CTC AppNotes

A series of technical documents written by members of the CTC community

Best practices for Switch box/junction box location and cable entries.

It is not uncommon in industry to find a junction box or switch box enclosure with water seeping in, especially when an entry or exit is made on the side or top. Often water pours out when the analyst opens the enclosure.

Proper planning of conduit and cord grip installation will help installers and end users avoid problems of water ingress.

Positioning the box

When selecting where to mount the box, regardless of whether it is a switch, cable reduction, MAXX box or one of the many CTC PRO enclosures, choosing a spot where there are no active sprays or wash-downs is encouraged.

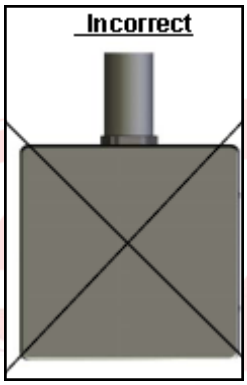

Figure 1. Incorrect conduit entry.

Bringing the cables to the box

CTC does not recommend putting holes in the top of any enclosure due to access and moisture concerns.(Figure 1)

Because of this, when possible, conduit should only be brought into an enclosure through the bottom of the box, even if it means running the cable around the entire side of the enclosure. Proper running of the conduit is not the only consideration, as even conduit can fill with moisture over time and still force fluid into the enclosure. To avoid this drill a small hole in the conduit at the lowest point directly below the enclosure. (Figure 2)

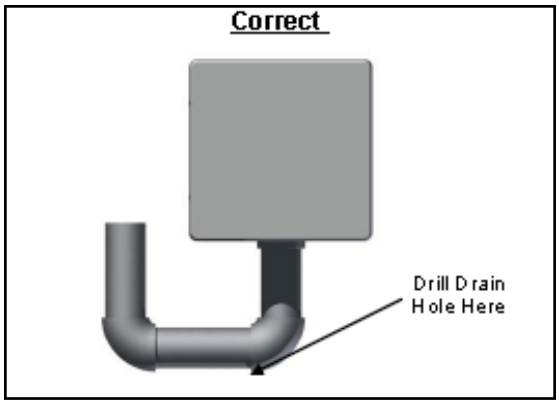

Figure 2 showing correct routing of conduit and the location for a drain hole.

Other considerations

Sometimes the internal architecture of the box forces cable entries into different configurations, or forces the placement of some of the cable entries or exits onto a less desirable location such as the side of the box. In these instances proper installation of the cables is a must. Thoroughly tighten all cord grips where used and ensure some kind of low point drain for all conduits. (Figures 3 and 4)

Figure 3 Custom 32 channel cable reduction box showing unusual cord grip/conduit position. Note that all entries remain in the bottom.

Figure 4. Space limitations on bottom of CR102 junction box force cord grips to be installed in the side of the box for cable entry. Properly sealed cord grips help exclude moisture. Improperly sealed cord grips can allow moisture seepage and allow significant moisture to accumulate.

If you have any questions or for further information please contact CTC directly via Email at dgripe@ctconline.com or jsmith@ctconline.com or feel free to call 1-800-999-5290 in the US and Canada or +1-585-924-5900 internationally.

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