

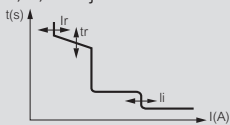
DMX³ 1600

electronic protection units

Settings of the electronic protection units

MP4 LI

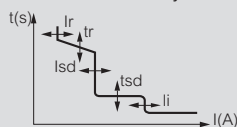
I_r, t_r, I_i adjustment on front panel



- **Long time delay protection against overloads**
I_r from 0.4 to 1 x I_n (6 + 6 steps) on two selectors (0.4 ÷ 0.9, by steps of 0.1 and 0.0 ÷ 0.1, by steps of 0.02)
- **Long delay protection operation time**
t_r - at 6 x I_r (4 + 4 steps)
t_r = 5-10-20-30 s (MEM ON) 30-20-10-5 s (MEM OFF)
- **Short time delay protection against short-circuits**
Fixed thresholds:
I_{sd} = 10 x I_r
t_{sd} = 1 s
- **Instantaneous protection against very high short circuits**
I_i from 2 to 15 x I_n or I_{cw} (9 steps) I_i = 2-3-4-6-8-10-12-15 x I_n or I_{cw}
- **Neutral protection:** OFF-50%-100%

MP4 LSI

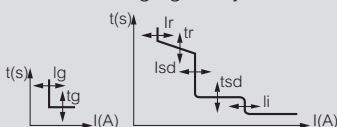
I_r, t_r, I_{sd}, t_{sd}, I_i adjustment on front panel



- **Long time delay protection against overloads**
I_r from 0.4 to 1 x I_n (6 + 6 steps) on two selectors (0.4 ÷ 0.9, by steps of 0.1 and 0.0 ÷ 0.1, by steps of 0.02)
- **Long delay protection operation time**
t_r - at 6 x I_r (4 + 4 steps) t_r = 5-10-20-30 s (MEM ON) 30-20-10-5 s (MEM OFF)
- **Short time delay protection against short circuits**
I_{sd} from 1.5 to 10 x I_r (9 steps) I_{sd} = 1.5-2-2.5-3-4-5-6-8-10 x I_r
- **Short time delay protection operation time**
t_{sd} = 0.1-0.2-0.5-1 s (t=const),
0.3-0.2-0.1-0.01 s (I²t=const)
- **Instantaneous protection against very high short circuits**
I_i from 2 to 15 x I_n or I_{cw} (9 steps) I_i = off-2-3-4-6-8-10-12-15 x I_n or I_{cw}
- **Neutral protection:** OFF-50%-100%

MP4 LSIg

I_r, t_r, I_{sd}, t_{sd}, I_g, t_g, I_i adjustment on front panel



- **Long time delay protection against overloads**
I_r from 0.4 to 1 x I_n (6 + 6 steps) on two selectors (0.4 ÷ 0.9, by steps of 0.1 and 0.0 ÷ 0.1, by steps of 0.02)
- **Long delay protection operation time**
t_r - at 6 x I_r (4 + 4 steps) t_r = 5-10-20-30 s (MEM ON)
30-20-10-5 s (MEM OFF)
- **Short time delay protection against short circuits**
I_{sd} from 1.5 to 10 x I_r (9 steps) I_{sd} = 1.5-2-2.5-3-4-5-6-8-10 x I_r
- **Short time delay protection operation time**
t_{sd} = 0.1-0.2-0.5-1 s (t=const),
0.3-0.2-0.1-0.01 s (I²t=const)
- **Instantaneous protection against very high short circuits**
I_i from 2 to 15 x I_n or I_{cw} (9 steps) I_i = 2-3-4-6-8-10-12-15 x I_n or I_{cw}
- **Earth fault current**
I_g from 0.2 to 1 x I_n (9 steps) I_g = 0.2-0.3-0.4-0.5-0.6-0.7-0.8-1 x I_n : OFF
t_g from 0.1 + 1 s (4 steps) t_g = 0.1-0.2-0.5-1 s
(both t = const and I²t = const)
- **Neutral protection:** OFF-50%-100%

Selectivity in three-phase network 415 V_~

DMX³/DPX³

Downstream \ Upstream	DMX ³ 1600				
	630 A	800 A	1000 A	1250 A	1600 A
DPX ³ 160 ⁽¹⁾	T	T	T	T	T
DPX ³ 250 ⁽¹⁾ TM and elec.	T	T	T	T	T
DPX ³ 630 ⁽¹⁾ TM and elec.		T	T	T	T
DPX ³ 1600 ⁽¹⁾ thermal magnetic	630 A		T	T	T
	800 A			T	T
	1000 A				T
	1250 A				T
DPX ³ 1600 ⁽¹⁾ electronic	630 A			T	T
	800 A				T
	1000 A				T
	1250 A				T
1600 A					T

