

MTL MA05/10 range

Unique units combining filtering, surge and ring suppression for protection against the effects of electrical disturbances on ac power cabling

- Combines high quality filtering with 'ring' suppression
- Three different packages available, Wall/floor mounted (I)
DIN-rail mounted (D)
Standard filter case (SC)
- Added thermal fuse protection
- Unique design for EMC compliance – exceeding IEC61000-4-5, level 4



The MA05 and MA10 range protects electronic equipment and computer networks against the effects of 'noise pollution' induced in mains power supplies. A unique combination of circuit elements 'cleans up' the effects of industrial noise and surges caused by lightning, switching devices, thyristor controls, transmission system overloads and power-factor correction circuits.

The units are available in alternative versions – 'SC' suffixed models housed in standard filter 'cans' with connections via safety-shrouded spade terminations; 'Standard' I units for wall or floor mounting in a plastic enclosure with screw terminals inside; or 'D' suffixed units for G- or Top-hat section DIN-rail mounting. The 'SC' and 'I' units are useful for OEM incorporation into packaged systems as a superior alternative to conventional filters and also for retro-fitting to existing systems. The 'D' type units are ideally suited to protecting panel-mounted equipment.

With a unique 'three-stage' combination of protection elements, these units suppress conducted RFI and voltage surges. The circuit elements are; first, surge clipping components to absorb transient surges that may otherwise damage equipment; second, a filter to

suppress noise in the system; and third, 'ring' suppression. The third of these prevents surges causing the filter to 'ring' (oscillate) under low load conditions – an effect that actually accentuates interference in most commercially available filters. The 'Transient response' graph printed overleaf illustrates the typical output response of an MA10/D when a 6kV, 3kA standard 8/20µs surge is applied to the input.

The MA05 and MA10 devices operate in both signal directions and therefore reduce both electro-magnetic emissions and the susceptibility of the associated equipment to emissions from other sources. Thermal fusing is also incorporated into each device as an additional safety feature.

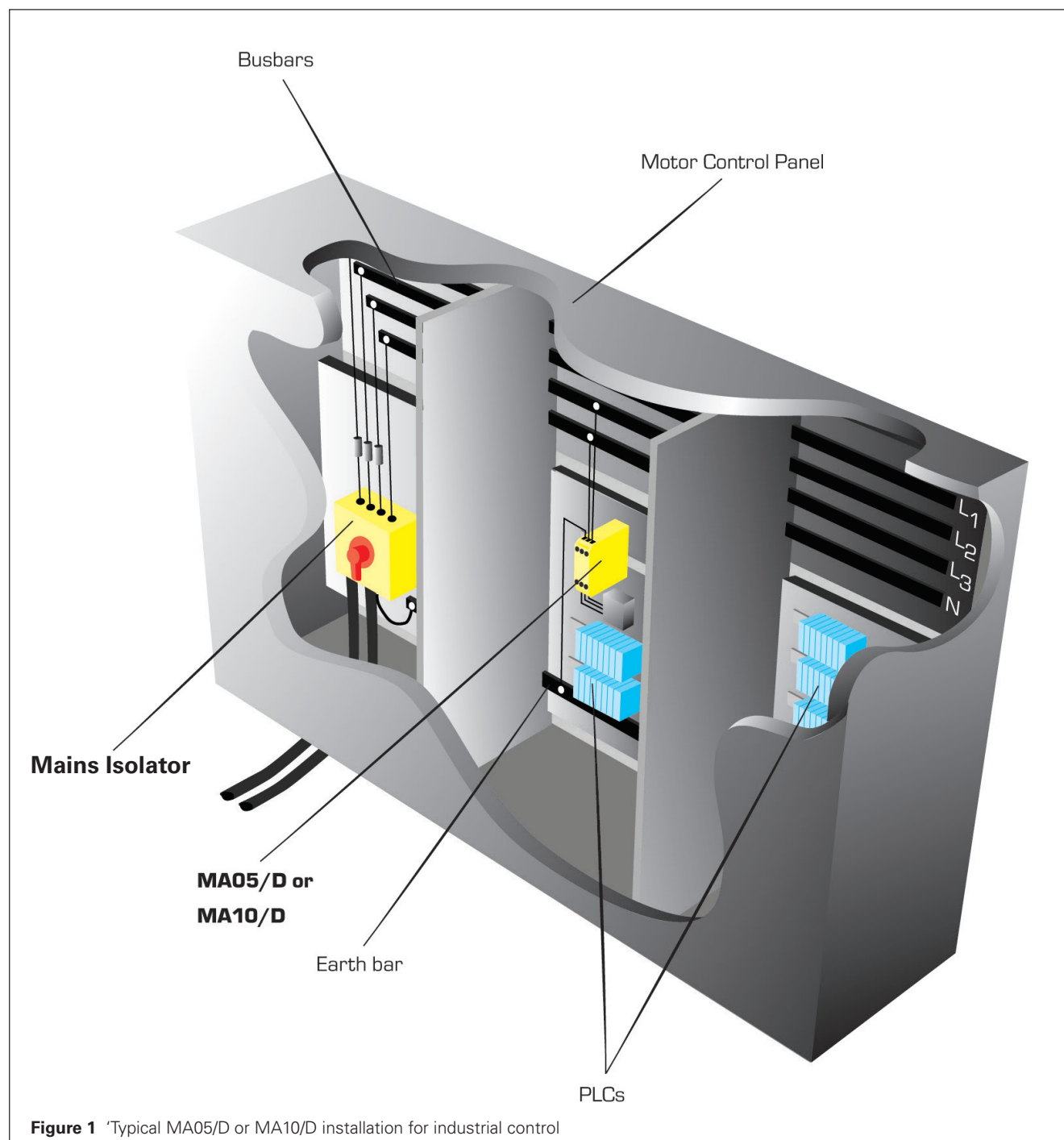
Manufactured in accordance with ISO9001, the performance of all units is tested before despatch and exceeds the requirements of IEC 61000-4-5, level 4. Since MA05/10 devices suppress conducted RFI and voltage surges they enable associated equipment to comply with this aspect of the European 'CE' mark standards.

