

INSTALLATION CONSIDERATIONS REGARDING NEMA4X PROTECTION

Statement of Purpose

The Fronius SnapInverter line, made up of the Fronius Galvo, the Fronius Primo and the Fronius Symo products, are constructed to a highly ingress-resistant NEMA 4X standard. This is an industry leading feature designed to ensure longevity and performance in the field, far into the future. Inherent to NEMA 4X construction, under normal installation conditions, condensation may occur, and moisture management becomes an important consideration. This document seeks to define and guide the user in the proper installation practices to maximize the benefits of this high standard of weather resistance.

Application Impact

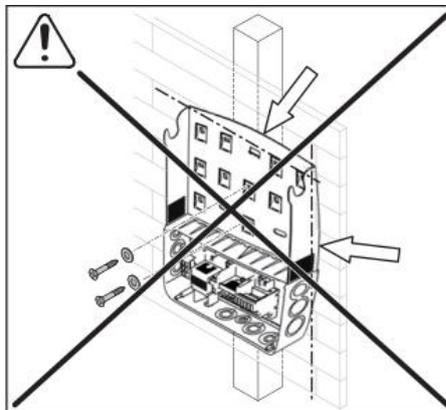
The Fronius SnapInverter body and wiring compartment, when installed correctly, offer a very high level of protection against dust, water and corrosion. However, this means that special care must be taken to ensure the integrity of the entire electrical system, of which the inverter is only a subset, also remains highly resistant to ingress.

Ensure correct installation of Fronius SnapInverter body to mounting bracket chassis

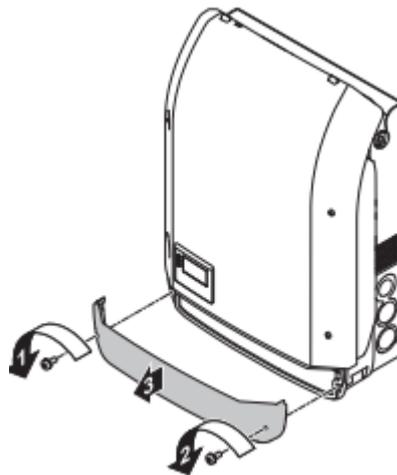
Maintaining NEMA4X integrity starts with a correct installation.

Mounting bracket must be installed on a surface to ensure there is no bowing or warping of the bracket.

The wiring compartment must be wired as per guidelines to ensure a flush mating of the inverter body to the mounting bracket chassis. If wire routing or conduit fittings are not considered, there may be a loss of integrity in this seal.



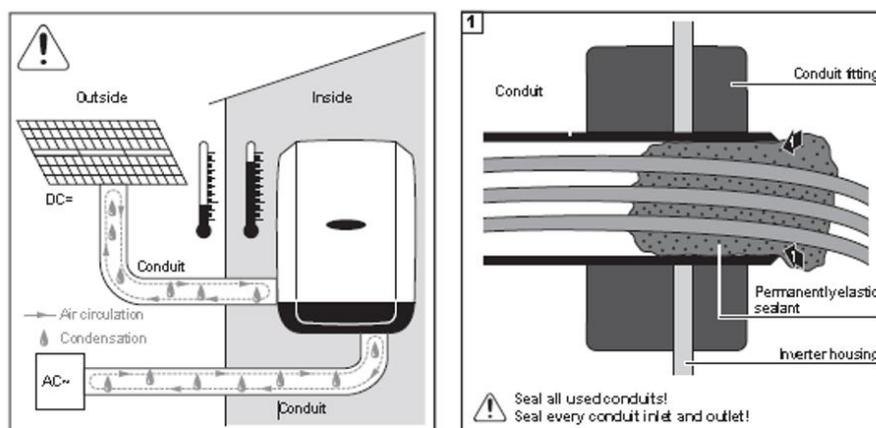
Pay special attention to the DATCOM cover. Make sure it “clicks” or “snaps” in place, before screws secure it. If the cover is simply screwed in, there may be bowing and slight gaps between inverter body and DATCOM cover, allowing water ingress.



Installation Manual

The Fronius SnapInverter Installation Manual offers guidelines for maintaining the integrity of the electrical system. (Fronius Primo line, Page 50, version 42-0410-20115-396844)

Moisture Management



NOTE! Condensation within the conduits can damage the inverter or PV system components. To avoid unwanted air circulation and condensation within the conduits, seal all used conduits using a permanently elastic sealant! Seal every conduit inlet and outlet!

Duct Seal Electricians Putty

Duct Seal Electricians Putty or similar shall be used to seal wire penetrations and conduit fittings where entering the wiring compartment of the inverter.



Drain Fittings

Best practice in wet areas may include the use of a rain-tight drain fitting, installed in the lowest point of the conduit system. If the inverter is the lowest point, the rain-tight drain fitting can be installed in a conduit knock-out at the bottom of the inverter. These are widely available from electrical supply houses and typically cost less than \$15. See example below.



Weep Holes

It is not recommended to install drain holes or “weep holes” in the inverter body. This clearly voids the NEMA 4X rating and the Fronius product Warranty. However, weep holes are permitted in conduits and junction boxes (subject to manufacturer’s warranty) as a method to drain water. Be sure to place the weep hole at the lowest point of the conduit system.

NEC Considerations

NEC addresses the workmanship practice to minimize water ingress in all electrical systems.

225.22 Raceways on Exteriors shall be arranged to drain.

NEMA4X defined

Type 4X Enclosures constructed for either indoor or outdoor use to provide a degree of protection to personnel against access to hazardous parts; to provide a degree of protection of the equipment inside the enclosure against ingress of solid foreign objects (windblown dust); to provide a degree of protection with respect to harmful effects on the equipment due to the ingress of water (rain, sleet, snow, splashing water, and hose directed water); that provides an additional level of protection against corrosion; and that will be undamaged by the external formation of ice on the enclosure.

/If you have any questions, please do not hesitate to contact Fronius Technical Support at PV-Support-USA@Fronius.com or at (219)734-5500. We are open Monday-Friday 8AM-7PM CST.

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SHIFTING THE LIMITS