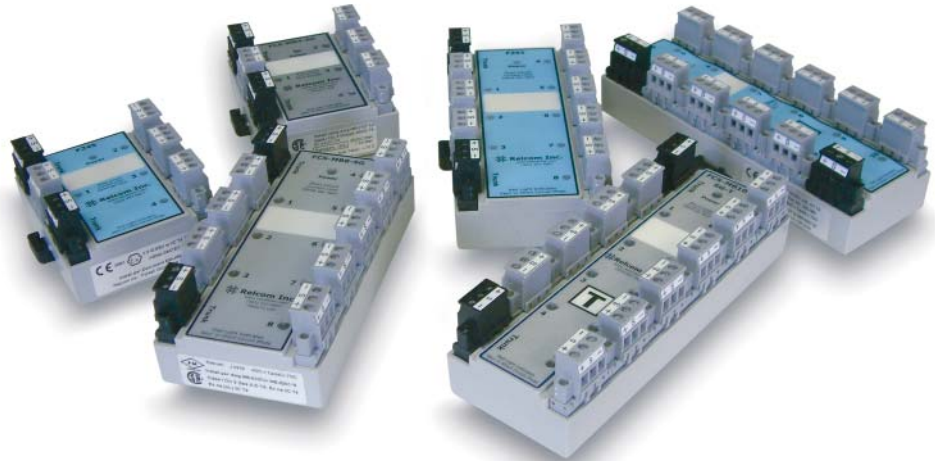




MEGABLOCK SERIES



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 individual 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 two, four, eight and ten drop versions. Multiple Megablocks are easily wired to one another to allow larger segments to be constructed.

The Megablock Terminator is easily wired to any Megablock to prevent signal reflection on the fieldbus segment. The Megablock Terminator is clearly marked for easy identification by field personnel. Megablocks are also 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.

Each Megablock has two dedicated connections for the fieldbus home run or trunk cable. Trunk connections are easily identified by their black connectors. Separate numbered connections are provided for each spur drop.

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 easily connected and disconnected during commissioning. After commissioning, retaining screws are tightened to secure each connector to the Megablock.

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 overcurrent mode.

Megablock hazardous area approvals permit installation in a variety of configurations in Zone 1 or 2 and Division 1 or 2. Within Zone 2 or Division 2 Megablocks may be installed as part of non-sparking (non-arcing) or energy-limited (non-incendive) circuits. Additionally, SpurGuard™ versions have energy-limited spur connections even if the trunk is classified as 'non-sparking', when fed for example from an MTL5995 or FPS-I fieldbus power supply.

Within Zone 1 and Division 1 Megablocks are designed for installation in intrinsically safe applications, and are compatible with FISCO or Entity-approved field instruments. An energy-limited or 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. Alternatively, for applications using flameproof certified devices, the Megablocks are designed to meet the requirements for increased safety for installation in an EEx e junction box in Zone 1.

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

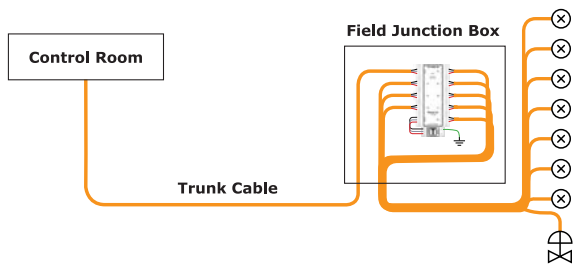


MTL - RELCOM MEGABLOCKS

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

MTL have a wide range of standard junction box designs for use with Megablocks. See the data sheet for the range of Process JB's.



Shown above is an example of a common Fieldbus segment topology. Eight 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 and the other to the segment trunk cable that leads to the control room or marshalling panel where the power supply and second terminator are located. The Megablock Terminator in the field has a normally open connection to earth ground that closes when surge conditions are detected.

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 2.5mm²
Case material: Lexan Polycarbonate
Temperature Range: -45° to +70°C
Voltage Required to activate Power LED: 9.2V dc minimum

FCS-MBx Megablock

Power Consumption: 4.1mA maximum
Maximum Current Delivered to Spur: Not Limited
Trunk to Spur Voltage Drop: 0V

FCS-MBx-SG, F118 & F215 Megablock with SpurGuard™

Power Consumption:
No SpurGuards™ tripped: 4.5mA
per SpurGuard™ tripped: 60mA
Maximum Current Delivered to Spur: 58.1mA ± 1.7mA
Trunk to Spur Voltage Drop (SpurGuard™ not tripped):
DC Impedance: 21Ω
Typical: 0.4V dc (17mA device current draw)
Trunk to Trunk Voltage Drop: 0V

F241 - F271 Intrinsically Safe Megablock with SpurGuard™

Power Consumption:
with no SpurGuards™ tripped: 2mA (F241,F245),
3mA (F251,F259)
3.5mA (F271)
per SpurGuard™ tripped: 42mA
Maximum Current Delivered to Spur: 40.9mA ± 1.0mA
Trunk to Spur Voltage Drop (SpurGuard™ not tripped):
Typical: 0.1V dc (17mA device current draw)
DC Impedance: 5Ω
Trunk to Trunk Voltage Drop: 0V

F245-XE - F271-XE Increased Safety (EEx em) Megablock with SpurGuard™

Power Consumption:
with no SpurGuards™ tripped: 2.9mA
per SpurGuard™ tripped: 41mA
Maximum Current Delivered to Spur: 40.9mA ± 1.0mA
Trunk to Spur Voltage Drop (SpurGuard™ not tripped):
0.2V maximum)
Trunk to Trunk Voltage Drop: 0V

FCS-MBT & F100 Megablock Terminator

Operating Temperature Range: -45° to +70°C
Common Mode Voltage Limit: 39V
Transient Mode Voltage Limit: 75V

Physical Network

IEC 61158-2
FOUNDATION™ Fieldbus H1
Profibus PA



ORDERING INFORMATION

	No SpurGuard™		With SpurGuard™ short circuit protection	
	General Purpose Zone/Division 2 and Intrinsically Safe	General Purpose and Zone/Division 2	Zone/Division 1 Intrinsically Safe	Zone 1 EEx me
Megablocks				
2 way	FCS-MB2	FCS-MB2-SG	F241	-
4 way	FCS-MB4	FCS-MB4-SG	F245	F245-XE
4 way with Terminator	-	FCS-MB4-SG-T	F247	-
8 way	FCS-MB8	FCS-MB8-SG	F251	F251-XE
8 way with Terminator	-	FCS-MB8-SG-T	F253	-
10 way with Terminator	FCS-MB10-T	FCS-MB10-SG-T	F259	F259-XE
10 way with switched Terminator	-	F118	F261	-
12 way with terminator		FCS-MB12-SG-T	F271	F271-XE
12 way with switched Terminator		F215		
Terminators†				
	F100* FBT1-IS	F100 FBT1-IS	FCS-MBT FBT1-IS	FCS-MBT-XE

* Use FCS-MBT for intrinsically safe applications

† See Terminators datasheet for full details

Accessories

Heavy Duty DIN rail end stop
35mm DIN Rail, 1 metre length
Process JB stainless steel, painted‡
Process JB carbon loaded GRP‡
Process JB stainless steel‡

Part Number

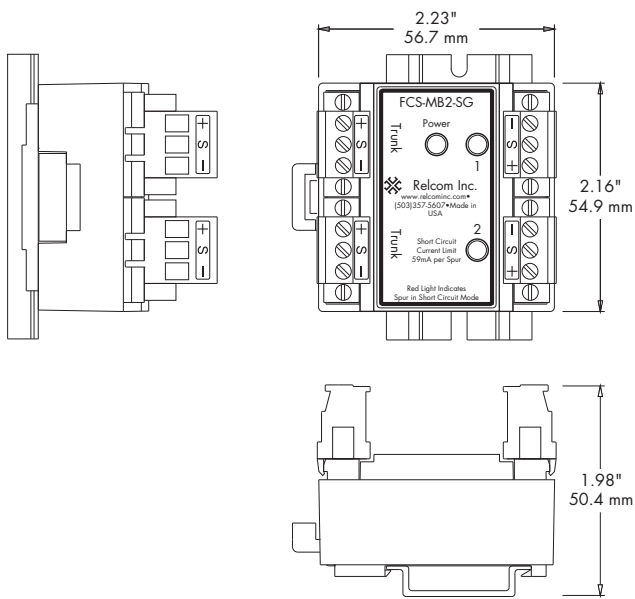
ETL7000
THR7000
FCS-75XX
FCS-85XX
FCS-95XX

