technical datasheet

MA3145 (I & II Pole) Class II

Cost effective surge protection designed to cope with secondary currents as described in IEC 61312

- Space saving design, DIN rail mounting
- Full range of AC mains power applications
- Coordinated surge protection to IEC 61312; rated according to IEC 61643
- UL1449 3rd Edition, Type 4 Recognized Component, VZCA2 & VZCA8, File E315539
- 200kA Short Circuit Current Rating

The MA3100 Series offers cost effective, DIN rail mounted, surge protection for applications described by IEC 61312 The Class II range of surge arrestors fit in to the cascade philosophy along side Class I & Class III devices.

All modules are DIN rail mounted for ease of installation and have very small footprints therefore minimising the space required. Each device is simply connected in parallel with the power.

The Class II surge current arrester is designed to work as both a standalone device and in cascade coordination with MTL's Class I lightning arrester. A single width module withstands surge currents up to 40,000A with an 8/20µs waveform. Class II arresters are available in single width modules for maximum user flexibility, double width modules for all-mode protection on single phase systems and quad width modules for all-mode protection on three phase systems.

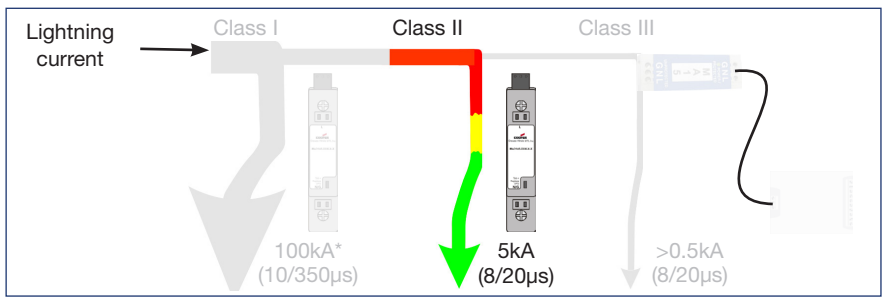
The Class II modules have remote monitoring capabilities as a standard feature. Voltage free, normally open, normally closed contacts can be used for a variety of monitoring tasks.

The MA3145 Class II surge current arrestor has a Short Circuit Current rating (SCCR) of 200kA which removes the need for external fusing and reduces installation cost.

Coordinated IEC 61643 Class I, Class II and Class III surge protection

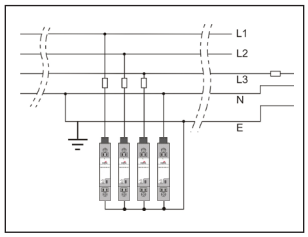
The MA3100 range offers cost effective surge protection for applications described by IEC 61312, where the AC mains supply can carry a partial share of the lightning surge current. Class I surge protectors (rated according to IEC 61643) are designed to carry up to 50kA (10/350µs). Class II surge protectors are characterized by their ability to protect against 8/20µs impulses up to 40kA, possibly resulting from the operation of a class I device. Finally Class III devices are used to protect individual pieces of equipment. An excellent example of a class III device is the MA15.