MA05/10 EMC/Surge Protection Devices

Guide to applications and selection

Industrial Control Systems

Industrial control systems utilising programmable logic controllers (plc) and industrial computers are particularly vulnerable due to the aggressive electrical environments for which they are intended, such as process plants, factories and water treatment sites. Although industrial computers and plcs are designed to be rugged, protection against the extreme voltage surges caused by lightning activity and the switching of large electrical motors demands the extra protection provided by the DIN rail mounting MA05/D and MA10/D units. Typically used in the controls section of a motor control cubicle (MCC), this range provides voltage surge and RFI protected power.



MTL MA05/10 range

September 2016

Computer/OEM Equipment

Increased reliance on computers in industry and the workplace, coupled with an increasingly 'noisy' electrical supply and a higher incidence of lightning activity has led to a higher risk of costly system downtime and disruption. In turn, this has led to the need to manufacture equipment that is resistant to voltage surges and radio frequency interference (RFI), as laid down in the EMC directives. The MA05/SC, MA10/SC, MA05/I and MA10/I units are designed to be easily incorporated into OEM equipment such as industrial computers, mobile telephone base stations, closed circuit tv (cctv) systems and can help with EMC compliance and 'CE' marking.

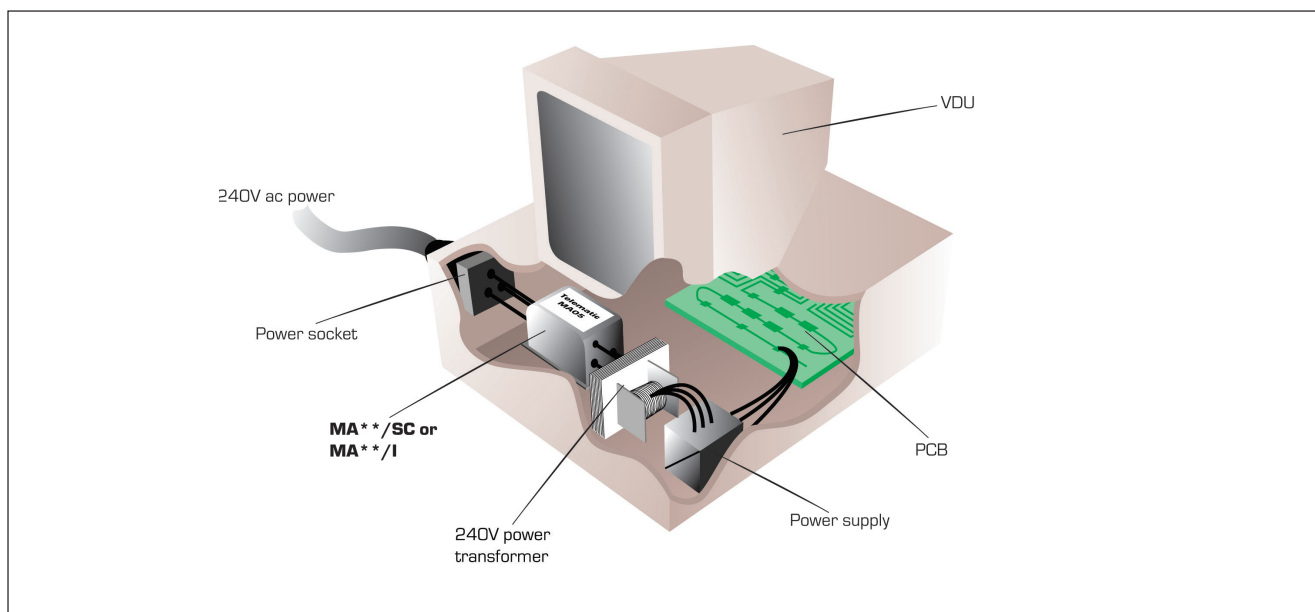


Figure 2 'Typical' MA**/SC or MA**/I installation in OEM equipment

Typical RFI and surge protection performance MA05/D and MA10/D units

The following graphs are prepared from test results made on typical units.