‡ See Process JB data sheets for further details

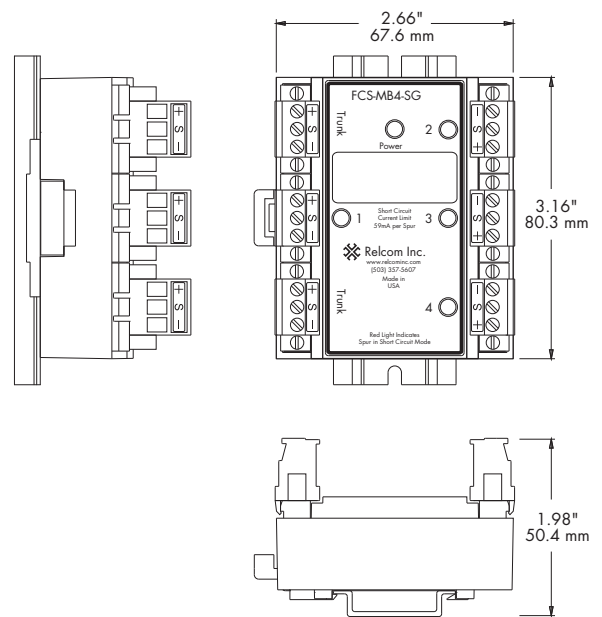


CASE DIMENSIONS

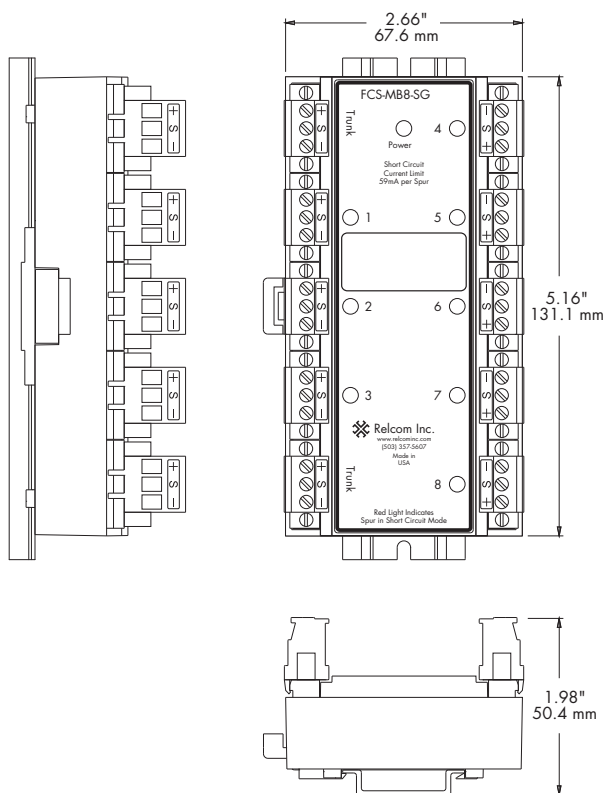
2-WAY MEGABLOCK



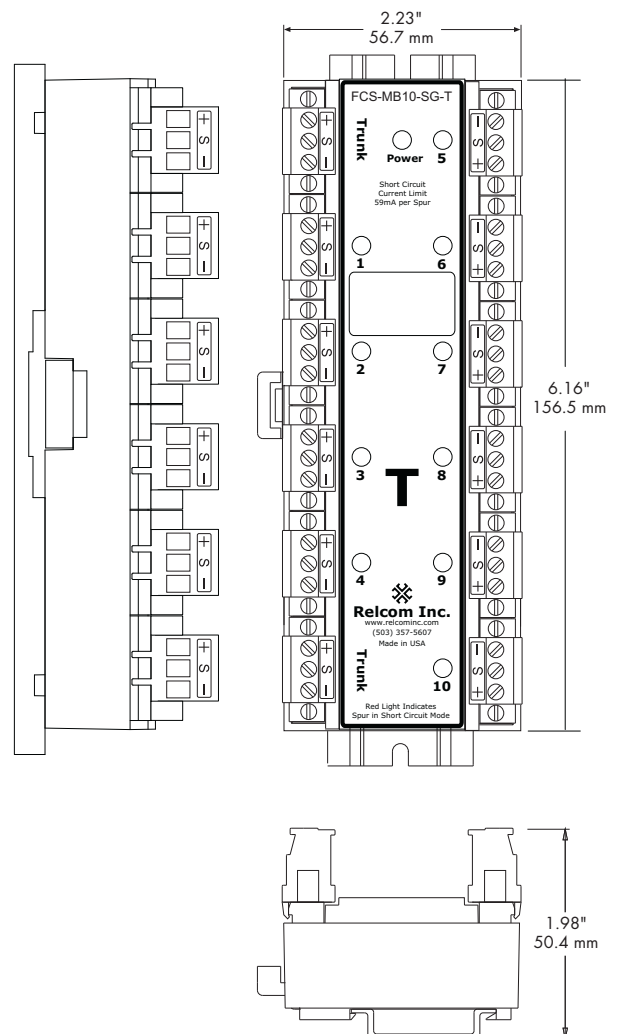
4-WAY MEGABLOCK



8-WAY MEGABLOCK



10-WAY MEGABLOCK



Note: Different Megablock versions have minor variations in labelling.

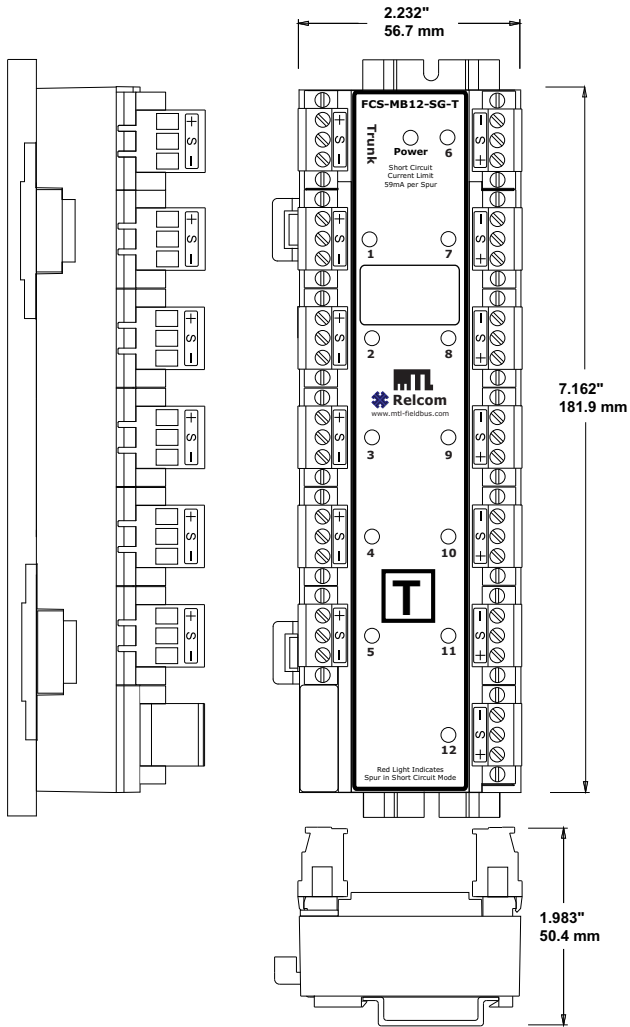


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AMERICAS Tel: +1 603 926 0090 Fax: +1 603 926 1899
ASIA PACIFIC Tel: +65 6 487 7887 Fax: +65 6 487 7997
 E-mail: enquiry@mfl-inst.com Web site: www.mfl-inst.com

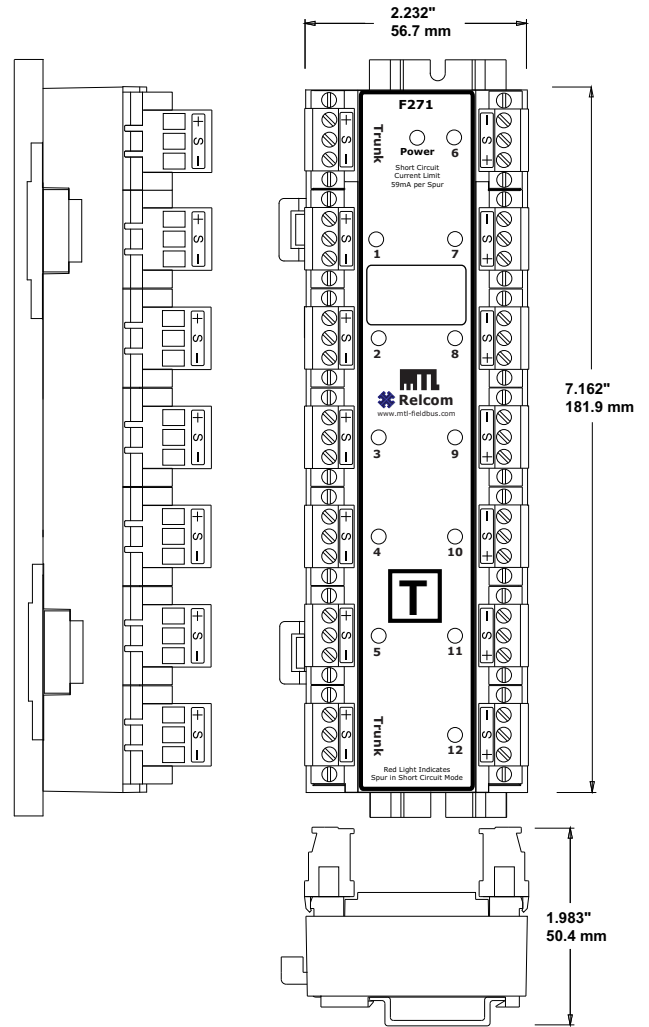
CASE DIMENSIONS (cont)

12-WAY MEGABLOCK

FCS-MB12-SG-T



F215, F271, F271-XE



APPROVALS (FCS-MB2, FCS-MB4, FCS-MB8, FCS-MB10-T, FCS-MBT)

- for the latest certification information visit www.mtl-inst.com/certs_1.nsf

Country	Europe	USA	Canada	Canada	Europe		
Authority	ATEX (Category 3)	FM	CSA	CSA	LCIE		
Standard	EN50021: 1999	3611	C22.2 No. 213 - M1987 CAN/CSA - E79-15-95	C22.2 No. 157-92 CAN/CSA - E79-11-95	EN50014(1997) + Amendments 1 & 2 EN50020 (1994)		
Approved for	⊕ II 3G EEx nA[L] IIC T4	Class I, Division 2 Groups A, B, C, D T4	Class I, Division 2 Groups A, B, C, D Ex nA IIC T4	Class I, Division 1 Groups A, B, C, D T4 Ex ia IIC T4	⊕ II 1G EEx ia IIC T4		
Certificate no.	500047	3013269	1198909	1198909	LCIE 02 ATEX 6212X		
Field wiring parameters				ENTITY FISCO	ENTITY FISCO		
Trunk	Energy limited U _i =32V I _i =1.5A C _i =0 L _i =0	Non-arcing	Non-arcing	Intrinsically safe V _{max} , U _i =24V I _{max} , I _i =250mA C _i =0 L _i =0 P _i =1.2W	Intrinsically safe V _{max} , U _i =17.5V I _i ≤ 24V I _i ≤ 250mA C _i =0 L _i =0 P _i ≤ 1.2W	Intrinsically safe U _i ≤ 17.5V I _i ≤ 380mA C _i =0 L _i =0 P _i ≤ 5.32W	
Spur	Note 1	Non-arcing	Non-arcing	As trunk	As trunk	U _o = 24V I _o = 250mA C _o = 62μF L _o = 568μH P _o = 1.2W	U _o = 17.5V I _o = 380mA C _o = 116μF L _o = 246μH P _o = 5.32W

Note 1: Spur is Energy-limited only if trunk is installed as Energy-limited, in which case spur field wiring parameters are as source of supply to trunk, and limited to 32V and 1.5A max.

