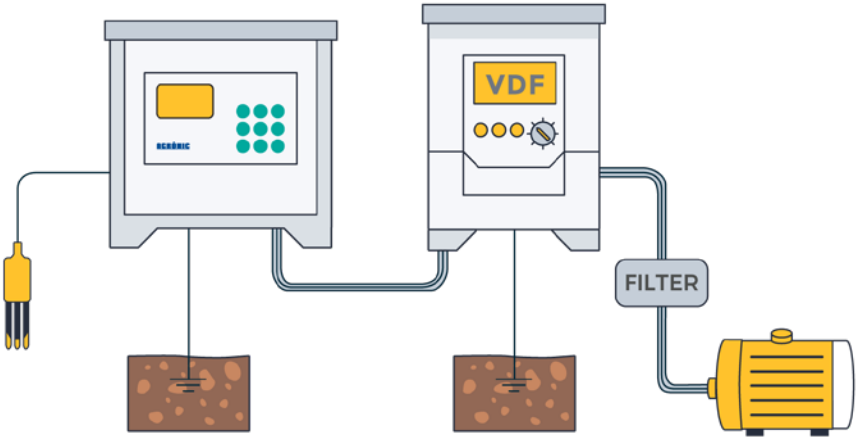
SISTEMES ELECTRÒNICS PROGRÉS

Manual

Installations with Agrónic and variable frequency drives

Systems including variable frequency drives usually raise some problems due to the electromagnetic interferences generated by their own drives and also by the engines connected to them.