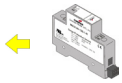
Cascade Effect Example



*Total over a 3 phase system

TN-C-S System



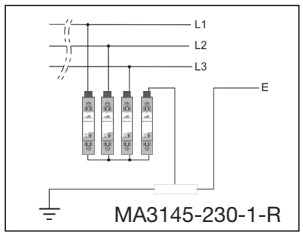


MA3145-230-1-R

OR

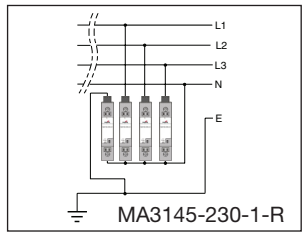
MA3145-230-2-R

Variations for IT



MA3145-230-1-R

Variations for TT



MA3145-230-1-R

Class II Surge Protection Device

Technical data MA3145	120-1-R	230-1-R	120-2-R	230-2-R
Dimensions (see Fig. 1 for A and B)	**A (1 pole)**	**A (1 pole)**	**B (2 pole)**	**B (2 pole)**
IEC category/VDE requirement class:	II/C	II/C	II/C	II/C
Nominal voltage U_n:	120V AC	230V AC	120V AC	230V AC
Max. continuous operating voltage U_c:	150V AC	270V AC	150V AC	270V AC
Lightning test current limp (10/350µs) peak value/charge:	15kA	15kA	15kA	15kA
Q charge:	7.5As	7.5As	7.5As	7.5As
Leakage current to PE at U_n:	≤0.3mA	≤0.3mA	≤0.3mA	≤0.3mA
Nominal discharge surge current I_n (8/20µs):	20kA	20kA	20kA	20kA
Max. discharge surge current I_{max} (8/20µs):	40kA	40kA	40kA	40kA
Protection level U_p:	<1.2kV	<1.5kV	<1.2kV	<1.5kV
Residual voltage at 5kA:	570V	880V	570V	880V
Response time t_a:	≤25ns			
Max. required backup fuse:	N/R			
Short-circuit current rating (SCCR)	200kA AIC			
Remote indication contact: max. permited operating voltage U_{max}	125V AC/110V DC			
max. permited operating current I_{max} AC or DC	3A			
Temperature range:	-40°C to +80°C			
Protection type according to IEC 60 529/EN 60 529:	IP20			
Flammability class according to UL94:	VO			
Stripping length: Biconnect terminal blocks/ remote indicator contact:	14.5/7mm			
Torque: Biconnect term. blks./remote indicator contact:	4.5Nm/0.25Nm			
Weight (typ.):	**(1 pole)**: 105g		**(2 pole)**: 210g	
Approvals: CE Test standards: UL1449 3rd Edition; IEC 61643-11:2011-03	cULus			

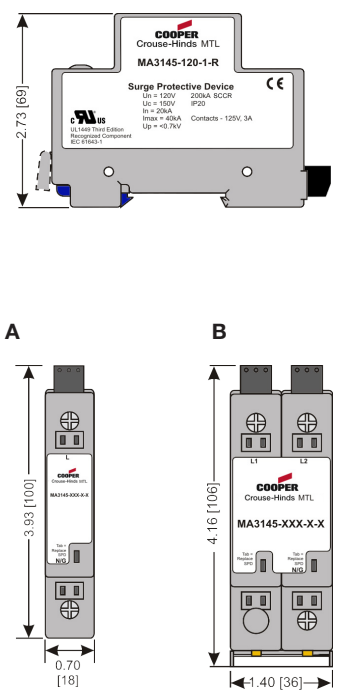


Figure 1 Class II dimensions

To order Class II surge protection devices, specify -

MA31	45	230	1	R

R = Remote contacts present

1 = 1 module width
2 = 2 module widths

120 = operating voltage
230 = operating voltage

45 = Product series

MA31 = (Product range name)

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technical datasheet

MA3145 (4 Pole) Class II

Cost effective surge protection designed to cope with secondary currents as described in IEC 61312

- Space saving design, DIN-rail mounting
- Full range of AC mains power applications
- Coordinated surge protection to IEC 61312; rated according to IEC 61643
- Single module for three phase applications on TN-C-S systems

The MA3100 Series offers cost effective, DIN-rail mounted, surge protection for applications described by IEC 61312 The Class II range of surge arrestors fit in to the cascade philosophy along side Class I & Class III devices.

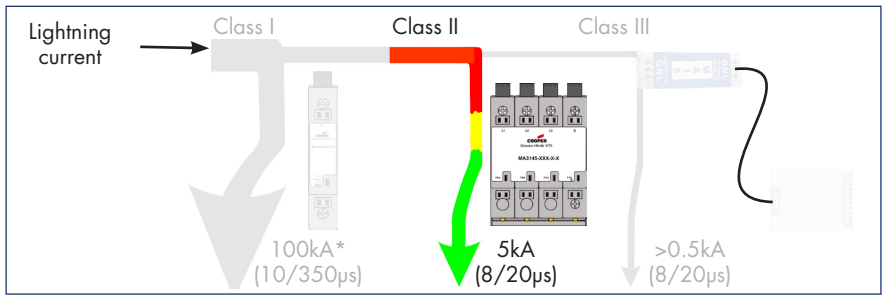
All modules are DIN-rail mounted for ease of installation and have very small footprints therefore minimising the space required. Each device is simply connected in parallel with the power.

The Class II surge current arrester is designed to work as both a standalone device and in cascade coordination with MTL's Class I lightning arrester. A 4 pole width module withstands surge currents up to 40,000 amps with 8/20µs waveform. The Class II arresters offer protection for three phase systems type TN-C-S. The 4 pole Class II arresters have remote monitoring capabilities as a standard feature. Voltage free, normally open, normally closed contacts can be used for a variety of monitoring tasks.

Coordinated IEC 61643 Class I, Class II and Class III surge protection

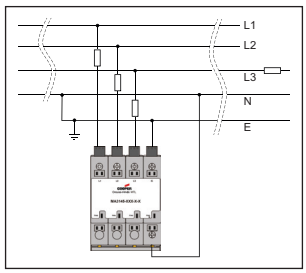
The MA3100 range offers cost effective surge protection for applications described by IEC 61312, where the AC mains supply can carry a partial share of the lightning surge current. Class I surge protectors (rated according to IEC 61643) are designed to carry up to 50kA (10/350µs). Class II surge protectors are characterized by their ability to protect against 8/20µs impulses up to 40kA, possibly resulting from the operation of a Class I device. Finally Class III devices are used to protect individual pieces of equipment. An excellent example of a class III device is the MA15.