APPROVALS (FCS-MB2-SG, FCS-MB4-SG, FCS-MB4-SG-T, FCS-MB8-SG, FCS-MB10-SG-T, FCS-MB12-SG-T*, F118, F215*)

- for the latest certification information visit www.mtl-inst.com/certs_1.nsf

Country	Europe	USA	USA	Canada	Canada
Authority	ATEX (Category 3)	FM	FM	CSA	CSA
Standard	EN50021: 1999	3611	3611	C22.2 No. 213 - M1987 CAN/CSA - E79-15-95 IEC 60079-15	C22.2 No. 213 - M1987 CAN/CSA - E79-15-95
Approved for	⊕ II 3G EEx nA[L] IIC T4	Class I, Division 2, Groups A, B, C, D T4	Class I, Division 2 Groups A, B, C, D T4	Class I, Division 2 Groups A, B, C, D Ex nA [nL] IIC T4	Class I, Division 2 Groups A, B, C, D Ex nA IIC T4
Certificate No.	500-086*	3013269*	3013852*	1280795*	1198909*
Field wiring parameters					
Trunk	Energy-limited U _i =32V I _i =1.5A C _i =0 L _i =0	Non-arcing	Non-arcing	Non-arcing	Non-arcing
Spur	Energy-limited U _o =32V I _o =60mA C _o =170nF L _o =1.26mH Note 2	Non-arcing	Non-incendive V _{oc} =32V I _{sc} =60mA C _a =170nF L _a =1.26mH	Non-incendive V _{oc} =32V I _{sc} =60mA C _a =170nF L _a =1.26mH	Non-arcing


Note 2: Trunk may be installed as Energy-limited or Non-sparking circuit; Spur is Energy-limited in either case.

* FCS-MB12-SG-T and F215 certificates are pending.




APPROVALS (F241, F245, F247, F251, F253, F259, F261, F271*)

- for the latest certification information visit www.mtl-inst.com/certs_1.nsf

Country	Europe		US		Canada		International	
Authority	KEMA		FM		CSA		CSA	
Standard	EN50014(1997) + EN50020 (2002)		3610		C22.2 No. 0 - M1982 C22.2 No. 157-92 CAN/CSA - E79-0-95 CAN/CSA - E79-11-95 FM3600 FM3610		IEC60079-0-(1998 incl A1-2000) IEC60079-11 (1999)	
Approved for	II 2G EEx ia IIC T4 		IS/I/1/ABCD/T4 Ta=70°C I/O/AEx ia IIC T4 Ta=70°C		Class I, Division 1 Groups A, B, C, D T4 Ex ia IIC T4		Ex ia IIC T4	
Certificate no.	KEMA03ATEX1555X		3020445		1422741		CSA/2004/TR187009-1422741	
Field wiring parameters	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 Vmax = 24V Imax = 250mA Ci = 0 Li = 0 Pi = 1.2W	FISCO Intrinsically safe Vmax = 17.5V Imax = 380mA Ci = 0 Li = 0 Pi = 5.32W	ENTITY Intrinsically safe Vmax, Ui = 24V Imax, Ii = 250mA Ci = 0 Li = 0 Pi = 1.2W	FISCO Intrinsically safe Vmax, Ui = 17.5V Imax, Ii = 380mA Ci = 0 Li = 0 Pi = 5.32W	ENTITY Intrinsically safe Ui = 24V Imax, Ii = 250mA Ci = 0 Li = 0 Pi = 1.2W	FISCO Intrinsically safe Ui = 17.5V Imax, Ii = 380mA Ci = 0 Li = 0 Pi = 5.32W

APPROVALS (F245-XE, F251-XE, F259-XE, F271-XE*, FCS-MBT-XE)

- for the latest certification information visit www.mtl-inst.com/certs_1.nsf

Country	Europe
Authority	KEMA
Standard	EN 60079-0:2004 EN 60079-7:2001 EN 60079-18:2004
Approved for	II 2 G Ex em IIC T4 
Certificate no.	KEMA05ATEX2006
Trunk wiring parameters	Rated voltage 30V DC Rated current 1.5A

*F271 and F271-XE certification pending



APPROVALS (FBT1-IS)

- for the latest certification information visit www.mtl-inst.com/certs_1.nsf

Country	Europe		US	
Authority	BASEEFA		FM	
Standard	EN50014(1997) +A1 & A2 EN50020 (2002)		3610 Entity	
Approved for	II TG EEx ia IIC T4 (-40°C ≤ Ta ≤ +70°C)		IS/I/1/ABCD/T4 Ta=70°C I/O/AEx ia IIC T4 Ta=70°C	
Certificate no.	Baseefa 02ATEX0042		3017464	
Field wiring parameters	ENTITY Intrinsically safe Ui = 30V 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 Vmax = 30V Imax = 250mA Ci = 0 Li = 0 Pi = 1.2W	FISCO Intrinsically safe Vmax = 17.5V Imax = 380mA Ci = 0 Li = 0 Pi = 5.32W



AS-i MEGABLOCK



- ◆ **AS-i bus wiring for the process industry environment**
- ◆ **SpurGuard™ short circuit protection with visual fault detection**
- ◆ **Plug-in connectors for fast commissioning and maintenance**
- ◆ **Choice of junction box to meet site requirements**
- ◆ **Power LED**

AS-i Megablocks are DIN rail mounted passive* hubs for the AS-i network. They connect several AS-i devices to the network trunk cable and provide short circuit and over voltage to the segment. The AS-i Megablock itself does not contain an AS-i chip or communicate over the AS-i network, so it consumes no network communication resources (bandwidth, slave addresses, etc.). They are used to interconnect AS-i master and slave devices that do contain AS-i chips.

Megablocks minimize hand wiring and allow individual devices to be added to and removed from the segment without disrupting network communication. A green power LED on each unit indicates whether DC power is present. Megablocks are available in four and eight drop versions. Multiple Megablocks are easily wired to one another to allow larger segments to be constructed.

For simple and reliable interconnection, each Megablock has two dedicated connections for the segment home run or trunk cable. Trunk connections are easily identified by their black connectors. Separate numbered connections are provided for each spur drop.

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 easily connected and disconnected during commissioning. After commissioning, retaining screws are tightened to secure each connector to the Megablock.

Short circuit protection Megablocks are available with built-in SpurGuard™ short circuit protectors which prevent a short circuit in any of the individual AS-i devices or spur cable runs from bringing the entire network segment down. A red LED near each spur connection indicates that a spur is shorted and is in overcurrent mode.

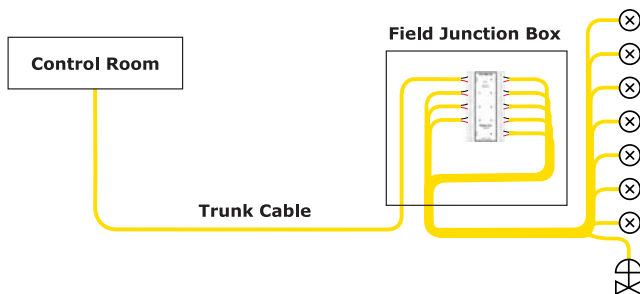
Internal Fault Indication
A red Fault LED is included on SpurGuard™ protected units. The red Fault LED is lit if the AS-i Megablock diagnoses an internal failure. The AS-i network continues to function in this condition, however, the SpurGuard™ protection is not available.

** Megablocks contain active circuit components but do not contain an AS-i chip or perform active repeater functions such as signal reconstruction or amplification.*

MTL-RELCOM AS-i MEGABLOCKS

INSTALLATION

AS-i Megablocks can be mounted vertically or horizontally using 35 mm DIN rail within a suitable enclosure, such as a field junction box. AS-i 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. Four and eight port Megablocks have labelling areas so that segments can be easily identified according to plant standards. Shown below is an example of a common network segment topology. Individual AS-i devices are connected to an eight-drop AS-i Megablock, which are mounted in field junction boxes.



For detailed installation instructions, refer to document 500-521 AS-i Megablock Installation Instructions. Relcom SpurGuard™ technology is protected by U.S. patents 6,366,437 6,369,997 6,525,915 6,519,125 and others pending.

ORDERING INFORMATION

Megablock Series

- 4-drop AS-i Megablock
- 4-drop AS-i Megablock with integrated SpurGuard™ short circuit protection
- 8-drop AS-i Megablock
- 8-drop AS-i Megablock with integrated SpurGuard™ short circuit protection

Accessories

- Heavy Duty DIN rail end stop
- 35 mm DIN Rail, 1m length

Literature

- AS-i Megablock Installation Instructions

Part Number

- A100
- A101
- A102
- A103

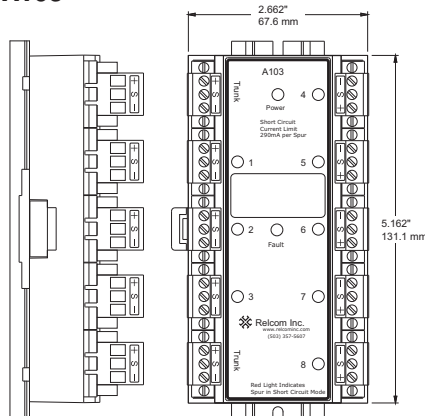
Part Number

- ETL7000
- THR7000

- 500-521

DIMENSIONS

A102, A103



SPECIFICATIONS

Mounting Requirements

- 35 mm DIN rail
- IP 54 minimum enclosure

Wire Capacity:

- 12-24 AWG

Case material

- Lexan Polycarbonate

Temperature Range

- 45°C to +70°C

Input Current

- 8A maximum

Input Voltage

- 32V dc maximum

AS-i Megablocks with SpurGuards™

Power Consumption:

- No SpurGuards™ tripped: 3.5 mA
- per SpurGuard™ tripped: 36 mA

Maximum Current

- Delivered to Spur: 297 ± 6 mA

Trunk to Spur Voltage Drop

- (SpurGuard™ not tripped): Maximum: 0.3 V

Voltage Required to activate Power LED:

- 9.7V minimum

Basic AS-i Megablocks

Power Consumption

- 0.4 mA maximum

Maximum Current Delivered to Spur:

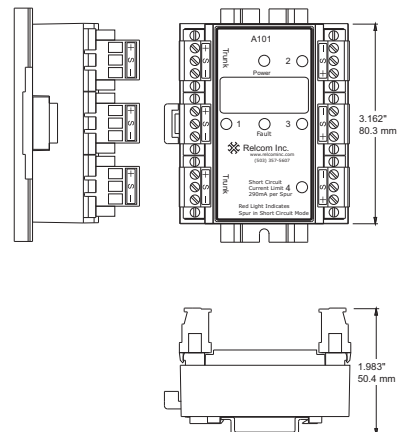
- Not Limited, rated to 1A per spur.
- Voltage required to activate power LED 5V

APPROVALS A101, A103

- for the latest certification information visit www.mtl-inst.com/certs_1.nsf

Country	Europe	USA
Authority	ATEX (Category 3)	FM
Standard	EN50021: 1999	3611, 3600
Approved for	ⓧ II 3G EEx nA IIC T4	Class I Division 2 Groups A, B, C, D T4, Class 1 Zone 2 Group IIC
Certificate no.	500-545	3019356

A100, A101



PROCESS JBs



- ◆ **Easy to install & maintain**
- ◆ **Standard proven designs reduce project costs**
- ◆ **Superb corrosion resistance**
- ◆ **Wide choice of cable gland types**
- ◆ **All glanding holes are located in the base of the enclosure**
- ◆ **Generous space for cable terminations**
- ◆ **Strong, high impact resistance, durable**

MTL Process JBs are designed for mounting Megablock fieldbus wiring components, terminators, 9320 spur connections and FP-32 surge protection devices, in order to meet the exacting requirements of process industry customers.

Relcom wiring components have been chosen to connect over 250,000 fieldbus devices on hundreds of projects. With that experience, MTL/Relcom have learned a lot about fieldbus junction box requirements for harsh environments.

Process JBs make it easy to install and maintain the fieldbus system. For example, a minimum of 75mm (3") of clearance is provided for fieldbus cable connections. This ensures that the correct bend radius is maintained when connecting to the full range of MTL/Relcom wiring components.

They are available in a choice of materials and finishes that provide strength, durability and corrosion resistance to many chemicals and their vapours. The FCS-9000 enclosures are manufactured from 316 stainless steel to provide the highest level of corrosion protection. The FCS-7000 adopt a lower cost solution, by being constructed from 409 stainless steel but with a painted finish that denies most corrosion attacks. The FCS-8000 enclosures are manufactured from carbon-loaded, polyester which combines strength with the highest level of corrosion resistance.

A wide choice of glands is available, ready fitted to the junction box: stainless steel, nickel-plated brass and plastic, enabling a high quality seal with standard or wire-armoured cables. All glanding is in

the base of the enclosure with a minimum of 75mm of clearance between the base of the enclosure and other components. This makes glanding much easier, especially when terminating armoured cable.

Significant cost savings can be made on a fieldbus project by selecting standard, and proven, fieldbus junction box designs. It eliminates the need for custom designs when choosing junction boxes for fieldbus applications and saves the cost of managing the specification and the eventual procurement of the junction boxes.

To select the Process JB appropriate to your application; first decide on the enclosure material, based upon site conditions, required strength, durability and economics; this will define which series you require.

Next, determine the number of fieldbus device connections, and hence the number of spur connections required in the junction box. This will also define which Megablocks (and maybe terminators) are required. Use the application examples to help you.

Identify any additional items that will need to be housed in the enclosure, e.g. surge protection devices, additional terminators. Calculate how much DIN rail they will require. Add this to length of the Megablock(s) and choose an enclosure with sufficient rail length.

Finally, decide on gland type. Is the cable armoured? Does the environment require steel or brass glands, or will plastic be sufficient? See application example tables and ordering information for details on how to fully specify the enclosure in your order.

FCS-7000 Series junction boxes

The FCS-7000 Series enclosures are manufactured from 409 stainless steel with a RAL7015 painted finish, to provide high levels of corrosion resistance for process environments.

The FCS-75xx Process JB's are suitable for Zone 2 and Zone 1 intrinsically safe (Ex i) and increased safety applications (Ex e).

The junction boxes are available pre-drilled for **one segment**: having trunk-in, trunk-out and 4 spur connections; or a trunk-in and 10 or 12 spur connections; or **two segments** having a trunk-in and 20 or 24 spur connections. Two-pair multicore trunk cable may be used when only a single trunk gland is available.

The wide choice of glands, including stainless steel, nickel-plated brass and plastic, enables a high quality seal with standard or wire armoured cables.

The box incorporates a rain channel that prevents standing water from damaging the one-piece seal; diverting it away from the contents when the door is opened. A 10mm earth stud and a breather are also included as standard.

An adhesive backed, Traffolyte tag label is supplied loose or can be engraved with the tag number and fitted, if details are supplied when ordering.

SPECIFICATION

GENERAL

Materials

409 stainless steel - painted (RAL 7015 grey)
Chloroprene gasket

DIN rail

FCS-7504, FCS-7510, FCS-7512: - one (1) DIN rail
FCS-7520, FCS-7524: - two (2) DIN rails
DIN rail to EN 50022 35 x 7.5 'T' section, mounted vertically
Each rail fitted with two end stops

Breather plug

Provided

External earth connection

M10 threaded stud

Tag label

Traffolyte, adhesive backed - white background - black text

Other

Hinged lid



ENVIRONMENTAL

Operating Temperature

-45°C to +70°C - Steel & nickel plated brass glands
-30°C to +70°C - Plastic glands

Storage Temperature

-45°C to +85°C

Relative Humidity % RH (non-condensing)

5 to 95%

IP rating

IP66 to EN 60529

Impact resistance

7 Nm to EN 50014

Location of Process JB

Safe area, Zone 2, IIC T4 hazardous area or Zone 1, IIC T4 hazardous area for intrinsically safe fieldbus segment.

Note: If used in a hazardous area, the contents must be suitably certified/approved.

APPLICATION EXAMPLES

Model	Max. glands	DIN rail length mm	Megablocks /trunk	No of trunks	Spurs/trunk	Trunk in	Trunk out	Total spurs	-ZZ* value	Unused DIN rail length mm
Single trunk applications										
FCS-7504	6	166	2 way	1	2	1	1	2	03	111
			4 way	1	4	1	1	4	05	86
			4 way(T)	1	4	1	-	4	04	86
FCS-7510	11	166	4 way + 2 way	1	6	1	1	6	07	31
			8 way	1	8	1	1	8	09	36
			8 way(T)	1	8	1	-	8	08	36
			10 way(T)	1	10	1	-	10	10	-
FCS-7512	13	212	12 way(T)	1	12	1	-	12	12	25
FCS-7520	21	2 x 286	8 way + 8 way(T)	1	16	1	-	16	16	2 x 136
Double trunk applications										
FCS-7520	21	2 x 286	2 x 8 way(T)	2	8	1 (2-pair multicore)	-	16	16	2 x 156
			2 x 10 way(T)	2	10	1 (2-pair multicore)	-	20	20	2 x 129
FCS-7524	25	2 x 286	2 x 12 way(T)	2	12	1 (2-pair multicore)	-	24	24	2 x 99