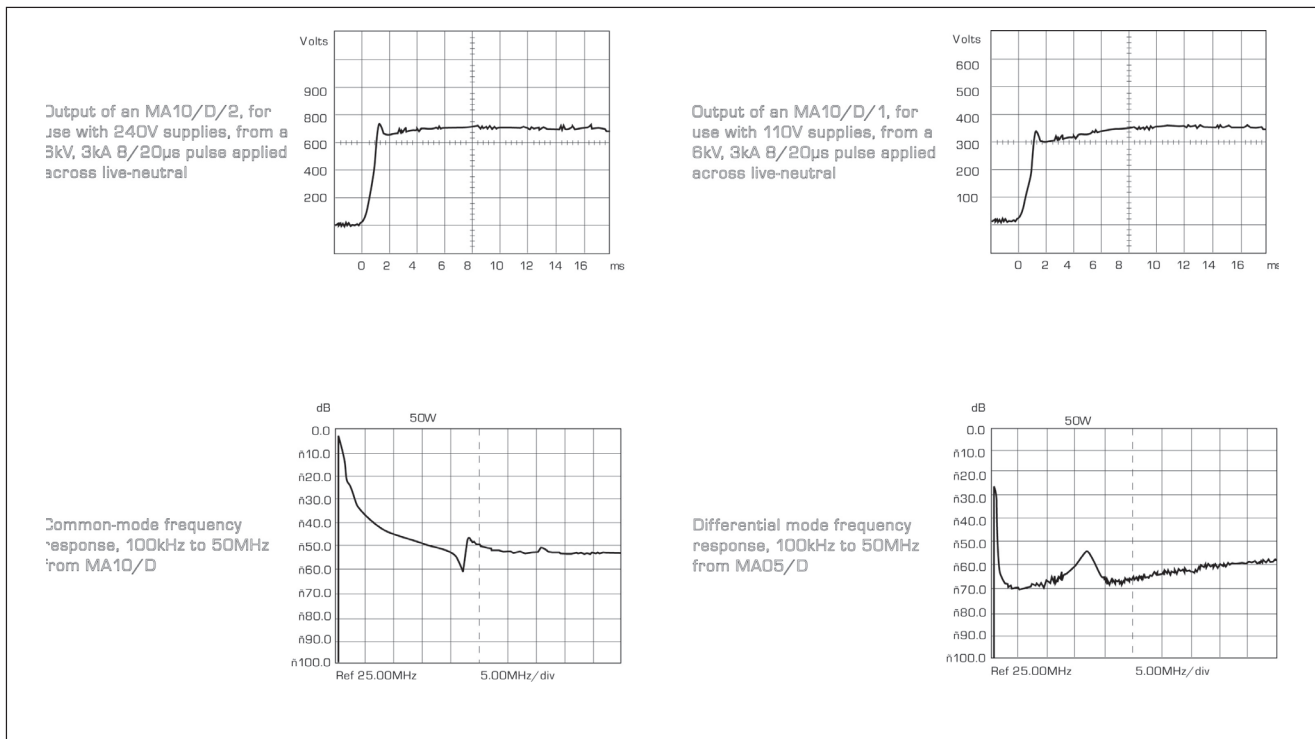


Figure 3 Typical output response of an MA10/D

MTL MA05/10 range

September 2016

SPECIFICATION

All figures typical at 77°F (25°C) unless otherwise stated

Maximum surge current

6.5kA (8/20µs)

Maximum leakage current

<0.3mA at working voltage

Maximum continuous operating current

Rated

MA05 devices 5A at 30°C

MA10 devices 10A at 30°C

Derated

MA05 devices 1A/10°C above 35°C

MA10 devices 2A/10°C above 45°C

Working voltage

MA**/*1 110V

MA**/*2 240V

Maximum continuous operating voltage

110V versions 132V

240V versions 253V

Limiting voltage

110V versions <400V

240V versions <800V

Maximum attenuation (typical)

73dB (series mode);

70dB (common mode)

Bandwidth 50/60Hz

Impulse energy absorption

110V versions 210J

240V versions 420J

Ambient temperature limits

-13°F — +185°F (-25°C to +85°C)

Humidity

5 to 95% RH (non-condensing)

Casing

SC models

Cold-rolled steel casing, tin-plated

D models

Polyamide-PA, with G- or T-section

DIN-rail mounting foot UL94-V0

I models

Plastic ABS-VO IP50 rated

Connectors

SC models

Low-profile safety spade terminators, or 'Faston' connectors

D and I models

Screw-clamp

Terminals

D and I models

0.4" (2.5mm²) —12 AWG

Weight

5.3 oz (150g) — SC models

3.5 oz (100g) — D models)

5.6 oz (160g) — I models

Dimensions

See figures 4, 5 and 6

Warning

These units must be protected by an external fuse

Maximum fuse rating

MA05 5A

MA10 10A

Fuse rating may need to be reduced depending on power supply capability or equipment fitted downstream of SPD

