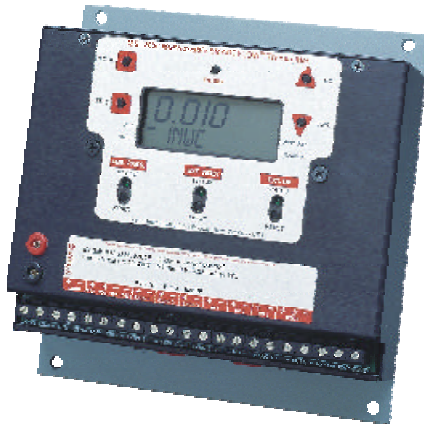


Intrinsically Safe Approvals



For the MST2000 Series

Thermo Brandt Instruments' **MST2000 Loop Powered, Multivariable SMARTFLOW® Transmitter** is approved by *Canadian Standards Association* for the following hazardous area classifications.



MST2100 NEMA 1



MST2400 NEMA 4X

Intrinsically Safe Installations

Model MST2100 (NEMA 1)

- Class I, Div1 Groups C & D

Model MST2400 (NEMA 4X)

- Class I, Div 1 Groups C & D
- Class II, Div 1 Groups E, F & G.

For Intrinsically Safe applications, unit must be installed per Thermo Brandt installation drawing number SC37-4000-00.

Intrinsically safe entity parameters: $V_{max} = 40$ VDC, $I_{max} = 165$ mA, $C_i = 0$ uF, $L_i = 240$ uH.

Max. operating ambient temperature: 66°C (151°F)

Division 2 And Other Installations:

Model MST2100 (NEMA 1)

- Class I, Division 2, Groups C & D

Model MST2400 (NEMA 4X):

- Class I, Division 2, Groups C & D
- Class II, Division 2 Groups E, F & G.
- Class III, Division 2

For Division 2 applications, unit must be installed per Canadian and/or National Electrical Code requirements for Division 2 areas. Intrinsically safe barriers are not required.

Division 2 power ratings: $V_{max} = 40$ VDC, $I_{max} = 165$ mA.

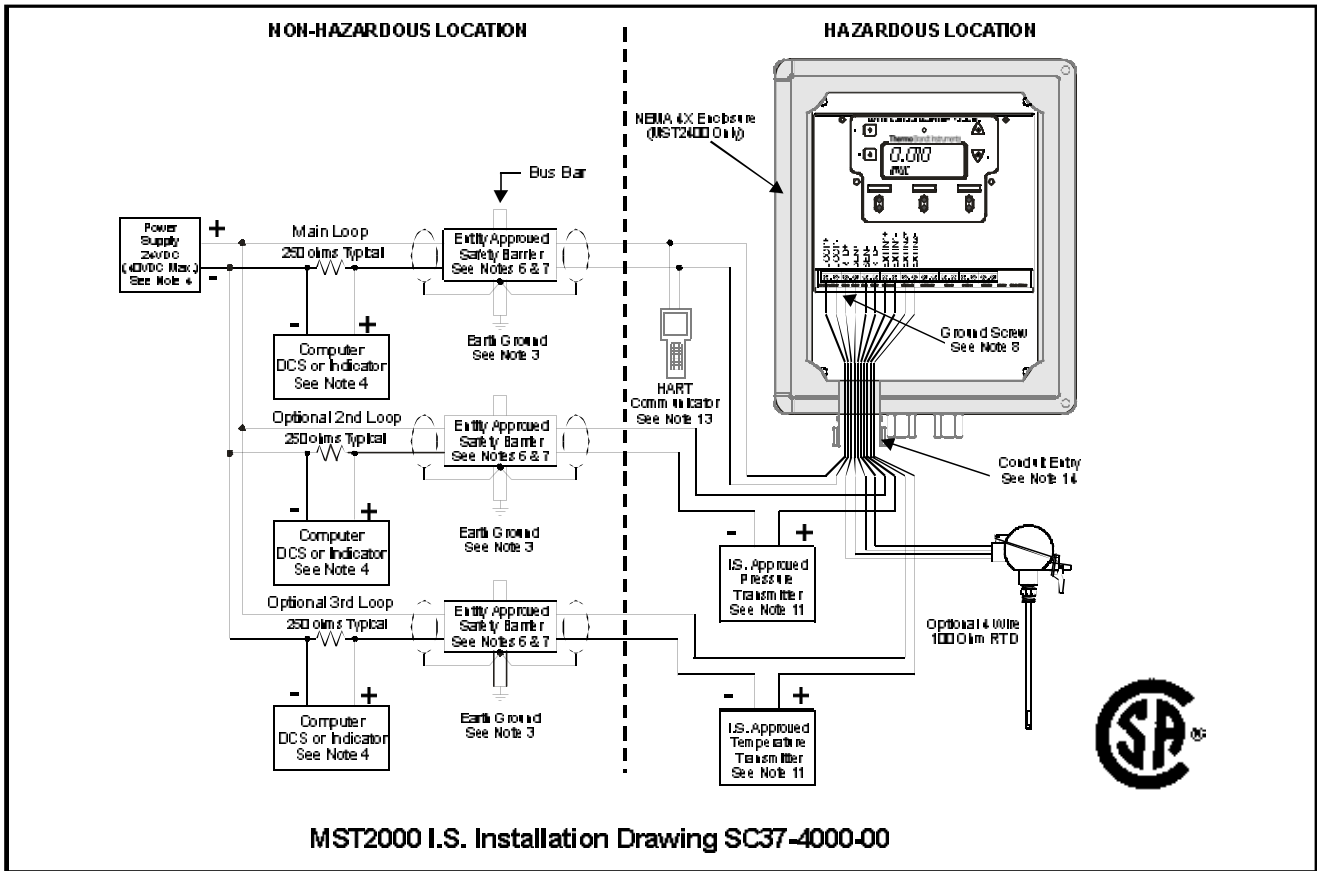
Max. Operating ambient temperature: 66°C (151°F)

