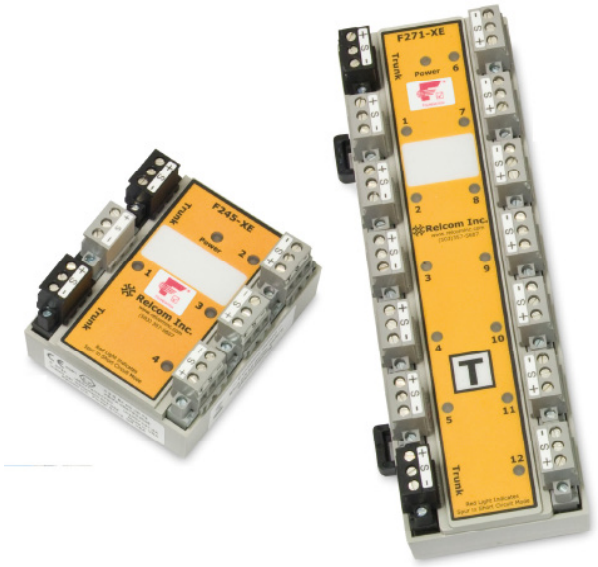
F2xx-XE megablock range

Passive hubs for zone 1 & division 1 fieldbus networks



Megablocks are DIN-rail mounted passive hubs for Foundation™ fieldbus networks. They connect several field devices to the network trunk cable and provide short circuit protection to the segment. Megablocks minimize hand wiring and allow individualdevices to be added to and removed from the segment without disrupting network communication.

A green power LED on each unit indicates whether at least 9V dc is present. F2xx-XE Megablocks are available in two, four, eight, ten and twelve drop versions. Multiple Megablocks are easily wired to one another to allow larger segments to be constructed.

Megablocks are available with an integral terminator making them ideal for a star or "chickenfoot" topology where several devices are connected at a single field junction box. Separate Megablock Terminators are also available, whch may be wired easily to any Megablock. Megablocks having a built-in terminator are clearly marked ('T') for easy identification by field personnel.

Connections to the Megablock are made using pluggable, screw-terminal type connectors. This allows wire terminations to be made to the individual connectors which are then plugged into the Megablock. Devices can then be connected and disconnected easily during commissioning. After commissioning, retaining screws are tightened to secure each connector to the Megablock.

Trunk connections for the fieldbus home-run/ trunk cable are easily identified by their black connectors. Separate numbered connections are provided for each spur drop.

SpurGuard™ is a device-port, short circuit protection technique that minimizes susceptibility to single points of failure. The Megablocks are available with built-in SpurGuard™ protectors that prevent a short circuit in any of the individual transmitters or spur cable runs from bringing the entire fieldbus segment down. A red LED near each spur connection indicates that a spur is shorted and is in "over-current" mode.

For applications using flameproof certified devices, the F2xx-XE Megablocks are designed to meet the requirements for increased safety for installation in an Ex e junction box in Zone 1. See the F300 Series Megablock datasheet for applications in safe areas, Zone 2 and Division 2 hazardous areas.

To select the Megablock for your application see the Ordering Information section of this document.

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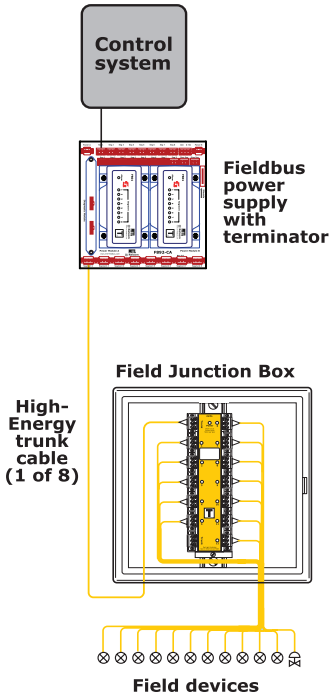
INSTALLATION

Megablocks can be mounted vertically or horizontally using 35 mm DIN rail within a suitable enclosure, such as a field junction box. Megablocks are removed from the DIN rail using a flat blade screwdriver to release the mounting platform. Use of DIN rail end stops is recommended to prevent sliding in vertical installations. The four, eight, ten and twelve port Megablocks have labeling areas so that segments can be easily identified according to plant standards.

We have a wide range of standard junction box designs for use with Megablocks. See the data sheet for the range of Process JBs.



Shown above are examples of common Fieldbus segment topologies. Twelve field devices are connected to a twelve-drop Megablock, which is mounted in a field junction box. The trunk connector on the Megablock is wired to the segment trunk cable that leads to the control room or marshalling panel where the power supply and second terminator are located. The example shows the increased safety (Ex em) version connected to a general purpose fieldbus power supply.