1: All breaking capacities
T: total selectivity, up to downstream circuit breaking capacity according to IEC 60947-2

DMX³/DMX³

Downstream \ Upstream	DMX ³ 1600				
	630 A	800 A	1000 A	1250 A	1600 A
DMX ³	630 A		T	T	T
	800 A			T	T
	1000 A				T
	1250 A				T
	1600 A				

T: total selectivity, up to downstream circuit breaking capacity according to IEC 60947-2
I_{cu} of downstream circuit breaker ≤ I_{cu} of upstream circuit breaker
Selectivity values are intended with protection unit properly adjusted

DMX³/DX³

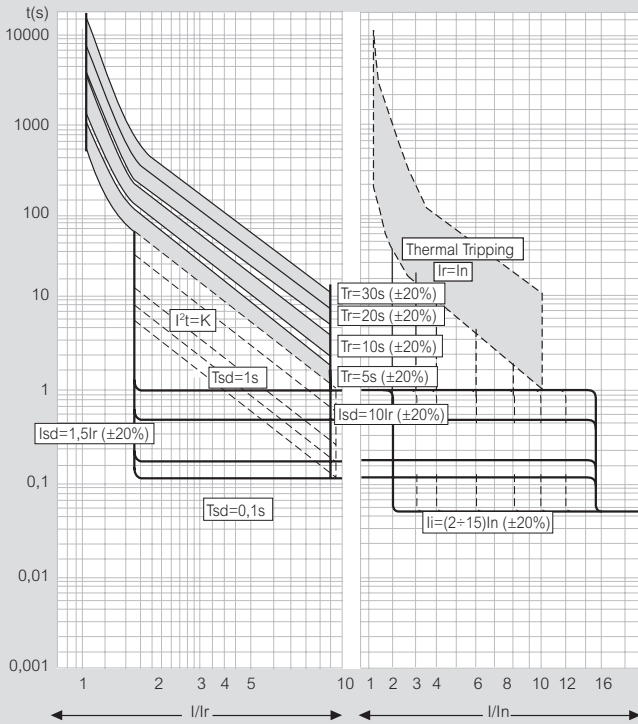
	DMX ³ 1600				
	630 A	800 A	1000 A	1250 A	1600 A
DX ³ 6000 - 10 kA	T	T	T	T	T
DX ³ 10000 - 16 kA	T	T	T	T	T
DX ³ 25 kA	T	T	T	T	T
DX ³ 36 kA	T	T	T	T	T
DX ³ 50 kA	T	T	T	T	T

T: total selectivity, up to downstream circuit breaking capacity according to IEC 60947-2
I_{cu} of downstream circuit breaker ≤ I_{cu} of upstream circuit breaker
Selectivity values are intended with protection unit properly adjusted

DMX³ 1600

technical characteristics

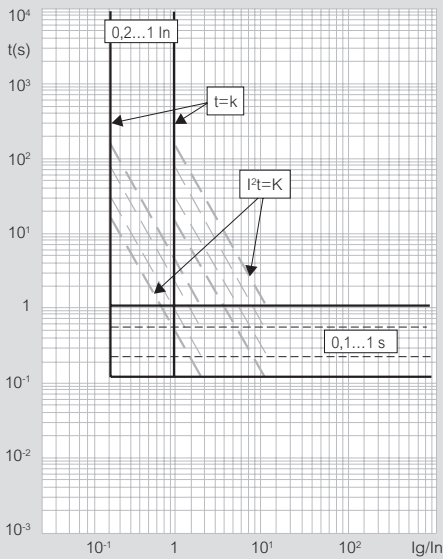
Selective time-current tripping characteristic for MP4 protection units



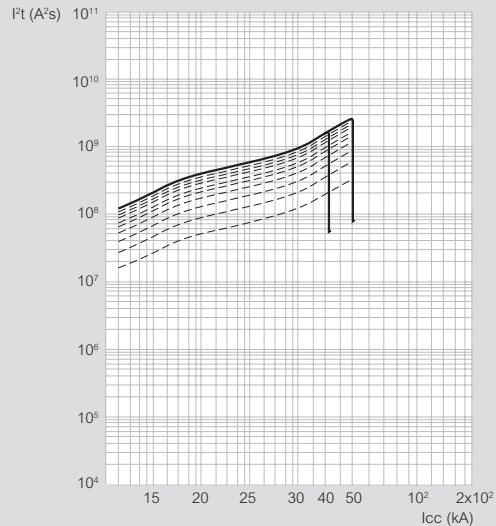
If short-circuit current is higher than I_{cw} value or I_i is set at I_{cw} position, tripping time is equal to 30ms

