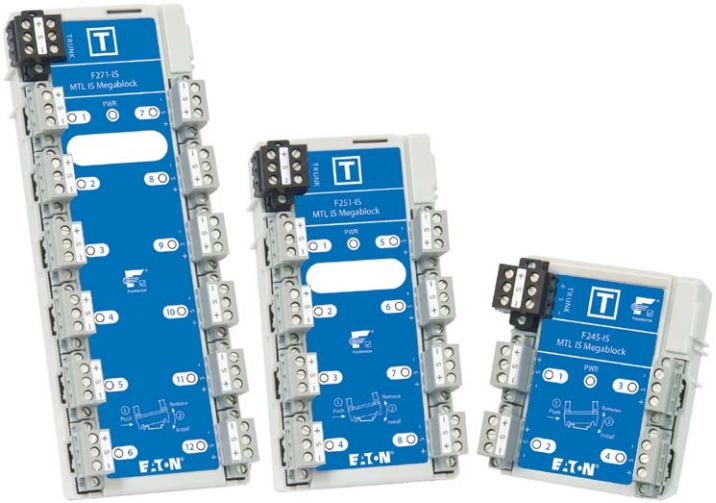
F2xx-IS MTL IS Megablock range

Passive hubs for zone 1 fieldbus networks



The F2xx-IS MTL Intrinsically Safe (IS) Megablocks are DIN-rail mounted passive hubs for Foundation™ fieldbus networks. They connect several IS field devices to the network IS trunk cable and provide short circuit protection to the segment. Megablocks minimize hand wiring and allow individual IS devices 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. Megablocks are available in four, eight 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. 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 or spring clamp 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.

The Trunk connection is a single connector that supports two cable connections. For Megablocks without an Integral terminator this allows the Trunk to continue to another Megablock. Disconnecting the Megablock by unplugging the Trunk connector does not then disrupt a downstream Megablock. The Trunk connector is easily identified by its black color and larger size.

SpurGuard™ is a device-port, short circuit protection technique that minimizes susceptibility to single points of failure. The Megablocks are supplied 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.

Megablock hazardous area approvals permit installation in a variety of configurations in Zone 1 or 2. Within Zone 1, the F2xx-IS Megablocks are designed for installation in intrinsically safe applications, and are compatible with FISCO or Entity-approved field instruments. An intrinsically safe fieldbus allows live connection/disconnection of the fieldbus without the need for a gas clearance certificate, which assists in commissioning, maintenance and system expansions.

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

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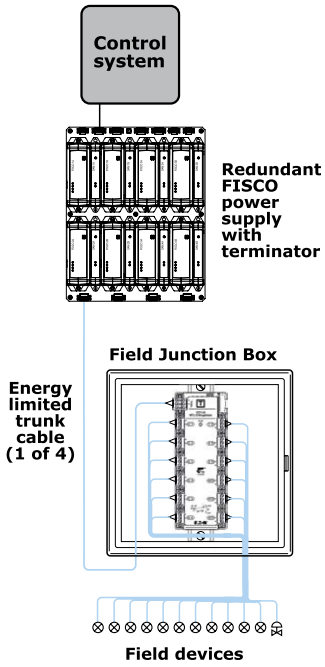
INSTALLATION

Megablocks can be mounted vertically or horizontally using 35 mm DIN-rail within a suitable enclosure, such as a field junction box. Use of DIN-rail end stops is recommended to prevent sliding in vertical installations. The eight 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 is an example of a common Fieldbus segment topology. 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 IS power supply and second terminator are located.

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 connectors to a suitable earth ground.

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 "Top Hat"

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

Case material
Polycarbonate

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

Voltage required to activate power LED
9-10V dc

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

Maximum input voltage
see certification ratings

Maximum input current
see certification ratings

F245-IS - F271 -IS & F245-IS-6 Intrinsically Safe Megablock with SpurGuard™

Unloaded current consumption

No. of Ports	4	8	12
mA	1.7	2.4	3.1

Spur device current
29mA maximum, 50mA maximum (for F245-IS-6) - Only one device per spur for both 29mA and 50mA

Spur short-circuit current
42.5mA maximum, 63mA maximum (for F245-IS-6)