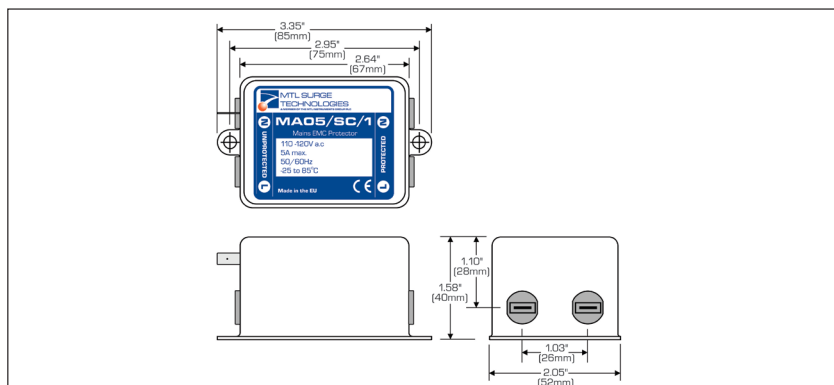


Figure 4 Dimensions and mounting — MA05/SC and MA10/SC

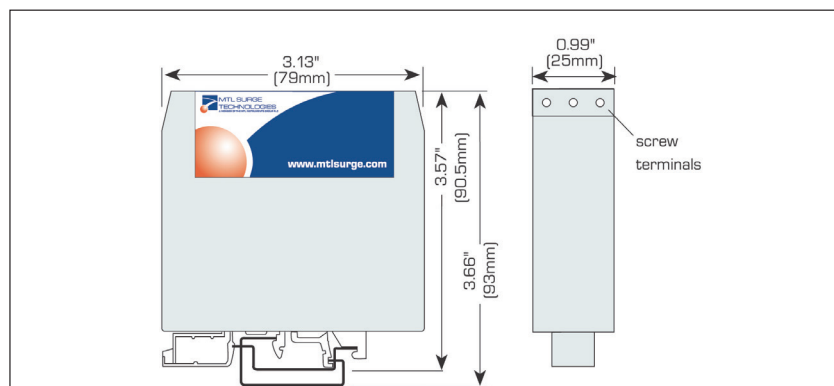


Figure 5 Dimensions and mounting — MA05/D and MA10/D

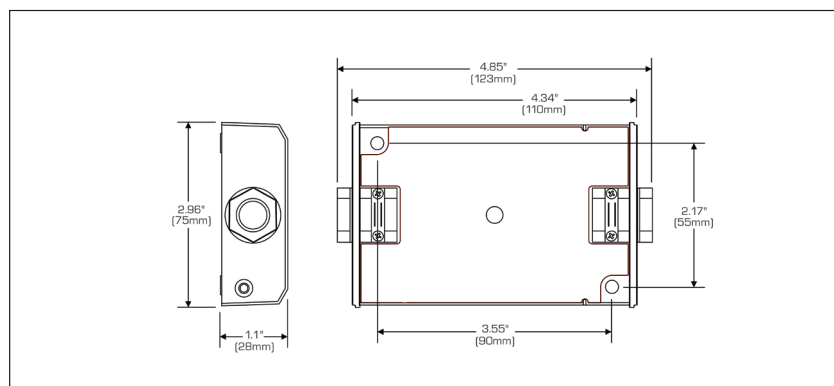


Figure 6 Dimensions and mounting — MA05/I and MA10/I

To order specify -

MA05/SC/1	'filter-can' 110V, 5Amp	MA05/D/2	'DIN-rail' 240V, 5Amp
MA10/SC/1	'filter-can' 110V, 10Amp	MA10/D/2	'DIN-rail' 240V, 10Amp
MA05/SC/2	'filter-can' 240V, 5Amp	MA05/I/1	Wall/floor mounting 110V, 5Amp
MA10/SC/2	'filter-can' 240V, 10Amp	MA10/I/1	Wall/floor mounting 110V, 10Amp
MA05/D/1	'DIN-rail' 110V, 5Amp	MA05/I/2	Wall/floor mounting 240V, 5Amp
MA10/D/1	'DIN-rail' 110V, 10Amp	MA10/I/2	Wall/floor mounting 240V, 10Amp



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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.

MA15 range

AC and DC power surge protective device with filter

- 12kA surge protection and RFI filtering
- Protects panel loads up to 15 Amps in series, unlimited Amps in parallel
- Suitable for AC or DC application
- Thermal and short circuit protection
- LED status indication feature
- 10 year product warranty
- UL1449 5th Edition



The MA15 range of surge protection devices protects electronic equipment and computer networks against the effects of 'noise pollution' induced in power supplies. MA15 units 'clean up' the effects of industrial noise and surges caused by lightning, switching devices, thyristor controls, transmission system overloads and power-factor correction circuits.

Industrial control systems utilizing programmable logic controllers (plc) and industrial computers are particularly vulnerable due to the aggressive electrical environments for which they are intended, such as process plants, factories and water treatment sites. Although industrial computers and plcs are designed to be rugged, the extra protection provided by the DIN rail mounting MA15 units is critical. Ideally suited for protecting panel mounted equipment and typically used in the controls section of a motor control centre (MCC), the MA15 range provides surge and RFI protected power.

With a unique 'three-stage' combination of protection elements, these units suppress conducted RFI and voltage surges. The circuit elements are first, surge clipping components to absorb transient surges that may otherwise damage equipment, second a filter to suppress noise in the system and third, 'ring' suppression. The third of these prevents surges causing the filter to 'ring' (oscillate) under low load conditions – an effect that actually accentuates interference in most commercially available filters.

Suitable for AC or DC application, MA15 units reduce both electromagnetic emissions and the susceptibility of the associated equipment to emissions from other sources. MA15 devices also offer ultimate installation flexibility. To protect circuits rated 15A or less, MA15 devices should be installed in series. To protect higher current circuits, simply install the MA15 in parallel.

An LED status indication facility is standard with the MA15 units. This displays both 'power on' and that protection is present. Thermal fusing is also incorporated into each 12kA rated device as an additional safety feature. MA15 units also offer short circuit protection for added peace of mind.

MA15 devices are UL 1449 Recognized Components (certified by UL for both US and Canadian requirements) and exceed the requirements of IEC 61000-4-5. As MA15 units suppress conducted RFI and voltage surges they enable associated equipment to comply with this aspect of European 'CE' mark standards.

MA15 range

AC and DC power surge protective Device with Filter

September 2022

SPECIFICATION

All figures typical at 77°F (25°C) unless otherwise stated

SPD Type according to UL 1449, 5th edition : 4CA

SPD according to IEC61643-11: Class III/T3

Nominal Surge current

3kA (8/20μs)

Maximum Surge Current

12kA (8/20μs)

Maximum leakage current

<0.3mA

Maximum continuous operating current (UL-approved)

120V @ 15A; 240V @ 10A series connection
Unlimited Amps in parallel

Maximum continuous operating current (Non-approved)

120V @ 15A; 240V @ 15A series connection
Unlimited Amps in parallel

Working voltage	AC	DC
MA15/D/1/SI	120V, 47-63Hz	140V
MA15/D/1TT/SI	120V, 47-63Hz	140V
MA15/D/2/SI	240V, 47-63Hz	280V
MA15/D/2TT/L	240V, 47-63Hz	280V

MODEL	MCOV	Modes of protection	MLV(Vpk)
MA15/D/1/SI	127	L - N	560
		L - G	560
		N - G	560
MA15/D/2/SI	254	L - N	980
		L - G	990
		N - G	960
MA15/D/1TT/SI	127	L - N	560
		L - G	990
		N - G	960
MA15/D/2TT/L	254	L - N	980
		L - G	990
		N - G	960

Maximum attenuation (typical)

-55dB @ 100MHz

Ambient temperature limits

-40°F to +185°F (working)

-40°C to +85°C (working)

Humidity

95% RH (non-condensing)

Casing

Polymide-PA, with G- or T-section
(Top-hat) DIN-rail mounting foot UL94-V0

Connectors

Screw terminal

Terminals

0.1 inch² (2.5mm²) 12 AWG

Mounting

G- or T-section ('Top-hat') or 1.4 inch (35mm) DIN rail

Weight

3.53oz (100g)

Dimensions

See figure 1

EMC compliance

EN 61326-1 : 2013

IEC 61643-11 : 2012 + A11: 2018

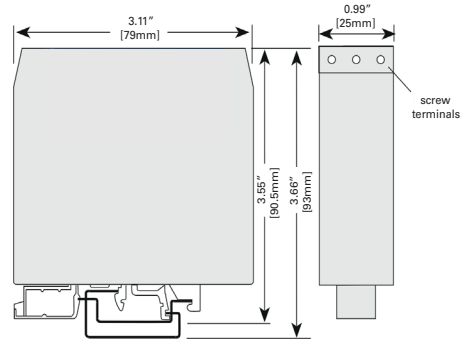
LED Indication

Green LED on Protection present

Green LED off Internal failure

DIMENSIONS

Figure 1 Dimensions



Installation

Typical wiring connections for MA15 range devices are indicated in figure 2. The grounding of the surge protector and the protected equipment is very important and, if possible, should be accomplished as illustrated.