Cascade Effect Example

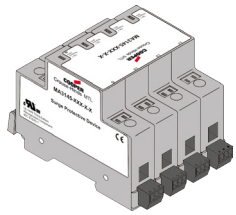


*Total over a 3 phase system

TN-C-S SYSTEM



MA3145-230-4-R



CLASS II SURGE PROTECTION DEVICE

Technical data	MA3145	230-4-R
Dimensions		See Figure 1
IEC category/VDE requirement class:		II/C
Nominal voltage U_n:		230/400V AC
Max. continuous operating voltage U_c:		320V AC
Lightning test current I_{imp} (10/350µs)	peak value/charge:	15kA
	Q charge:	7.5As
Leakage current to PE at U_n:		≤0.3mA
Nominal discharge surge current I_n (8/20µs):		20kA
Max. discharge surge current I_{max} (8/20µs):		40kA
Protection level U_p:		2.8kV
Residual voltage at 5kA:		1040V
Response time t_a:		≤25ns
Max. required backup fuse:		N/R
Short-circuit current rating (SCCR)		200kA AIC
Remote indication contact: max. permited operating voltage U_{max}		125V AC/110V DC
max. permited operating current I_{max} AC or DC		3A
Temperature range:		-40°C to +80°C
Protection type according to IEC 60 529/EN 60 529:		IP20
Flammability class according to UL94:		VO
Stripping length: Biconnect terminal blocks/remote indicator contact:		14.5/7mm
Torque: Biconnect terminal blocks/remote indicator contact:		4.5Nm/0.25Nm
Weight (typ.):		290g
Approvals: CE		
Test standards: UL1449 3rd Edition; IEC 61643-11:2011-03		c UL us

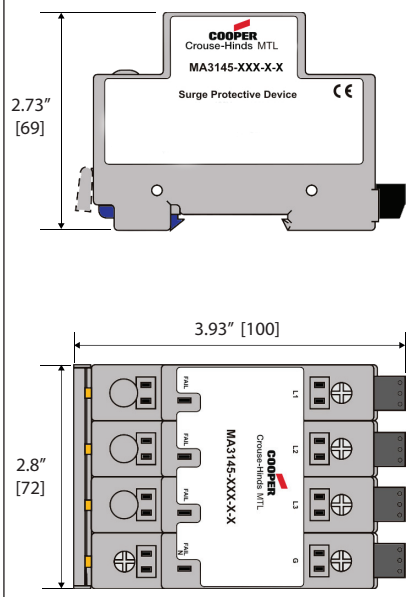


Figure 1 Class II 4 pole dimensions

To order Class I surge protection devices, specify -

MA31	45	230	4	R

R = Remote contacts present

4 = 4 module widths

230 = operating voltage

45 = Product series

MA31 = (Product range name)

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technical datasheet

MA3160 (1 Pole) Class I

Cost effective surge protection designed to cope with secondary currents as described in IEC 61312

- Space saving design, DIN-rail mounting
- Full range of AC mains power applications
- Coordinated surge protection to IEC 61312; rated according to IEC 61643
- Class I single pole I_{peak} of 50kA (10/350µs)
- Multiple pole I_{peak} of >100kA (10/350µs)

The MA3100 Series offers cost effective, DIN rail mounted, surge protection for applications described by IEC61312 The Class I surge arrestor fits into the cascade philosophy alongside Class II & Class III devices.

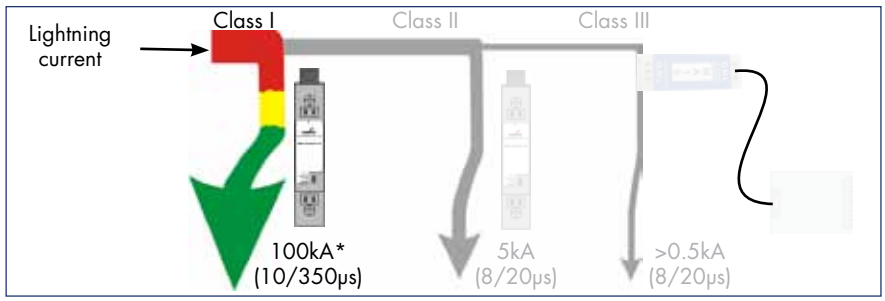
All modules are DIN rail mounted for ease of installation and have very small footprints therefore minimising the space required. Each device is simply connected in parallel with the power.

