Technical Information

# Virtual Monitoring: Use recommendations


When energy matters

socomec
Innovative Power Solutions

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# INTRODUCTION

The virtual monitoring feature allows detecting the presence of a voltage. By nature, this feature is very sensitive and this is why there is some recommendations to follow.

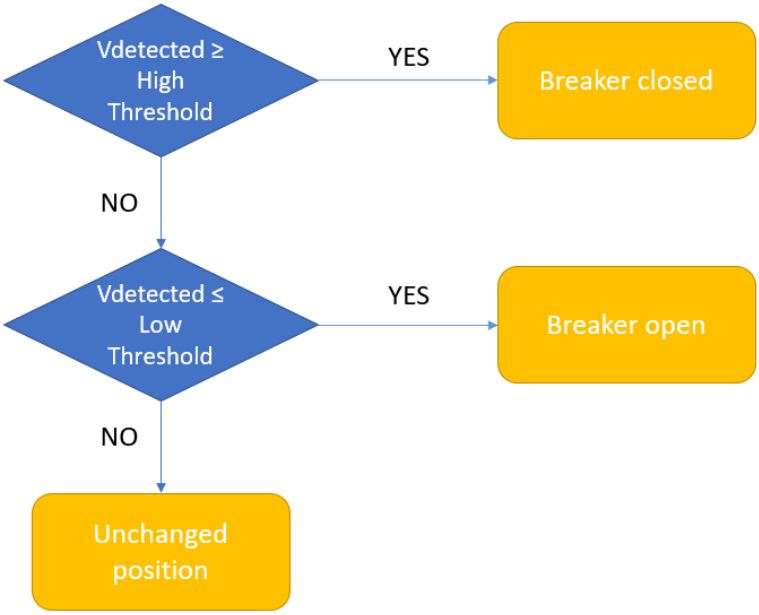
These recommendations have to be followed in case of using:

- Diris Digiware BCM-1818VM
- Diris Digiware BCM-2119VM
- Diris Digiware BCM-2125VM
- Diris Digiware S-130
- Diris Digiware S-135
- Diris Digiware I-xx module associated with i-TR sensors
- Diris Digiware I-xxMID module associated with i-TR sensors
- Diris B-10 and B-30 associated with i-TR sensors
- Diris A-40 and Diris A-xxx associated with i-TR sensors

# VIRTUAL MONITORING EXPLANATION

The virtual monitoring feature works thanks to an electrode that allows detecting the voltage and the phase shift. Once the voltage has been detected, its value is compared to the voltage measured by the Diris Digiware U-xx module (or the voltage input for Diris B-xx, Diris A-40 and A-xxx) :

- If the value of the voltage is above a high threshold, the system consider that the breaker is closed
- If the value is under a low threshold, the system consider that the breaker is open
- If the value is between the high and the low threshold, the system consider that the position did not change. It act like and hysteresis



The value of the high and low thresholds is calculated in accordance with the voltage measured by the Diris Digiware U-xx module (or the voltage input for Diris B-xx, Diris A-40 and A-xxx) and cannot be modified manually.

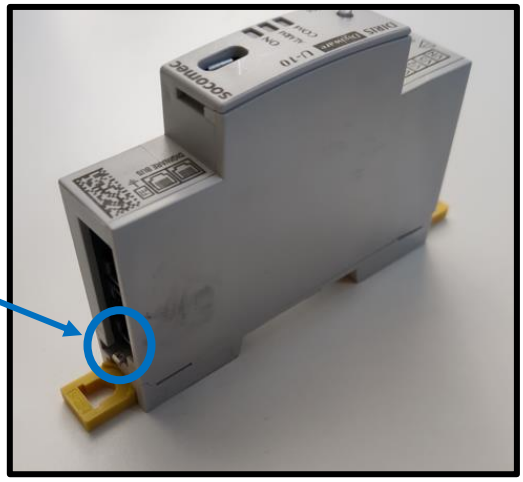
# WIRING RECOMMENDATION

To ensure the good working of the Virtual Monitoring feature there are some recommendations to follow regarding the wiring.

