Innovative Electrical Automation Solutions

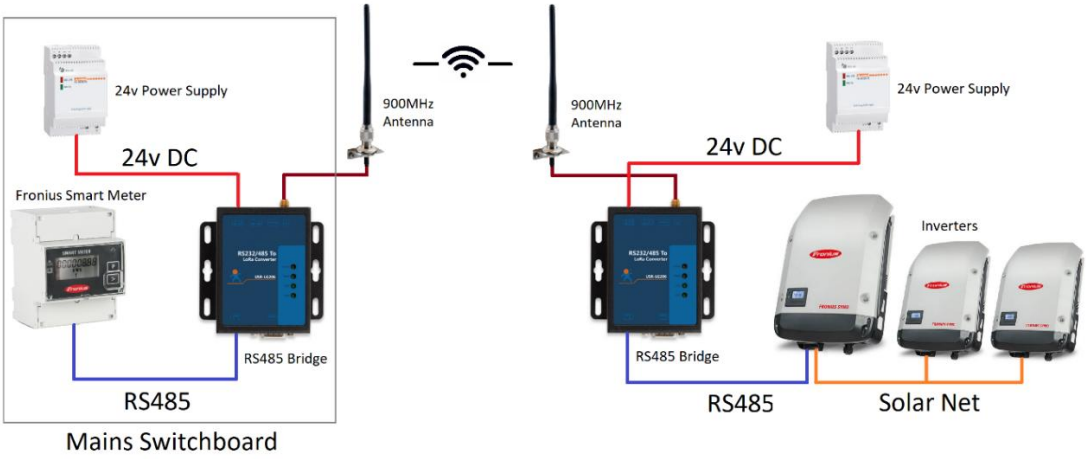
RS485 – Wireless Bridge Adaptor

The RS485 Bridge Allows an otherwise hard-wired RS485 link to be transmitted wirelessly, acting as a seamless bridge between two points. This can prove useful in systems where a wired link may be either unfeasible or impracticable.

The transceiver pair are supplied pre-paired and with antennas. The installer can configure the inverter/smart-meter as though a physical link was present. The units have an effective range of 100 metres with the standard antennas, and 350 metres with the upgraded antennas (line of sight, no obstructions).

Please ensure the antenna is connected before powering up devices.

Module Wiring Layout (Note: Fronius system pictured is an example)



Module RS485 Connection

RS485 – A (+)
RS485 – B (-)

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RS485 Wireless Bridge Troubleshooting Guide

The RS485 Wireless Bridges offered by Integrelec are designed for connecting devices where a wire is not practical. For inverter model compatibility and antenna ranges, please see the Compatibility List available on our website.

Use the manufacturer's phone app or web portal to confirm communication. Intermittent connection may cause unexpected behaviour in batteries and other components. Integrelec is not responsible for any outcomes of incorrect bridge unit wiring. Always check the A/B terminals on the smart meter and inverter, as depicted in the manufacturer's manuals and guides.

Mounting Guidelines

The bridge units are not IP rated and should be mounted inside a switchboard. Feed the antenna cable through a gland that's suitable for the board. Integrelec is not responsible for any failure to protect the units from water or other contaminants.

Antenna Guidelines

Integrelec supplies two models of 915MHz antenna, the "standard" and "upgraded". For best results, the antennas should be mounted at least 2m from the ground, at the same height, with clear line of sight, parallel with each other, and no obstructions between them. It can be difficult to predict the attenuation caused by obstructions, especially metallic ones. 50 Ohm Low Loss SMA Extension Cables can be used to extend the antenna cable. This should be used to mount the antenna on roofs or with better line of sight. Please be aware that extension cables can attenuate the signal and reduce effective range. Integrelec recommends the extension cable be no longer than ten meters.

Power Supply Guidelines

The 24V power supplies within the kits are compatible with both the "standard" and "fast" bridge models. These should be connected to the units as described by the wiring guide. For ease of troubleshooting, do not connect any other devices to the same power supply. Power supplies of lower voltage may cause the bridge's lights to be powered but not provide enough for the communications to function.

Tx/Rx Lights

The most useful tools for troubleshooting the bridge units are the Transmit (TXD/Tx) and Receive (RXD/Rx) lights. These appear differently between the "standard" and "fast" models but have similar behaviour. The Power (PWR) light should always be illuminated, and each scenario in the table overleaf assumes the bridge is correctly powered. The "standard" model's "work" light will constantly flash so long as the bridge is powered.

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Example Tx/Rx Light Behaviour			
LED	**Meter Side**	**Inverter Side**	**Possible causes**
RXD	Nothing	Nothing	The inverter is either not sending messages, or they are not arriving at the inverter side bridge unit. Check the A/B wiring at both the inverter and bridge. Try power cycling the inverter while watching the lights to see if they flash at any point in the process.
TXD	Nothing	Nothing	
RXD	Nothing	Flashing	The inverter is sending messages, but they are not arriving at the meter side. Check the placement and range of the antennas.
TXD	Nothing	Nothing	
RXD	Nothing	Flashing	The inverter is sending messages that arrive at the meter bridge unit, but the meter is not responding. Check the A/B wiring at the meter end to confirm it matches the manufacturer's manual. If it is correct, check the A/B wiring at the inverter end. If the A and B are reversed, the message will be incoherent, but the bridges will still attempt to relay it.
TXD	Flashing	Nothing	
RXD	Flashing	Flashing	The meter is responding to the inverter's message, but the response is not being received. This is most likely due to incompatibility with the "standard" bridge model. Please check the compatibility list on our website.
TXD	Flashing	Nothing	
RXD	Flashing	Flashing	The inverter is sending a message, the meter is responding, and the inverter is receiving the response. This should cause the meter's readings to appear on the inverter's app/portal/screen. It may take a minute or so before the readings appear.
TXD	Flashing	Flashing	
RXD	All alternating between flashing and nothing.		There is a successful connection, but it isn't stable. This can be caused by incompatibility with the "standard" bridge, or an issue in the wireless communication. Check if the antennas have a good line-of-sight, and their ranges. On rare occasions, this can be caused by heavy RF interference in the nearby area.
TXD			

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