Installation Instructions F240-F267 IS Megablock Series

1010.1 Equipment Information

Equipment Class III, Pollution Degree 1, Installation Category I

Maximum Altitude: 2000m

Humidity: 0 to 90% (non-condensing)

Operating Temperature: -45°C to 70°C

For Indoor Use Only (IP 54 minimum enclosure)

Electrical Ratings (see Drawing for connection information and certified devices)

Area Classification	Ratings	Drawing	Agency
Class I, Div 1 (Ex ia, ib IIC) T4	24VDC, 250mA	500-428	CSA, CENELEC
Class I, Div 1 (Ex ia, ib IIC) T4 FISCO	17.5VDC, 380mA	500-429	CSA, CENELEC
Class I, Div 1 (AEx ia IIC) T4 FISCO	See Drawing	500-947	FM
Ex me IIC T4	32VDC, 1.5A	500-430	PENDING

Installation

Refer to the drawing that is appropriate for the area in which the Megablock series device will be installed. These drawings represent typical installations and are intended to address the safety aspects of the area for which they are drawn. Actual segment connections may vary depending on factors such as the required number of Fieldbus devices to be connected to the segment (determines the specific models and quantities of Megablocks used).

IMPORTANT: For SpurGuards to work properly, the Fieldbus Segment MUST be isolated from ground.

Mounting

Megablocks are designed to be mounted on 35 mm DIN rail using the clip mechanism on the back of each unit. Mounting can be vertical or horizontal. Use of DIN rail end stops is recommended.

Megablocks must be installed inside of an enclosure with a minimum rating of IP 54.

Once all wiring connections have been made, the retaining screws on each pluggable cable connector should be securely fastened.

Testing/Troubleshooting

Once DC power has been connected to the Fieldbus segment, the green power LED on the Megablock should be lit, indicating that a minimum of 9.2VDC is present on the segment trunk. **If the green LED is not lit**, verify the integrity and polarity of the trunk cable connections to the Megablock, that the voltage measured at the trunk connection to the Megablock is greater than 9.2VDC, that there are no shorts in the trunk cable, and that the power supply is operating properly.

On Megablock models with SpurGuard™ current limiters, verify that none of the red short circuit LED's are lit. **If any of the red LED's are lit**, remove the three-conductor plug from the affected spur connection. Locate and repair the short circuit on the spur cable before reconnecting.

Megablock models with an LED in the center of the block, Red illumination indicates that the onboard microprocessor has failed. The block should then be replaced. It is normal for this Red LED to flash on power up.

Operation

During normal operation, the green power LED should be lit. If the green LED is not lit, follow the instructions in the testing/troubleshooting section above.

A lit red LED indicates a short in a spur cable or in the Fieldbus device connected to the spur cable. The LED will cease to be lit once the short has been repaired.

Maintenance Requirements

Megablocks contain no user serviceable parts. Non-functioning units should be returned to the manufacturer for replacement or repair. No regular cleaning is required. Visible dirt may be removed with a damp cloth.

For Further Information

Contact your local MTL representative or Relcom Inc. as listed at the bottom of this page.

