Type EB3C-N Relay Barrier
For Intrinsically Safe System [Exia]IIIC, [Exia]IIIC

When installing an IDEC Type EB3C-N Relay Barrier (hereafter, called Barrier), make sure it conforms to the following drawings and descriptions as well as all applicable requirements.

IEC Standard IEC 60079-0, IEC 60079-11, IEC 60079-25, IEC 60079-14

All intrinsically safe systems must have “EB3C-N” in the part number. Barrier must be located in a safe area (non-hazardous area). The intrinsically safe apparatus, such as the Contact certificated, approved or considered to be a “simple apparatus” such as the Switch specified by standard, may be located in the hazardous area.

Servicing – Replacement and Repairs: Inspection and replacement of Barrier shall not be made until power is disconnected and shall not be connected again until all replacement Barrier are properly re-assembled. All electrical components, including the interconnecting wiring, shall be kept in safe condition. Defective Barrier should be returned to the factory for repair.

Warning ! Substitution of components or unauthorized repair may impair intrinsic safety of apparatus.

Mounting: All bolts, nuts, screws, and other means of fastening, including the unused wiring screws, shall be fastened in place, properly tightened and secured. Mount Barrier on a 35mm track or directly mount on a panel surface using screws.

Certified Barrier: Type EB3C-abcdEN “EB3C-…N” = Series type

a = Output R: Relay, T: Transistor
b = channels 01, 02, 03, 05, 06, 08, 08C, 10, 16C (c: common wiring only)
c = Signal type K: Sink, S: Source (for 08C, 16C)
d = Power supply A: 100-240Vac, D: 24Vdc

Rating and Parameters of I.S.
Ta= 60°C, Um= 250V, Uo=13.2V, Io= 14.2mA, Po= 46.9mW at each channel Pn-Nn

<table>
<thead>
<tr>
<th>Io(mA)</th>
<th>14.2</th>
<th>28.4</th>
<th>42.5</th>
<th>56.8</th>
<th>71.0</th>
<th>85.2</th>
<th>99.4</th>
<th>113.6</th>
<th>127.8</th>
<th>142.0</th>
<th>156.2</th>
<th>170.4</th>
<th>184.6</th>
<th>198.6</th>
<th>213.0</th>
<th>227.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Po(mW)</td>
<td>46.9</td>
<td>93.8</td>
<td>140.6</td>
<td>187.5</td>
<td>243.4</td>
<td>287.2</td>
<td>328.1</td>
<td>375.9</td>
<td>421.8</td>
<td>468.7</td>
<td>515.5</td>
<td>562.4</td>
<td>609.9</td>
<td>656.1</td>
<td>702.9</td>
<td>750</td>
</tr>
<tr>
<td>Co(μF)</td>
<td>0.67</td>
<td>0.65</td>
<td>0.63</td>
<td>0.61</td>
<td>0.59</td>
<td>0.57</td>
<td>0.55</td>
<td>0.53</td>
<td>0.51</td>
<td>0.49</td>
<td>0.47</td>
<td>0.45</td>
<td>0.44</td>
<td>0.42</td>
<td>0.40</td>
<td>-</td>
</tr>
<tr>
<td>Li+Lc</td>
<td>175</td>
<td>215</td>
<td>215</td>
<td>200</td>
<td>3.5</td>
<td>0.43</td>
<td>0.25</td>
<td>0.88</td>
<td>0.34</td>
<td>0.68</td>
<td>0.8</td>
<td>0.22</td>
<td>0.13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Li+Lc</td>
<td>227.2</td>
<td>227.2</td>
<td>227.2</td>
<td>227.2</td>
<td>227.2</td>
<td>227.2</td>
<td>227.2</td>
<td>227.2</td>
<td>227.2</td>
<td>227.2</td>
<td>227.2</td>
<td>227.2</td>
<td>227.2</td>
<td>227.2</td>
<td>227.2</td>
<td>227.2</td>
</tr>
</tbody>
</table>

Note 1: Added to above table, the next values combined Lo and Co are allowable:

Note 2: The intrinsically safe apparatus and wirings shall be accordance to following formulas; for examples,

\[ \frac{U_i}{U_{lo}} > \frac{P_i}{P_{o}} \]

\[ \frac{C_{lo}}{C_{co}} < \frac{L_{lo}}{L_{co}} \]

*: Therefore, the values are allowable only at \( L_{i} > L_{o} \) and \( C_{i} > C_{o} \) of the intrinsic safe apparatus.

Typical Installation: Install Barrier must be according to the above Ratings and Parameters of I.S. and descriptions.

To avoid electrical shock, install Barrier in a tool-accessible enclosure.

Layout and wiring must be done to prevent the inductive or capacitive induction to the intrinsically safe circuit. For example, separate intrinsically safe circuits from non-intrinsically safe circuits, by a minimum space of 50mm or using a full height metal separator. If color-coding is required use for the intrinsic safe components and terminals, use only cables and terminals with light blue markings.

Interconnection between the Barriers to setting Common Wiring: connect two independent wires in parallel at each two “N” terminals between adjacent the Barrier inside the panel.

Example of connections: The \( \bigcirc \) marks indicate the samples of single intrinsic safe circuits, and \( \square \) marks indicate IS apparatus.

Common Wiring (e.g. Io=227.2mA with 16 channels)

Separate Wiring (e.g. Io=14.2mA with 1 channel)

Operating rating

<table>
<thead>
<tr>
<th>Power input</th>
<th>EB3C-A</th>
<th>EB3C-D</th>
<th>EB3C-N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal L- N</td>
<td>100-240 VAC</td>
<td>24V DC</td>
<td>12V DC, 10mA (source)</td>
</tr>
<tr>
<td>Terminal +</td>
<td>24V DC</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

Note common terminal / connector pin: 6A / 1A