GROUNDING

To prevent ground loops, a fieldbus segment should only be grounded at one point. This is usually done by grounding the cable shield at the control room end of the segment. If a permanent segment ground connection in the field is desired, this can be achieved by wiring the shield terminal on one of the Megablock trunk connectors to a suitable earth ground instead of wiring it to the shield terminal on the Megablock Terminator.

Fieldbus Connection System (FCS) wiring blocks are protected by U.S. Patents 6,366,437, 6,369,997 and 6,519,125.

SPECIFICATIONS

Mounting requirements
35mm DIN rail

Wire capacity
0.14 to 2.5mm^2
Recommended screwdriver torque setting: 0.5-0.6Nm

Case material
Lexan polycarbonate

Temperature range
Operating –45° to +70°C
Storage –50° to +85°C
Relative humidity 0 to 90%, non-condensing

Voltage required to activate power LED
9.2V dc minimum

Minimum input voltage
10.0V (*See Note 1 below*)

Maximum input voltage
see certification ratings

Maximum input current
see certification ratings

Trunk-to-trunk voltage drop
0.1V maximum

F245-XE - F271-XE (Ex em) Megablock with SpurGuard™

Unloaded current consumption

No. of Ports	4	8	10	12
mA	1.7	2.5	2.9	3.2

Spur device current
29mA maximum (recommend one device per spur)

Spur short-circuit current
40mA maximum

Trunk-to-trunk voltage drop
0.1V maximum

Trunk-to-spur voltage drop
0.3V maximum

PHYSICAL NETWORK

IEC 61158-2
Foundation™ fieldbus H1
Profibus PA

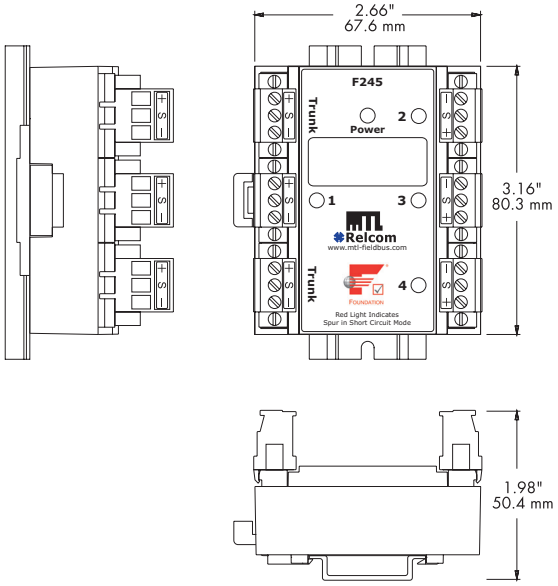
Note 1: The minimum input voltage guarantees that the spur output under full load will be at least 9.3V so that the device will see at least 9.0V.