Please note that the unit is marked Protected and Unprotected and it is important that the unit is installed with the Unprotected side connected to the incoming power and the Protected side connected to the equipment to be protected. For parallel application however, the Unprotected side is connected to the incoming power and the Protected side left unconnected.

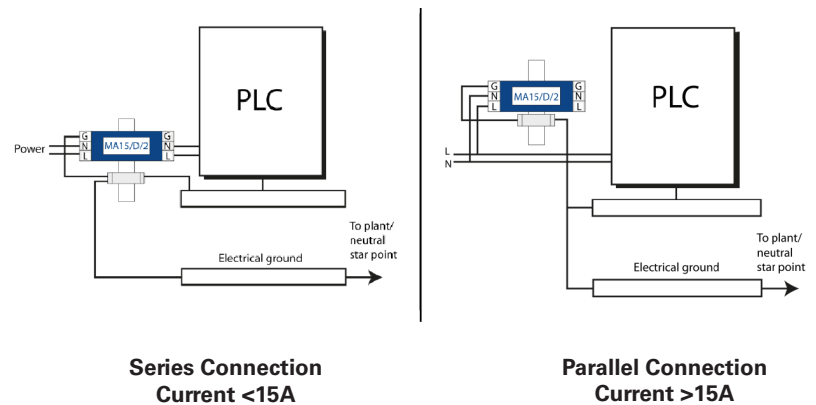


Figure 2 Installation

Approvals

Country	Standard/Authority	Approved for	Product
United States Canada	UL1449 5th Edition Recognized Component	AC Power Product	MA15/D/1/SI, MA15/D/2/SI MA15/D/1TT/SI
United States Canada	UL 121201 CSA C22.2 NO 213	Hazardous Locations Class I, Division 2 Groups A, B, C and D	MA15/D/1/SI, MA15/D/2/SI MA15/D/1TT/SI

NOTE: The above approvals do not apply to the MA15/D/2TT/L and DC applications.

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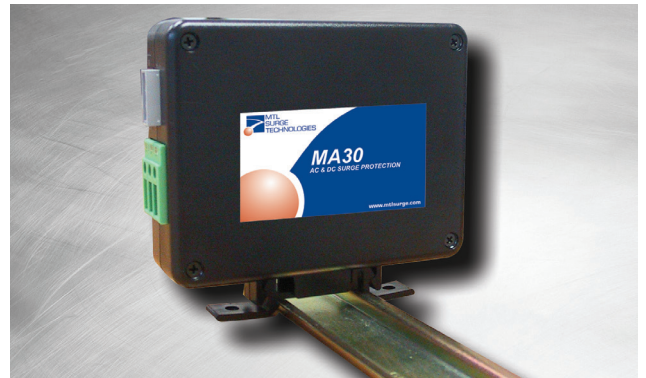
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MA30 range

AC and DC mains power surge protector and filter

- **18kA surge protection and RFI filtering**
- **Protects panel loads up to 30 Amps in series, unlimited Amps in parallel**
- **Suitable for AC or DC applications**
- **Thermal and short circuit protection**
- **LED status indication feature and remote alarm and power fail capability with Form C contacts**
- **10 year product warranty**



The MA30 range of surge protection devices protects electronic equipment power supplies and computer networks against the effects of 'noise pollution' induced in AC power supplies. MA30 units 'clean up' the effects of industrial noise and surges caused by lightning, switching devices, thyristor controls, transmission system overloads and power-factor correction circuits.

Industrial control systems and dc power supplies utilizing programmable logic controllers (plc) and industrial computers are particularly vulnerable due to the aggressive electrical environments for which they are intended, such as process plants, factories and water treatment sites. Although industrial computers and plcs are designed to be rugged, the extra protection provided by the DIN rail mounting MA30 units is critical. Ideally suited for protecting panel mounted equipment and typically used in the controls section of a motor control center (MCC), the MA30 range provides surge and RFI protected power.

With a unique 'three-stage' combination of protection elements, these units suppress conducted RFI and voltage surges. The circuit elements are first, surge clipping components to absorb transient surges that may otherwise damage equipment; second a filter to suppress noise in the system and third, 'ring' suppression. The third of these prevents surges causing the filter to 'ring' (oscillate) under low load conditions – an effect that actually accentuates interference in most commercially available filters.

Suitable for AC or DC application, MA30 units reduce both electromagnetic emissions and the susceptibility of the associated equipment to emissions from other sources. MA30 devices also offer ultimate installation flexibility. To protect circuits rated 30A or less, MA30 devices should be installed in series. To protect higher current circuits, simply install the MA30 in parallel.

An LED status indication facility is standard with the MA30 units. This displays both 'power on' and that protection is present. Thermal fusing is also incorporated into each 18kA rated device as an additional safety feature. MA30 units also offer short circuit protection. An optional remote monitoring unit is also available with audio and visual indication status, along with features such as a test switch for checking the monitoring circuitry and an audio alarm silence switch.

MA30 devices exceed the requirements of IEC 61000-4-5. Since MA30 units suppress conducted RFI and voltage surges they enable associated equipment to comply with this aspect of 'CE' mark standards.



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MTL MA30 range

October 2016

SPECIFICATION

All figures typical at 77°F (25°C) unless otherwise stated

Maximum surge current

18kA (8/20µs) per mode

Maximum leakage current

<0.3mA

Maximum continuous operating current

30A series connection

Unlimited Amps in parallel

Working voltage

	AC	DC
MA30/D/1/SI	120V, 47-63Hz	140V
MA30/D/1/TT	120V, 47-63Hz	140V
MA30/D/2/SI	240V, 47-63Hz	280V
MA30/D/2/TT	240V, 47-63Hz	280V
MA30/D/3/SI	240V, 47-63Hz	280V

Maximum continuous operating voltage

25% above nominal

Limiting voltage

@ 500A ring

120V/140V versions 295V

240V/280V versions 404V

@ 500A 8/20µs

120V/140V versions 320V

240V/280V versions 628V

@ 3kA 8/20µs

120V/140V versions 396V

240V/280V versions 820V

@ 10kA 8/20µs

120V/140V versions 585V

240V/280V versions 1020V

Maximum attenuation (typical)

