

# 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 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 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.

## SPECIFICATION

### Physical network

IEC61158-2  
FOUNDATION™ fieldbus H1  
Profibus PA

### Operational ambient temperature limits

F100, FCS-MBT(-XE): -45°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 12.8.5 of the IEC61158-2 fieldbus standards.

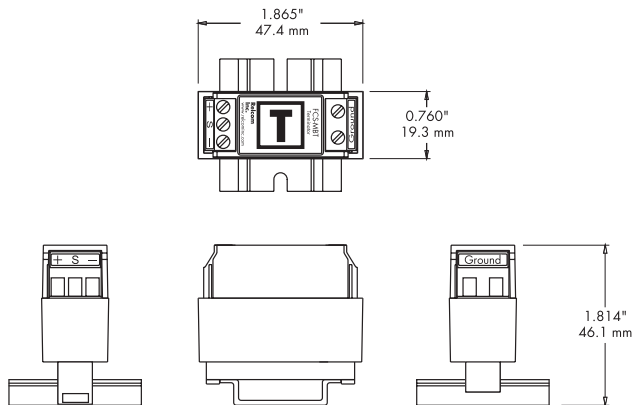
$R_{min} = 99\Omega$ ,  $C_{max} = 1.1\mu F$

## ORDERING INFORMATION

General Purpose Zone/Div 2	Zone 0/Div 1 Intrinsically Safe	Zone 1 Ex me
F100	FCS-MBT	FCS-MBT-XE

## DIMENSIONS

### F100, FCS-MBT, FCS-MBT-XE



**APPROVALS**

For full certification information visit [www.mtl-inst.com/certificates](http://www.mtl-inst.com/certificates)

**MODEL - FCS-MBT**

Country	Canada		Europe		USA				
Authority	CSA		LCIE	ATEX (Category 3)		FM	FM		
<b>Standard</b>	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†		EN IEC 60079-0 EN60079-11		EN IEC 60079-0 EN 60079-15		3600 1998 3610 2010 3810 1989 inc. Supplement #1 1995 ANSI/ISA 60079-0 2009 ANSI/ISA 60079-11 2009	3600 1998 3611 1999 3810 1989	
<b>Approved for</b>	Class I, Division 1 Groups A, B, C and D, (Temp Code T4) Ex ia IIC T4		⊕ II 1 G EEx ia IIC T4		⊕ II 3 G Ex nA IIC T4 Gc		IS/I/1/ABCD/T4 Ta=70°C I/0/AEx ia IIC T4 Ta=70°C	NI/I/2/ABCD/T4 Ta=70°C I / 2 / IIC / T4 Ta=70°C	
<b>Certificate no.</b>	1198909 (LR 108985)		LCIE02ATEX6212X		REL07ATEX1004X		3020445	3013269	
<b>Trunk wiring parameters</b>	<b>ENTITY</b> Intrinsically safe V <sub>max</sub> U <sub>i</sub> = 24V I <sub>max</sub> I <sub>i</sub> = 250mA C <sub>i</sub> = 0 L <sub>i</sub> = 0 P <sub>i</sub> = 1.2W	<b>FISCO</b> Intrinsically safe V <sub>max</sub> U <sub>i</sub> = 175V I <sub>max</sub> I <sub>i</sub> = 380mA C <sub>i</sub> = 0 L <sub>i</sub> = 0 P <sub>i</sub> = 5.32W	<b>ENTITY</b> Intrinsically safe V <sub>max</sub> U <sub>i</sub> = 24V I <sub>max</sub> I <sub>i</sub> = 250mA C <sub>i</sub> = 0 L <sub>i</sub> = 0 P <sub>i</sub> = 1.2W	<b>FISCO</b> Intrinsically safe V <sub>max</sub> U <sub>i</sub> = 175V I <sub>max</sub> I <sub>i</sub> = 380mA C <sub>i</sub> = 0 L <sub>i</sub> = 0 P <sub>i</sub> = 5.32W	Energy limited U <sub>i</sub> = 32V I <sub>i</sub> = 1.5A C <sub>i</sub> = 0 L <sub>i</sub> = 0		<b>ENTITY</b> Intrinsically safe V <sub>max</sub> = 24V I <sub>max</sub> = 250mA C <sub>i</sub> = 0 L <sub>i</sub> = 0 P <sub>i</sub> = 1.2W	<b>FISCO</b> Intrinsically safe V <sub>max</sub> = 175V I <sub>max</sub> = 380mA C <sub>i</sub> = 0 L <sub>i</sub> = 0 P <sub>i</sub> = 5.32W	V <sub>max</sub> = 32V I <sub>max</sub> = 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 - F100**

Country	Canada		Europe		USA		
Authority	CSA	FMc	ATEX (Category 3)		FM		
<b>Standard</b>	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	EN IEC 60079-0 EN 60079-15		3600 1998 3611 1999 3810 1989		
<b>Approved for</b>	Class I, Division 2 Groups A, B, C and D (Temp Code T4); Ex nA IIC T4	NI/I/2/ABCD/T4 Ta=70°C Ex nA IIC T4 Ta=70°C	⊕ II 3 G Ex nA IIC T4 Gc		NI/I/2/ABCD/T4 Ta=70°C I / 2 / IIC / T4 Ta=70°C		
<b>Certificate no.</b>	1198909 (LR 108985)	3039410C	REL07ATEX1004X		3013269		
<b>Trunk wiring parameters</b>	Non-arcing V <sub>max</sub> = 32V I <sub>max</sub> = 1.5A	Non-arcing V <sub>max</sub> = 32V I <sub>max</sub> = 1.5A	Energy limited U <sub>i</sub> = 32V I <sub>i</sub> = 1.5A C <sub>i</sub> = 0 L <sub>i</sub> = 0		V <sub>max</sub> = 32V I <sub>max</sub> = 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

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June 2021

## APPROVALS

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### MODEL - FCS-MBT-XE

Country	Europe	International
Authority	KEMA	IECEX
Standard	EN IEC 60079-0 EN 60079-7 EN 60079-18	EN IEC 60079-0 IEC 60079-18 IEC 60079-7
Approved for	Ⓜ II 2 G Ex eb mb IIC T4 Gb	Ex eb mb IIC T4 Gb
Certificate no.	KEMA05ATEX2006	IECEX DEK 16.0036X
Trunk wiring parameters	Rated voltage 30V DC Rated current 1.5A	Rated voltage 30V DC Rated current 1.5A

We have determined that there are no technical differences (affecting the products) between these standards and the currently harmonized EN standards listed here.



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