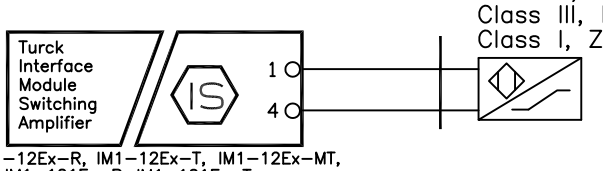
CSA Certified Isolator Barriers

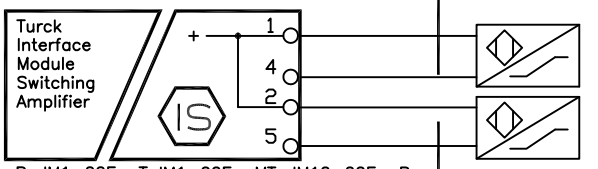
Discrete Input Devices with Intrinsically Safe Field Circuits

NON–HAZARDOUS LOCATION, OR
Class I, Division 2, Groups A, B, C or D

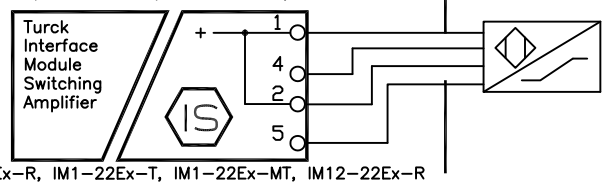
HAZARDOUS (CLASSIFIED) LOCATION
Class I, Div. 1, Group A, B, C or D;
Class II, Div. 1, Group E, F or G;
Class III, Div. 1; or
Class I, Zone 0, 1 or 2, Group IIC, IIB or IIA



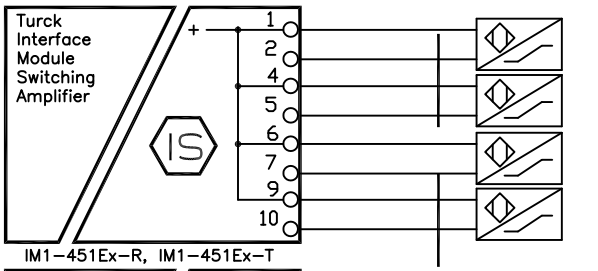
IM1–12Ex–R, IM1–12Ex–T, IM1–12Ex–MT,
IM1–121Ex–R, IM1–121Ex–T



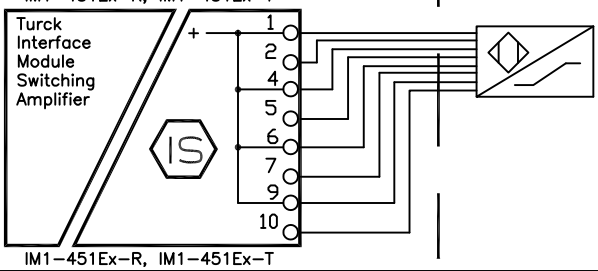
IM1–22Ex–R, IM1–22Ex–T, IM1–22Ex–MT, IM12–22Ex–R



IM1–22Ex–R, IM1–22Ex–T, IM1–22Ex–MT, IM12–22Ex–R



IM1–451Ex–R, IM1–451Ex–T



IM1–451Ex–R, IM1–451Ex–T

Entity Parameters: Class I, Div.1; Class II, Div.1; Class III, Div.1 Circuit Characteristic: Linear

Model	Terminals	V_{oc} (V)	I_{sc} (mA)	P_o (mW)	C_a(uF) AB/CE/DFG	L_a (mH) AB/CE/DFG
IM1–12Ex–R	1–4	9.6	11	27	3.6/26.0/210	250/922/1H
IM1–121Ex–T						
IM1–22Ex–MT						
IM1–121Ex–R						
IM1–121Ex–T						
IM1–22Ex–R	1–4, 2–5	9.6	11	27	3.6/26.0/210	250/922/1H
IM1–22Ex–T						
IM1–22Ex–MT						
IM12–22Ex–R						
IM1–22Ex–R	1–2–4–5	9.6	22	54	3.6/26.0/210	67/246/579
IM1–22Ex–T						
IM1–22Ex–MT						
IM12–22Ex–R						
IM1–451Ex–R	1–2, 4–5, 6–7, 9–10	11.5	12.8	37	1.6/11.2/46.0	222/781/1H
IM1–451Ex–T						
IM1–451Ex–R	1–2, 4–5, 6–7, 9–10	11.5	51	147	1.6/11.2/46.0	12.5/49.0/108
IM1–451Ex–T						