-55dB @ 100MHz

Modes protected

Single phase: L-N, L-E, N-E

Split phase: L-E, L-L

Ambient temperature limits

-40°F to +185°F (working)

-40°C to +85°C (working)

Humidity

95% RH (non-condensing)

Casing

ABS with DIN-rail mounting foot

Connectors

Screw terminal

Terminals

#10 AWG (5.3mm²)

Mounting

1.4 inch (35mm) DIN rail

Indication

Green LED on Protection present

Green LED off Internal failure

Weight

3.53oz (100g)

Dimensions

See figure 1

EMC compliance

BS EN 60950 : 1992

BS EN 61000-6-2 : 1999

INSTALLATION

The grounding (earthing) of the surge protector and the protected equipment is very important and, if possible, should be accomplished as illustrated. The unit is marked Protected and Unprotected and it is important that the unit is installed with the Unprotected side connected to the incoming AC power and the Protected side connected to the equipment to be protected. For parallel application however, the Unprotected side is connected to the incoming AC power and the Protected side left unconnected.

Model	500A Ring (V)	500A 8/20µs (V)	3kA 8/20µs (V)	10kA 8/20µs (V)
MA30/D/1/SI	295	320	396	585
MA30/D/1/TT	295	320	396	585
MA30/D/2/SI	404	628	820	1020
MA30/D/2/TT	404	628	820	1020
MA30/D/3/SI	404	628	820	1020

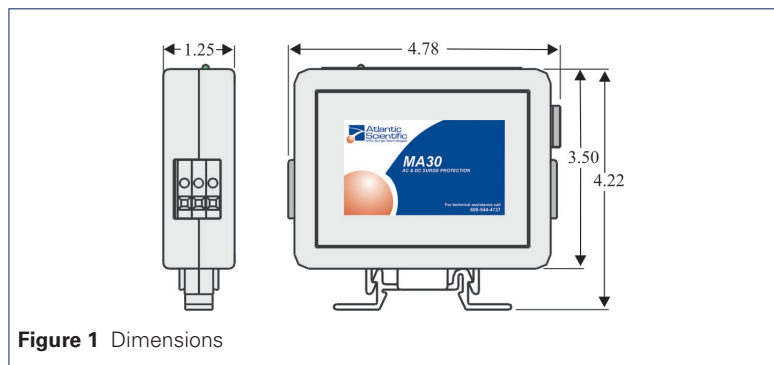


Figure 1 Dimensions

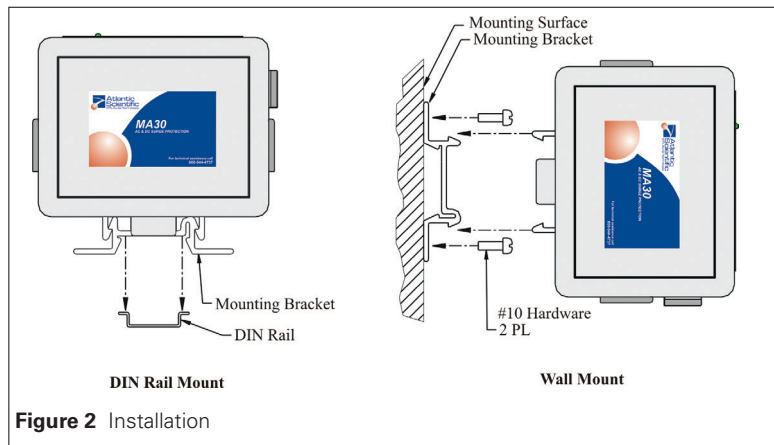


Figure 2 Installation

Remote Monitoring Unit

(Model number 11101)

Indication

Green LED on Protection present

Red LED on Fault indication

Audible alarm Fault indication

Connectors

Screw terminal

Terminals

14 AWG (2mm²)

Weight

1 lb (450g)

Dimensions

5.5" x 4" x 1.5" (135mm x 100mm x 40mm)



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MA15E range

AC and DC power surge protective device with filter

- 20kA surge protection and RFI filtering
- Protects panel loads up to 15 Amps in series, unlimited Amps in parallel
- Suitable for AC or DC application
- Thermal and short circuit protection
- LED status indication feature
- 10 year product warranty
- ATEX and IECEx certified



The MA15E range of surge protection devices protects electronic equipment and computer networks against the effects of 'noise pollution' induced in power supplies. MA15E units 'clean up' the effects of industrial noise and surges caused by lightning, switching devices, thyristor controls, transmission system overloads and power-factor correction circuits.

Industrial control systems utilizing programmable logic controllers (PLC) and industrial computers are particularly vulnerable due to the aggressive electrical environments for which they are intended, such as process plants, factories and water treatment sites. Although industrial computers and PLCs are designed to be rugged, the extra protection provided by the DIN rail mounting MA15E units is critical. Ideally suited for protecting equipment mounted in Haz location Zone 2 application, the MA15E range provides surge and RFI protected power.

With a unique 'three-stage' combination of protection elements, these units suppress conducted RFI and voltage surges. The circuit elements are first, surge clipping components to absorb transient surges that may otherwise damage equipment, second a filter to suppress noise in the system and third, 'ring' suppression. The third of these prevents surges causing the filter to 'ring' (oscillate) under low load conditions – an effect that actually accentuates interference in most commercially available filters.

Suitable for AC or DC application, MA15E units reduce both electromagnetic emissions and the susceptibility of the associated equipment to emissions from other sources. MA15E devices also offer ultimate installation flexibility. To protect circuits rated 15A or less, MA15 devices should be installed in series. To protect higher current circuits, simply install the MA15E in parallel.

An LED status indication facility is standard with the MA15E units. This displays both 'power on' and that protection is present. Thermal fusing is also incorporated into each 20kA rated device as an additional safety feature. MA15E units also offer short circuit protection for added peace of mind.

MA15E devices are ATEX and IECEx certified. For Hazardous areas in Zone 2 application with increased safety (ex) as per IEC60079-7:2015. As MA15E units suppress conducted RFI and voltage surges they enable associated equipment to comply with this aspect of European 'CE' mark standards.