2221 Yew Street
Forest Grove, Oregon 97116 USA
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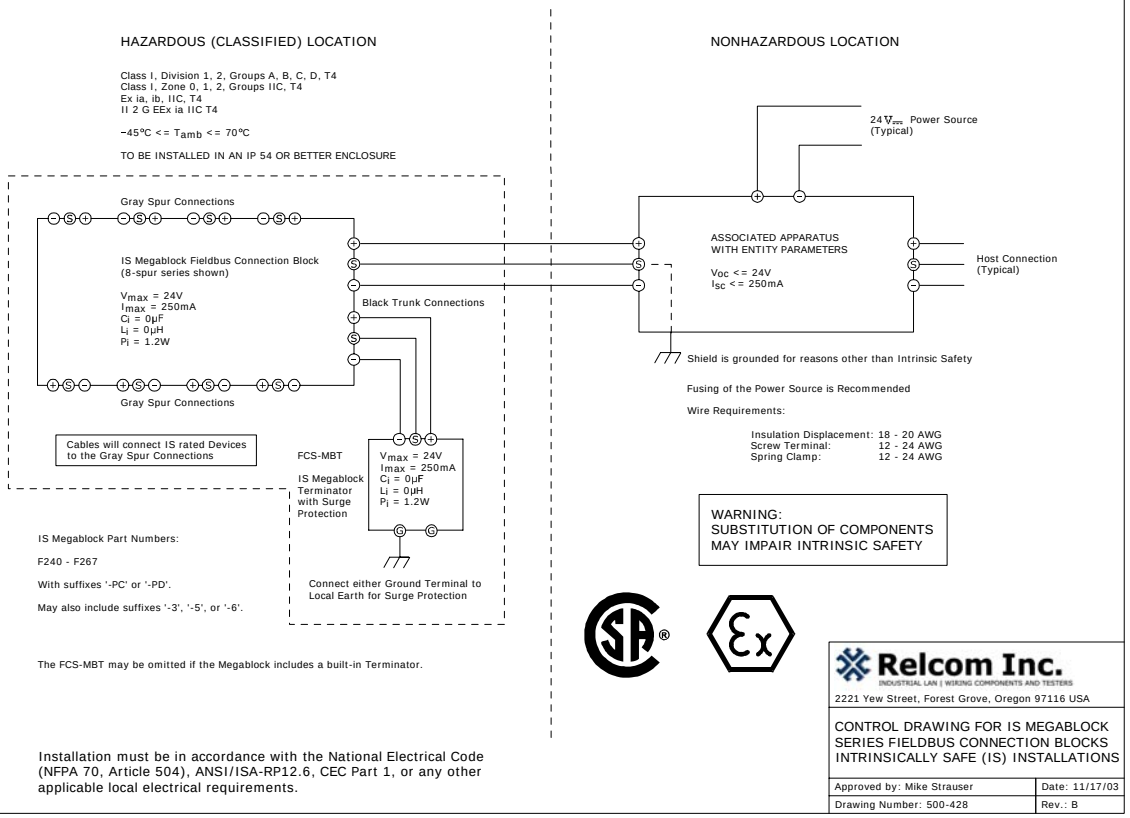
500-465 Rev. B

500-428: Intrinsically Safe (IS) Installation – (CSA and CENELEC only)



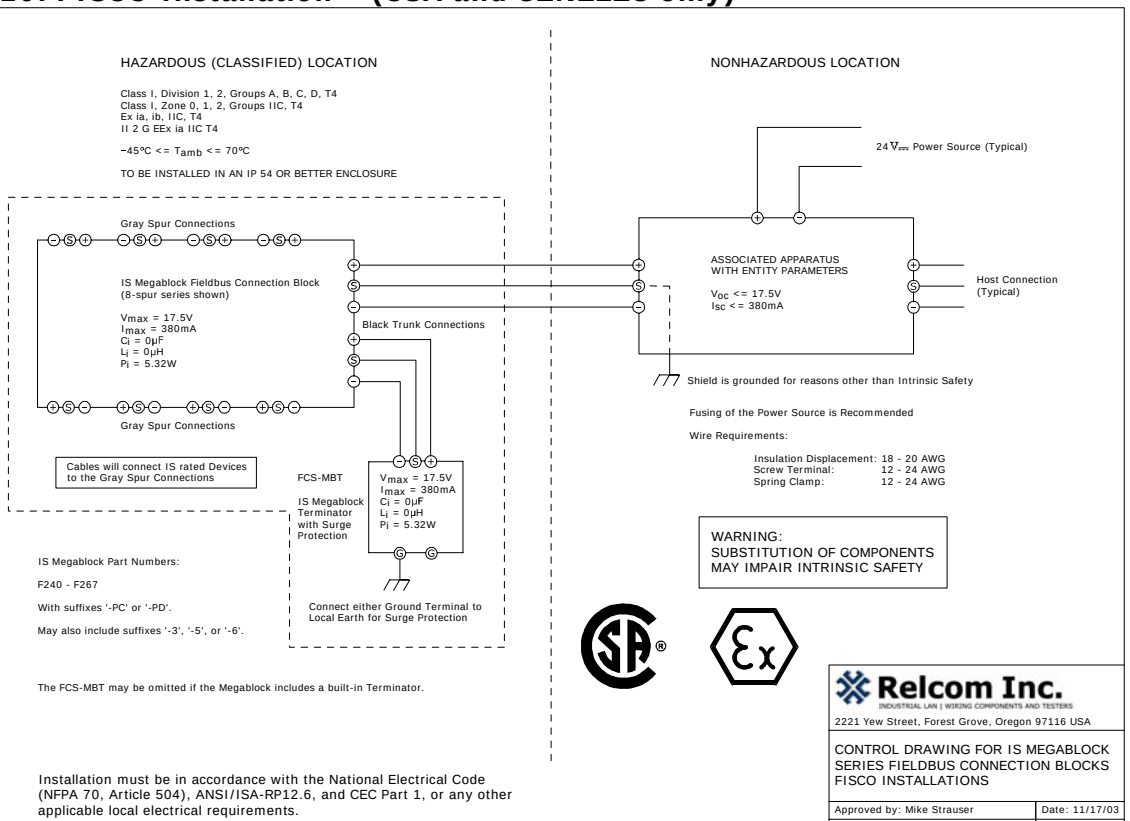
Installation must be in accordance with the National Electrical Code (NFPA 70, Article 504), ANSI/ISA-RP12.6, CEC Part 1, or any other applicable local electrical requirements.

