

Megablocks are DIN rail mounted hubs for Foundation Fieldbus or Profibus PA networks. They allow connection of field devices to the network trunk cable and optionally provide short circuit protection to the segment.

Megablocks minimize hand wiring and allow individual devices to be added to and removed from the segment without disrupting network communication.

Megablocks are available in two, four, eight, ten, and twelve port versions. Multiple Megablocks are easily wired together 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.

Alternatively, the Megablock Terminator can be wired to any Megablock and is clearly marked with a large 'T' for easy identification by field personnel.

Simple and Reliable Interconnection

Each Megablock has dedicated connections for the Fieldbus home run or trunk cable. Trunk connections are identified by their black connectors. Numbered (gray) connections are provided for each spur.

Wiring connections to the Megablock are made using pluggable screw terminal type connectors (other connection styles available). This allows wire terminations to be made to the individual connectors which are then plugged into the Megablock. Devices can be easily connected and disconnected during commissioning. After commissioning, retaining screws are tightened to secure each connector to the Megablock.

Short Circuit Protection

To minimize susceptibility to single points of failure, Megablocks are available with built-in SpurGuard™ short circuit protectors which prevent a short circuit in any of the individual field devices or spur cable runs from bringing the entire Fieldbus segment down. Note that during the short circuit the shorted spur draws more current than a Fieldbus device - this must be taken into account in segment design.

Diagnostic Aids

Each Megablock comes with a Green LED to indicate whether DC Power is present. In addition, for Short Circuit protected versions, a Red LED next to each numbered Spur indicates when the Spur is in short circuit.

Terminator Options

All Megablock sizes can optionally have built-in Terminators eliminating the need to wire the external Terminator to the Megablock.



Fieldbus Junction box wired for 12 devices including a Terminator

High Energy Trunk

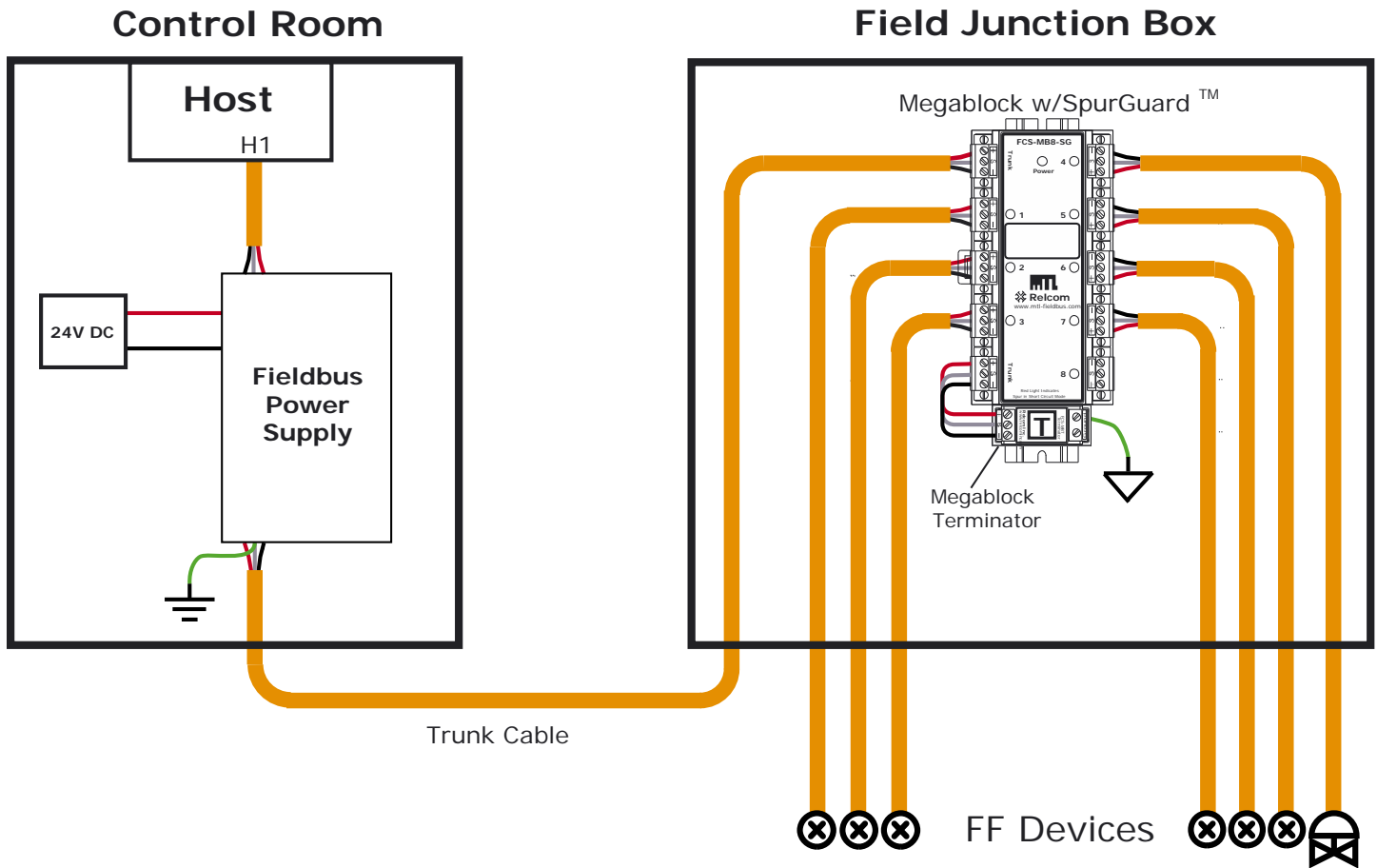
The SpurGuarded™ versions of the Megablocks offer a feature that allows live working of the Spurs (where allowed by local codes) in a hazardous area even though high power is supplied to the Trunk. For Class I Division 2 or Zone 2 areas, up to 32VDC and 1.5A may be supplied to the Megablock Trunk using normal non-Arcing (non incandive) techniques. The Trunk connectors may not be worked on while power is applied. Because of the current limiting of the SpurGuards™, the Spurs become energy limited (Non Incandive Field Wiring) and may be worked on while live. This allows maximum power to be delivered to the segment which provides for a large number of devices on the segment, and still allows live working of the Fieldbus devices and the cables connecting them to the Megablock.