MA15E range

AC and DC power surge protective Device with Filter

October 2019

SPECIFICATION

All figures typical at 77°F (25°C) unless otherwise stated

SPD according to IEC61643-11: Class II+III/T2+T3

Nominal Surge current, I_n

3kA (8/20 μ s)

Maximum Surge Current, I_{max}

10kA (8/20 μ s)

Total Discharge current - I_{total}

20kA(8/20 μ s)

Open circuit voltage, U_{oc}

6kV(1.2/50 μ s)

Maximum leakage current

<0.3mA

Maximum continuous operating current

120V @ 15A; 240V @ 10A series connection

Unlimited Amps in parallel

Response time

<25ns

Working voltage

AC

DC

MA15E/D/1/SI 120V, 47-63Hz 140V

MA15E/D/2/SI 240V, 47-63Hz 280V

MODEL	MCOV	Modes of protection	MLV(Vpk)	Up
MA15E/D/1/SI	127	L - N	560	<0.6kV
		L - G	560	
		N - G	560	
MA15E/D/2/SI	254	L - N	980	<1kV
		L - G	990	
		N - G	960	

Maximum attenuation (typical)

-55dB @ 100MHz

Ambient temperature limits

-40°C to +85°C (Safe Area)

-40°C to +70°C (Haz Loc with IECEx and ATEX)

Humidity

95% RH (non-condensing)

Casing

Polycarbonate-PC, UL94-V0

(Top-hat) DIN-rail mounting foot

Connectors

Screw terminal

Terminals

12 to 30 AWG , nominal :2.5mm2

Mounting

T-section ('Top-hat')

(35mm) DIN rail

Weight

3.88oz (110g)

Dimensions

See figure 1

Compliance standards

BS EN 61326-1 : 2013

IEC 61643-11 : 2011

LED Indication

Green LED on Protection present

Green LED off No Power/Internal failure

DIMENSIONS

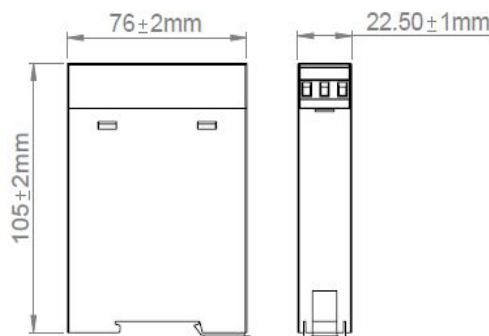


Figure 1 Dimensions

Installation

Typical wiring connections for MA15E range devices are indicated in figure 2. The grounding of the surge protector and the protected equipment is very important and, if possible, should be accomplished as illustrated.

Please note that the unit is marked Protected and Unprotected and it is important that the unit is installed with the Unprotected side connected to the incoming power and the Protected side connected to the equipment to be protected. For parallel application however, the Unprotected side is connected to the incoming power and the Protected side left unconnected.

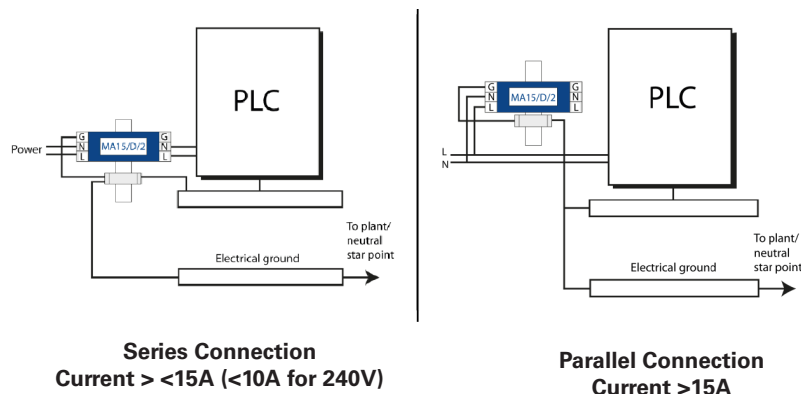


Figure 2 Installation

Approvals

Country (Authority)	Standard	File No	Approved for	Products
International (Baseefa), IECEx	IEC60079-15:2010	IECEX BAS 19.0076X	Ex nA IIC T4 Gc (-40°C ≤ Ta ≤ +70°C)	MA15E/D/2/SI, MA15E/D/1/SI
International (Baseefa), IECEx	IEC60079-7:2015	IECEX BAS 19.0075X	Ex ec IIC T4 Gc (-40°C ≤ Ta ≤ +70°C)	
Europe (Baseefa), ATEX	EN60079-0:2017 EN60079-7:2015	MTL19ATEXMA15X	Ex II 3 G Ex ec IIC T4 Gc	MA15E/D/2/SI, MA15E/D/1/SI
USA, Canada (UL)	UL1604	Pending	Hazardous Locations Class I, Division 2 Groups A, B, C and D	MA15E/D/2/SI MA15E/D/1/SI

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MA4000 Range

Surge protection for AC and DC power supplies in harsh environments

- **AC or DC application**
- **Straightforward and simple installation — wall mounting**
- **Remote monitoring plus dual redundancy**
- **ATEX Category 3G certified**
- **10 year product warranty**



MA4000 range of surge protection devices prevent surges and transient overvoltages conducted through power circuits from damaging electronic systems such as control panels, distributed I/O, motor and pump controls and many other remotely mounted pieces of equipment.

The MA4000 range is available in a range of voltage options (24Vdc, 48Vdc, 110Vac and 230Vac) making it universally suitable for protecting power supplies in hostile environments. These 20kA rated, single phase devices provide protection for ac or dc power supplies with no restriction to the amount of load current.

Fully automatic in operation, MA4000 devices react immediately, clamping voltage surges without causing undue leakage losses under normal conditions. No operator intervention is required, MA4000 devices reset automatically and are maintenance free. The MA4000 is designed to protect and survive the level of transient associated with the industrial environment, extending the life of equipment which could otherwise be stressed or damaged if not properly protected.