Relcom Inc.
INDUSTRIAL LAN | WIRING COMPONENTS AND TESTERS
2221 Yew Street, Forest Grove, Oregon 97116 USA

CONTROL DRAWING FOR IS MEGABLOCK SERIES FIELDBUS CONNECTION BLOCKS INTRINSICALLY SAFE (IS) INSTALLATIONS

Approved by: Mike Strauser	Date: 11/17/03
Drawing Number: 500-428	Rev.: B

500-429: FISCO Installation – (CSA and CENELEC only)



Installation must be in accordance with the National Electrical Code (NFPA 70, Article 504), ANSI/ISA-RP12.6, and CEC Part 1, or any other applicable local electrical requirements.

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INDUSTRIAL LAN | WIRING COMPONENTS AND TESTERS
2221 Yew Street, Forest Grove, Oregon 97116 USA

CONTROL DRAWING FOR IS MEGABLOCK SERIES FIELDBUS CONNECTION BLOCKS FISCO INSTALLATIONS

Approved by: Mike Strauser	Date: 11/17/03
Drawing Number: 500-429	Rev.: B

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500-947: Entity and FISCO Installation – (FM only)

FISCO Rules:

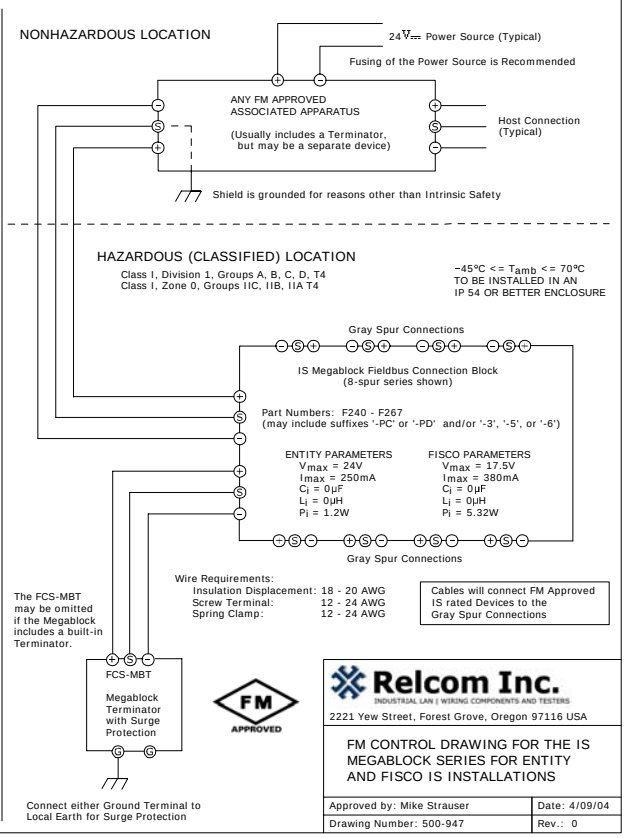
The FISCO Concept allows the interconnection of intrinsically safe apparatus to associated apparatus not specifically examined in such combination. The criterion for such interconnection is that the voltage (Vmax), the current (Imax) and the power (Pi) which intrinsically safe apparatus can receive and remain intrinsically safe, considering faults, must be equal or greater than the voltage (Uo, Voc, Vt), the current (Io, Isc, It,) and the power (Po) which can be provided by the associated apparatus (supply unit). In addition, the maximum unprotected residual capacitance (Ci) and inductance (Li) of each apparatus (other than the terminators) connected to the Fieldbus must be less than or equal to 5 nF and 10 µH respectively.
In each IS Fieldbus segment only one active source, normally the associated apparatus, is allowed to provide the necessary power for the Fieldbus system. The allowed voltage (Uo, Voc, Vt) of the associated apparatus used to supply the bus must be limited to the range of 14V d.c. to 24V d.c. All other equipment connected to the bus cable has to be passive, meaning that the apparatus is not allowed to provide energy to the system, except to a leakage current of 50 µA for each connected device. Separately powered equipment needs a galvanic isolation to insure that the intrinsically safe Fieldbus circuit remains passive.
The cable used to interconnect the devices needs to comply with the following parameters:
Loop resistance R': 15 ...150 Ω/KM
Inductance per unit length L': 0.4…1mH/km
Capacitance per unit length C': 80 ...200 nF/km
C' = C' line/line + 0.5 C' line/screen, if both lines are floating or
C'= C' line/line + C' line/screen, if the screen is connected to one line (**not recommended**)
Length of spur Cable: max. 30m
Length of trunk cable: max. 1Km
Length of splice: max. 1m

