1	Three-phase Frequency	[Hz]/100	(1),(3)	
20530	5032	2	***not significant***			
20532	5034	2	Positive Three-phase Active Energy	[kWh]	(2),(4)	x
20534	5036	2	Negative Three-phase Active Energy	[kWh]	(2),(4)	x
20536	5038	2	***not significant***			
20538	503A	2	Positive Three-phase Reactive Energy	[kVar]	(2),(4)	x
20540	503C	2	Negative Three-phase Reactive Energy	[kVar]	(2),(4)	x
20542	503E	2	***not significant***			
20544	5040	1	Phase 1 Active Power (R)	[kW]	(1),(4)	
20545	5041	1	Phase 2 Active Power (S)	[kW]	(1),(4)	
20546	5042	1	Phase 3 active power (T)	[kW]	(1),(4)	
20547	5043	1	Reactive Power phase 1 (R)	[kVar]	(1),(4)	
20548	5044	1	Reactive Power phase 2 (S)	[kVar]	(1),(4)	
20549	5045	1	Reactive Power phase 3 (T)	[kVar]	(1),(4)	
20550	5046	173	***not significant***			

REMARKS:

(1)	Expressed in “numeric coding”; including sign (most significant bit=sign)
(2)	Expressed in “numeric coding”; without sign
(3)	Example: PF=0,85, is expressed as 85 (Measurement unit 1/100)
(3)	the value must be divided by the corresponding multiplying factor indicated in the read and write registers, if the register is not present it must be considered as multiplication factor 1 Example: I1 [A] = Phase 1 Current Value (R) / Current multiplication factor = 1023 / 100 = 10.23A

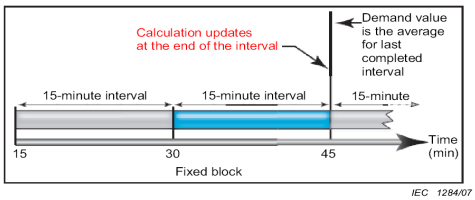
Read&Write Registers – Modbus Functions 03-06-16

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	111	***not significant***			

REMARKS:

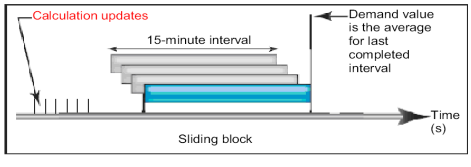
(1)	Expressed in “numeric coding” with sign (most significant bit=sign)
(2)	Expressed in “numeric coding” with sign (always positive value, most significant bit=0)
(3)	**BYTE1 (MSB)** •**11**”: system 1V-1I unipolar •**33**”: system 3V-3I without information on the neutral •**34**”: system 3V-4I **BYTE0 (LSB)** •**00**”: if the active power flows in the normal/indicated direction (“upstream to downstream” or in accordance with the polarity indicated for the connection), “default” •**01**”: if the active power flows in the reverse direction (“downstream to upstream” or vice versa with regard to the polarity indicated for the connection)
(4)	Measurement unit compatible with the magnitude configured to the previous register, multiplied by the reference multiplication factor for that magnitude
(5)	address of the register (absolute value) of the desired magnitude
(6)	**BIT 0** : 1 = The event triggers an alarm, 0 = The event does not trigger the alarm **BIT 1** : 1 = The event generates a Link action, 0 = The event does not generate a Link action **BIT 2** : 0 = alarm activated when value is > of threshold, 1= alarm activated when value is < of threshold
(7)	**BYTE0 (LSB)**: calculation mode •**0**" (”default”): fixed window or “fixed block interval” •**1**": mobile window or “sliding block interval” **BYTE1 (MSB)**: calculation window (value in [sec], 1 to 60, “default”=15)

- fixed block interval: the intervals are consecutive; the PMD calculates and updates the demand at the end of each interval;



NOTE 15 min is only an example.

- sliding block interval: the intervals are sliding; the PMD calculates and updates the demand at the sliding speed.



NOTE 15 min is only an example.

[7] - 4P + Measure - EVOLVED

RETURN TO TABLE OF MAPS

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	0			
20481	5001	1	0			
20482	5002	1	0			
20483	5003	1	0			
20484	5004	1	0			
20485	5005	1	0			
20486	5006	1	0			
20487	5007	1	0			
20488	5008	1	0			
20489	5009	1	0			
20490	500A	1	0			

Read & Write Bit - Modbus Functions 01-05-15

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	0			
20481	5001	1	0			

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	Phase current value 1 (R)	[A]	(2),(4)	
20481	5001	1	Phase 2 current value (S)	[A]	(2),(4)	
20482	5002	1	Phase 3 Current Value (T)	[A]	(2),(4)	
20483	5003	1	Neutral Current Value	[A]	(2),(4)	
20484	5004	10	***not significant***			
20494	500E	1	Voltage 1-N	[V]	(2),(4)	
20495	500F	1	Voltage 2-N	[V]	(2),(4)	
20496	5010	1	Voltage 3-N	[V]	(2),(4)	
20497	5011	1	Voltage 1-2	[V]	(2),(4)	
20498	5012	1	Voltage1-3	[V]	(2),(4)	
20499	5013	1	Voltage 2-3	[V]	(2),(4)	
20500	5014	12	***not significant***			
20512	5020	1	THD Phase 1 (R) vs. fundamental current	%	(2)	
20513	5021	1	THD Phase 2 (S) vs. fundamental current	%	(2)	
20514	5022	1	THD Phase 3 (T) vs. fundamental current	%	(2)	
20515	5023	1	THD Neutral vs. fundamental current	%	(2)	
20516	5024	1	THD Voltage 1-N vs. fundamental	%	(2)	
20517	5025	1	THD Voltage 2-N vs. fundamental	%	(2)	
20518	5026	1	THD Voltage 3-N vs. fundamental	%	(2)	
20519	5027	3	***not significant***			
20522	502A	1	Three-phase active power	[kW]	(1),(4)	

20523	502B	1	Three-phase reactive power	[kVar]	(1),(4)	
20524	502C	2	***not significant***			
20526	502E	1	Three-phase Apparent Power	[kVA]	(1),(4)	
20527	502F	1	Three-phase power factor (PF)	1/100	(1),(3)	
20528	5030	1	***not significant***			
20529	5031	1	Three-phase Frequency	[Hz]/100	(1),(3)	
20530	5032	2	***not significant***			
20532	5034	2	Positive Three-phase Active Energy	[kWh]	(2),(4)	x
20534	5036	2	Negative Three-phase Active Energy	[kWh]	(2),(4)	x
20536	5038	2	***not significant***			
20538	503A	2	Positive Three-phase Reactive Energy	[kVar]	(2),(4)	x
20540	503C	2	Negative Three-phase Reactive Energy	[kVar]	(2),(4)	x
20542	503E	2	***not significant***			
20544	5040	1	Phase 1 Active Power (R)	[kW]	(1),(4)	
20545	5041	1	Phase 2 Active Power (S)	[kW]	(1),(4)	
20546	5042	1	Phase 3 active power (T)	[kW]	(1),(4)	
20547	5043	1	Reactive Power phase 1 (R)	[kVar]	(1),(4)	
20548	5044	1	Reactive Power phase 2 (S)	[kVar]	(1),(4)	
20549	5045	1	Reactive Power phase 3 (T)	[kVar]	(1),(4)	
20550	5046	173	***not significant***			

REMARKS:

(1)	Expressed in “numeric coding”; including sign (most significant bit=sign)
(2)	Expressed in “numeric coding”; without sign
(3)	Example: PF=0,85, is expressed as 85 (Measurement unit 1/100)
(3)	the value must be divided by the corresponding multiplying factor indicated in the read and write registers, if the register is not present it must be considered as multiplication factor 1 Example: I1 [A] = Phase 1 Current Value (R) / Current multiplication factor = 1023 / 100 = 10.23A

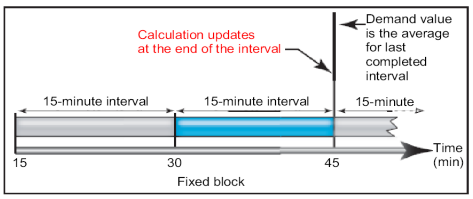
Read&Write Registers – Modbus Functions 03-06-16

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	111	***not significant***			

REMARKS:

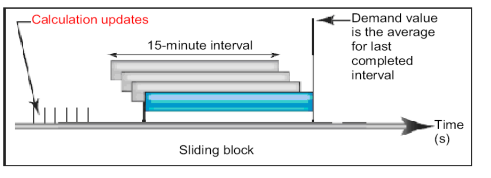
(1)	Expressed in “numeric coding” with sign (most significant bit=sign)
(2)	Expressed in “numeric coding” with sign (always positive value, most significant bit=0)
(3)	**BYTE1 (MSB)** •**11**”: system 1V-1I unipolar •**33**”: system 3V-3I without information on the neutral •**34**”: system 3V-4I **BYTE0 (LSB)** •**00**”: if the active power flows in the normal/indicated direction (“upstream to downstream” or in accordance with the polarity indicated for the connection), “default” •**01**”: if the active power flows in the reverse direction (“downstream to upstream” or vice versa with regard to the polarity indicated for the connection)
(4)	Measurement unit compatible with the magnitude configured to the previous register, multiplied by the reference multiplication factor for that magnitude
(5)	address of the register (absolute value) of the desired magnitude
(6)	**BIT 0** : 1 = The event triggers an alarm, 0 = The event does not trigger the alarm **BIT 1** : 1 = The event generates a Link action, 0 = The event does not generate a Link action **BIT 2** : 0 = alarm activated when value is > of threshold, 1= alarm activated when value is < of threshold
(7)	**BYTE0 (LSB)**: calculation mode •**0**" (”default”): fixed window or “fixed block interval” •**1**": mobile window or “sliding block interval” **BYTE1 (MSB)**: calculation window (value in [sec], 1 to 60, “default”=15)

- fixed block interval: the intervals are consecutive; the PMD calculates and updates the demand at the end of each interval;



NOTE 15 min is only an example.

- sliding block interval: the intervals are sliding; the PMD calculates and updates the demand at the sliding speed.



NOTE 15 min is only an example.

[8] - Thermal Measurement - BASE

RETURN TO TABLE OF MAPS

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
32768	8000	1	(REGISTER CANNOT BE USED !!)		(1)	
32769	8000	1	(first register available)			

REMARKS:

(1)	The relative address register 0 MUST NOT BE USED to prevent the corresponding absolute address (“default” position of the Thermal Measurement Functionality = 8000h) coinciding with the “non implemented/non significant” value in the Automation Functionality (always 8000h)î

Read & Write Bit - Modbus Functions 01-05-15

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
32768	8000	1	0			
32769	8000	1	0			

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
32768	8000	1	Sensor 1 temperature value	[°C]	(1)	
32769	8001	199	***not significant***			

REMARKS:

(1)	Expressed in “numeric coding”

Read&Write Registers – Modbus Functions 03-06-16

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
32768	8000	1				
32769	8001	1				

[N°9] - 4P + Ground - EVOLVED

RETURN TO TABLE OF MAPS

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	0			
20481	5001	1	0			
20482	5002	1	0			
20483	5003	1	0			
20484	5004	1	0			
20485	5005	1	0			
20486	5006	1	0			
20487	5007	1	0			
20488	5008	1	0			
20489	5009	1	0			
20490	500A	1	0			

Read & Write Bit - Modbus Functions 01-05-15

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1				
20481	5001	1				

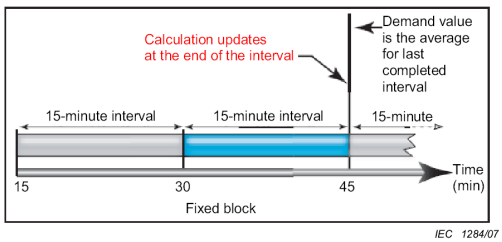
Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	Phase current value 1 (R)	[A]	(2),(4)	
20481	5001	1	Phase 2 current value (S)	[A]	(2),(4)	
20482	5002	1	Phase 3 Current Value (T)	[A]	(2),(4)	
20483	5003	1	Neutral Current Value	[A]	(2),(4)	
20484	5004	1	Earth Current Value	[A]	(2)	
20485	5005	238	***not significant***			

REMARKS:

(1)	Expressed in “numeric coding” with sign (most significant bit=sign)
(2)	Expressed in “numeric coding” with sign (always positive value, most significant bit=0)
(3)	**BYTE1 (MSB)** •**11**”: system 1V-1I unipolar •**33**”: system 3V-3I without information on the neutral •**34**”: system 3V-4I **BYTE0 (LSB)** •**00**”: if the active power flows in the normal/indicated direction (“upstream to downstream” or in accordance with the polarity indicated for the connection), “default” •**01**”: if the active power flows in the reverse direction (“downstream to upstream” or vice versa with regard to the polarity indicated for the connection)
(4)	Measurement unit compatible with the magnitude configured to the previous register, multiplied by the reference multiplication factor for that magnitude
(5)	address of the register (absolute value) of the desired magnitude
(6)	**BIT 0** : 1 = The event triggers an alarm, 0 = The event does not trigger the alarm **BIT 1** : 1 = The event generates a Link action, 0 = The event does not generate a Link action **BIT 2** : 0 = alarm activated when value is > of threshold, 1= alarm activated when value is < of threshold
(7)	**BYTE0 (LSB)**: calculation mode •**0**" (”default”): fixed window or “fixed block interval” •**1**": mobile window or “sliding block interval” **BYTE1 (MSB)**: calculation window (value in [sec], 1 to 60, “default”=15)

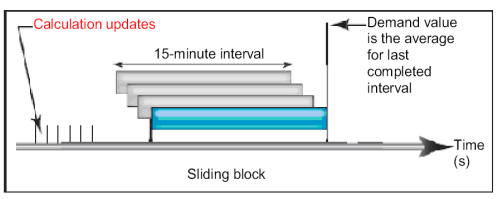
- fixed block interval: the intervals are consecutive; the PMD calculates and updates the demand at the end of each interval;



IEC 1284/07

NOTE 15 min is only an example.

- sliding block interval: the intervals are sliding; the PMD calculates and updates the demand at the sliding speed.



IEC 1285/07

NOTE 15 min is only an example.

[10] - RCD - BASE

RETURN TO TABLE OF MAPS

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
28672	7000	1	Earth leakage Prealarm (>threshold$_1$)		(1)	
28673	7001	1	Earth leakage alarm (>threshold$_2$)		(1)	
28674	7002	1	0		(1)	
28675	7003	1	0		(1)	
28676	7004	1	Earth leakage P. Tripped relay		(2)	
28677	7005	1	0		(2)	

REMARKS:

(1)	The information shown here “autorestores” when the condition that has generated it no longer applies
(2)	The information shown here is retained even when the condition that has generated it no longer applies. the “restore” condition can only be the reading of the device's closed status. It is therefore necessary that the Switch Status Functionality is present; if it is not, the Tripped Relay information MUST NOT BE IMPLEMENTED (E.g.: if the switch is brought back to Open => the Tripped Relay notification must be maintained until the restore condition kicks in)

Read & Write Bit - Modbus Functions 01-05-15

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
28672	7000	1				
28673	7001	1				

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
28672	7000	1	Earth leakage P. Tripped Relay (total) counter			x
28673	7001	4	***not significant***			
28677	7005	1	G1 "main setting"- Earth leakage: levels	[mA]	(2)	x
28678	7006	1	G1 - Earth leakage: Times	[msec]	(2)	x
28679	7007	2	***not significant***			

REMARKS:

(1)	Type: reply Read Only Bit of the “Tripped” type : • Bit0=reply of Earth leakage Tripped Relay P. • Bit1=reply of Overtemperature Tripped Relay P. • Bit15÷2=0
(2)	Expressed as "numeric coding"
(3)	In case of devices that SIMULTANEOUSLY implement Three-Phase and Earth leakage Protection this register MUST NOT BE IMPLEMENTED for the purposes of guaranteeing a unique management of “Last Release data Buffer”. the information about the “Earth leakage Protection Tripped Relay”, "Overtemperature P. tripped Relay” and relative values in mA or °C is made available in this case in the register of the same name in Three-phase Protection.
(4)	If the value is not available, "negative zero" must be indicated (see numeric coding section)

Read&Write Registers – Modbus Functions 03-06-16

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
28672	7000	1	Switch Opening Command			
28673	7001	1	Switch Opening Command			

