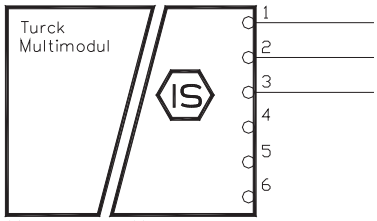
FM Approved Isolator Barriers

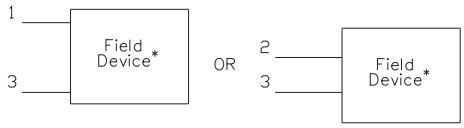
Discrete Output Devices with Intrinsically Safe Field Circuits

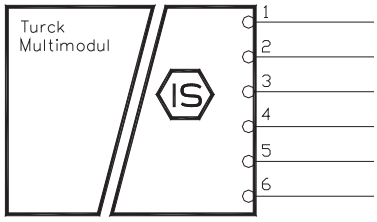
NON–HAZARDOUS LOCATION, OR
Class I, Division 2, Groups A,B,C,D

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, Group IIC, IIB, or IIA

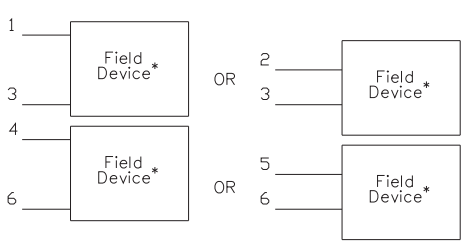


IM31–11Ex–I, IM31–12Ex–I,
IM31–11Ex–U, IM31–12Ex–U





IM31–22Ex–I, IM31–22Ex–U



* The field device may be:
- Any FM approved intrinsically safe apparatus with compatible Entity Concept parameters (see Note 1), or
- Any Simple Apparatus (see Note 2).

Entity Parameters: Class I, Division 1; Class II, Division 1; Class III, Division 1
Output characteristic: Linear

Model	Terminals	V_{oc} (V)	I_{sc} (mA)	P_o (mW)	C_a(uF) AB/CE/DFG	L_a (H) ABCDEFG
IM31–1.EX–.	1–2–3	7.2	1	0.3	13.5/240/240	1
IM31–22EX–.	1–2–3 4–5–6	7.2	1	0.3	13.5/240/240	1

Entity Parameters: Class I, Zone 0, 1, or 2
Output characteristic: Linear

Model	Terminals	U_o (V)	I_o (mA)	P_o (mA)	C_o(uF) IIC/IIB, IIA	L_o (mH) IIC, IIB, IIA
IM31–1.EX–.	1–2–3	7.2	1	0.3	13.5/240	1
IM31–22EX–.	1–2–3 4–5–6	7.2	1	0.3	13.5/240/240	1

Notes:

1. The entity concept allows interconnection of intrinsically safe apparatus and associated apparatus not specifically examined in combination as a system when the conditions below are met.

   $V_{max} \geq V_{oc}$ or V_t $\quad I_{max} \geq I_{sc}$ or I_t $\quad U_i \geq U_o$ $\quad I_i \geq I_o$ $\quad P_i \geq P_o$

   $C_i + C_{cable} \leq C_a$ $\quad L_i + L_{cable} \leq L_a$ $\quad C_i + C_{cable} \leq C_o$ $\quad L_i + L_{cable} \leq L_o$

2. A simple apparatus is defined as an electrical component or combination of components of simple construction with well–defined electrical parameters that does not generate more than 1.5V, 100mA, and 25mW, or a passive component that does not dissipate more than 1.3W and is compatable with the intrinsic safety of the circuit in which it is used.

3. Wiring methods must be in accordance with:

   For US jurisdictions – the National Electrical Code, ANSI/NFPA 70, Article 504 (for Division 1 or 2 installations) or Article 505 (for Zone 0, 1 or 2 applications), and ANSI/ISA RP12.06.01.

   For Canadian jurisdictions – the Canadian Electrical Code, CSA 22.1, for Division 1 or 2 or Zone 1 or 2 installations.

4. Associated apparatus must not be connected to any device that uses or generates in excess of 250Vrms unless it has been determined that the voltage is adequately isolated from the associated apparatus.

5. If the electrical parameters of the cable are unknown, the following default values may be used:
   Capacitance – 60pF/foot
   Inductance – 0.2uH/foot

6. WARNING: Substitution of components may impair intrinsic safety. AVERTISSEMENT: La substitution de composants peut compromettre la securite intrinseque.

Rev	Description	Drft	Date
A	Release	BVL	6/29/06

Drawing No.: IS-1.114

TURCK
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Title: Control Drawing for IM31-..Ex0-. with I/S (Entity) Field Circuits

Scale: NONE

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