Terminators:
At each end of the trunk cable an approved line terminator with the following parameters is suitable:
R = 90 ...100 Ω
C = 0 ...2.2 µF.

System evaluation:
The number of passive devices like transmitters, actuators, connected to a single bus segment is not limited due to IS reasons. Furthermore, if the above rules are respected, the inductance and capacitance of the cable need not to be considered and will not impair the intrinsic safety of the installation.

Installation Notes For FISCO and Entity Concepts:

1. The **Intrinsic Safety Entity** concept allows the interconnection of FM Approved Intrinsically safe devices with entity parameters not specifically examined in combination as a system when:
   Uo or Voc or Vt≤ Vmax, Io or Isc or It ≤ Imax, Po ≤ Pi. Ca or Co ≥ Sum(Ci) + Sum(Ccable),
   For inductance use either La or Lo ≥ Sum(Li) + Sum(Lcable) or Lc/Rc≤(La/Ra or Lo/Ro) and Li/Ri≤(La/Ra or Lo/Ro)
2. The **Intrinsic Safety FISCO** concept allows the interconnection of FM Approved Intrinsically safe devices with FISCO parameters not specifically examined in combination as a system when:
   Uo or Voc or Vt≤ Vmax, Io or Isc or It ≤ Imax, Po ≤ Pi.
3. Control equipment connected to the Associated Apparatus must not use or generate more than 250 Vrms or Vdc.
4. Installation should be in accordance with ANSI/ISA RP12.6 (except chapter 5 for FISCO Installations) "Installation of Intrinsically Safe Systems for Hazardous (Classified) Locations" and the National Electrical Code® (ANSI/NFPA 70) Sections 504 and 505.
5. The configuration of associated Apparatus must be Factory Mutual Research Approved under the associated concept.
6. Associated Apparatus manufacturer's installation drawing must be followed when installing this equipment.
7. The IS Megablocks are Approved for Class I, Zone 0, applications. If connecting AEx[ib] associated Apparatus or AEx ib I.S. Apparatus to the IS Megablocks the I.S. circuit is only suitable for Class I, Zone 1, or Class I, Zone 2, and is not suitable for Class I, Zone 0 or Class I, Division 1, Hazardous (Classified) Locations.".
8. No revision to drawing without prior Factory Mutual Research Approval.
9. Where the associated apparatus features an intrinsically safe ground terminal, the resistance between this ground terminal and earth ground must be less than 1.0 Ohm.



500-430: Increased Safety Installation

Certification Pending

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EMC Summary F240-F261 IS Megablock Series

Megablock Series EMC Summary

European Union EMC Tests in accordance with EN61326 EMC Product Family Standard for measurement, control and laboratory equipment.

Test Items: **F249**

Other products conforming based on these test results include:

F240 - F261 (with suffixes)

European Union Electromagnetic Compatibility (EMC) Tests in accordance with EC Council Directive 89/336/EEC

Emissions Tests per EN61326

Result	Standard	Description	Port	Criteria
Pass	EN61326	Radiated Emissions	Enclosure	A
Pass	EN61326	Conducted Emissions	AC Mains	A

Immunity Tests per EN61326 Annex A

Result	Standard	Description	Port	Criteria
Pass	EN61000-4-2	Electrostatic Discharge Immunity	Enclosure	B
Pass	EN61000-4-3	RF Electromagnetic Field Immunity	Enclosure	A
Pass	EN61000-4-4	Electrical Fast Transient/Burst Immunity	DC / IO Port	B
Pass	EN61000-4-5	Electrical Slow Transient Immunity	DC / IO Port	B
Pass	EN61000-4-6	RF Conducted Immunity	DC / IO Port	A
N/A	EN61000-4-8	Magnetic Field Immunity	N/A	N/A
N/A	EN61000-4-11	Voltage Dips/Short Interruptions Imm.	N/A	N/A

I, Mike Strauser, representative for Relcom Inc., verify that the product tested is representative of production products to be sold.

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