



technical datasheet

Fieldbus Terminators

DIN-rail mounted fieldbus terminators



The fieldbus standards require that buses must be terminated at both ends to prevent signal reflections. Usually one terminator is provided by the power conditioner in the control room. The MTL-Relcom range of fieldbus terminators are ideally suited to provide the Terminator that is normally in a junction box in the field (along with a Megablock for interconnecting devices). A large “T” is placed on all MTL-Relcom terminator labels for easy identification of the Terminator location.

Additionally the F100 and FCS-MBT(-XE) provides some differential and common-mode (cable shield) over voltage protection.

The Ground connection on the F100 and FCS-MBT(-XE) are used to shunt any surge currents that may get on the cable shield to a local ground in the junction box. Under normal operating conditions, the cable shield remains DC isolated from this local ground. Although the normal practice is to ground the cable shield in the control room, this additional ground connection will not cause ground loops. However, in the event of an overvoltage on the cable shield, a gas discharge tube in the F100 or FCS-MBT(-XE) fires and shunts this unwanted current to ground.

EPS TERM RevE 020211

**COOPER** Crouse-Hinds

www.mtl-inst.com

FIELDBUS TERMINATORS

SPECIFICATION

Physical network

IEC61158-2
FOUNDATION™ fieldbus H1
Profibus PA

Operational ambient temperature limits

F100, FCS-MBT(-XE): -45°C to +70°C
FBT1-IS: -40°C to +70°C

Voltage limits (F100, FCS-MBT(-XE) only)

Common mode: 39V
Transient mode: 75V

Electrical characteristics

Fully complies with the requirements of section 22.7.5 of the appropriate fieldbus standards.

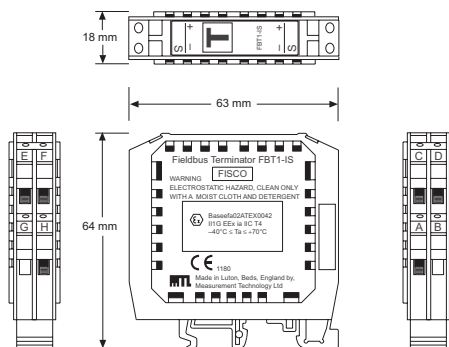
$R_{min} = 99\Omega$, $C_{max} = 1.1\mu F$

ORDERING INFORMATION

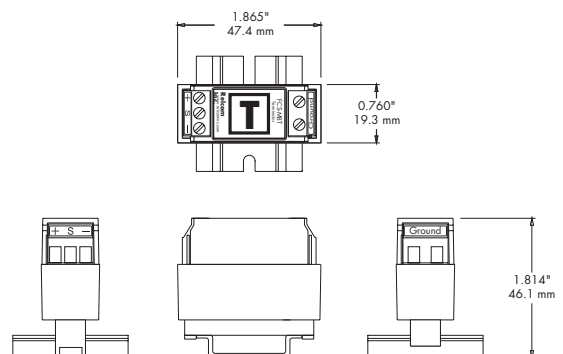
General Purpose Zone/Div 2	Zone/Div 1 Intrinsically Safe	Zone 1 EEx me
F100 FBT1-IS	FCS-MBT FBT1-IS	FCS-MBT-XE

DIMENSIONS

FBT1-IS



F100, FCS-MBT, FCS-MBT-XE



The given data is only intended as a product description and should not be regarded as a legal warranty of properties or guarantee. In the interest of further technical developments, we reserve the right to make design changes.



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EPS TERM RevE 020211

MODEL - FCS-MBT

Country	Canada		Europe		USA			
Authority	CSA		LCIE	ATEX (Category 3)	FM		FM	
Standard	C22.2 No. 0 - M1982 CAN/CSA-C22.2 No.1010.1-92 CAN/CSA-C22.2 No.1010.1B-97 T.I.L. No. I-29 C22.2 No. 157-92† C22.2 No. 213-M1987‡ CAN/CSA - E60079-0-02† CAN/CSA - E60079-11-02† CAN/CSA - E60079-15-02†		EN60079-0 : 2006* EN60079-11 : 2007*	EN60079-0 : 2006 EN60079-15 : 2005	3600 3610 3810 inc. Supplement #1 ANSI/ISA 60079-0 ANSI/ISA 60079-11	1998 2010 1989 1995 2009 2009	3600 3611 3810 1998 1999 1989	
Approved for	Class I, Division 1 Groups A, B, C and D, (Temp Code T4) Ex ia IIC T4		⊕ II 1 G Ex ia IIC T4	⊕ II 3 GD Ex nA IIC T4	IS/I/1/ABCD/T4 Ta=70°C I/O/AEx ia IIC T4 Ta=70°C		NI/I/2/ABCD/T4 Ta=70°C I / 2 / IIC / T4 Ta=70°C	
Certificate no.	1198909 (LR 108985)		LCIE02ATEX6212X	REL07ATEX1004X	3020445		3013269	
Trunk wiring parameters	ENTITY Intrinsically safe V _{max} = 24V I _{max} = 250mA C _i = 0 L _i = 0 P _i = 1.2W	FISCO Intrinsically safe V _{max} = 17.5V I _{max} = 380mA C _i = 0 L _i = 0 P _i = 5.32W	ENTITY Intrinsically safe V _{max} = 24V I _{max} = 250mA C _i = 0 L _i = 0 P _i = 1.2W	FISCO Intrinsically safe V _{max} = 17.5V I _{max} = 380mA C _i = 0 L _i = 0 P _i = 5.32W	Energy limited U _i = 32V I _i = 1.5A C _i = 0 L _i = 0	ENTITY Intrinsically safe V _{max} = 24V I _{max} = 250mA C _i = 0 L _i = 0 P _i = 1.2W	FISCO Intrinsically safe V _{max} = 17.5V I _{max} = 380mA C _i = 0 L _i = 0 P _i = 5.32W	V _{max} = 32V I _{max} = 1.5A

* the original LCIE Certificate used EN 50014:1997 + Amendments 1 & 2 and EN 50020:1994. We have determined that there are no technical differences (affecting the products) between these standards and the currently harmonized EN standards listed above.