[11] -4P + RCD - EVOLVED

RETURN TO TABLE OF MAPS

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	0			
20481	5001	1	0			
20482	5002	1	0			
20483	5003	1	0			
20484	5004	1	0			
20485	5005	1	0			
20486	5006	1	0			
20487	5007	1	0			
20488	5008	1	0			
20489	5009	1	0			
20490	500A	1	0			

Read & Write Bit - Modbus Functions 01-05-15

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	0			
20481	5001	1	0			

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	Phase current value 1 (R)	[A]	(2),(4)	
20481	5001	1	Phase 2 current value (S)	[A]	(2),(4)	
20482	5002	1	Phase 3 Current Value (T)	[A]	(2),(4)	
20483	5003	1	Neutral Current Value	[A]	(2),(4)	
20484	5004	1	***not significant***			
20485	5005	1	Earth leakage Current Value	[mA]	(2)	
20486	5006	237	***not significant***			

REMARKS:

(1)	Expressed in “numeric coding”; including sign (most significant bit=sign)
(2)	Expressed in “numeric coding”; without sign
(3)	Example: PF=0,85, is expressed as 85 (Measurement unit 1/100)
(4)	the value must be divided by the corresponding multiplying factor indicated in the read and write registers, if the register is not present it must be considered as multiplication factor 1 Example: I1 [A] = Phase 1 Current Value (R) / Current multiplication factor = 1023 / 100 = 10.23A

Read&Write Registers – Modbus Functions 03-06-16

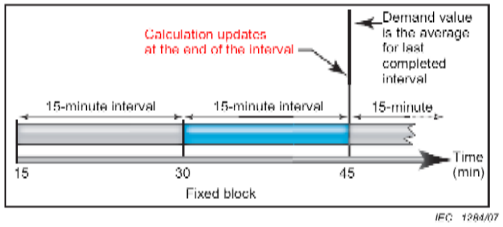
Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	111	***not significant***			

REMARKS:

(1)	Expressed in “numeric coding” with sign (most significant bit=sign)
(2)	Expressed in “numeric coding” with sign (always positive value, most significant bit=0)
(3)	**BYTE1 (MSB)** •**11**”: system 1V-1I unipolar •**33**”: system 3V-3I without information on the neutral •**34**”: system 3V-4I **BYTE0 (LSB)** •**00**”: if the active power flows in the normal/indicated direction (“upstream to downstream” or in accordance with the polarity indicated for the connection), “default” •**01**”: if the active power flows in the reverse direction (“downstream to upstream” or vice versa with regard to the polarity indicated for the connection)
(4)	Measurement unit compatible with the magnitude configured to the previous register, multiplied by the reference multiplication factor for that magnitude
(5)	address of the register (absolute value) of the desired magnitude

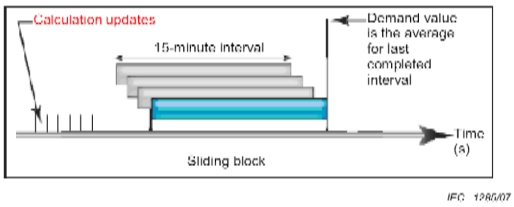
(6)	**BIT 0** : 1 = The event triggers an alarm, 0 = The event does not trigger the alarm **BIT 1** : 1 = The event generates a Link action, 0 = The event does not generate a Link action **BIT 2** : 0 = alarm activated when value is > of threshold, 1= alarm activated when value is < of threshold
(7)	**BYTE0 (LSB)**: calculation mode •"0" ("default"): fixed window or "fixed block interval" •"1": mobile window or "sliding block interval" **BYTE1 (MSB)**: calculation window (value in [sec], 1 to 60, "default"=15)

- fixed block interval: the intervals are consecutive; the PMD calculates and updates the demand at the end of each interval;



NOTE 15 min is only an example.

- sliding block interval: the intervals are sliding; the PMD calculates and updates the demand at the sliding speed.



NOTE 15 min is only an example.

[N°12] - 3P + Ground + Measure - EVOLVED

RETURN TO TABLE OF MAPS

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	0			
20481	5001	1	0			
20482	5002	1	0			
20483	5003	1	0			
20484	5004	1	0			
20485	5005	1	0			
20486	5006	1	0			
20487	5007	1	0			
20488	5008	1	0			
20489	5009	1	0			
20490	500A	1	0			

Read & Write Bit - Modbus Functions 01-05-15

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1				
20481	5001	1				

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	Phase current value 1 (R)	[A]	(2),(4)	
20481	5001	1	Phase 2 current value (S)	[A]	(2),(4)	
20482	5002	1	Phase 3 Current Value (T)	[A]	(2),(4)	
20483	5003	1	***not significant***			
20484	5004	1	Earth Current Value	[A]	(2)	
20485	5005	12	***not significant***			
20497	5011	1	Voltage 1-2	[V]	(2),(4)	
20498	5012	1	Voltage1-3	[V]	(2),(4)	
20499	5013	1	Voltage 2-3	[V]	(2),(4)	
20500	5014	12	***not significant***			
20512	5020	1	THD Phase 1 (R) vs. fundamental current	%	(2)	
20513	5021	1	THD Phase 2 (S) vs. fundamental current	%	(2)	
20514	5022	1	THD Phase 3 (T) vs. fundamental current	%	(2)	
20515	5023	4	***not significant***			
20519	5027	1	THD Voltage 1-2 vs. fundamental	%	(2)	
20520	5028	1	THD Voltage 1-3 vs. fundamental	%	(2)	
20521	5029	1	THD Voltage 2-3 vs. fundamental	%	(2)	
20522	502A	1	Three-phase active power	[kW]	(1),(4)	
20523	502B	1	Three-phase reactive power	[kVar]	(1),(4)	
20524	502C	2	***not significant***			
20526	502E	1	Three-phase Apparent Power	[kVA]	(1),(4)	
20527	502F	1	Three-phase power factor (PF)	1/100	(1),(3)	
20528	5030	1	***not significant***			

20529	5031	1	Three-phase Frequency	[Hz]/100	(1),(3)	
20530	5032	2	***not significant***			
20532	5034	2	Positive Three-phase Active Energy	[kWh]	(2),(4)	x
20534	5036	2	Negative Three-phase Active Energy	[kWh]	(2),(4)	x
20536	5038	2	***not significant***			
20538	503A	2	Positive Three-phase Reactive Energy	[kVar]	(2),(4)	x
20540	503C	2	Negative Three-phase Reactive Energy	[kVar]	(2),(4)	x
20542	503E	2	***not significant***			
20544	5040	1	Phase 1 Active Power (R)	[kW]	(1),(4)	
20545	5041	1	Phase 2 Active Power (S)	[kW]	(1),(4)	
20546	5042	1	Phase 3 active power (T)	[kW]	(1),(4)	
20547	5043	1	Reactive Power phase 1 (R)	[kVar]	(1),(4)	
20548	5044	1	Reactive Power phase 2 (S)	[kVar]	(1),(4)	
20549	5045	1	Reactive Power phase 3 (T)	[kVar]	(1),(4)	
20550	5046	173	***not significant***			

REMARKS:

(1)	Expressed in “numeric coding”; including sign (most significant bit=sign)
(2)	Expressed in “numeric coding”; without sign
(3)	Example: PF=0,85, is expressed as 85 (Measurement unit 1/100)
(3)	the value must be divided by the corresponding multiplying factor indicated in the read and write registers, if the register is not present it must be considered as multiplication factor 1 Example: I1 [A] = Phase 1 Current Value (R) / Current multiplication factor = 1023 / 100 = 10.23A

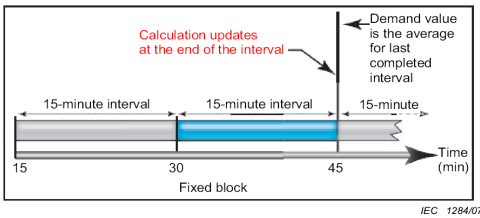
Read&Write Registers – Modbus Functions 03-06-16

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	111	***not significant***			

REMARKS:

(1)	Expressed in “numeric coding” with sign (most significant bit=sign)
(2)	Expressed in “numeric coding” with sign (always positive value, most significant bit=0)
(3)	**BYTE1 (MSB)** •**11**”: system 1V-1I unipolar •**33**”: system 3V-3I without information on the neutral •**34**”: system 3V-4I **BYTE0 (LSB)** •**00**”: if the active power flows in the normal/indicated direction (“upstream to downstream” or in accordance with the polarity indicated for the connection), “default” •**01**”: if the active power flows in the reverse direction (“downstream to upstream” or vice versa with regard to the polarity indicated for the connection)
(4)	Measurement unit compatible with the magnitude configured to the previous register, multiplied by the reference multiplication factor for that magnitude
(5)	address of the register (absolute value) of the desired magnitude
(6)	**BIT 0** : 1 = The event triggers an alarm, 0 = The event does not trigger the alarm **BIT 1** : 1 = The event generates a Link action, 0 = The event does not generate a Link action **BIT 2** : 0 = alarm activated when value is > of threshold, 1= alarm activated when value is < of threshold
(7)	**BYTE0 (LSB)**: calculation mode •**0**" (”default”): fixed window or “fixed block interval” •**1**": mobile window or “sliding block interval” **BYTE1 (MSB)**: calculation window (value in [sec], 1 to 60, “default”=15)

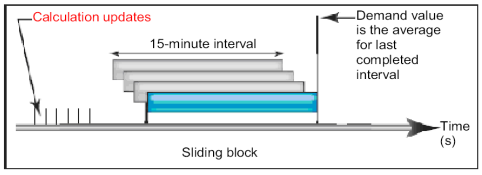
- fixed block interval: the intervals are consecutive; the PMD calculates and updates the demand at the end of each interval;



IEC 1284/07

NOTE 15 min is only an example.

- sliding block interval: the intervals are sliding; the PMD calculates and updates the demand at the sliding speed.



IEC 1285/07

NOTE 15 min is only an example.

[N°13] - Elect Proct S 3P + Ground - STANDARD

RETURN TO TABLE OF MAPS

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
29184	7200	1	Overload Prealarm (>threshold I1)		(1)	
29185	7201	1	Overload alarm (>thresholdI2)		(1)	
29186	7202	1	0		(1)	
29187	7203	1	0		(1)	
29188	7204	1	Alarm 1 Overtemperature (>threshold T)		(1)	
29189	7205	1	0		(1)	
29190	7206	1	0		(1)	
29191	7207	1	0		(1)	
29192	7208	1	0		(1)	
29193	7209	1	Overload Tripped relay P. (no indication of phase)		(2)	x
29194	720A	1	Short-circuit Tripped relay P. (no indications of phase)		(2)	x
29195	720B	1	Device Protection Tripped relay (“III element”, no indications of phase)		(2)	x
29196	720C	1	Earth Tripped relay P.		(2)	x
29197	720D	1	Tripped relay P. Overtemperature		(2)	x
29198	720E	1	0		(2)	x
29199	720F	1	0		(2)	x
29200	7210	1	0		(2)	x
29201	7211	1	0		(2)	x
29202	7212	1	0		(2)	x
29203	7213	1	0		(2)	x
29204	7214	1	0		(2)	x
29205	7215	1	0		(2)	x
29206	7216	1	0		(2)	x
29207	7217	1	0		(2)	x
29208	7218	1	0		(2)	x
29209	7219	1	0		(2)	x
29210	721A	1	0		(2)	x
29211	721B	1	0		(2)	x
29212	721C	1	0		(2)	x
29213	721D	1	0		(2)	x
29214	721E	1	0		(2)	x
29215	721F	1	0		(2)	x
29216	7220	1	0		(2)	x
29217	7221	1	0		(2)	x
29218	7222	1	0		(2)	x
29219	7223	1	0		(2)	x
29220	7224	1	0		(2)	x
29221	7225	1	0		(1)	
29222	7226	1	0		(1)	
29223	7227	1	0		(1)	
29224	7228	1	0		(1)	

29225	7229	1	0		(1)	
29226	722A	1	0		(1)	
29227	722B	1	0		(1)	
29228	722C	1	0		(1)	
29229	722D	1	0		(1)	
29230	722E	1	0		(1)	
29231	722F	1	0		(1)	
29232	7230	1	0		(3)	

REMARKS:

(1)	The information shown here “restores” itself when the condition that has generated it no longer applies
(2)	The information shown here applies even when the condition generating it has disappeared. the "restore" conditions can be (equivalent, alternatively): • The measurement of the Closed Status of the Device • The measurement of a minimum current value on the phases. The Switch Status Functionality is therefore not binding (Example : if the switch is returned to Open => the Tripped relay notification must be kept until the restore condition kicks in).
(3)	It indicates that an anomaly has been detected in the “Dual Setting” settings, in particular one or more levels have been found to be greater than the corresponding “Main Setting”.

Read & Write Bit - Modbus Functions 01-05-15

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
29184	7200	1				
29185	7201	1				

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
29184	7200	10	***not significant***			
29194	720A	1	Overload Tripped relay P counter (total) (no indication of phase)			x
29195	720B	1	Delayable Short-circuit Tripped relay P counter (total) (no indications of phase)			x
29196	720C	1	***not significant***			
29197	720D	1	Device protection Tripped relay counter (total) ("III element", no indications of phase)			x
29198	720E	1	Earth Tripped relay P counter (total)			x
29199	720F	1	Overtemperature Tripped relay P counter (total)			x
29200	7210	10	Last Release Data Buffer		(2),(9),(10)	x
29210	721A	10	Last 20 (most recent) Releases Data Buffer		(2),(9),(10)	x
29220	7224	10	Last 20 Releases Data Buffer		(2),(9),(10)	x
29230	722E	10	Last 20 Releases Data Buffer		(2),(9),(10)	x
29240	7238	10	Last 20 Releases Data Buffer		(2),(9),(10)	x
29250	7242	10	Last 20 Releases Data Buffer		(2),(9),(10)	x
29260	724C	10	Last 20 Releases Data Buffer		(2),(9),(10)	x

29270	7256	10	Last 20 Releases Data Buffer		(2),(9),(10)	x
29280	7260	10	Last 20 Releases Data Buffer		(2),(9),(10)	x
29290	726A	10	Last 20 Releases Data Buffer		(2),(9),(10)	x
29300	7274	10	Last 20 Releases Data Buffer		(2),(9),(10)	x
29310	727E	10	Not available, see note (10)		(2),(9),(10)	x
29320	7288	10	Not available, see note (10)		(2),(9),(10)	x
29330	7292	10	Not available, see note (10)		(2),(9),(10)	x
29340	729C	10	Not available, see note (10)		(2),(9),(10)	x
29350	72A6	10	Not available, see note (10)		(2),(9),(10)	x
29360	72B0	10	Not available, see note (10)		(2),(9),(10)	x
29370	72BA	10	Not available, see note (10)		(2),(9),(10)	x
29380	72C4	10	Not available, see note (10)		(2),(9),(10)	x
29390	72CE	10	Not available, see note (10)		(2),(9),(10)	x
29400	72D8	10	Not available, see note (10)		(2),(9),(10)	x
29410	72E2	1	G1 ("main setting")- Overload: levels	[A]/[%]	(1),(3)	x
29411	72E3	1	G1 - Overload: Times	[msec]	(1)	x
29412	72E4	1	G1 - Overload: options		(3)	x
29413	72E5	2	G1 - delayable short-circuit: levels	[A]/[%]	(1),(4)	x
29415	72E7	1	G1 - delayable short-circuit: Times	[msec]	(1)	x
29416	72E8	1	G1 - delayable short-circuit: options		(4)	x
29417	72E9	4	***not significant***			
29421	72ED	2	G1 - device protection: levels	[A]	(1),(6)	x
29423	72EF	1	G1 - device protection: Times	[msec]	(1)	x
29424	72F0	1	G1 - device protection: options		(6)	x
29425	72F1	1	G1 - earth: levels	[A]/[%]	(1),(7)	x
29426	72F2	1	G1 - earth: times	[msec]	(1)	x
29427	72F3	1	G1 - earth: options		(7)	x
29428	72F4	3	***not significant***			
29431	72F7	1	G1 - overtemperature protection: levels	[°C]	(1)	x
29432	72F8	11	***not significant***			

REMARKS:

(1)	Expressed in “numeric coding”
(2)	**DATA BUFFER** Last releases: by reading all the ten words the values are returned in the values indicated below •WORD9 : chronology, “year” (MSB) and “month ” (LSB); it is the word that is returned first of all in the 10 – MSW block. •WORD8: chronology, “day” (MSB) and ”time” (LSB) •WORD7: chronology, “minutes” (MSB) and ”seconds” (LSB) •WORD6 and 5: current interrupted or temperature (“numeric coding” , [mA] or [°C], WORD6 is returned before WORD5) •WORD4:detail of protection settings that has caused the Trip (reply read only register of the of the “levels” type, see note (1)) •WORD3: detail of protection settings that has caused the Trip (reply Read Only register of the “Times” type , see note (1)) •WORD2: detail of protection settings that has caused the Trip (reply Read Only register of the “options” type, see note (3)to(6)) •WORD1: reply Read Only Bit of the “Tripped” type •WORD0: reply Read Only Bit of the “Tripped” type **N.B.:** WORDs FROM 2 to 4 constitute a single datum and must be read and written in a block. The same applies to WORD 5 and 6, for WORD 7-8-9 and for WORD 0-1. WORD 1: •Bit0 Instantaneous short-circuit relay tripped neutral •Bit1 Device Protection Relay Tripped phase 1(“III element”) •Bit2 Device Protection Relay Tripped phase 2 (“III element”) •Bit3 Device Protection Relay Tripped phase 3 (“III element”) •Bit4 Device Protection Relay Tripped neutral (“III element”) •Bit5 Tripped relay in “Main Setting” Mode •Bit6 Tripped relay in “Dual Setting” Mode •Bit7 Tripped relay in “MEM=OFF” Mode on Overload •Bit8 Tripped relay in “I2t=k” mode on delayable short-circuit •Bit 9 Tripped relay in “Logic Selectivity” mode on delayable short-circuit (intervention performed with Tm Delay) •Bit 10 Tripped relay in “Logic Selectivity” Mode on device protection (intervention carried out with with Delay •SEL=High) •Bit 11 Tripped relay in “I2t=k” Mode on earth •Bit 12 Earth leakage Tripped •Bit 13 ND •Bit 14 ND •Bit 15 Test Tripped (if Electronic Test only Bit15, if Earth Lekeage Test Bit15 and Bit12) WORD 0: •Bit0 Overload Tripped relay P. (no indication of phase) •Bit1 Short-circuit Tripped relay P. (no indications of phase) •Bit2 Device Protection Tripped relay (“III element”, no indications of phase) •Bit3 Earth Tripped relay P. •Bit4 Overtemperature Tripped relay P. •Bit5 Overload phase 1 Tripped relay P. •Bit6 Overload phase 2 Tripped relay P.

	•Bit6 Overload phase 2 Tripped relay P. •Bit7 Overload phase 3 Tripped relay P. •Bit8 Overload neutral Tripped relay P. •Bit9 Delayable short-circuit phase 1 Tripped relay P. •Bit10 Delayable short-circuit phase 2 Tripped relay P. •Bit11 Delayable short-circuit phase 3 Tripped relay P. •Bit12 Delayable short-circuit neutral Tripped relay P. •Bit13 Instantaneous short-circuit phase 1 Tripped relay •Bit14 Instantaneous short-circuit Tripped relay phase 2 •Bit15 Instant short-circuit phase 3 Tripped relay
(3)	Overload options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2=I2t=k MEM OFF(001)/I2t=k MEM ON(000)/Not Defined(111) •Bit7 to 5= “0” •Bit15 to 8=work point for curve I2t, multiple of Ir)
(4)	Delayable short-circuit options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%Ir(0) •Bit4 to 2=curve t=k(001)/I2t=k(000)/Not Defined(111) •Bit7 to 5= “0” •Bit15 to 8=work point for curve I2t, multiple of Ir)
(5)	Instantaneous short-circuit options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2=curve t=k(001)/I2t=k(000)/Not Defined(111) •Bit5= absolute val. divided by 10(1)/absolute value(0) •Bit7 to 6= “0” •Bit15 to 8=work point for curve I2t, multiple of In)
(6)	Device Protection options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2= “0” •Bit5= absolute val. divided by 10(1)/absolute value(0)
(7)	Earth Options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2=curve t=k(001)/I2t=k(000)/Not Defined(111) •Bit7 to 5= “0” •Bit15 to 8=work point for curve I2t, multiple of Ig)
(8)	Neutral options •Bit0=disabled(1)/active(0) •Bit1=”0” (%phase) •Bit4 to 2=”0” (curve phase) •Bit7 to 5= “0” •Bit15 to 8=”0”)
(9)	If number of faults < 20, fill the chronology word with 0x0000
(10)	Register value when is not available: 0x80000000000080000000800000000000080000000

Read&Write Registers – Modbus Functions 03-06-16

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
29184	7200	1	"Dual Setting" Command Configuration	[sec]	(1)	x

REMARKS:

(1)	"Dual Setting" Command Configuration •Bit10 to 0=activation time ("default"=60 sec, "0"=infinite) •Bit11 to 15="0"

RETURN TO TABLE OF MAPS

[N°14] - 3P + Ground - EVOLVED

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	0			
20481	5001	1	0			
20482	5002	1	0			
20483	5003	1	0			
20484	5004	1	0			
20485	5005	1	0			
20486	5006	1	0			
20487	5007	1	0			
20488	5008	1	0			
20489	5009	1	0			
20490	500A	1	0			

Read & Write Bit - Modbus Functions 01-05-15

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1				
20481	5001	1				

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	Phase current value 1 (R)	[A]	(2),(4)	
20481	5001	1	Phase 2 current value (S)	[A]	(2),(4)	
20482	5002	1	Phase 3 Current Value (T)	[A]	(2),(4)	
20483	5003	1	***not significant***			
20484	5004	1	Earth Current Value	[A]	(2)	
20485	5005	238	***not significant***			

REMARKS:

(1)	Expressed in “numeric coding”; including sign (most significant bit=sign)
(2)	Expressed in “numeric coding”; without sign
(3)	Example: PF=0,85, is expressed as 85 (Measurement unit 1/100)
(4)	the value must be divided by the corresponding multiplying factor indicated in the read and write registers, if the register is not present it must be considered as multiplication factor 1 Example: I1 [A] = Phase 1 Current Value (R) / Current multiplication factor = 1023 / 100 = 10.23A

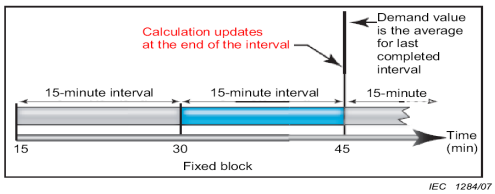
Read&Write Registers – Modbus Functions 03-06-16

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	111	***not significant***			

REMARKS:

(1)	Expressed in “numeric coding” with sign (most significant bit=sign)
(2)	Expressed in “numeric coding” with sign (always positive value, most significant bit=0)
(3)	**BYTE1 (MSB)** •**11**”: system 1V-1I unipolar •**33**”: system 3V-3I without information on the neutral •**34**”: system 3V-4I **BYTE0 (LSB)** •**00**”: if the active power flows in the normal/indicated direction (“upstream to downstream” or in accordance with the polarity indicated for the connection), “default” •**01**”: if the active power flows in the reverse direction (“downstream to upstream” or vice versa with regard to the polarity indicated for the connection)
(4)	Measurement unit compatible with the magnitude configured to the previous register, multiplied by the reference multiplication factor for that magnitude
(5)	address of the register (absolute value) of the desired magnitude
(6)	**BIT 0** : 1 = The event triggers an alarm, 0 = The event does not trigger the alarm **BIT 1** : 1 = The event generates a Link action, 0 = The event does not generate a Link action **BIT 2** : 0 = alarm activated when value is > of threshold, 1= alarm activated when value is < of threshold
(7)	**BYTE0 (LSB)**: calculation mode •**0**" (”default”): fixed window or “fixed block interval” •**1**": mobile window or “sliding block interval” **BYTE1 (MSB)**: calculation window (value in [sec], 1 to 60, “default”=15)

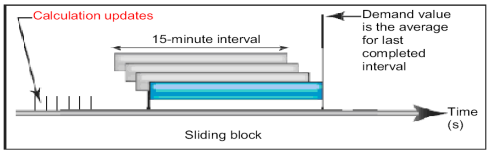
- fixed block interval: the intervals are consecutive; the PMD calculates and updates the demand at the end of each interval;



IEC 1284/07

NOTE 15 min is only an example.