(T) = Megablock with integral terminator

* see ordering information



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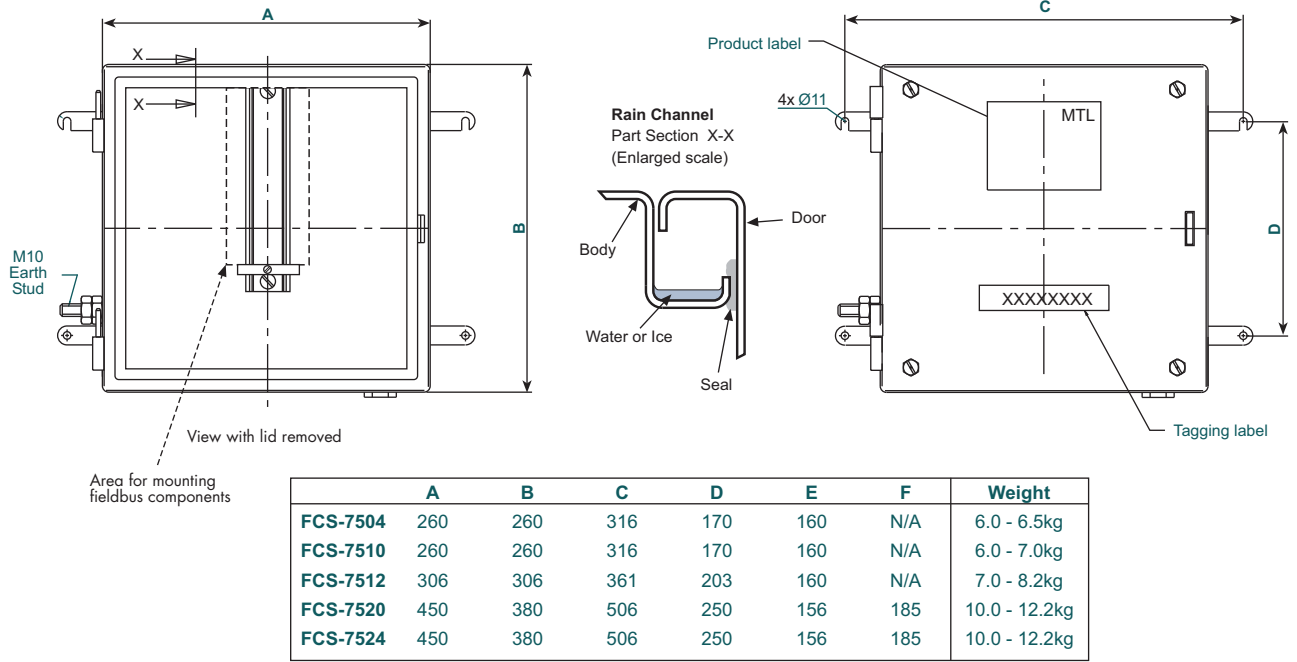
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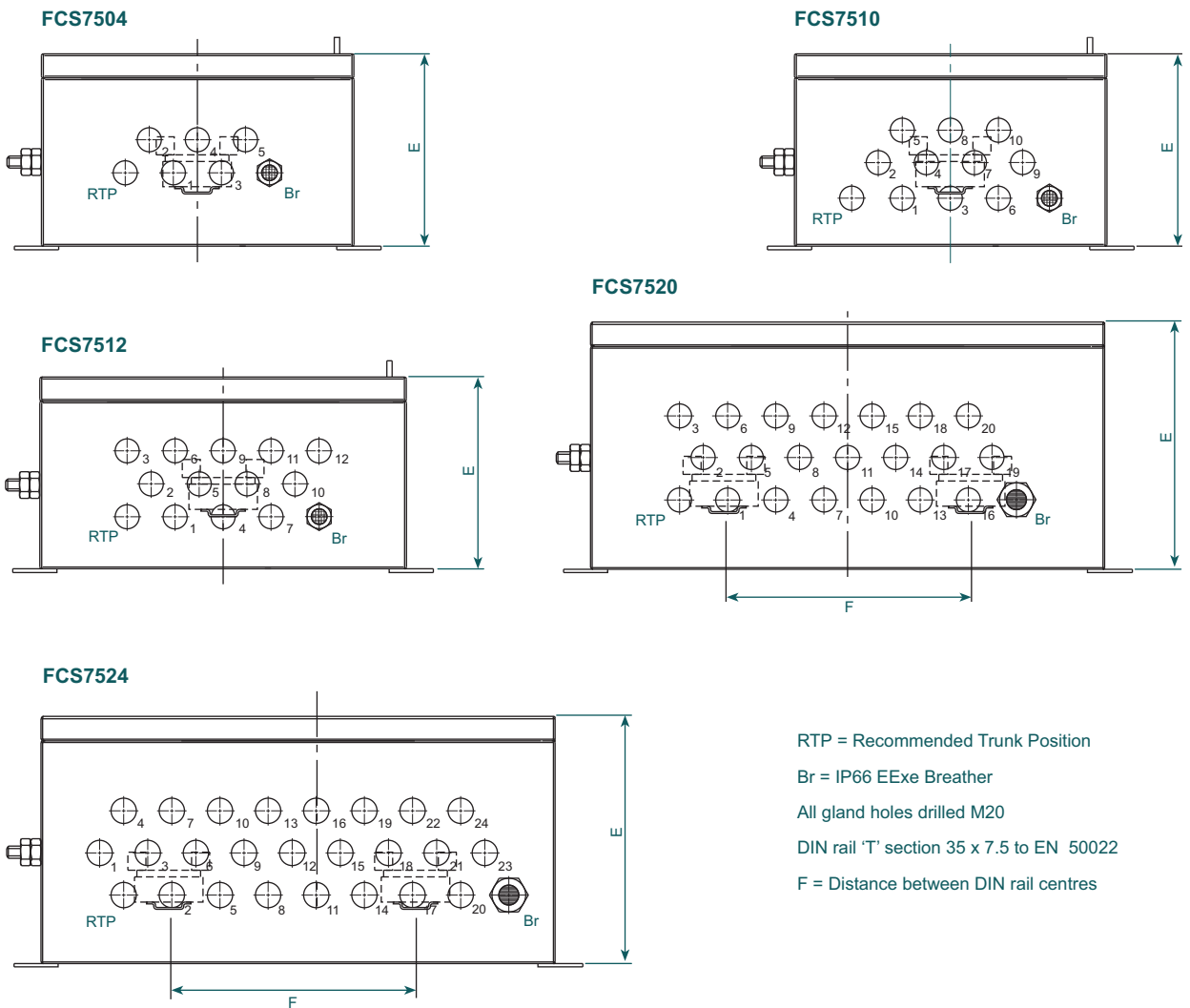
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ENCLOSURE AND MOUNTING DIMENSIONS



Dimensions in mm

GLANDING ARRANGEMENTS



FCS-8000 Series junction boxes

The FCS-8000 Series carbon loaded polyester enclosures provide the highest levels of corrosion resistance for the harshest process environments.

The FCS-85xx Process JBs are suitable for Zone 2 and Zone 1 intrinsically safe (Ex i) and increased safety applications. The controlled surface resistance eliminates the risk of static buildup.

The junction boxes are available pre-drilled for **one segment**: having trunk-in, trunk-out and 4 spur connections; or a trunk-in and 10 or 12 spur connections; or **two segments** having a trunk-in and 20 or 24 spur connections. Two-pair multicore trunk cable may be used when only a single trunk gland is available.

A wide choice of glands, including stainless steel, nickel-plated brass and plastic, enables a high quality seal to be achieved with either standard or wire-armoured cables.

The mounting screws are insulated by the case material and are located outside of the lid seal. A 10mm earth stud and a breather are included as standard.

An adhesive backed, Traffolyte tag label is supplied loose or can be engraved with the tag number and fitted, if details are supplied when ordering.



SPECIFICATION

GENERAL

Materials

Carbon-loaded, glass-fibre reinforced polyester, halogen-free, surface resistance <math> < 10^9 \Omega </math> to EN 50014
Stainless steel lid screws, silicone lid seal

DIN rail

FCS-8504, FCS-8510, FCS-8512: - one (1) DIN rail
FCS-8520, FCS-8524: - two (2) DIN rails
DIN rail to EN 50022 35 x 7.5 'T' section, mounted vertically
Each rail fitted with two end stops

Breather plug

Provided

External earth connection

M10 threaded stud

Tag label

Traffolyte, adhesive backed - white background - black text

ENVIRONMENTAL

Operating Temperature

-45°C to +70°C - Steel & nickel plated brass glands
-30°C to +70°C - Plastic glands

Storage Temperature

-45°C to +85°C

Relative Humidity % RH (non-condensing)

5 to 95%

IP rating

IP66 to EN 60529

Impact resistance

7 Nm to EN 50014

Location of Process JB

Safe area, Zone 2, IIC T4 hazardous area or Zone 1, IIC T4 hazardous area for intrinsically safe fieldbus segment.

Note: If used in a hazardous area, the contents must be suitably certified/approved.

APPLICATION EXAMPLES

Model	Max. glands	DIN rail length mm	Megablocks /trunk	No of trunks	Spurs/trunk	Trunk in	Trunk out	Total spurs	-ZZ* value	Unused DIN rail length mm
Single trunk applications										
FCS-8504	6	157	2 way	1	2	1	1	2	03	102
			4 way	1	4	1	1	4	05	77
			4 way(T)	1	4	1	-	4	04	77
FCS-8510	11	157	4 way + 2 way	1	6	1	1	6	07	22
			8 way	1	8	1	1	8	09	27
			8 way(T)	1	8	1	-	8	08	27
			10 way(T)	1	10	1	-	10	10	-
FCS-8512	13	303	12 way(T)	1	12	1	-	12	12	115
FCS-8520	21	2 x 302	8 way + 8 way(T)	1	16	1	-	16	16	2 x 172
Double trunk applications										
FCS-8520	21	2 x 302	2 x 8 way(T)	2	8	1 (2-pair multicore)	-	16	16	2 x 172
			2 x 10 way(T)	2	10	1 (2-pair multicore)	-	20	20	2 x 145
FCS-8524	25	2 x 302	2 x 12 way(T)	2	12	1 (2-pair multicore)	-	24	24	2 x 115

(T) = Megablock with integral terminator

* see ordering information



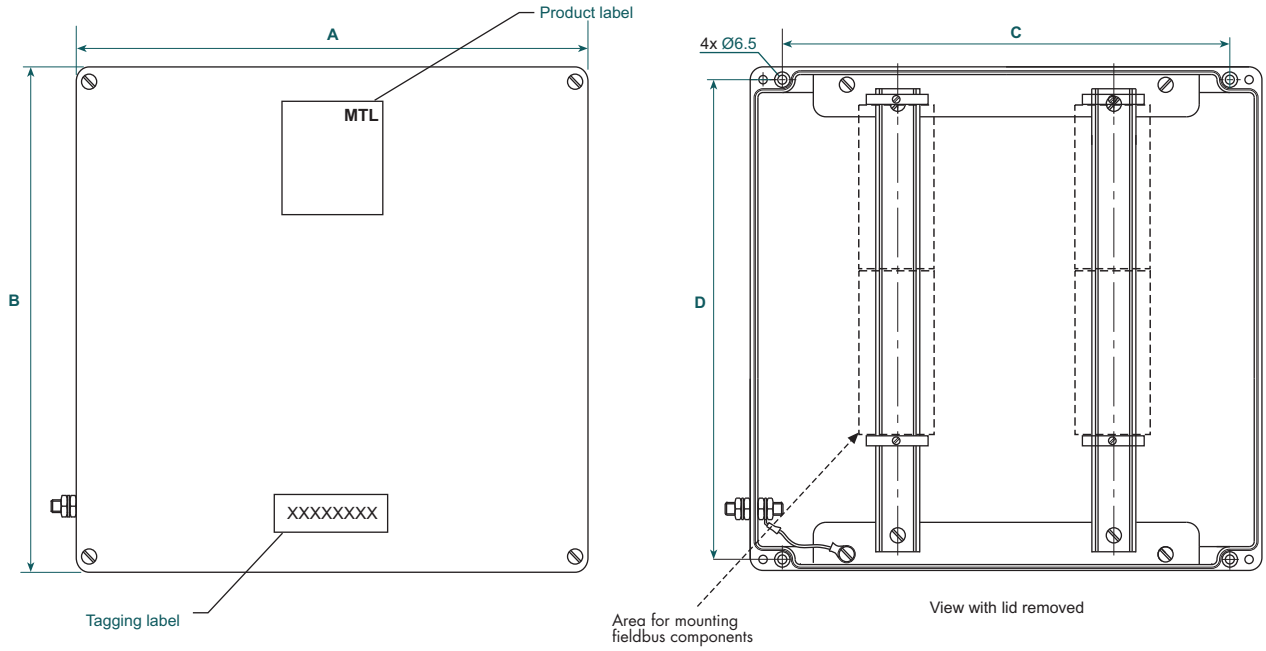
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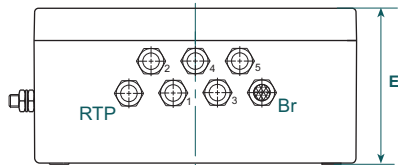
ENCLOSURE AND MOUNTING DIMENSIONS