† Reaffirmed 2006 ‡ Reaffirmed 1999

Note: The figures quoted apply to IIC gas group. See certificate for parameter relating to groups IIB and IIA

MODEL - F100

Country	Canada		Europe	USA		
Authority	CSA	FMc	ATEX (Category 3)	FM		
Standard	C22.2 No. 0 - M1982 CAN/CSA-C22.2 No.1010.1-92 CAN/CSA-C22.2 No.1010.1B-97 T.I.L. No. I-29 C22.2 No. 157-92† C22.2 No. 213-M1987 CAN/CSA - E60079-0-02† CAN/CSA - E60079-11-02† CAN/CSA - E60079-15-02†	CSA C22.2 No. 213 1987 CSA E60079-0 2002 CSA E60079-15 2002 CSA C22.2 No.1010.1 1992 inc. Amendment 2 1997	EN60079-0 : 2006 EN60079-15 : 2005	3600 3611 3810	1998 1999 1989	
Approved for	Class I, Division 2 Groups A, B, C and D (Temp Code T4); Ex nA IIC T4		⊕ II 3 GD Ex nA IIC T4	NI/I/2/ABCD/T4 Ta=70°C I / 2 / IIC / T4 Ta=70°C		
Certificate no.	1198909 (LR 108985)	3039410C	REL07ATEX1004X	3013269		
Trunk wiring parameters	Non-arcing V _{max} = 32V I _{max} = 1.5A	Non-arcing V _{max} = 32V I _{max} = 1.5A	Energy limited U _i = 32V I _i = 1.5A C _i = 0 L _i = 0	V _{max} = 32V I _{max} = 1.5A		

† Reaffirmed 2006 ‡ Reaffirmed 1999

Note: The figures quoted apply to IIC gas group. See certificate for parameter relating to groups IIB and IIA



MODEL - FCS-MBT-XE

Country	Europe
Authority	KEMA
Standard	EN 60079-0 : 2009 † EN 60079-7 : 2007 † EN 60079-18 : 2009 †
Approved for	⊕ II 2 G Ex em IIC T4
Certificate no.	KEMA05ATEX2006
Trunk wiring parameters	Rated voltage 30V DC Rated current 1.5A

† The original KEMA Certificate used EN 60079-0:2004, EN60079-7:2001, and EN60079-18:2004. We have determined that there are no technical differences (affecting the products) between these standards and the currently harmonized EN standards listed here.

MODEL - FBT1-IS

Country	Europe	US				
Authority	Baseefa	FM				
Standard	EN 60079-0 : 2004 * EN 60079-27 : 2006 * EN 50020 : 2002 EN 50284 : 1999	3600 1998 3610 1999 3810 1989 inc. Supplement #1 1995				
Approved for	⊕ II 1 G EEx ia IIC T4 (-40°C ≤ Ta ≤ +70°C)	IS/I/1/ABCD/T4 Ta=70°C I/0/AEx ia IIC T4 Ta=70°C				
Certificate no.	Baseefa02ATEX0042	3017464				
Trunk wiring parameters	<table border="0"> <tr> <td>ENTITY Intrinsically safe U_i = 30V I_i = 250mA C_i = 0 L_i = 0 P_i = 1.2W</td> <td>FISCO Intrinsically safe U_i = 17.5V I_i = 380mA C_i = 0 L_i = 0 P_i = 5.32W</td> </tr> </table>	ENTITY Intrinsically safe U _i = 30V I _i = 250mA C _i = 0 L _i = 0 P _i = 1.2W	FISCO Intrinsically safe U _i = 17.5V I _i = 380mA C _i = 0 L _i = 0 P _i = 5.32W	<table border="0"> <tr> <td>ENTITY Intrinsically safe V_{max} = 30V I_{max} = 250mA C_i = 0 L_i = 0 P_i = 1.2W</td> <td>FISCO Intrinsically safe V_{max} = 17.5V I_{max} = 380mA C_i = 0 L_i = 0 P_i = 5.32W</td> </tr> </table>	ENTITY Intrinsically safe V _{max} = 30V I _{max} = 250mA C _i = 0 L _i = 0 P _i = 1.2W	FISCO Intrinsically safe V _{max} = 17.5V I _{max} = 380mA C _i = 0 L _i = 0 P _i = 5.32W
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ENTITY Intrinsically safe V _{max} = 30V I _{max} = 250mA C _i = 0 L _i = 0 P _i = 1.2W	FISCO Intrinsically safe V _{max} = 17.5V I _{max} = 380mA C _i = 0 L _i = 0 P _i = 5.32W					

* the original Baseefa Certificate used EN 50014:1997 (+ A1 & A2) and TS60079-27/CDV. We have determined that there are no technical differences (affecting the products) between these standards and the currently harmonized EN standards listed here.