- sliding block interval: the intervals are sliding; the PMD calculates and updates the demand at the sliding speed.



IEC 1285/07

NOTE 15 min is only an example.

[N°15] - Elect Proct S 4P + Ground - STANDARD

RETURN TO TABLE OF MAPS

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
29184	7200	1	Overload Prealarm (>threshold I1)		(1)	
29185	7201	1	Overload alarm (>thresholdI2)		(1)	
29186	7202	1	0		(1)	
29187	7203	1	0		(1)	
29188	7204	1	Alarm 1 Overtemperature (>threshold T)		(1)	
29189	7205	1	0		(1)	
29190	7206	1	0		(1)	
29191	7207	1	0		(1)	
29192	7208	1	0		(1)	
29193	7209	1	Overload Tripped relay P. (no indication of phase)		(2)	x
29194	720A	1	Short-circuit Tripped relay P. (no indications of phase)		(2)	x
29195	720B	1	Device Protection Tripped relay (“III element”, no indications of phase)		(2)	x
29196	720C	1	Earth Tripped relay P.		(2)	x
29197	720D	1	Tripped relay P. Overtemperature		(2)	x
29198	720E	1	0		(2)	x
29199	720F	1	0		(2)	x
29200	7210	1	0		(2)	x
29201	7211	1	0		(2)	x
29202	7212	1	0		(2)	x
29203	7213	1	0		(2)	x
29204	7214	1	0		(2)	x
29205	7215	1	0		(2)	x
29206	7216	1	0		(2)	x
29207	7217	1	0		(2)	x
29208	7218	1	0		(2)	x
29209	7219	1	0		(2)	x
29210	721A	1	0		(2)	x
29211	721B	1	0		(2)	x
29212	721C	1	0		(2)	x
29213	721D	1	0		(2)	x
29214	721E	1	0		(2)	x
29215	721F	1	0		(2)	x
29216	7220	1	0		(2)	x
29217	7221	1	0		(2)	x
29218	7222	1	0		(2)	x
29219	7223	1	0		(2)	x
29220	7224	1	0		(2)	x
29221	7225	1	0		(1)	
29222	7226	1	0		(1)	
29223	7227	1	0		(1)	
29224	7228	1	0		(1)	
29225	7229	1	0		(1)	

29226	722A	1	0		(1)	
29227	722B	1	0		(1)	
29228	722C	1	0		(1)	
29229	722D	1	0		(1)	
29230	722E	1	0		(1)	
29231	722F	1	0		(1)	
29232	7230	1	0		(3)	

REMARKS:

(1)	The information shown here “restores” itself when the condition that has generated it no longer applies
(2)	The information shown here applies even when the condition generating it has disappeared. the "restore" conditions can be (equivalent, alternatively): •The measurement of the Closed Status of the Device •The measurement of a minimum current value on the phases. The Switch Status Functionality is therefore not binding (Example : if the switch is returned to Open => the Tripped relay notification must be kept until the restore condition kicks in).
(3)	It indicates that an anomaly has been detected in the “Dual Setting” settings, in particular one or more levels have been found to be greater than the corresponding “Main Setting”.

Read & Write Bit - Modbus Functions 01-05-15

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
29184	7200	1				
29185	7201	1				

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
29184	7200	10	***not significant***			
29194	720A	1	Overload Tripped relay P counter (total) (no indication of phase)			x
29195	720B	1	Delayable Short-circuit Tripped relay P counter (total) (no indications of phase)			x
29196	720C	1	***not significant***			
29197	720D	1	Device protection Tripped relay counter (total) ("III element", no indications of phase)			x
29198	720E	1	Earth Tripped relay P counter (total)			x
29199	720F	1	Overtemperature Tripped relay P counter (total)			x
29200	7210	10	Last Release Data Buffer		(2),(9),(10)	x
29210	721A	10	Last 20 (most recent) Releases Data Buffer		(2),(9),(10)	x
29220	7224	10	Last 20 Releases Data Buffer		(2),(9),(10)	x
29230	722E	10	Last 20 Releases Data Buffer		(2),(9),(10)	x
29240	7238	10	Last 20 Releases Data Buffer		(2),(9),(10)	x
29250	7242	10	Last 20 Releases Data Buffer		(2),(9),(10)	x
29260	724C	10	Last 20 Releases Data Buffer		(2),(9),(10)	x
29270	7256	10	Last 20 Releases Data Buffer		(2),(9),(10)	x

29280	7260	10	Last 20 Releases Data Buffer		(2),(9),(10)	x
29290	726A	10	Last 20 Releases Data Buffer		(2),(9),(10)	x
29300	7274	10	Last 20 Releases Data Buffer		(2),(9),(10)	x
29310	727E	10	Not available, see note (10)		(2),(9),(10)	x
29320	7288	10	Not available, see note (10)		(2),(9),(10)	x
29330	7292	10	Not available, see note (10)		(2),(9),(10)	x
29340	729C	10	Not available, see note (10)		(2),(9),(10)	x
29350	72A6	10	Not available, see note (10)		(2),(9),(10)	x
29360	72B0	10	Not available, see note (10)		(2),(9),(10)	x
29370	72BA	10	Not available, see note (10)		(2),(9),(10)	x
29380	72C4	10	Not available, see note (10)		(2),(9),(10)	x
29390	72CE	10	Not available, see note (10)		(2),(9),(10)	x
29400	72D8	10	Not available, see note (10)		(2),(9),(10)	x
29410	72E2	1	G1 ("main setting")- Overload: levels	[A]/[%]	(1),(3)	x
29411	72E3	1	G1 - Overload: Times	[msec]	(1)	x
29412	72E4	1	G1 - Overload: options		(3)	x
29413	72E5	2	G1 - delayable short-circuit: levels	[A]/[%]	(1),(4)	x
29415	72E7	1	G1 - delayable short-circuit: Times	[msec]	(1)	x
29416	72E8	1	G1 - delayable short-circuit: options		(4)	x
29417	72E9	4	***not significant***			
29421	72ED	2	G1 - device protection: levels	[A]	(1),(6)	x
29423	72EF	1	G1 - device protection: Times	[msec]	(1)	x
29424	72F0	1	G1 - device protection: options		(6)	x
29425	72F1	1	G1 - earth: levels	[A]/[%]	(1),(7)	x
29426	72F2	1	G1 - earth: times	[msec]	(1)	x
29427	72F3	1	G1 - earth: options		(7)	x
29428	72F4	1	G1 - neutral protection: levels	[%]	(1),(8)	x
29429	72F5	1	***not significant***			
29430	72F6	1	G1 - neutral protection: options		(8)	x
29431	72F7	1	G1 - overtemperature protection: levels	[°C]	(1)	x
29432	72F8	11	***not significant***			

REMARKS:

(1)	Expressed in “numeric coding”
(2)	**DATA BUFFER** Last releases: by reading all the ten words the values are returned in the values indicated below •WORD9 : chronology, “year” (MSB) and “month ” (LSB); it is the word that is returned first of all in the 10 – MSW block. •WORD8: chronology, “day” (MSB) and ”time” (LSB) •WORD7: chronology, “minutes” (MSB) and ”seconds” (LSB) •WORD6 and 5: current interrupted or temperature (“numeric coding” , [mA] or [°C], WORD6 is returned before WORD5) •WORD4:detail of protection settings that has caused the Trip (reply read only register of the of the “levels” type, see note (1)) •WORD3: detail of protection settings that has caused the Trip (reply Read Only register of the “Times” type , see note (1)) •WORD2: detail of protection settings that has caused the Trip (reply Read Only register of the “options” type, see note (3)to(6)) •WORD1: reply Read Only Bit of the “Tripped” type •WORD0: reply Read Only Bit of the “Tripped” type **N.B.:** WORDs FROM 2 to 4 constitute a single datum and must be read and written in a block. The same applies to WORD 5 and 6, for WORD 7-8-9 and for WORD 0-1. WORD 1: •Bit0 Instantaneous short-circuit relay tripped neutral •Bit1 Device Protection Relay Tripped phase 1(“III element”) •Bit2 Device Protection Relay Tripped phase 2 (“III element”) •Bit3 Device Protection Relay Tripped phase 3 (“III element”) •Bit4 Device Protection Relay Tripped neutral (“III element”) •Bit5 Tripped relay in “Main Setting” Mode •Bit6 Tripped relay in “Dual Setting” Mode •Bit7 Tripped relay in “MEM=OFF” Mode on Overload •Bit8 Tripped relay in “I2t=k” mode on delayable short-circuit •Bit 9 Tripped relay in “Logic Selectivity” mode on delayable short-circuit (intervention performed with Tm Delay) •Bit 10 Tripped relay in “Logic Selectivity” Mode on device protection (intervention carried out with with Delay •SEL=High) •Bit 11 Tripped relay in “I2t=k” Mode on earth •Bit 12 Earth leakage Tripped •Bit 13 ND •Bit 14 ND •Bit 15 Test Tripped (if Electronic Test only Bit15, if Earth Lekeage Test Bit15 and Bit12) WORD 0: •Bit0 Overload Tripped relay P. (no indication of phase) •Bit1 Short-circuit Tripped relay P. (no indications of phase) •Bit2 Device Protection Tripped relay (“III element”, no indications of phase) •Bit3 Earth Tripped relay P. •Bit4 Overtemperature Tripped relay P. •Bit5 Overload phase 1 Tripped relay P. •Bit6 Overload phase 2 Tripped relay P.

	•Bit6 Overload phase 2 Tripped relay P. •Bit7 Overload phase 3 Tripped relay P. •Bit8 Overload neutral Tripped relay P. •Bit9 Delayable short-circuit phase 1 Tripped relay P. •Bit10 Delayable short-circuit phase 2 Tripped relay P. •Bit11 Delayable short-circuit phase 3 Tripped relay P. •Bit12 Delayable short-circuit neutral Tripped relay P. •Bit13 Instantaneous short-circuit phase 1 Tripped relay •Bit14 Instantaneous short-circuit Tripped relay phase 2 •Bit15 Instant short-circuit phase 3 Tripped relay
(3)	Overload options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2=I2t=k MEM OFF(001)/I2t=k MEM ON(000)/Not Defined(111) •Bit7 to 5= “0” •Bit15 to 8=work point for curve I2t, multiple of Ir)
(4)	Delayable short-circuit options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%Ir(0) •Bit4 to 2=curve t=k(001)/I2t=k(000)/Not Defined(111) •Bit7 to 5= “0” •Bit15 to 8=work point for curve I2t, multiple of Ir)
(5)	Instantaneous short-circuit options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2=curve t=k(001)/I2t=k(000)/Not Defined(111) •Bit5= absolute val. divided by 10(1)/absolute value(0) •Bit7 to 6= “0” •Bit15 to 8=work point for curve I2t, multiple of In)
(6)	Device Protection options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2= “0” •Bit5= absolute val. divided by 10(1)/absolute value(0)
(7)	Earth Options •Bit0=disabled(1)/active(0) •Bit1=absolute val.(1)/%In(0) •Bit4 to 2=curve t=k(001)/I2t=k(000)/Not Defined(111) •Bit7 to 5= “0” •Bit15 to 8=work point for curve I2t, multiple of Ig)
(8)	Neutral options •Bit0=disabled(1)/active(0) •Bit1=”0” (%phase) •Bit4 to 2=”0” (curve phase) •Bit7 to 5= “0” •Bit15 to 8=”0”)
(9)	If number of faults < 20, fill the chronology word with 0x0000
(10)	Register value when is not available: 0x80000000000080000000800000000000080000000

Read&Write Registers – Modbus Functions 03-06-16

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
29184	7200	1	"Dual Setting" Command Configuration	[sec]	(1)	x

REMARKS:

(1)	"Dual Setting" Command Configuration •Bit10 to 0=activation time ("default"=60 sec, "0"=infinite) •Bit11 to 15="0"

[N°16] -4P + Ground + Measure - EVOLVED

RETURN TO TABLE OF MAPS

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	0			
20481	5001	1	0			
20482	5002	1	0			
20483	5003	1	0			
20484	5004	1	0			
20485	5005	1	0			
20486	5006	1	0			
20487	5007	1	0			
20488	5008	1	0			
20489	5009	1	0			
20490	500A	1	0			

Read & Write Bit - Modbus Functions 01-05-15

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1				
20481	5001	1				

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	Phase current value 1 (R)	[A]	(2),(4)	
20481	5001	1	Phase 2 current value (S)	[A]	(2),(4)	
20482	5002	1	Phase 3 Current Value (T)	[A]	(2),(4)	
20483	5003	1	Neutral Current Value	[A]	(2),(4)	
20484	5004	1	Earth Current Value	[A]	(2)	
20485	5005	9	***not significant***			
20494	500E	1	Voltage 1-N	[V]	(2),(4)	
20495	500F	1	Voltage 2-N	[V]	(2),(4)	
20496	5010	1	Voltage 3-N	[V]	(2),(4)	
20497	5011	1	Voltage 1-2	[V]	(2),(4)	
20498	5012	1	Voltage1-3	[V]	(2),(4)	
20499	5013	1	Voltage 2-3	[V]	(2),(4)	
20500	5014	12	***not significant***	[V]	(2)	
20512	5020	1	THD Phase 1 (R) vs. fundamental current	%	(2)	
20513	5021	1	THD Phase 2 (S) vs. fundamental current	%	(2)	
20514	5022	1	THD Phase 3 (T) vs. fundamental current	%	(2)	
20515	5023	1	THD Neutral vs. fundamental current	%	(2)	
20516	5024	1	THD Voltage 1-N vs. fundamental	%	(2)	
20517	5025	1	THD Voltage 2-N vs. fundamental	%	(2)	
20518	5026	1	THD Voltage 3-N vs. fundamental	%	(2)	
20519	5027	3	***not significant***			
20522	502A	1	Three-phase active power	[kW]	(1),(4)	
20523	502B	1	Three-phase reactive power	[kVar]	(1),(4)	
20524	502C	2	***not significant***			

20526	502E	1	Three-phase Apparent Power	[kVA]	(1),(4)	
20527	502F	1	Three-phase power factor (PF)	1/100	(1),(3)	
20528	5030	1	***not significant***			
20529	5031	1	Three-phase Frequency	[Hz]/100	(1),(3)	
20530	5032	2	***not significant***			
20532	5034	2	Positive Three-phase Active Energy	[kWh]	(2),(4)	x
20534	5036	2	Negative Three-phase Active Energy	[kWh]	(2),(4)	x
20536	5038	2	***not significant***			
20538	503A	2	Positive Three-phase Reactive Energy	[kVar]	(2),(4)	x
20540	503C	2	Negative Three-phase Reactive Energy	[kVar]	(2),(4)	x
20542	503E	2	***not significant***			
20544	5040	1	Phase 1 Active Power (R)	[kW]	(1),(4)	
20545	5041	1	Phase 2 Active Power (S)	[kW]	(1),(4)	
20546	5042	1	Phase 3 active power (T)	[kW]	(1),(4)	
20547	5043	1	Reactive Power phase 1 (R)	[kVar]	(1),(4)	
20548	5044	1	Reactive Power phase 2 (S)	[kVar]	(1),(4)	
20549	5045	1	Reactive Power phase 3 (T)	[kVar]	(1),(4)	
20550	5046	173	***not significant***			

REMARKS:

(1)	Expressed in “numeric coding”; including sign (most significant bit=sign)
(2)	Expressed in “numeric coding”; without sign
(3)	Example: PF=0,85, is expressed as 85 (Measurement unit 1/100)
(4)	the value must be divided by the corresponding multiplying factor indicated in the read and write registers, if the register is not present it must be considered as multiplication factor 1 Example: I1 [A] = Phase 1 Current Value (R) / Current multiplication factor = 1023 / 100 = 10.23A

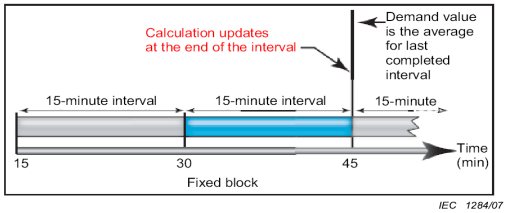
Read&Write Registers – Modbus Functions 03-06-16