Always refer to the MST2000 Installation Manual for CSA hazardous area installation information.

For I.S. Approved units the Test Jacks will be removed.

MST2000 Features & Options vs. CSA approvals

MST2000 AVAILABLE FEATURES & OPTIONS	MST2100			MST2400		
	Intrinsically Safe	Division 2	Non Certified Applications	Intrinsically Safe	Division 2	Non Certified Applications
HART COMMUNICATIONS	X	X	X	X	X	X
4 Wire RTD	X	X	X	X	X	X
ISO 4-20 mA Temperature Input Module	X	X	X	X	X	X
ISO 4-20mA Pressure Input Module	X	X	X	X	X	X
Digital I/O Card		X	X		X	X
High Pressure Blowdown			N/A			X
Integral 120VAC Power Supply			N/A			X
Absolute Pressure Transmitter			N/A			X
Heater			N/A			X
Continuous Purge			N/A	X	X	X
Test Jacks			X			X
Terminal Block 4			X			X
RS485			X			X



MST2000 I.S. Installation Drawing SC37-4000-00

Notes for MST2000 I.S. Installation Drawing SC37-4000-00

- For I.S. Installations, field wiring shall be installed in accordance with Canadian Electrical Code and/or National Electrical code ANSI/NFPA 70, Article 504-30
- Wiring cable shall be 24 AWG or Heavier, separate shielded pairs.
- The grounding connection between the safety barrier and earth ground must be less than 1 ohm.
- Control room equipment must not generate more than 250 Volts rms.
- Safety Barriers must be of approved types and used in an approved configuration where the transmitter Vmax value is greater than the barrier Voc rating and the transmitter Imax value is greater than the Barrier Iscrating.
- The transmitter input capacitance (Ci) plus the total cable capacitance for each loop must not exceed the barrier Ca rating.
- The transmitter inductance (Li) plus the total cable inductance for each loop must not exceed the barrier La rating.
- Transmitter enclosure must be grounded to earth ground using the provided ground lug on the enclosure.
- The MST2000 Transmitter is Intrinsically Safe for: Class I, Groups C and D & Class II, Groups E, F and G.
- Loop entry parameters per circuit are: Vmax = 40 VDC, Imax = 165mA, Ci = 0uF, Li = 240uH
- Use only CSA approved I.S. Pressure and Temperature transmitters where the Vmax and Imax of the transmitter is greater than the Voc and Isc of the barrier. The Ci and Li of the transmitter must be included in system total capacitance and inductance calculation and must be less than barrier Ca and La Ratings.
- Approved methods for separation of each loop are: Running Loops in separate cables or running Loops in separate shields.
- When connecting HART communication for the Vmax and Imax of the communicator must be greater than the Voc and Isc of the barrier. Voc of communicator plus Voc of barrier must be less than Vmax of transmitter, ISC of Communicator plus Isc of Barrier must be less than Imax of Transmitter. Li of Transmitter plus Li of Communicator must be less than La of Barrier, Ci of transmitter plus Ci of Communicator must be less than Ca of Barrier.
- Use only listed and approved dust tight seal for Class II and Class III Hazardous Locations.
- Other wire terminals not available for use on Intrinsically Safe version
- No revisions shall be made without notification of Approval Agency(s).

www.thermo.com

Let us point you in the right direction.



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