MTL F2xx-XE

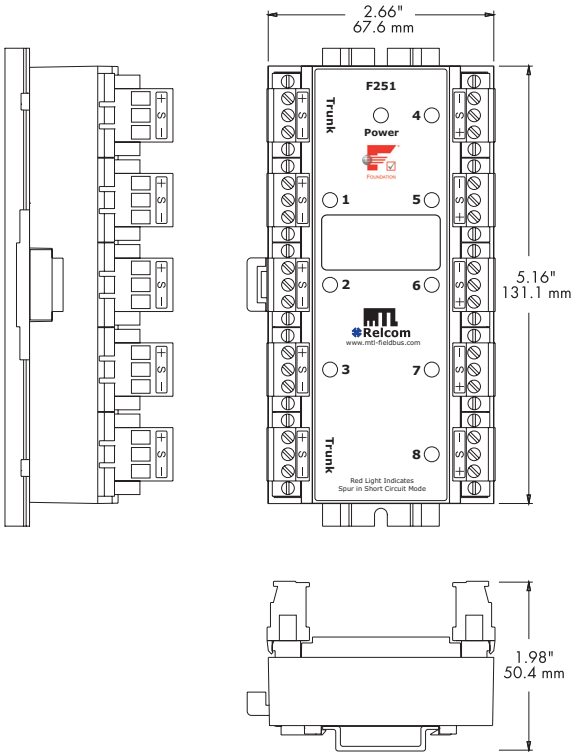
May 2021

CASE DIMENSIONS

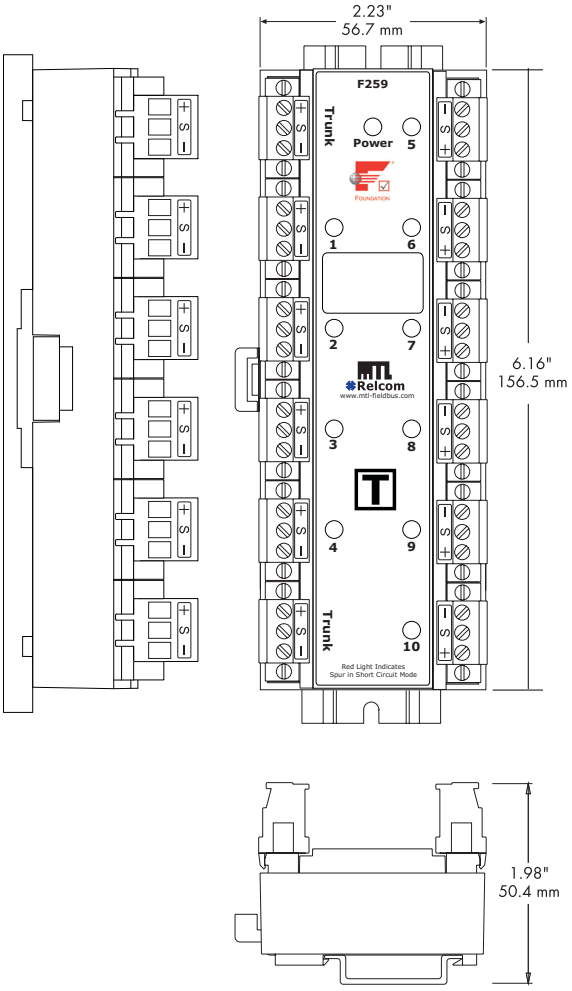
4-WAY - F245(-XE), F247(-XE)



8-WAY - F251(-XE), F253(-XE)



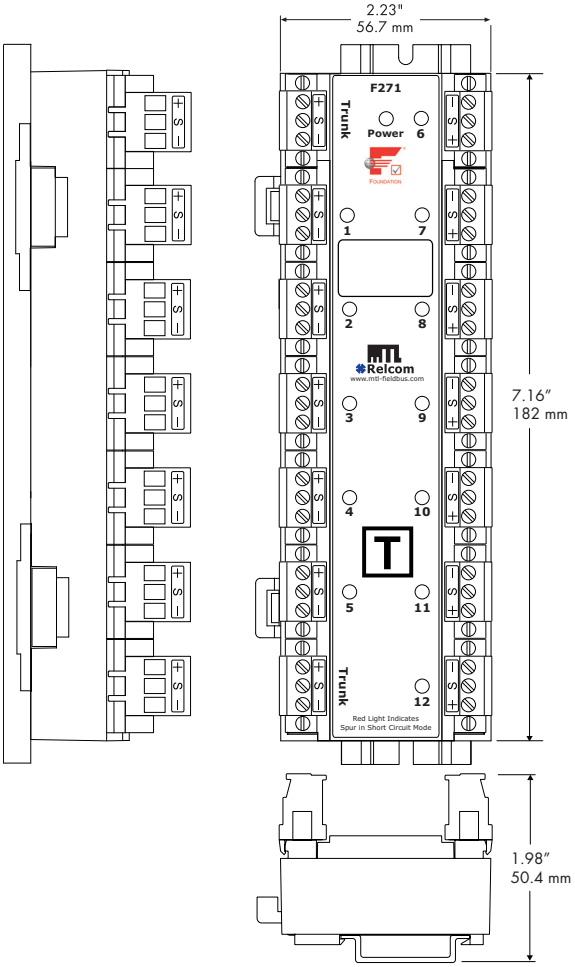
10-WAY - F259(-XE)



Note: Different Megablock versions have minor variations in labelling.

CASE DIMENSIONS *(continued)*

12-WAY - F271(-XE)



APPROVALS - *(for full certification information visit www.mtl-inst.com/certificates/)*

MODELS - F245-XE, F247-XE, F251-XE, F253-XE, F259-XE, F271-XE

Country	Global	Europe	International
Authority	**Fieldbus Foundation™**	**KEMA (ATEX)**	**IEC Ex**
Standard	FF-846	EN 60079-0 EN 60079-11 EN 60079-7	IEC 60079-0 IEC 60079-18 IEC 60079-7
Approved for	See specification	⟨Ex⟩ II 2 G Ex eb mb IIC T4 Gb	Ex eb mb IIC T4 Gb
Certificate no.	DC067300	KEMA05ATEX2006	IECEx DEK 16.0036X
Trunk wiring parameters	See specification	Rated voltage 30V DC Rated Current 1.5A	Rated voltage 30V DC Rated Current 1.5A

ACCESSORIES

Description	Part Number
Heavy Duty DIN rail end stop	ETL7000
35mm DIN Rail, 1 metre length	THR7000
Process JB carbon loaded GRP‡	FCS-85XX
Process JB stainless steel‡	FCS-95XX

‡ See Process JB data sheets for further details

ORDERING INFORMATION

Megablocks	Zone 1 Ex eb mb
4 way	F245-XE
4 way with internal Terminator	F247-XE
8 way	F251-XE
8 way with internal Terminator	F253-XE
10 way with internal Terminator	F259-XE
12 way with internal terminator	F271-XE

See Fieldbus Terminators datasheet for details of separate DIN-rail mounted terminators.

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