Entity Parameters: Class I, Zone 0, 1, or 2, Circuit Characteristic: Linear

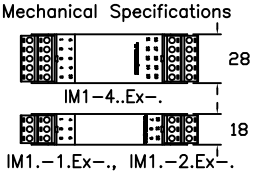
Model	Terminals	U_o (V)	I_o (mA)	P_o (mW)	C_o(uF) IIC/IIB/IIA	L_o (mH) IIC/IIB/IIA
IM1–12Ex–R	1–4	9.6	11	27	3.6/26.0/210	250/922/1H
IM1–121Ex–T						
IM1–22Ex–MT						
IM1–121Ex–R						
IM1–121Ex–T						
IM1–22Ex–R	1–4, 2–5	9.6	11	27	3.6/26.0/210	250/922/1H
IM1–22Ex–T						
IM1–22Ex–MT						
IM12–22Ex–R						
IM1–22Ex–R	1–2–4–5	9.6	22	54	3.6/26.0/210	67/246/579
IM1–22Ex–T						
IM1–22Ex–MT						
IM12–22Ex–R						
IM1–451Ex–R	1–2, 4–5, 6–7, 9–10	11.5	12.8	37	1.6/11.2/46.0	222/781/1H
IM1–451Ex–T						
IM1–451Ex–R	1–2, 4–5, 6–7, 9–10	11.5	51	147	1.6/11.2/46.0	12.5/49.0/108
IM1–451Ex–T						

Notes:

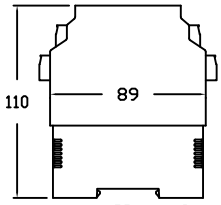
1. The symbol designates any CSA Certified intrinsically safe apparatus with compatable Entity Concept parameters, or any passive resistive switch device. The Entity concept allows interconnection of intrinsically safe apparatus and associated apparatus not specifically examined in such combination as a system when the following conditions are met:
   $V_{max} \geq V_{oc}$ $I_{max} \geq I_{sc}$ $U_i \geq U_o$ $I_i \geq I_o$ $P_i \geq P_o$
   $C_i + C_{cable} \leq C_a$ $L_i + L_{cable} \leq L_a$ $C_i + C_{cable} \leq C_o$ $L_i + L_{cable} \leq L_o$
2. This equipment is suitable for installation in Class I, Division 2, Group A, B, C, D hazardous locations only.
3. WARNING: EXPLOSION HAZARD – Do not connect/disconnect while circuit is live unless area is known to be nonhazardous.
   AVERTISSEMENT: RISQUE D'EXPLOSION – Ne pas connecter/déconnecter lorsque le circuit est sous tension sauf si la zone est connue pour être non dangereux.
4. WARNING: EXPLOSION HAZARD – Substitution of components may impair intrinsic safety or suitability for Class I, Division 2.
   AVERTISSEMENT: RISQUE D'EXPLOSION – La substitution de composants peut compromettre la sécurité intrinsèque ou la conformité de Classe I, Division 2.
5. When the field device is a contact closure and line monitoring is enabled, the connection should be made as shown below for proper performance.
   IM1 models with line monitoring enabled — R1 should be 1kΩ to 2.2kΩ; R2 should be 10kΩ to 22kΩ — IM12 models
6. Wiring methods must be in accordance with the Canadian Electrical Code, CSA 22.1, Appendix F.
7. Associated apparatus must not be connected to any device that uses or generates in excess of 250Vrms.
8. If the electrical parameters of the cable are unknown, the following default values may be used:
   Capacitance – 60pF/foot, Inductance – 0.2uH/foot
9. These devices are OPEN type equipment that must be used within a suitable end–use system enclosure, the interior of which is accessible only through the use of a tool. The suitability of the enclosure is subject to investigation by the local Authority Having Jurisdiction at the time of installation.
10. Temperature rating: $-25^{o}C \leq T_a \leq 70^{o}C$
11. Power supply ratings:

IM1–12Ex– . IM1–121Ex– . IM1–22Ex– . IM12–22Ex– .	20Vac/60mA	250Vac/16mA	20–125Vdc/<3W
IM1–451Ex–R	20Vac/125mA	250Vac/23mA	20–125Vdc/<3W
IM1–451Ex–T	20Vac/60mA	250Vac/12mA	20–125Vdc/<3W

Mechanical Specifications



Terminals accommodate conductors:
1x2.5mm² or 2x1.5mm²
1x14 AWG or 2x16 AWG



Mounts on 35 mm DIN rail

Rev	Description	Drft	Chk	Date
C	Add French warnings	BVL		6/13/14
B	Add OPEN equip spec, dimensions, T_a, terminal spec	BVL		5/22/13

Drawing No.: IS–1.201

TURCK
3000 Campus Drive
Plymouth, MN 55441
Phone: (763) 553–7300

Title: Control Drawing for IM1–..Ex–. and IM12–..Ex–. Isolator Barriers with I/S (Entity) Field Circuits

Scale: NONE

Sheet 1 of 1