Trunk-to-trunk voltage drop
N/A

Trunk-to-spur voltage drop
0.3V maximum

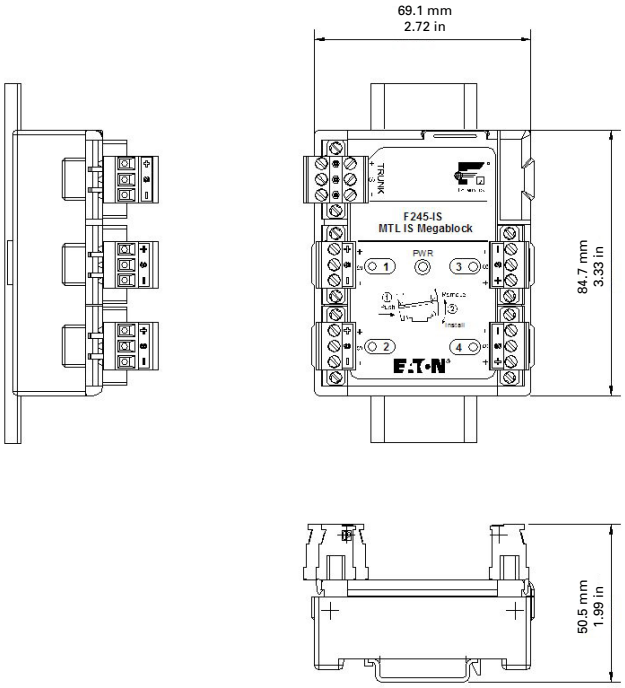
PHYSICAL NETWORK

IEC 61158-2
Foundation™ fieldbus H1
Profibus PA

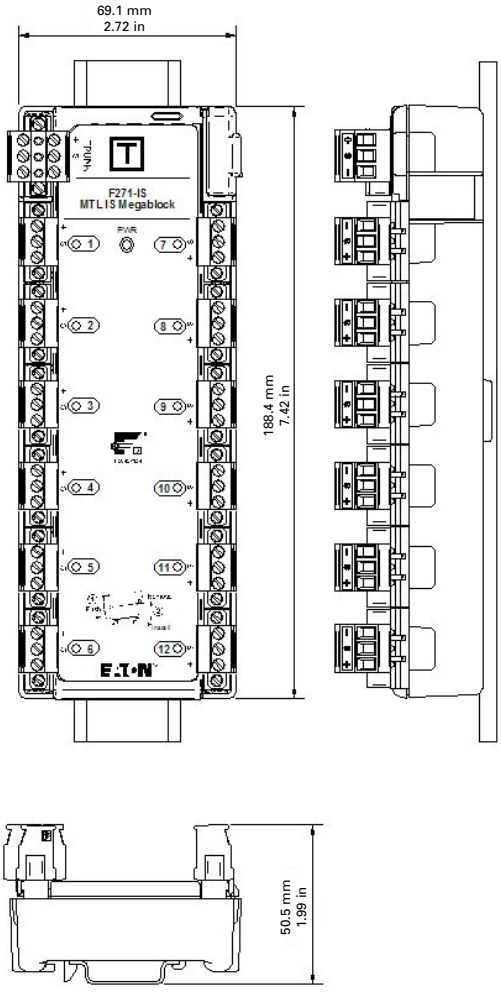
Note 1: The minimum input voltage guarantees that the spur output under full load will be at least 9.3V so that the device will see at least 9.0V.

CASE DIMENSIONS

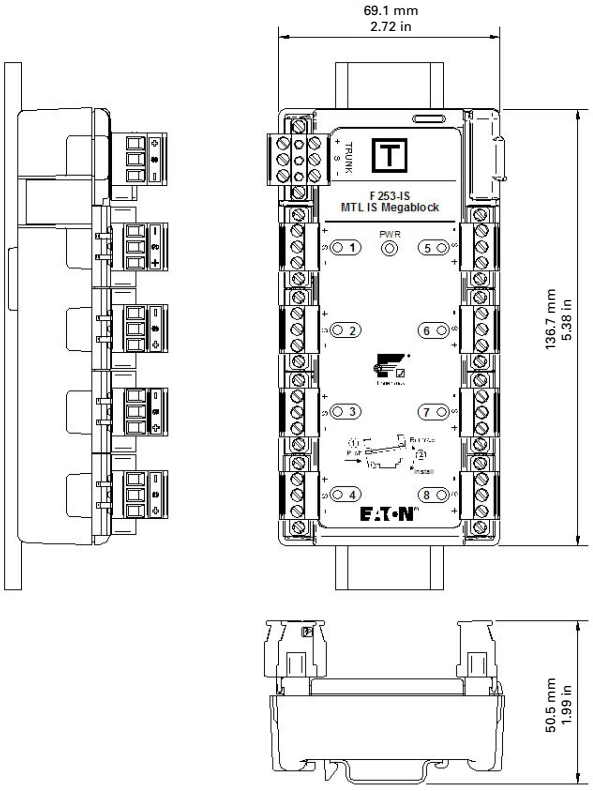
4-WAY - F245/247-IS



12-WAY - F271-IS



8-WAY - F251/253-IS



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

MODELS - F245-IS, F247-IS, F251-IS, F253-IS, F271-IS, F245-IS-6

Country	Global	Europe		International	
Authority	**FieldComm Group™**	**LCIE (ATEX)**		**LCI (IECEx)**	
Standard	FF-846	EN 60079-0 : 2012+A11:2013 EN 60079-11 : 2012		IEC 60079-0 : 2011 IEC 60079-11 : 2011	
Approved for	See specification	⟨Ex⟩ II 1G Ex ia IIC T4 Ga		Ex ia IICT4 Ga	
Certificate no.	**DC/111200/1**	**LCIE 17 ATEX 3010 X**		**IECEx LCI 11.0068X**	
Apparatus parameters (Trunk)	See specification	ENTITY Intrinsically safe Ui ≤ 24V Ii ≤ 250mA Ci = 0 Li = 0 Pi ≤ 1.2W	FISCO Intrinsically safe Ui ≤ 17.5V Ii ≤ 380mA Ci = 0 Li = 0 Pi ≤ 5.32W	ENTITY Intrinsically safe Ui = 24V Ii = 250mA Ci = 0 Li = 0 Pi =1.2W	FISCO Intrinsically safe Ui =17.5V Ii = 380mA Ci = 0 Li = 0 Pi = 5.32W

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	Screw Terminal	Spring Clamp Terminal
4 way	F245-IS	F245-IS-PC
4 way with internal Terminator	F247-IS	F247-IS-PC
4 way 60mA	F245-IS-6	F245-IS-6-PC
8 way	F251-IS	F251-IS-PC
8 way with internal Terminator	F253-IS	F253-IS-PC
12 way with internal terminator	F271-IS	F271-IS-PC

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