Notes:

1. The Entity Concept allows interconnection of intrinsically safe apparatus with associated apparatus not specifically examined in combination as a system when the approved values of $V_{oc}$ (or $U_0$), $I_{sc}$ (or $I_0$) and $P_0$ for the associated apparatus are less than or equal to $V_{max}$ ($U_i$) and $I_{max}$ ($I_i$) for the intrinsically safe apparatus and the approved values of $C_a$ ($C_o$) and $L_a$ ($L_o$) for the associated apparatus are greater than $C_i + C_{cable}$ and $L_i + L_{cable}$, respectively, for the intrinsically safe apparatus.

The parameters in Table 1 apply when one of the two conditions below is given:
- The total $L_i$ of the external circuit (excluding the cable) is $< 1\%$ of the $L_o$ value or
- The total $C_i$ of the external circuit (excluding the cable) is $< 1\%$ of the $C_o$ value.

The parameters in Table 1 are reduced to 50\% when both of the two conditions below are given:
- The total $L_i$ of the external circuit (excluding the cable) $> 1\%$ of the $L_o$ and
- The total $C_i$ of the external circuit (excluding the cable) $> 1\%$ of the $C_o$.

Note: the reduced capacitance of the external circuit (including cable) shall not be greater than 1uF for C, D (IIB) and 600nF for A, B (IIC).

2. Simple Apparatus: An electrical component or combination of components of simple construction with well defined electrical parameters that does not generate more than 1.5 volts, 100 milliamps, and 25 milliwatts, or a passive component that does not dissipate more than 1.3 watts and is compatible with the intrinsic safety of the circuit in which it is used (USA). A switch non-inductive resistive device or thermocouple (Canada).

3. Wiring methods must be in accordance with the electrical code of the country in use.

Module with multiple intrinsically safe field wiring pairs shall be installed as separate intrinsically safe circuits.

4. Barriers shall not be connected to any device which uses or generates internally any voltage in excess of 250V Rms or DC unless the device has been determined to adequately isolate the voltage from the barrier.
5. The barriers are rated ‘Nonincendive’. If the barriers are intended to be mounted in a Division 2 location, they
must be mounted in an enclosure with a minimum ingress protection of IP2X. If the barriers are intended to be
mounted in a Zone 2 location they must be mounted in an enclosure with a minimum ingress protection of
IP54. The enclosure must be able to accept Division 2 / Zone 2 wiring methods. A temperature rating of T4
applies to all nonincendive rated barriers.

6. Connection of barriers to ground is not required.

7. WARNING: Substitution of components may impair intrinsic safety or Suitability for Division 2.
AVERTISSEMENT: La substitution de composants peut compromettre la sécurité intrinsèque.

8. ATTENTION: For PERMITTED INTERCONNECTION OF ANALOG BARRIERS:
Capacitance and inductance of the field wiring from the intrinsically safe equipment to the associated
apparatus shall be calculated and must be included in the system calculations as shown in Note 1. Cable
 capacitance, C_{cable}, plus intrinsically safe equipment capacitance, C_{i}, must be less than the marked
capacitance, C_{a} (or C_{o}), shown on any associated apparatus used. The same applies for inductance (L_{cable}, L_{i}
and L_{a} or L_{o}, respectively).

Where the cable capacitance and inductance per foot are not known, worst case cable capacitance C_{cable} of 60
 pF/ft. and worst case cable inductance L_{cable} of 0.2 uH/ft shall be used. This allows a maximum cable length
between barriers of 1,383 feet.

9. Power, inputs and outputs must be in accordance with Class I, Division 2 wiring methods of National
Electrical Code ANSI/NFPA 70, Canadian Electrical Code C22.1 or in accordance with the authority having
jurisdiction.

10. Intrinsically safe circuits must be wired and separated in accordance with Article 504.20 or other local codes,
as applicable.

11. In Class I, Division 2 installations, the subject equipment shall be mounted within a tool-secured enclosure
which is capable of accepting one or more of the Class I, Division 2 wiring methods specified in the National
Electrical Code (ANSI/NFPA 70) or Canadian Electrical Code (C22.1), as applicable.

12. In Class I, Zone 2 installations, the subject equipment shall be mounted within a tool-secured enclosure which
is capable of accepting one or more of the Class I, Zone 2 wiring methods specified in the National Electrical
Code (ANSI/NFPA 70) or Canadian Electrical Code (C22.1), as applicable. The equipment shall be installed
in an enclosure with a minimum ingress protection rating of IP54 unless the apparatus is intended to be
afforded an equivalent degree of protection by location.

13. For Zone 2 installations, ensure protection of supply terminals against transient voltages exceeding 140% of
the rated supply voltage.

14. This equipment is suitable for use in Class I, Division 2, Groups A, B, C, D and Class I, Zone 2 or non-
hazardous locations only.
WARNING – EXPLOSION HAZARD - Do not disconnect equipment or actuate switches unless power has
been removed or the area is known to be non-hazardous.
WARNING – EXPLOSION HAZARD – Substitution of components may impair safety.
### Table 1 – Entity Parameters

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Terminals</th>
<th>Voc (V)</th>
<th>Isc (mA)</th>
<th>Vt(V)</th>
<th>It(mA)</th>
<th>Voltage Groups</th>
<th>Current Groups</th>
<th>Ca (μF)</th>
<th>D.F.G</th>
<th>Groups La(mH)</th>
<th>A.B</th>
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TABLE 1 – ENTITY PARAMETERS (Continued)

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<th>MODEL NUMBER</th>
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PEPPERL+FUCHS
Control Drawing
Analog Isolators UL, cUL
change notice
respons. GB.PAW
approved GB.TC
nom GB.PT
sheet 4 of 6

116-0173K
Permitted interconnection of Analog Barriers

NON-HAZARDOUS LOCATION

CLASS I, DIVISION 2,
GROUPS A, B, C, D

HAZARDOUS
(CLASSIFIED) LOCATION

CLASS I, DIVISION 1, GROUPS A, B, C, D
CLASS II, DIVISION 1, GROUPS E, F, G
CLASS III, DIVISION 1

NON-HAZARDOUS LOCATION

CLASS I, DIVISION 2,
GROUPS A, B, C, D

Control Drawing
Analog Isolators UL, cUL

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Permitted interconnection of Analog Barriers

Non-I IAZARDoug Location
CLASS I, DIVISION 2, GROUPS A, B, C, D

I IAZARDoug Location
CLASS I, DIVISION 1, GROUPS A, B, C, D
CLASS II, DIVISION 1, GROUPS E, F, G
CLASS III, DIVISION 1

Non-I IAZARDoug Location
CLASS I, DIVISION 2, GROUPS A, B, C, D

Control Drawing
Oldham

Analog Isolators UL, cUL

change notice

respons. GB.PAW
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