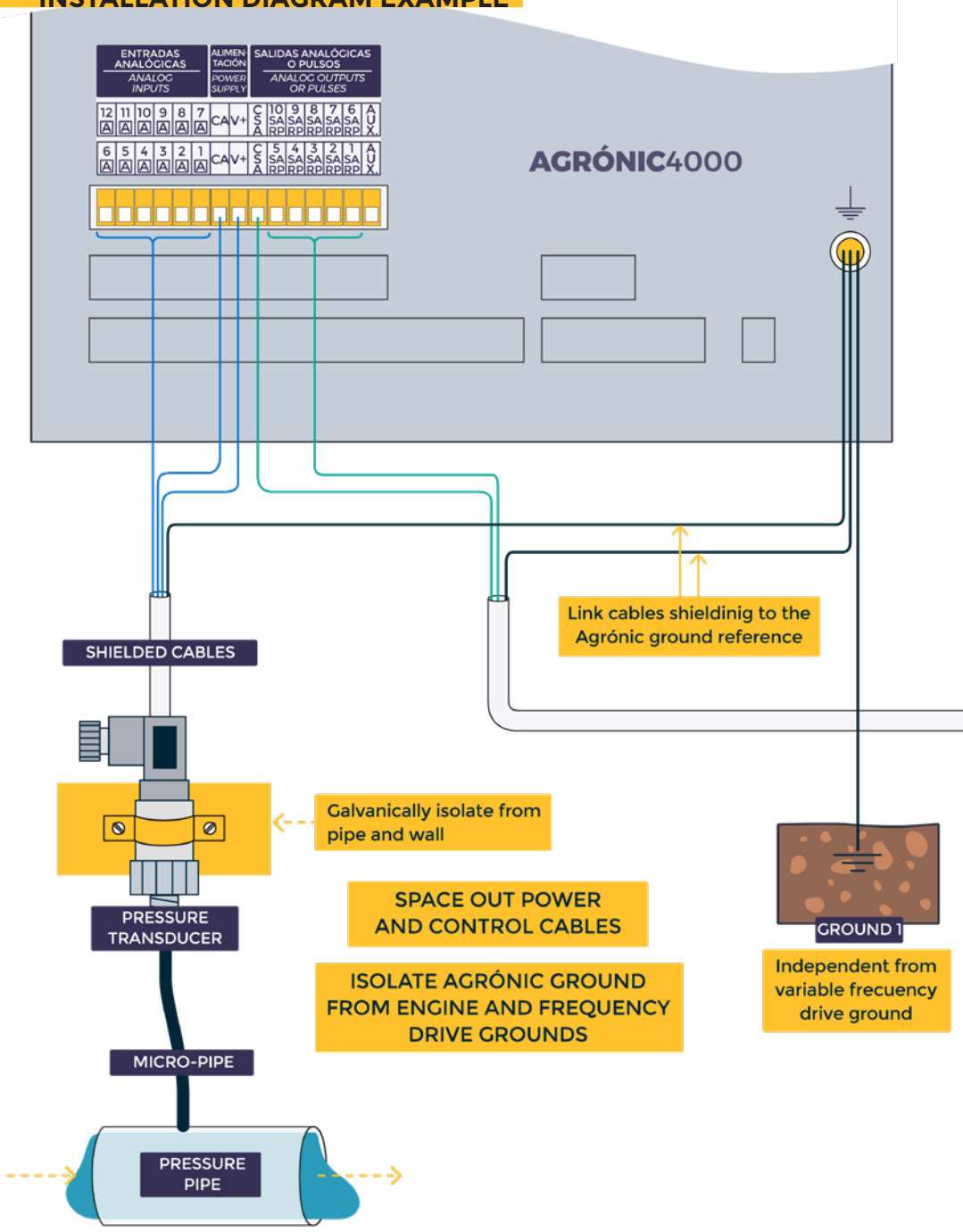


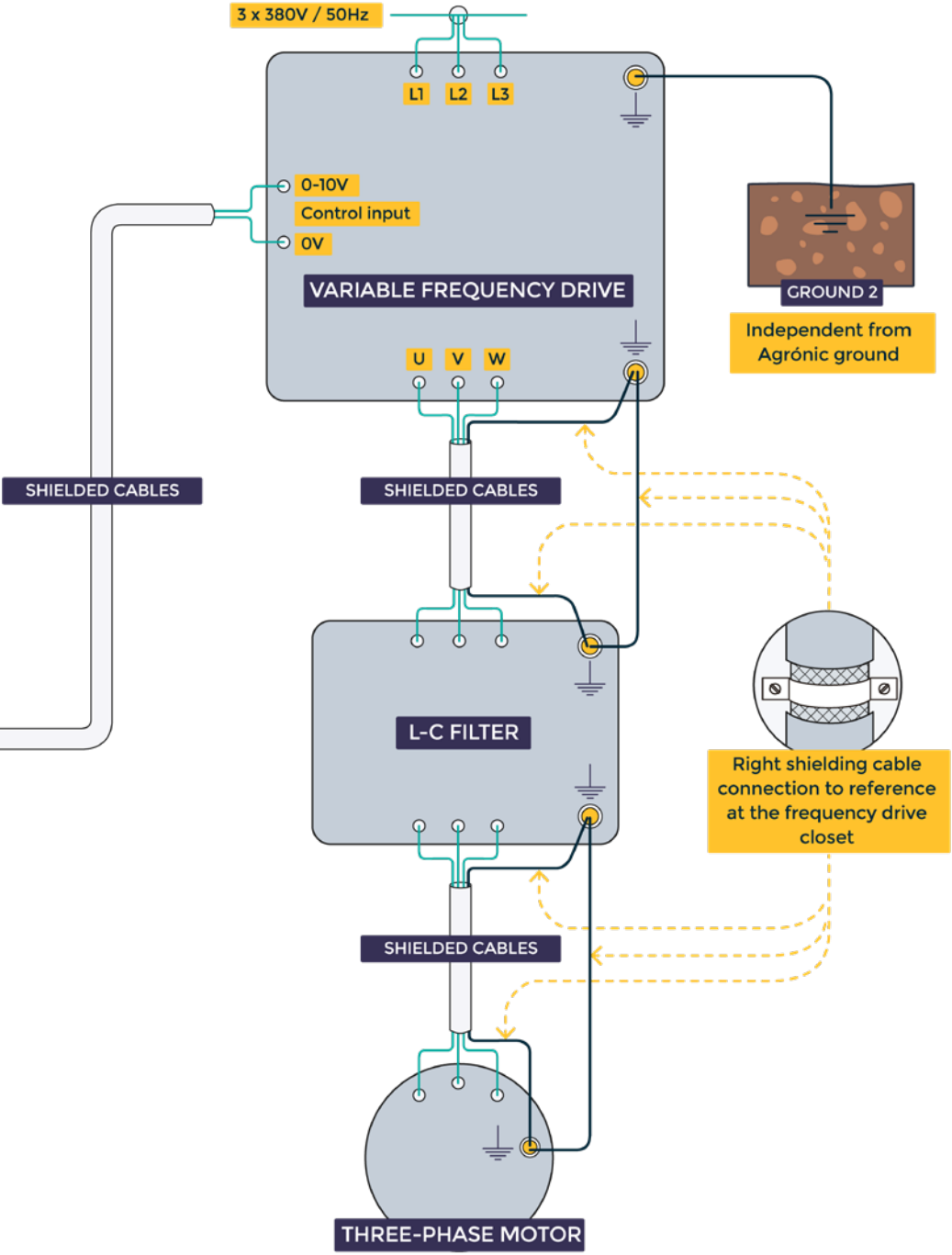
Some good advices are given below in order to avoid such type of problems.

IN THE AGRÓNIC

- Input and output cables from analog signals must be correctly shielded. It is advisable to use twice-shielded twisted cable pairs.
- Control signal cables shielding must be grounded to the same Agrónic reference.
- Power and analog signal cables do not have to be installed together. Distance between them depends on the own installation sensitivity.
- Analog signals cables must be placed in 90 degrees with regard to the power ones when crossing them.
- Agrónic grounding must be isolated from engine and frequency drives references.

INSTALLATION DIAGRAM EXAMPLE




3 x 380V / 50Hz
L1
L2
L3
0-10V
Control input
0V
VARIABLE FREQUENCY DRIVE
U
V
W
GROUND 2
Independent from Agrónic ground
SHIELDED CABLES
SHIELDED CABLES
L-C FILTER
Right shielding cable connection to reference at the frequency drive closet
SHIELDED CABLES
THREE-PHASE MOTOR

- Some 50/60Hz grounding loops disturbing the system can be raised when very long cables are used. This problem can be solved by grounding their shielding with a 100nF shunt capacitor.
- It is advisable to install the Agrónic in a different closet than the one used for the frequency converter.
- In installations provided with a pressure transducer: transducer must be galvanically isolated from the pressure pipe, through whom interferences are able to flow. Transducer can be held on a wall by using a suitable holder and connected to the pipe by means of a micropipe.

IN THE VARIABLE FREQUENCY DRIVE

- Cables between frequency drive and engine must be symmetrically shielded.
- Shielding from cables to the engine must be correctly grounded. This ground reference must be isolated from the Agrónic reference. It is also advisable to use a clamp in order to correctly shield the power cable, as depicted in the diagram shown below.
- Grounding connections must be carried out by getting the lowest possible impedance: this is achieved by placing the grounding connections as short as possible, and by having the ground plane as wide as possible.
- In order to attenuate output spurious and harmonics and in order to be CE-normative compliant, it is advisable to place a suitable filter between frequency drive and engine. This filter should be placed close to the frequency drive side. There are some variable frequen-cy drives that already have included such a filter at their output.

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