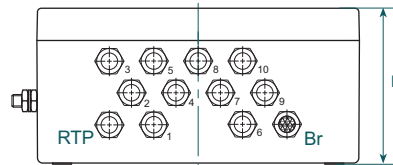
	A	B	C	D	E	F	Weight
FCS-8504	251	256.5	200.5	236	121	N/A	3.5 - 4.0kg
FCS-8510	251	256.5	200.5	236	121	N/A	3.5 - 4.5kg
FCS-8512	250.5	402	201	381.5	120	N/A	5.0 - 6.2kg
FCS-8520	406	401	356	381.5	120	172	6.0 - 7.9kg
FCS-8524	406	401	356	381.5	120	172	6.0 - 8.2kg

GLANDING ARRANGEMENTS

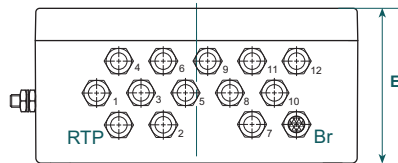
FCS8504



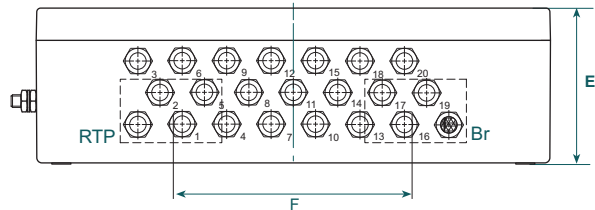
FCS8510



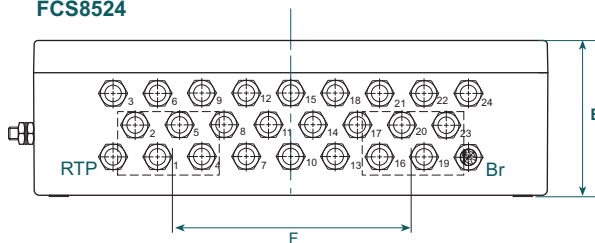
FCS8512



FCS8520



FCS8524



RTP = Recommended Trunk Position

Br = IP66 EExe Breather

All gland holes drilled M20

DIN rail 'T' section 35 x 7.5 to EN 50022

F = Distance between DIN rail centres

The glands shown are representative only



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FCS-9000 Series junction boxes

The FCS-9000 Series enclosures are manufactured from polished 316 stainless steel to provide the highest levels of corrosion resistance for the harshest process environments.

The FCS-95xx Process JB's are suitable for Zone 2 and Zone 1 intrinsically safe (Ex i) and increased safety applications.

The junction boxes are available pre-drilled for **one segment**: having trunk-in, trunk-out and 4 spur connections; or a trunk-in and 10 or 12 spur connections; or **two segments** having a trunk-in and 24 spur connections. Two-pair multicore trunk cable may be used when only a single trunk gland is available.

The wide choice of glands, including stainless steel, nickel-plated brass and plastic, enables a high quality seal with standard or wire armoured cables.

The box incorporates a rain channel that prevents standing water from damaging the one-piece seal; diverting it away from the contents when the door is opened. A 10mm earth stud and a breather are also included as standard.

An adhesive backed, Traffolyte tag label is supplied loose or can be engraved with the tag number and fitted, if details are supplied when ordering.



SPECIFICATIONS

GENERAL

Materials

Electrochemically polished 316 Stainless Steel
Chloroprene gasket

DIN rail

FCS-9504, FCS-9510, FCS-9512: - one (1) DIN rail
FCS-9524: - two (2) DIN rails
DIN rail to EN 50022 35 x 7.5 'T' section, mounted vertically
Each rail fitted with two end stops

Breather plug

Provided

External earth connection

M10 threaded stud

Tag label

Traffolyte, adhesive backed - white background - black text

Other

Hinged lid

ENVIRONMENTAL

Operating Temperature

-45°C to +70°C - Steel & nickel-plated brass glands
-30°C to +70°C - Plastic glands

Storage Temperature

-45°C to +85°C

Relative Humidity % RH (non-condensing)

5 to 95%

IP rating

IP66 to EN 60529

Impact resistance

7 Nm to EN 50014

Location of Process JB

Safe area, Zone 2, IIC T4 hazardous area or Zone 1, IIC T4 hazardous area for intrinsically safe fieldbus segment.

Note: If used in a hazardous area, the contents must be suitably certified/approved.

APPLICATION EXAMPLES

Model	Max. glands	DIN rail length mm	Megablocks /trunk	No of trunks	Spurs/trunk	Trunk in	Trunk out	Total spurs	-ZZ* value	Unused DIN rail length mm
Single trunk applications										
FCS-9504	6	166	2 way	1	2	1	1	2	03	111
			4 way	1	4	1	4	05	86	
			4 way(T)	1	4	1	-	4	04	86
FCS-9510	11	166	4 way + 2 way	1	6	1	1	6	07	31
			8 way	1	8	1	8	09	36	
			8 way(T)	1	8	1	8	08	36	
			10 way(T)	1	10	1	-	10	10	-
FCS-9512	13	212	12 way(T)	1	12	1	-	12	12	-
FCS-9524	21	2 x 286	8 way + 8 way(T)	1	16	1	-	16	16	2 x 156
Double trunk applications										
FCS-9524	21	2 x 286	2 x 8 way(T)	2	8	1 (2-pair multicore)	-	16	16	2 x 156
			2 x 10 way(T)	2	10	1 (2-pair multicore)	-	20	20	2 x 129
FCS-9524	25	2 x 286	2 x 12 way(T)	2	12	1 (2-pair multicore)	-	24	24	2 x 99

(T) = Megablock with integral terminator

* see ordering information



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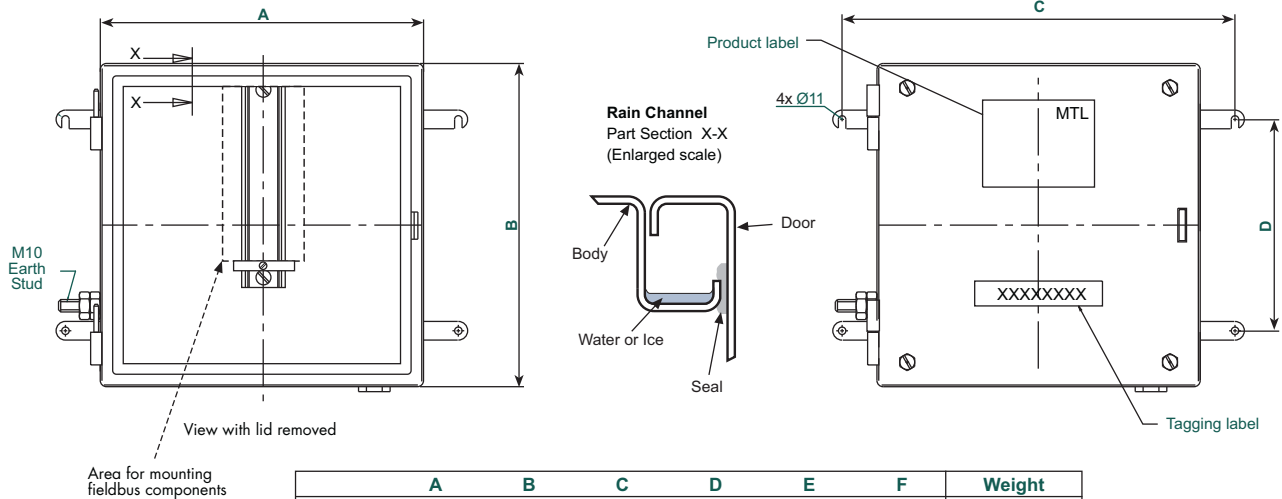
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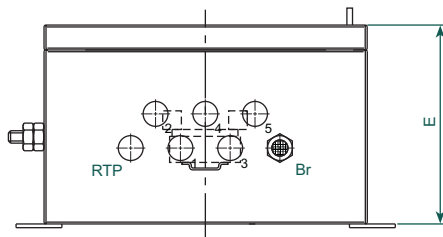
ENCLOSURE AND MOUNTING DIMENSIONS



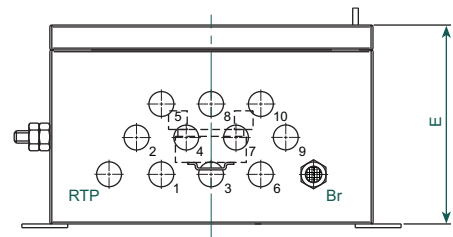
	A	B	C	D	E	F	Weight
FCS-9504	260	260	316	170	160	N/A	6.0 - 6.5kg
FCS-9510	260	260	316	170	160	N/A	6.0 - 7.0kg
FCS-9512	306	306	361	203	160	N/A	7.0 - 8.2kg
FCS-9524	450	380	506	250	205	185	10.0 - 12.2kg