First of all, you need to connect the earth on the Diris Digiware U-xx module and on Diris B-xx, Diris A-40 and A-xxx. The earth connection will indeed limit the influence of the environment.

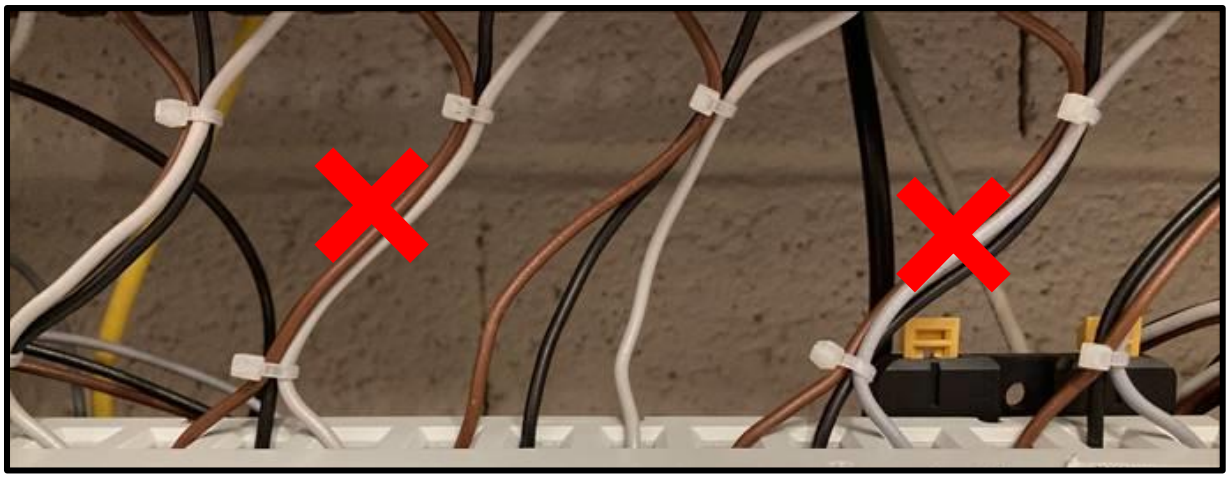

Earth connection on Diris A-40 device

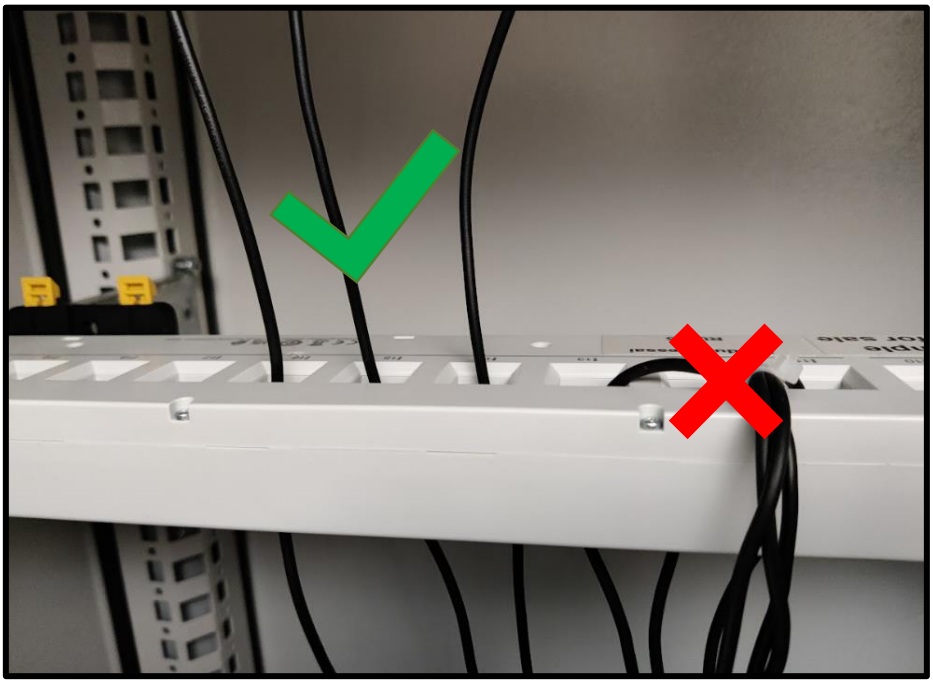
Earth connection on Diris Digiware U-xx module