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	111	***not significant***			

REMARKS:

(1)	Expressed in “numeric coding” with sign (most significant bit=sign)
(2)	Expressed in “numeric coding” with sign (always positive value, most significant bit=0)
(3)	**BYTE1 (MSB)** •**11**”: system 1V-1I unipolar •**33**”: system 3V-3I without information on the neutral •**34**”: system 3V-4I **BYTE0 (LSB)** •**00**”: if the active power flows in the normal/indicated direction (“upstream to downstream” or in accordance with the polarity indicated for the connection), “default” •**01**”: if the active power flows in the reverse direction (“downstream to upstream” or vice versa with regard to the polarity indicated for the connection)
(4)	Measurement unit compatible with the magnitude configured to the previous register, multiplied by the reference multiplication factor for that magnitude
(5)	address of the register (absolute value) of the desired magnitude
(6)	**BIT 0** : 1 = The event triggers an alarm, 0 = The event does not trigger the alarm **BIT 1** : 1 = The event generates a Link action, 0 = The event does not generate a Link action **BIT 2** : 0 = alarm activated when value is > of threshold, 1= alarm activated when value is < of threshold
(7)	**BYTE0 (LSB)**: calculation mode •0" (”default”): fixed window or “fixed block interval” •1": mobile window or “sliding block interval” **BYTE1 (MSB)**: calculation window (value in [sec], 1 to 60, “default”=15)

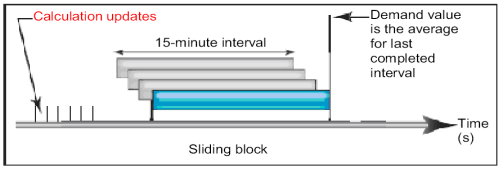
- fixed block interval: the intervals are consecutive; the PMD calculates and updates the demand at the end of each interval;



IEC 1284/07

NOTE 15 min is only an example.

- sliding block interval: the intervals are sliding; the PMD calculates and updates the demand at the sliding speed.



IEC 1285/07

NOTE 15 min is only an example.

[N°17] -RCD + Measure - EVOLVED

RETURN TO TABLE OF MAPS

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	0			
20481	5001	1	0			
20482	5002	1	0			
20483	5003	1	0			
20484	5004	1	0			
20485	5005	1	0			
20486	5006	1	0			
20487	5007	1	0			
20488	5008	1	0			
20489	5009	1	0			
20490	500A	1	0			

Read & Write Bit - Modbus Functions 01-05-15

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1				
20481	5001	1				

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	1	Phase current value 1 (R)	[A]	(2),(4)	
20481	5001	1	Phase 2 current value (S)	[A]	(2),(4)	
20482	5002	1	Phase 3 Current Value (T)	[A]	(2),(4)	
20483	5003	1	Neutral Current Value	[A]	(2),(4)	
20484	5004	1	***not significant***			
20485	5005	1	Earth leakage Current Value	[mA]	(2)	
20486	5006	8	***not significant***			
20494	500E	1	Voltage 1-N	[V]	(2),(4)	
20495	500F	1	Voltage 2-N	[V]	(2),(4)	
20496	5010	1	Voltage 3-N	[V]	(2),(4)	
20497	5011	1	Voltage 1-2	[V]	(2),(4)	
20498	5012	1	Voltage1-3	[V]	(2),(4)	
20499	5013	1	Voltage 2-3	[V]	(2),(4)	
20500	5014	12	***not significant***	[V]	(2)	
20512	5020	1	THD Phase 1 (R) vs. fundamental current	%	(2)	
20513	5021	1	THD Phase 2 (S) vs. fundamental current	%	(2)	
20514	5022	1	THD Phase 3 (T) vs. fundamental current	%	(2)	
20515	5023	1	THD Neutral vs. fundamental current	%	(2)	
20516	5024	1	THD Voltage 1-N vs. fundamental	%	(2)	
20517	5025	1	THD Voltage 2-N vs. fundamental	%	(2)	
20518	5026	1	THD Voltage 3-N vs. fundamental	%	(2)	
20519	5027	3	***not significant***			
20522	502A	1	Three-phase active power	[kW]	(1),(4)	
20523	502B	1	Three-phase reactive power	[kVar]	(1),(4)	

20524	502C	2	***not significant***			
20526	502E	1	Three-phase Apparent Power	[kVA]	(1),(4)	
20527	502F	1	Three-phase power factor (PF)	1/100	(1),(3)	
20528	5030	1	***not significant***			
20529	5031	1	Three-phase Frequency	[Hz]/100	(1),(3)	
20530	5032	2	***not significant***			
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20534	5036	2	Negative Three-phase Active Energy	[kWh]	(2),(4)	x
20536	5038	2	***not significant***			
20538	503A	2	Positive Three-phase Reactive Energy	[kVar]	(2),(4)	x
20540	503C	2	Negative Three-phase Reactive Energy	[kVar]	(2),(4)	x
20542	503E	2	***not significant***			
20544	5040	1	Phase 1 Active Power (R)	[kW]	(1),(4)	
20545	5041	1	Phase 2 Active Power (S)	[kW]	(1),(4)	
20546	5042	1	Phase 3 active power (T)	[kW]	(1),(4)	
20547	5043	1	Reactive Power phase 1 (R)	[kVar]	(1),(4)	
20548	5044	1	Reactive Power phase 2 (S)	[kVar]	(1),(4)	
20549	5045	1	Reactive Power phase 3 (T)	[kVar]	(1),(4)	
20550	5046	173	***not significant***			

REMARKS:

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Read&Write Registers – Modbus Functions 03-06-16

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
20480	5000	111	***not significant***			

REMARKS:

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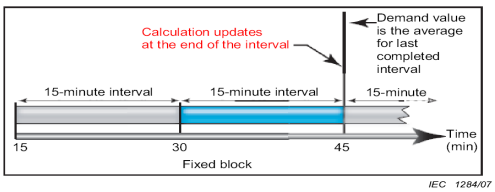
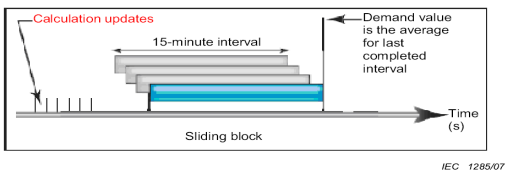
(7)	**BYTE0 (LSB)**: calculation mode •**0**" (”default”): fixed window or “fixed block interval” •**1**": mobile window or “sliding block interval” **BYTE1 (MSB)**: calculation window (value in [sec], 1 to 60, “default”=15)

- fixed block interval: the intervals are consecutive; the PMD calculates and updates the demand at the end of each interval;



NOTE 15 min is only an example.

- sliding block interval: the intervals are sliding; the PMD calculates and updates the demand at the sliding speed.



NOTE 15 min is only an example.

"MCCB/EMS INTERFACE" MAPS AND COMMANDS

Revision of Support maps and Commands

REVISION: 1.0.2
DATE: 23/01/2023

Revision of Support maps and Commands for MCCB/EMS interface

- DPX^3/Megatiker /EMS interface
REVISION: 1.3.2
DATE: 23/01/2023

Product involved:

- LG-423890

-BT-M7EMS

Products associated:

PRODUCT ITEMS	DESCRIPTION	OBJECT CODE
Legrand: 423890 Bticino: M7EMS	DPX^3/Megatiker / EMS interface	0x4109

Standard function codes

COMMUNICATION CHANNEL → COMMANDS ↓	EMS	USB	REMARKS
Read discrete inputs **(0x02)**	x		

Map lists

EMS Communication Integration B

Read Only Bit - Modbus Function 02

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
1168	0490	1	Communication status		(1)	

REMARKS:

(1)	0 = Communication OK 1 = Communication failure

Read & Write Bit - Modbus Functions 01-05-15

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
1168	0490	1				
1169	0491	1				

Read Only Registers - Modbus Function 04

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
1168	0490	1				
1169	0491	1				

Read&Write Registers – Modbus Functions 03-06-16

Address (DEC)	Add. (HEX)	Size	Description	Measurement unit	Remarks	Maintenance without power supply
1168	0490	1				
1169	0491	1				