GLANDING ARRANGEMENTS

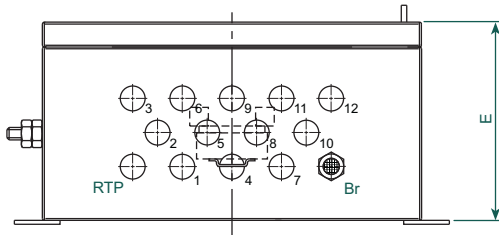
FCS-9504



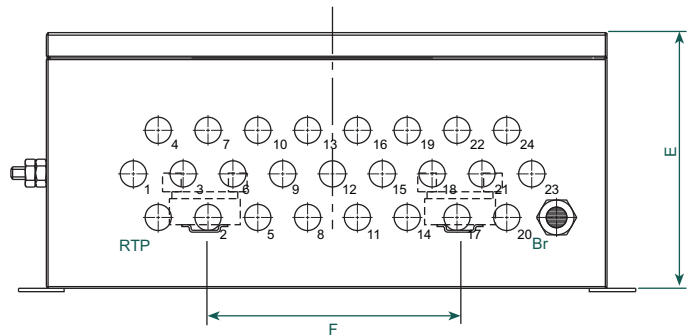
FCS-9510



FCS-9512



FCS-9524



RTP = Recommended Trunk Position

Br = IP66 EExe Breather

All gland holes drilled M20

DIN rail 'T' section 35 x 7.5 to EN 50022

F = Distance between DIN rail centres



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APPROVALS

Region		Europe	N America	
Authority		Kema	UL	
Standard		EN 50014:1992 + prA1	UL50	UL508 16th edition
		EN 50019:1994 + prA1	C22.2 No94-M91	C22.2 No14 1983
		EN 50281-1:1998		IEC 79-0 1983 Amendments 1 + 2
Approved for		II 2 G EEx e II	Nema 4X for	Class I, Zone 1
		II 2 D	Class I Div 2	AEx e II, Ex e II
MTL Part No.	Crouse Hinds Enclosure Part Number	Certificate Numbers		
FCS-7504	NXT262616	Kema 99ATEX3174U	E115376	E108296
FCS-7510	NXT262616	Kema 99ATEX3174U	E115376	E108296
FCS-7512	NXT303016	Kema 99ATEX3174U	E115376	pending
FCS-7520	NXT384520	Kema 99ATEX3174U	E115376	pending
FCS-7524	NXT384520	Kema 99ATEX3174U	E115376	pending
FCS-9504	NXT262616	Kema 99ATEX3174U	E115376	E108296
FCS-9510	NXT262616	Kema 99ATEX3174U	E115376	E108296
FCS-9512	NXT303016	Kema 99ATEX3174U	E115376	pending
FCS-9524	NXT384520	Kema 99ATEX3174U	E115376	pending

Region		Europe	N America	
Authority		PTB	UL	
Standard		EN 50014:1997 +A1+A2	UL50	
		EN 50019:1994		
Approved for		II 2 G EEx e II	Nema 4X for	
		II 2 D	Class I Div 2	
MTL Part No.	Bartec Enclosure Part Number	Certificate Numbers		
FCS-8504	07-5185-2552/5012	PTB 01ATEX1014U	E188224	
FCS-8510	07-5185-2552/5012	PTB 01ATEX1014U	E188224	
FCS-8512	07-5185-4002/5012	PTB 01ATEX1014U	E188224	
FCS-8520	07-5185-4004/5012	PTB 01ATEX1014U	E188224	
FCS-8524	07-5185-4004/5012	PTB 01ATEX1014U	E188224	

GLAND OPTION DETAILS

Option	Description	Gland model no.	Cable Size mm	Socket size mm	Temp. range
-A20	Nickel plated brass gland, for steel wired armoured cable M20 EEx d/e double seal	Capri ADE 4F 846694	8.5 – 16.0 outer diam. 6.0 – 12.0 inner diam. 0 – 1.25 armour	24	-40 to +70°C
-R20	Stainless steel gland, for steel wired armoured cable M20 EEx d/e double seal	Capri ADE 4F 846699	8.5 – 16.0 outer diam. 6.0 – 12.0 inner diam. 0 – 1.25 armour	24	-40 to +70°C
-S20	Stainless steel gland, M20, EEx e, single seal	Capri ADE 1F 816699	6.0 – 12.0 outer diam.	19/24	-40 to +70°C
-C20	Nickel plated brass gland, M20, EEx e, single seal	Capri ADE 1F 816694	6.0 – 12.0 outer diam.	19/24	-40 to +70°C
-P20	Black nylon gland M20, EEx e, single sea	Jakob 50.620 PASWL/EX	5.5 – 13.0 outer diam.	24	-30 to +70°C

ORDERING INFORMATION

Part No	Description
FCS-75XX-YYY-ZZ	Process JB, 409 steel, stainless, painted
FCS-85XX-YYY-ZZ	Process JB, carbon loaded GRP
FCS-95XX-YYY-ZZ	Process JB, 316 steel, stainless

XX = number of spur outlets

04	4 spur outlets + trunk-in and trunk-out
10 or 12	10 or 12 spur outlets + trunk-in
20 or 24	20* or 24 spur outlets + trunk-in

-YYY = trunk & spur glanding

-020	= Predrilled for M20 glands - none fitted
-X20	= Predrilled, with M20 brass blanking plugs
-Y20	= Predrilled, with M20 plastic blanking plugs
-A20	= Nickel-plated brass M20 glands for wire-armoured cable
-R20	= Stainless Steel M20 glands for wire-armoured cable
-S20	= Stainless Steel M20 glands
-C20	= Nickel-plated brass M20 glands
-P20	= Plastic M20 glands

* 20 spur outlet version not available for FCS-95xx series.
Use FCS-9524-yyy-20

-ZZ = number of spur outlet glands to be fitted

A gland of the specified type is **always** supplied and fitted for the **trunk-in**. Any remaining holes are fitted with blanking plugs of the same material as the glands. *If this number is not specified, glands will be fitted to all outlets (including the trunk-out, if applicable).*

Example part number

FCS-7504-A20-04

An FCS-7504 junction box having 4 spur outlets, 1 trunk-in and 1 trunk-out. Supplied with nickel-plated brass M20 glands for wire-armoured cable fitted on 4 spur outlets +1 trunk-in. The trunk-out has a nickel-plated blanking plug fitted.

ACCESSORIES

Surface mounting kit

FCS-1000-CGT Cable gland tool

Labels for Hazardous Area applications

FCS-LAB-NA-NA	EEx nA trunk and Spurs (pack of 10)
FCS-LAB-NA-NL	EEx nA trunk with EEx nL spurs (pack of 10)
FCS-LAB-NL-NL	EEx nL trunk and Spurs (pack of 10)
FCS-LAB-IS-IS	EEx i trunk and spurs (pack of 10)



FCS-8331/8332 junction boxes

The FCS-8331/2 Process JBs are suitable for Zone 2 and Zone 1 intrinsically safe (Ex i) applications. The FCS-8331 is designed for mounting one 9331-TI Temperature Multiplexer, while the FCS-8332 will accommodate two multiplexers.

The carbon loaded polyester enclosures provide the highest levels of corrosion resistance for the harshest process environments, while the controlled surface resistance eliminates the risk of static buildup.

A wide choice of glands, including stainless steel, nickel-plated brass and plastic, enables a high quality seal to be achieved with either standard or wire-armoured cables.

The mounting screws are insulated by the case material and are located outside of the lid seal. A 10mm earth stud and a breather are included as standard.

An adhesive backed, Traffolyte tag label is supplied loose or can be engraved with the tag number and fitted, if details are supplied when ordering.

SPECIFICATION

GENERAL

Materials

Carbon-loaded, glass-fibre reinforced polyester, halogen-free, surface resistance < 10⁹Ω to EN 50014

Stainless steel lid screws, silicone lid seal

DIN rail

DIN rail to EN 50022 35 x 7.5 'T' section, mounted horizontally and fitted with two end stops

Breather plug

Provided

External earth connection

M10 threaded stud

Tag label

Traffolyte, adhesive backed - white background - black text



ENVIRONMENTAL

Operating Temperature

-45°C to +70°C - Steel & nickel plated brass glands

-30°C to +70°C - Plastic glands

Storage Temperature

-45°C to +85°C

Relative Humidity % RH (non-condensing)

5 to 95%

IP rating

IP66 to EN 60529

Impact resistance

7 Nm to EN 50014

Location of Process JB

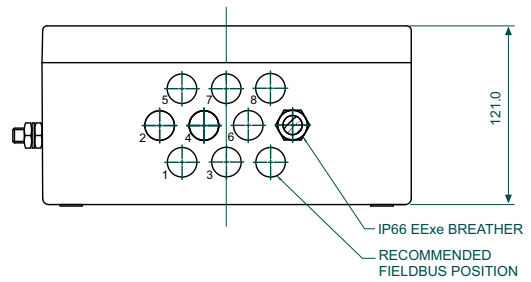
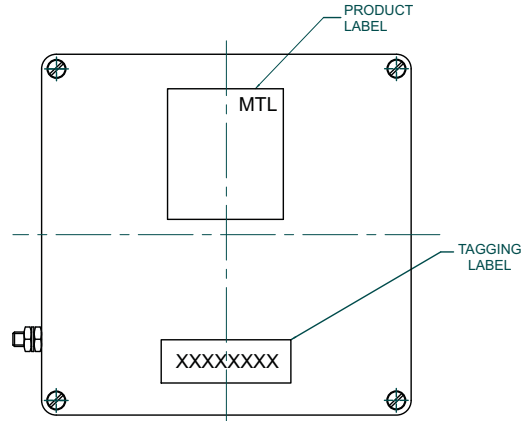
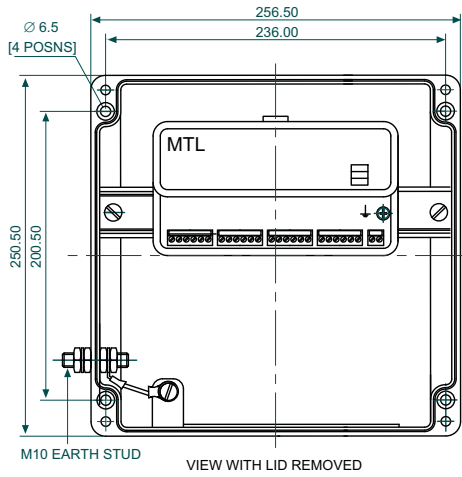
Safe area, Zone 2, IIC T4 hazardous area or Zone 1, IIC T4 hazardous area for intrinsically safe fieldbus segment.