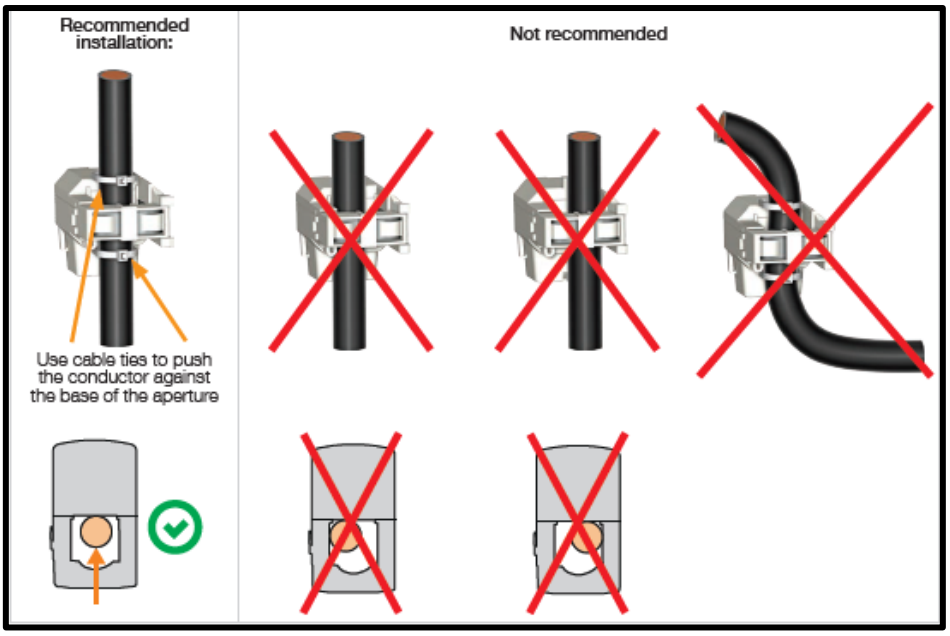
Secondly, as the electrode is placed at the back of the i-TR sensor and of the Diris Digiware S-xxx and BCM module, it is strongly recommended to center the cable inside the channel and push it against the electrode. If cables are not centered, voltage detection may not work correctly

Below, there are some examples of bad and correct wiring.

