

TECHNICAL MEMO

Subject	Installation of EMI Shielded Cable Gland on WISOS Nodes
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Introduction

EMI (Electromagnetic Interference) is any type of unwanted noise or interference acting upon a system that originates from an external source. There are various sources of EMI in the world, the majority of which are man-made.

EMI in monitoring systems is thankfully rare due to robust design practices and conformity to national and international standards.

Ensuring proper encapsulation, by forming a Faraday cage around sensitive electronics, is one of many methods of ensuring stray electrical sources of noise are suitably discharged in a manner that does not impact the equipment itself.

Note that an EMC shield or Faraday cage can only be made out of electrically conductive material, and all components must be at the same potential.

EMC Cable Glands

One aspect of making sure an EMC compliant device remains compliant when installed, is the proper installation and use of the provided cable gland, to ensure continuity of protection against EMI between all components of the sensor apparatus (sensor, cabling and logger).

Not all sensors require an EMC cable gland. It is only required on sensors that have an EMC braid, such as **Geosense®** In-Place Inclinometers.

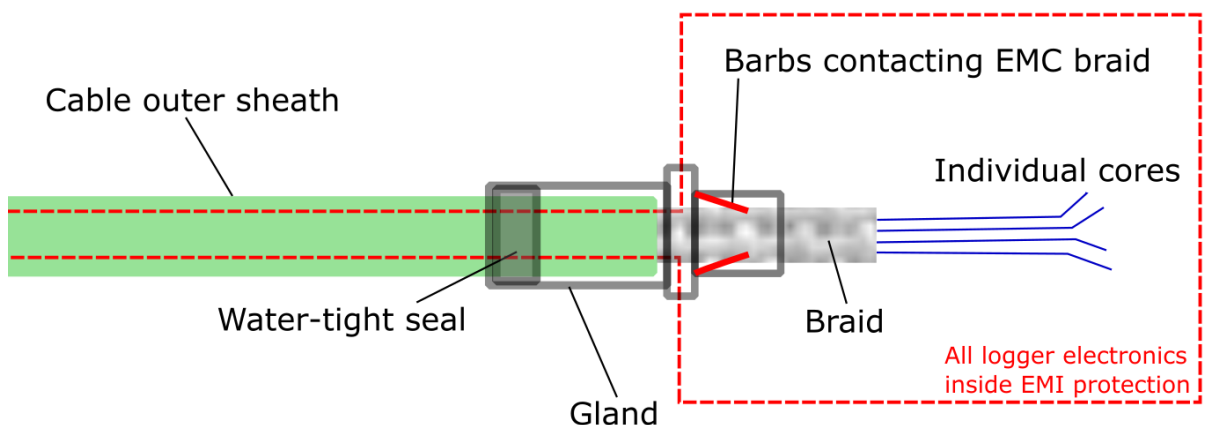
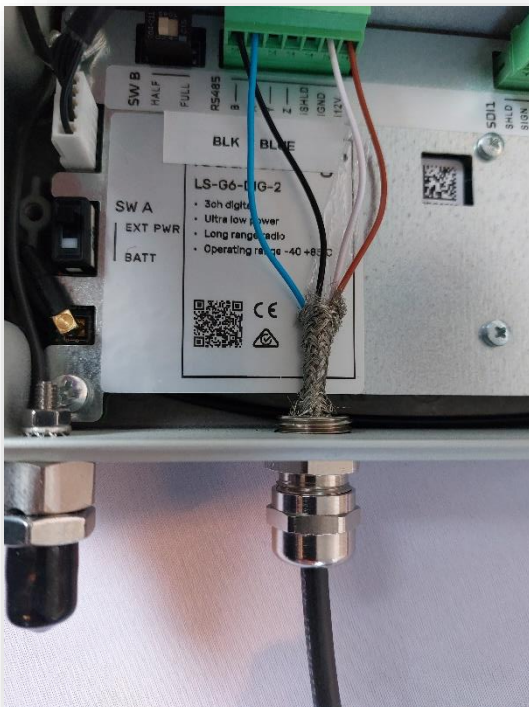


Figure 1: Illustration showing a braided cable passing through an EMC compliant cable gland. Entirety of sensor (out of view to the left), entire cable run, and logger electronics are all within the EMC protection (dashed red line extents of Faraday cage) – NOTE – logger housing must be electrically conductive and the thread of the gland must be in direct contact with the logger housing.

Images



Cable prepared with EMI shielding sheath visible



Cable connected, noting outer sheath is secure in rubber compression fitting at the end of the gland.

EMI shielding sheath is engaged into the barbs within the gland

NOTE: the shield (SHLD) does not need to be connected to the terminal directly, as the continuity is already complete as the logger housing is metallic and the circuit board is electrically bonded to the housing.

Conclusions

Electromagnetic Interference should be considered when systems are used near sources of emissions. Proper shielding of systems ensures emissions do not pose any issue to data quality.

References

EN 61326-1:2021 Electrical equipment for measurement, control and laboratory use. EMC requirements. General requirements.



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