Note: If used in a hazardous area, the contents must be suitably certified/approved.

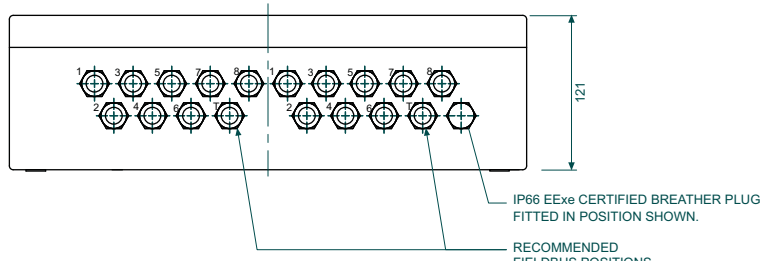
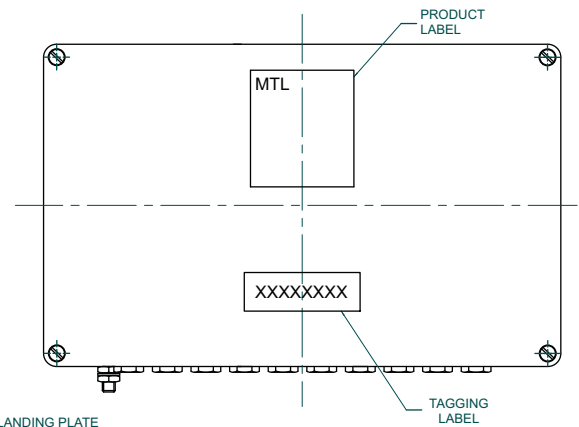
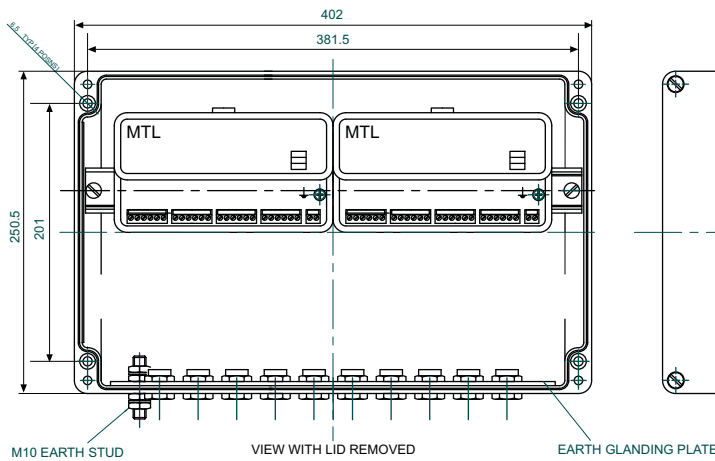


ENCLOSURE DIMENSIONS

FCS-8331



FCS-8332



FCS-9331

junction box

The FCS-9331 Process JB is suitable for Zone 2 and Zone 1 intrinsically safe (Ex i) and increased safety applications. The FCS-9331 is designed for mounting one 9331-TI Temperature Multiplexer. The FCS-9331 enclosure is manufactured from polished 316 stainless steel to provide the highest levels of corrosion resistance for the harshest process environments.

A wide choice of glands, including stainless steel, nickel-plated brass and plastic, enables a high quality seal with standard or wire armoured cables.

The box incorporates a rain channel that prevents standing water from damaging the one-piece seal; diverting it away from the contents when the door is opened. A 10mm earth stud and a breather are also included as standard.

An adhesive backed, Traffolyte tag label is supplied loose or can be engraved with the tag number and fitted, if details are supplied when ordering.

SPECIFICATIONS

GENERAL

Materials

Electrochemically polished 316 Stainless Steel
Chloroprene gasket

DIN rail

DIN rail to EN 50022 35 x 7.5 'T' section, mounted horizontally and fitted with two end stops

Breather plug

Provided

External earth connection

M10 threaded stud

Tag label

Traffolyte, adhesive backed - white background - black text

Other

Hinged lid

ENVIRONMENTAL

Operating Temperature

-45°C to +70°C - Steel & nickel-plated brass glands
-30°C to +70°C - Plastic glands

Storage Temperature

-45°C to +85°C



Relative Humidity % RH (non-condensing)

5 to 95%

IP rating

IP66 to EN 60529

Impact resistance

7 Nm to EN 50014

Location of Process JB

Safe area, Zone 2, IIC T4 hazardous area or Zone 1, IIC T4 hazardous area for intrinsically safe fieldbus segment.

Note: If used in a hazardous area, the contents must be suitably certified/approved.



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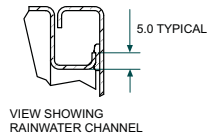
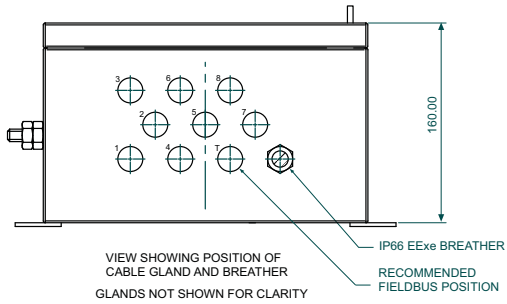
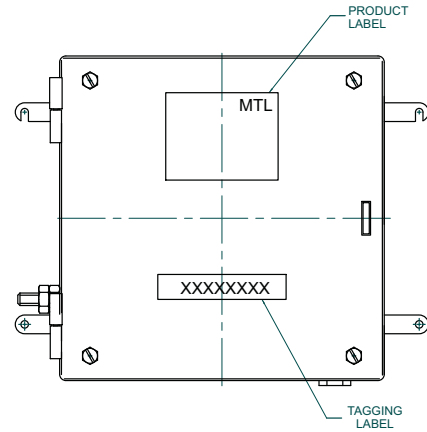
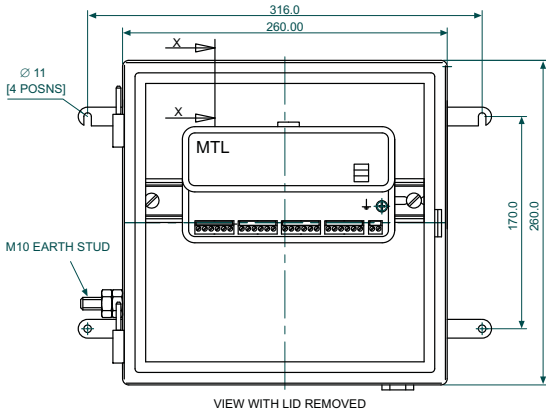
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Nov 2004

ENCLOSURE DIMENSIONS

FCS-9331



APPROVALS

Region		Europe	N America	
Authority		Kema	UL	
Standard		EN 50014:1992 + prA1 EN 50019:1994 + prA1 EN 50281-1:1998	UL50 C22.2 No94-M91	UL508 16th edition C22.2 No14 1983 IEC 79-0 1983 Amendments 1 + 2 IEC79-7 1990
Approved for		II 2 G EEx e II II 2 D	Nema 4X for Class I Div 2	Class I, Zone 1 AEx e II, Ex e II
MTL Part No.	Crouse Hinds Enclosure Part Number	Certificate Numbers		
FCS-9331	NXT262616	Kema 99ATEX3174U	E115376	E108296

Region		Europe	N America	
Authority		PTB	UL	
Standard		EN 50014:1997 +A1+A2 EN 50019:1994	UL50	
Approved for		II 2 G EEx e II II 2 D	Nema 4X for Class I Div 2	
MTL Part No.	Bartec Enclosure Part Number	Certificate Numbers		
FCS-8331	07-5185-2552/5012	PTB 01ATEX1014U	E188224	
FCS-8332	07-5185-4002/5012	PTB 01ATEX1014U	E188224	

GLAND OPTION DETAILS

	Description	Gland model no.	Cable Size mm	Socket size mm	Temp. range
-A20	Nickel plated brass gland, for steel wired armoured cable M20 EEx d/e double seal	Capri ADE 4F 846694	8.5 – 16.0 outer diam. 6.0 – 12.0 inner diam. 0 – 1.25 armour	24	-40 to +70°C
-R20	Stainless steel gland, for steel wired armoured cable M20 EEx d/e double seal	Capri ADE 4F 846699	8.5 – 16.0 outer diam. 6.0 – 12.0 inner diam. 0 – 1.25 armour	24	-40 to +70°C
-S20	Stainless steel gland, M20, EEx e, single seal	Capri ADE 1F 816699	6.0 – 12.0 outer diam.	19/24	-40 to +70°C
-C20	Nickel plated brass gland, M20, EEx e, single seal	Capri ADE 1F 816694	6.0 – 12.0 outer diam.	19/24	-40 to +70°C
-P20	Black nylon gland M20, EEx e, single seal	Jakob 50.620 PASWL/EX	5.5 – 13.0 outer diam.	24	-30 to +70°C

ORDERING INFORMATION

Part No	Description
9331-TI-FI	Fieldbus TI multiplexer-FISCO
9331-TI-EN	Fieldbus TI multiplexer-IS entity
9331-TI-NA	Fieldbus TI multiplexer-nA/nL
9331-TI-NL	Fieldbus TI multiplexer-nL
93-AI	Analogue connector (2 inputs/connector)
FCS-8331-YYY	Process JB, carbon loaded GRP for 1 x 9331-TI
FCS-8332-YYY	Process JB, carbon loaded GRP for 2 x 9331-TI
FCS-9331-YYY	Process JB, 316 stainless steel for 1 x 9331-TI

- YYY = **trunk & spur glanding**
- 020 = Predrilled for M20 glands - none fitted
- X20 = Predrilled, with M20 brass blanking plugs
- Y20 = Predrilled, with M20 plastic blanking plugs
- A20 = Nickel-plated brass M20 glands for wire-armoured cable
- R20 = Stainless Steel M20 glands for wire-armoured cable
- S20 = Stainless Steel M20 glands
- C20 = Nickel-plated brass M20 glands
- P20 = Plastic M20 glands