Optional Connectors

The standard connector for the Megablock is a Pluggable Screw Terminal (elevator type). Another optional connector is available to reduce installation time:

- Pluggable Spring Clamp connectors rely on constant spring pressure to maintain contact with the wire.

Shown below is an example of a common Fieldbus segment topology. Seven (7) field devices are connected to an eight-drop Megablock, which is mounted in a field junction box. One trunk connector on the Megablock is wired to a Megablock Terminator. The other to the segment trunk cable that leads to the control room where the H1 Host, Fieldbus Power Supply, and second Terminator are located. The Megablock Terminator in the field has a normally open connection to a local earth ground that closes only when surge conditions occur. Notice that one Spur is left as a spare and requires no connection.



Installation

Megablocks can be mounted vertically or horizontally using 35 mm DIN rail within a field junction box. They are removed from the DIN rail using a flat blade screwdriver to release the mounting platform. The use of DIN rail end stops are recommended to prevent sliding (especially for vertical installations).

Four, eight, ten, and twelve port Megablocks have labeling areas so that segments can be easily identified according to plant standards.

Customizations

For larger orders, we can customize our products to meet special requirements. Please consult with your MTL Representative or contact Relcom directly.

Megablock Selection

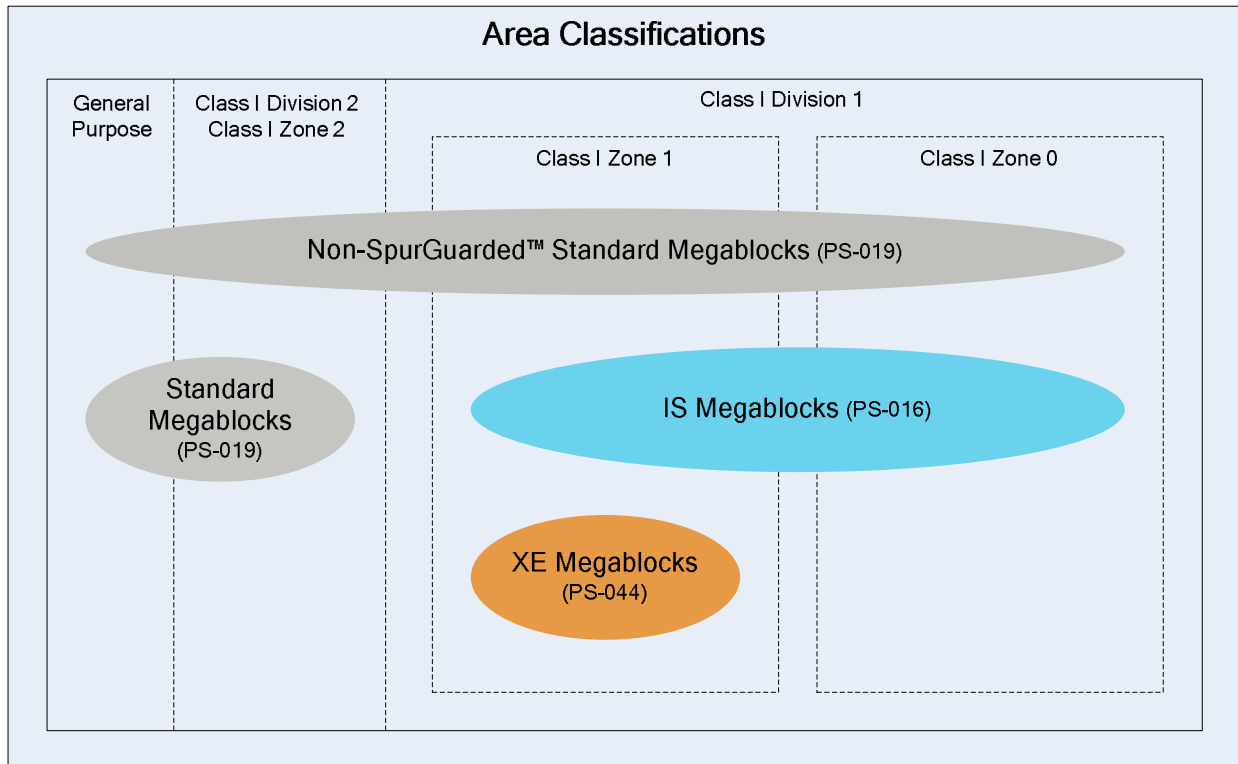
See the following page for assistance in selecting the right Megablock series for your application. The specific Megablock series datasheet will help further refine the selection and contain a list of the readily available products.

More Information

In addition to Product Specifications on the Megablocks, our web site provides Application Notes, Installation Instructions, Certificates of Conformance, and DXF drawing files. The Fieldbus Wiring Guide also provides general information for constructing Foundation Fieldbus segments.

Megablock Selection

Megablocks come in three series - Standard, IS, and XE. The one to use depends on the Area Classification, the method of protection (for hazardous areas), and the Fieldbus Power Supply that is used. See the diagram below to help in the selection process. The diagram depicts the most common ways that Megablocks are used in the particular classified area. Once the series has been picked, see the PS-xxx Product Specification document shown in the diagram for information on that series.



Standard Megablocks