- t = time
- I = current
- I_r = long time setting current
- t_r = long time delay
- I_{sd} = short time setting current
- t_{sd} = short time delay
- I_i = instantaneous release

Ground fault tripping curve for LSIG protection unit



Pass-through specific energy characteristic



I_{cc} (kA) = estimated short circuit symmetrical current (RMS value)
 I^2t (A²s) = pass-through specific energy

DMX³ 1600 tripping curves and more technical characteristics see **technical sheets**

DMX³ 1600

technical characteristics (continued)

Technical characteristics

DMX³ 1600

DMX ³ according to IEC 60947-2		DMX ³ 1600	
		42 kA	50 kA
Frame current (A)		1600	
Number of poles		3P-4P	
Rating In (A)		630/800/1000/1250/1600	
Rated insulation voltage Ui (V)		1000	
Rated impulse withstand voltage Uimp (kV)		12	
Rated operational voltage (50/60Hz) Ue (V)		690	
Category of use		B	
Ultimate breaking capacity Icu (kA)	220 / 240 V \sim	42	50
	380 / 415 V \sim	42	50
	440 / 460 V \sim	42	50
	480 / 500 V \sim	42	50
	600 V \sim	42	42
	690 V \sim	42	42
Service breaking capacity Ics (% Icu)		100 %	100 %
Short-circuit making capacity Icm (kA)	220 / 240 V \sim	88	105
	380 / 415 V \sim	88	105
	440 / 460 V \sim	88	105
	480 / 500 V \sim	88	105
	600 V \sim	88	88
	690 V \sim	88	88
Short time withstand current Icw (kA) for t = 1 s	220 / 240 V \sim	42	50
	380 / 415 V \sim	42	50
	440 / 460 V \sim	42	50
	480 / 500 V \sim	42	50
	600 V \sim	42	42
	690 V \sim	42	42
Magnetic threshold	Istantaneous releases li (x In)	(2 ÷ 15) & Icw	
Isolation behavior		Yes	
Endurance (cycle)	mechanical without maintenance	5000	
	mechanical with maintenance	10000	
	electrical	1500 at 690 V / 3000 at 415 V	

Temperature derating

Fixed and draw-out version

Temperature	40°C		50°C		60°C		65°C		70°C	
	I _{max} (A)	I _r / I _n	I _{max} (A)	I _r / I _n	I _{max} (A)	I _r / I _n	I _{max} (A)	I _r / I _n	I _{max} (A)	I _r / I _n
DMX ³ 1600	630	1	630	1	630	1	630	1	630	1
	800	1	800	1	800	1	800	1	800	1
	1000	1	1000	1	1000	1	1000	1	950	0.95
	1250	1	1250	1	1250	1	1187	0.95	1125	0.9
	1600	1	1600	1	1330	0.83	1280	0.8	1216	0.76

Derating at different altitudes

Air circuit breaker	DMX ³ 1600			
Altitude H (m)	< 2000	3000	4000	5000
Rated current (at 40°C) I _n (A)	I _n	0.93 x I _n	0.88 x I _n	0.82 x I _n
Rated voltage U _e (V)	690	600	500	440
Rated insulation voltage U _i (V)	1000	900	750	600

Minimum recommended dimension of copper busbars per pole

In (A)	Fixed version		Draw-out version	
	Horizontal bars (mm)	Vertical bars (mm)	Horizontal bars (mm)	Vertical bars (mm)
630	2 x 40 x 5	2 x 40 x 5	2 x 40 x 5	2 x 40 x 5
800	2 x 30 x 10	2 x 50 x 5	2 x 50 x 5	2 x 30 x 10
1000	2 x 30 x 10	1 x 60 x 10 / 2 x 60 x 5	2 x 60 x 5	2 x 30 x 10
1250	2 x 40 x 10	1 x 80 x 10 / 2 x 40 x 10	2 x 80 x 5	2 x 40 x 10
1600	2 x 50 x 10	2 x 50 x 10	2 x 50 x 10	2 x 50 x 10

Note: The tables presenting the minimum recommended dimensions of connection plates and bars per pole should be used solely as a general guideline for selecting products. Due to extensive variety of switchgear constructions shapes and conditions that can affect the behavior of the apparatus, the solution used must always be verified



For minimum recommended section of aluminium busbars
Please, consult us