

XR3 Isolator Enclosure Application Note:

While the XR3 isolators are commonly located inside drive or PLC cabinets, Nidec Industrial Solutions has received customer requests to advise them if the XR3 can be located elsewhere, in a smaller and/or field-mounted enclosure.

The XR3 must always be located inside an equipment enclosure. The installation must meet the following requirements:

1. The enclosure must provide appropriate mechanical strength and ingress protection:
 - a. IP20 for indoor locations
 - b. IP54 for outdoor locations or indoor wet locations.
2. If located in a hazardous area or zone, the enclosure and interconnections must meet all certification requirements for the hazardous area or zone including wiring connections, glands, conduit, etc.
3. The enclosure design must ensure the ambient temperature inside the enclosure must not exceed 80°C even under isolator 'fault conditions':
 - a. This includes enclosure internal temperature rise from 12W of potential heating contribution / dissipation from the XR3 isolator.
 - i. This maximum heating contribution of 12 Watts from the isolator 'fault condition' occurs when 24 volts power is applied to the isolator and a short circuit load is applied on the isolator power output to the encoder.
 - ii. The designer may not rely on external power supply limits or fusing to the XR3 to avoid this fault condition as actual current draw (but not thermal heating) during normal operation can exceed the 'fault condition'.
 - b. This includes internal temperature rise from any other equipment in the enclosure.
 - c. This includes the maximum expected ambient external air temperature for the enclosure which includes any external sources of enclosure heating (motor, sunshine, etc.)
4. All instructions from both the XR3 isolator and XR encoder manuals for the specific hazardous location must be followed.
5. All instructions from both the XR3 isolator and XR encoder installation drawing for the specific hazardous location must be followed.

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