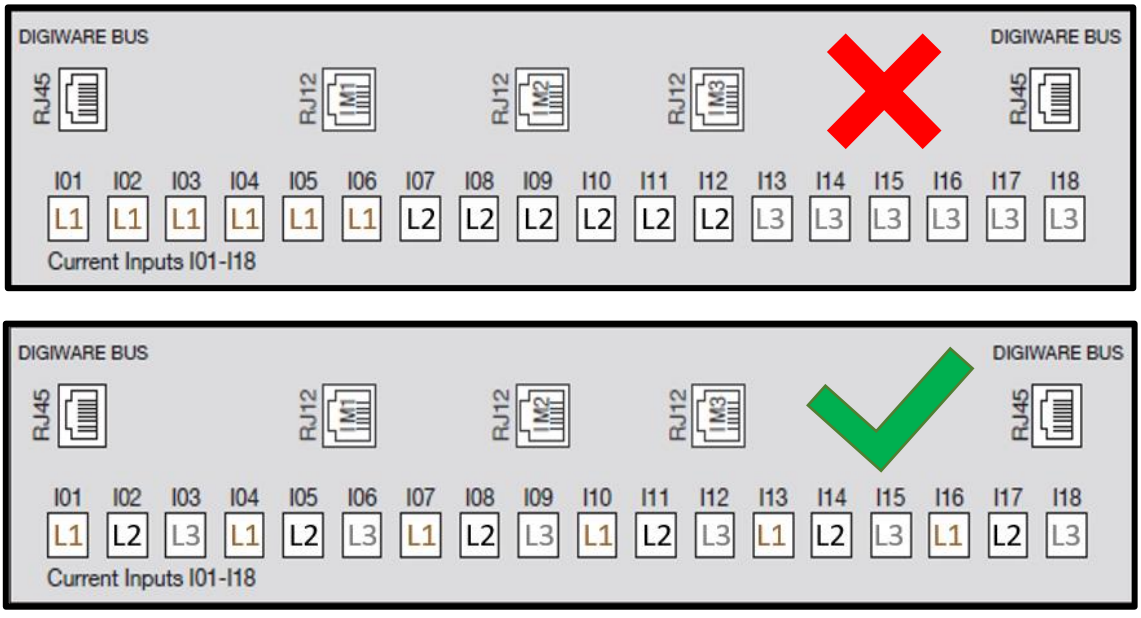




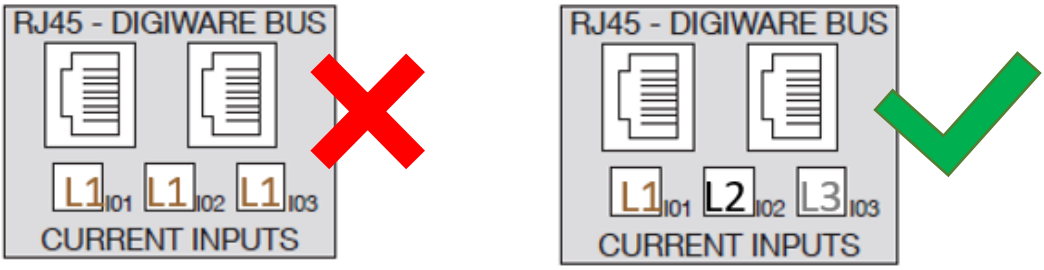
To help you to center the cable, there are some cable ties that you can use for the i-TR sensors.




Thirdly, it is imperative to alternate between each phase into the sensor input. For example, if we took the Diris Digiware BCM, it is better to have L1,L2,L3,L1,L2,L3… instead of L1,L1,L1,L2,L2,L2,L3,L3,L3…



Finally, the utilization of the same phase, in case of having only single phase load is to avoid.

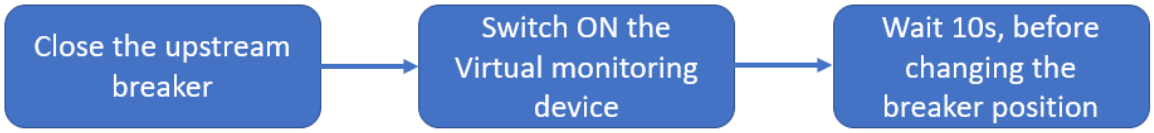



Note: Virtual monitoring feature only work on 1P+N_1TC, 3P+N_3TC and 3P_3TC loads

## TEST RECOMMENDATION

We understand that some customers would like to test virtual monitoring before implementing it in their installation, so we also need to clarify a few points about the algorithm initialization step and how to test the function.

To make virtual monitoring feature working correctly, there is an initialization step, to do once at the first device utilization and as soon as the device is restarted. The goal of this initialization step is to calibrate the associated and nominal voltage for each input. During this step, that last approximately 10s, all your upstream breakers must be closed to allow the voltage to flow inside the inputs of the devices. We then strongly recommend to close your upstream protective device before turning on the virtual monitoring device.




During the verification test, it is also recommended to not switch ON/ switch OFF very quickly your upstream protection device. The reason is that the algorithm needs some time (≈ 5s) to be able to define properly the voltage presence.

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