Connected in parallel via flying leads, MA4000 devices are easily connected to the power supply. The robust, IP54 (NEMA 13) rated enclosure is simply 'wall mounted' via the four fixing points provided.

Remote monitoring is provided, as standard, which can be utilised to provide indication of the status of an MA4000 unit. These wires have a normally closed contact which will open to indicate that reduced protection is present. However, continuity of protection is ensured via the redundancy capability of the MA4000 range. Additionally, thermal fusing, incorporated into each MA4000 unit, ensures a high level of safety.

The MA4000 range is self-certified to ATEX 2014/34/EU for mounting into Zone 2, Category 3G hazardous areas, especially useful for protecting the next generation of Hazardous Area mounted control systems. Also, the MA4000's aluminium case is silica filled, a requirement of Ex q certification. The MA4000 also has a 10 year product warranty.

MA4000 Range

January 2017

SPECIFICATION

All figures typical at 77°F (25°C) unless otherwise stated

Maximum surge current

20kA

Leakage current

0.3mA

Lines protected AC

L-N, L-E, N-E

Lines protected DC

V+, V

Ambient temperature limits

-30°C to +60°C (working)

-22°F to +140°F (working)

Humidity

95% RH (non-condensing)

Enclosure

IP54 (NEMA 13)

Connections

AC Live, Neutral, Earth remote monitor 1 & 2

DC +ve, -ve, Earth remote monitor 1 & 2

Wire size: 5 x 2.5mm² (12 AWG)

Lead length: 450mm (1.5 ft)

Mounting

Surface mount with 4 x 6mm (0.24") slots

Remote contacts

NC 250Vac, 2A rated

Weight

1Kg (2.2lb)

Dimensions

See figure 1

ATEX compliance

BS EN 50014 : 1998

BS EN 50021 : 1999

IEC 60079-0 : 1998

IEC 60079-15 : 2001

EMC compliance

BS EN 61643-1

BS EN 61000-6-2 : 2001,

referencing particularly -

IEC 61000-4-2 : 2000

IEC 61000-4-4 : 2001

IEC 61000-4-5 : 2000

INSTALLATION

MA4000 range of devices can be easily mounted using the four fixing points provided on the enclosure. Flying leads are provided for easy connection to the power supply cable (see figure 2 for further information).

The MA4000 device should be mounted close to the equipment it is protecting and should be bonded directly to the equipment with as short a length of cable as possible.

ORDERING INFORMATION

AC versions

MA4020-F-110-1-D-R (110Vac version)

MA4020-F-230-1-D-R (230Vac version)

DC versions

MA4020-F-024-1-D-R (24Vdc version)

MA4020-F-048-1-D-R (48Vdc version)

Model	Working voltage	Limiting voltage* (6kV/3kA) voltage	Maximum continuous operating	Line frequency	Phase types
	(V)	(V)	(V)		
AC versions					
MA4020-110	110Vac	470	130	dc to 60Hz	Single phase 2 wire
MA4020-230	230Vac	790	265	dc to 60Hz	Single phase 2 wire
DC versions					
MA4020-024	24Vdc	210	38	dc 2 wire	
MA4020-048	48Vdc	240	65	dc 2 wire	

* 8/20µs waveform (cable length 150mm)

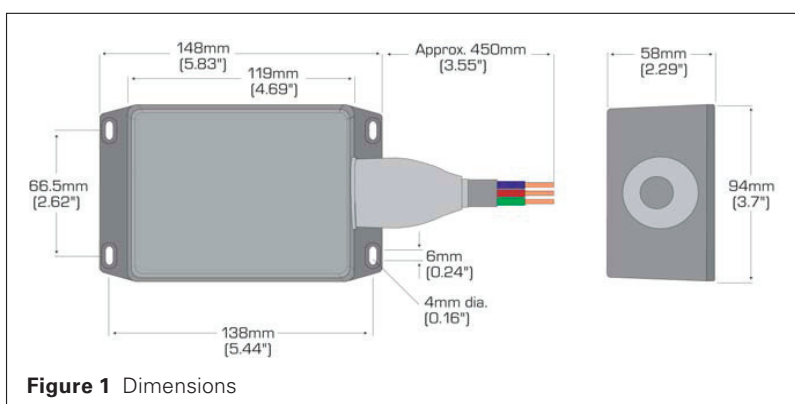


Figure 1 Dimensions

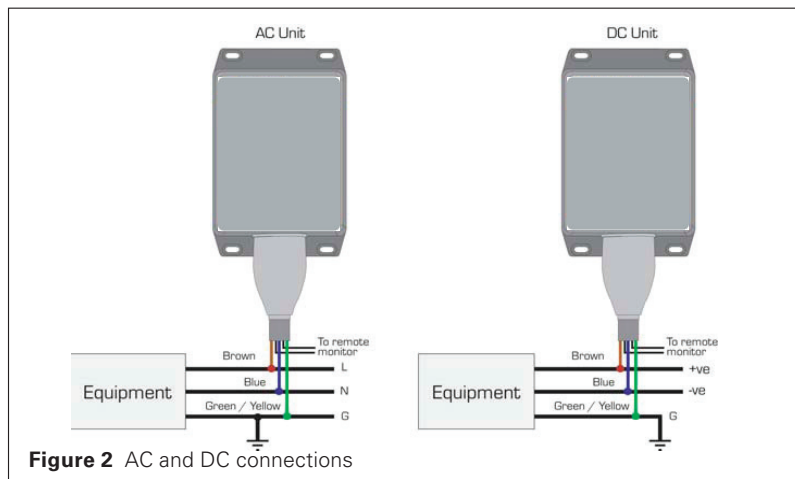


Figure 2 AC and DC connections

APPROVALS

Standard/Authority	Certificate No.	Approved for	Product
ATEX Directive 2014/34/EU for Zone 2 Category 3G	ECTML02ATEX4020X	Ex n A II T4 (-30°C<Tamb<+60°C) EEx n A II T4 (-30°C<Tamb<+60°C)	MA4020-024 MA4020-048 MA4020-110 MA4020-230



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