Inverter Systems, Inc. - Communication Options

RS-232

All LV, FTW2, IPS4, UFT4, 3UFT, NFT and 3NFT series inverters have RS-232 ports (also called DB9 ports. They look like the picture above) that you can communicate through without any extra communication option. However, you are limited to a max 50ft cable, and you must communicate over a custom protocol that is proprietary to ISI EPS.

Serial To Ethernet

The Serial To Ethernet communication option uses the same custom proprietary communication protocol as the RS-232. It basically takes the RS-232 communication signal and puts it on the customer's LAN (local area network, i.e. Ethernet network) so that they can communicate with the inverter (using the same protocol) from any PC that is on the LAN. The PC must have a Telnet client, or SSH client.

BACnet MS/TP

BACnet MS/TP is the **RS-485** (serial bus wire) version of BACnet. This option is for customers that have a BACnet Building Management System (BMS… also called BAS and SCADA) and prefer to run RS-485 wiring to their inverters. We support different baud rates (9600, 19200, 38400, 57600 and 115200) and have a DIP switch to set a MAC address between 0 and 127 (we also support soft-MAC-address), and soft-settable Device Instance Number.

BACnet IP

BACnet IP is the **Ethernet** (aka LAN aka RJ45 aka TCP/IP) version of BACnet. Our BACnet IP option is nothing but a BACnet MS/TP option plus a product called a 'Babel Buster' that translates from MS/TP to IP (therefore this option costs more than BACnet MS/TP). This option is for customers that have a BACnet BMS and prefer to run LAN (network) cable to their inverters. We support static or dynamic IP, and settable device instance number and port number. If the customer wants BACnet IP and is buying multiple inverters, they may either buy BACnet IP options for all inverters and wire Ethernet to all inverters, or buy BACnet IP for just one inverter (to which they wire Ethernet) and BACnet MS/TP for all the others (they then have to connect all inverters – including the BACnet IP inverter - with RS-485 cables). The BACnet IP option also supports SNMP protocol (v1 and v2c), SNMP MiB walking and SNMP traps.

MODBUS Serial

MODBUS Serialis the **RS-485** (serial bus wire) version of MODBUS. This option is for customers that have a MODBUS Building Management System (BMS… also called BAS and SCADA) and prefer to run RS-485 wiring to their inverters. We support different baud rates (9600, 19200, 38400, and 115200) and have a DIP switch to set a MODBUS slave address between 0 and 247. We support even parity or no parity. We support both MODBUS RTU and MODBUS ASCII (which are two different protocols that can be spoken over MODBUS Serial).

MODBUS TCP

MODBUS TCP is the **Ethernet** (aka LAN aka RJ45 aka TCP/IP) version of MODBUS. Our MODBUS TCP option is nothing but a MODBUS Serial option plus a product called a 'Babel Buster' that translates from Serial to TCP (therefore this option costs more than MODBUS Serial). This option is for customers that have a MODBUS BMS and prefer to run LAN (network) cable to their inverters. We support static or dynamic IP, and settable port number. If the customer wants MODBUS TCP and is buying multiple inverters, they must buy MODBUS TCP options for all inverters and wire Ethernet to all inverters. The MODBUS TCP option also supports SNMP protocol (v1 and v2c), SNMP MiB walking and SNMP traps.

IoT Inverter Connect

IoT(Internet of Things) Inverter Connect is our most modern and feature-rich communication option. Inverters equipped with this option will send their telemetry securely and seamlessly (with no involvement from IT departments) to a trusted server on the cloud (via a wired **Ethernet** Internet connection provided by the customer). Customers that own those inverters (and thus have the right user credentials) may then access user friendly dashboards – securely via the cloud - on any device (mobile phone, tablet, or PC) that has an Internet connection and a web browser. An **Overview** dashboard instantly summarizes the state of all inverters, provides a **map view** (with color coded pins based on inverter states), plus a sortable 'events' table. The customer may click on a specific inverter to access **detailed data** on that inverter. The customer may also set up **notifications** (when alarms happen) via **email** or **SMS**. A customer with many inverters (there is no limit on numbers) can **organize** their inverters in a hierarchy of **areas**, and can **share** their inverters with other users at any level in the hierarchy. This is the only communication option that has an **annual recurring 'maintenance' fee** (on top of the initial hardware price).