These products are normally installed in a Div 2 or Zone 2 area where the non-Arcing (Ex nA) method of protection is used. A Fieldbus Power Supply with incandive level output is used to achieve maximum device count on the segment. Wiring and devices must be physically protected to prevent arcs and sparks under normal operating conditions. Spurs may be live worked due to the current limiting feature of the Megablock (see previous section on High Energy Trunk) when non-incandive, Ex nL, or Ex ic field devices are used.

Standard Megablocks can also be installed in Div 1 or Zone 1 locations if the right method of protection is used - such as Explosion Proof.

IS Megablocks

The Intrinsically Safe (IS) method of protection (Ex ia,ib) simplifies segment installation in a Div 1 or Zone 0,1 location. This is because the energy is limited on all hazardous area wiring to a level that will not cause an explosion even under fault conditions. This means that there are few requirements for physically protecting the devices and wiring. It also means that the system can be live worked where local codes permit live working.

Limiting the energy has the drawback of reducing the number of devices the IS segment can power. All components connected to the IS Segment must be IS. The IS Megablocks also meet the FISCO requirements which simplifies the Hazardous Area documentation requirements and allows more power for devices. See our document PS-016 for more information on the IS Megablocks.

XE Megablocks

Increased Safety (Ex e) is a non-Arcing protection method that allows high energy into a Zone 1 location. This is advantageous because many devices can be installed on the segment without having to use Flame Proof techniques. The XE Megablocks are certified for this kind of installation. A high power Fieldbus Power Supply feeds the XE Megablocks. There are special requirements for the enclosure used (Ex e rated), and the cable must be adequately protected from physical harm. See our document PS-044 for more information on XE Megablocks.

Non-SpurGuarded™ Standard Megablocks

For the few applications that do not require Short Circuit Protection on the Megablock Spurs, we offer Non-SpurGuarded™ Megablocks. These products may be used in general purpose and all hazardous areas. For Div 2 or Zone 2 applications, the installation is the same as with Standard Megablocks except that they do not support the High Energy Trunk concept. They are also IS certified to be installed in Div 1 or Zone 1 areas using an IS (FISCO) Fieldbus Power Supply. If mounting in a Zone 1 or Division 1 hazardous area when using a general purpose power supply, the Megablocks should be mounted in an Explosion Proof or Ex d enclosure.