The Class I surge current arrester is designed for location at the service entrance in the transition between Zone 0A and 0B as per IEC61312 coordinated surge protection. A single width module withstands surge currents up to 50,000 amps with a 10/350µs waveform. The single width module gives excellent flexibility when applying to the different supply configurations worldwide.

Coordinated IEC 61643 Class I, Class II and Class III surge protection

The MA3100 range offers cost effective surge protection for applications described by IEC 61312, where the AC mains supply can carry a partial share of the lightning surge current. Class I surge protectors (rated according to IEC 61643) are designed to carry up to 50kA (10/350µs). Class II surge protectors are characterized by their ability to protect against 8/20µs impulses up to 50kA, possibly resulting from the operation of a class I device. Finally Class III devices are used to protect individual pieces of equipment. An excellent example of a class III device is the MA15.

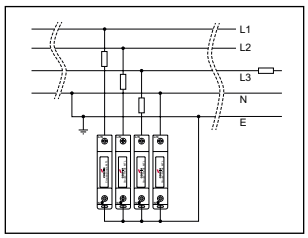
Cascade Effect Example

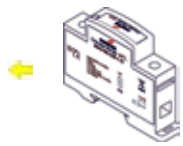


*Total over a 3 phase system

COOPER Crouse-Hinds

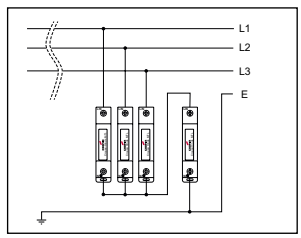
TN-C-S SYSTEM





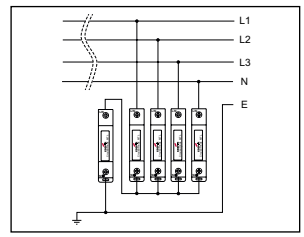
MA3160-230-1-0

VARIATIONS FOR IT



MA3160-230-1-0

VARIATIONS FOR TT



MA3160-230-1-0

CLASS I SURGE PROTECTION DEVICE

Technical data	**MA3160**	**230-1-0**
Dimensions:		See Figure 1
IEC category/VDE requirement class:		I/B
Max. continuous operating voltage U_c:		250V 50/60Hz
Leakage current:		<1µA
Lightning test current I_{imp} (10/350µs)	peak value/charge:	50kA/30As
	multi-pole:	>100kA/>50As
	specific energy:	1000kJ/W
Protection level U_p:		≤4kV
Response time t_a:		≤100ns
Quenching short circuit current I_f		1.5kA/250V
Max. required backup fuse:		125A gL-type
Temperature range:		-40°C to +80°C
Perm. relative air humidity:		≤95%
Protection type according to IEC 60 529/EN 60 529:		IP20
Flammability class according to UL94:		VO
Maximum wire size:		25mm^2
Torque:		4.5Nm
Weight (typ.):		115g
Approvals: CE		
Test standards:		IEC 61643-1:1998-02 E DIN VDE 0675 PART 6:1989-11/A2:1196-10

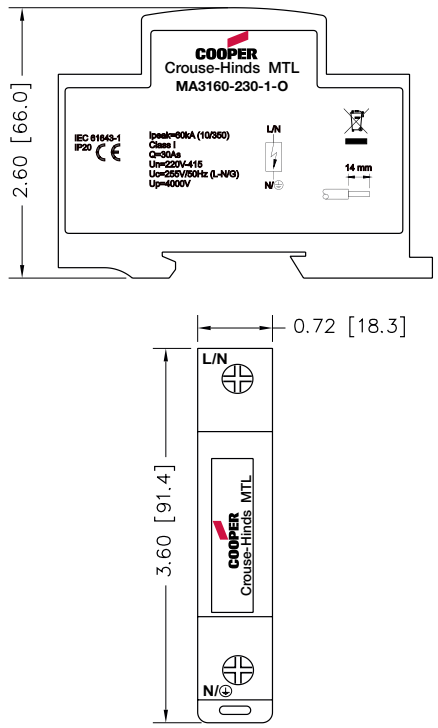


Figure 1 Class I dimensions

TO ORDER CLASS I SURGE PROTECTION DEVICES, SPECIFY -

MA31	60	230	1	0

0 = Remote contacts not present

1 = 1 module width

230 = operating voltage

60 = Product series

MA31 = (Product range name)

The given data is only intended as a product description and should not be regarded as a legal warranty of properties or guarantee. In the interest of further technical developments, we reserve the right to make design changes.

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