

# Communication Protocol Implementation Instructions.

## IMPORTANT SAFETY INSTRUCTIONS

To reduce risk of injury or damage to equipment please refer to your battery charger manual before operation.

## How to employ Simple Network Management Protocol Version 2 (SNMPv2) Communication Protocol on Utility Battery Charger.

SNMPv2 is a standard communication protocol available on all models of Utility Battery Chargers.

Steps to activate:

1. Power up the battery charger by applying AC or DC power to the charger. The charger's User Interface Module(UIM) can operate on either AC or DC power.
2. Connect your RJ45 Ethernet cable to the port located on the UIM. This port is 10/100BASE-TX with auto crossover.
3. Configure the settings per the table below in your SNMPv2 manager software (SCADA manager, protective relay, etc).

Setting	Value	Range	Description
SNMP Agent IP Address	10.10.10.210	Valid IPV4 Addr	SNMP Agent Address. A valid IPv4 dotted decimal address is required.
Agent UDP Port	161	1-65534	Agent UDP Port.
Request Timeout	5000	100-65535 (milli...	Max time to wait for an agent to respond to a request.
Request Retries	5	0-255	Number of times to retry a read/get request after a timeout.

4. Below are the Object Identifiers(OIDs) you can to load into your SNMPv2 manager/software. The OIDs correspond to the listed battery charger alarms. Also load the specified description of each alarm for displaying and reporting. The OID values are either "0" for alarms that are not triggered or "1" for alarms that are triggered.

.1.3.6.1.4.1.45840.1.2.1.0	acInputPowerLost	INTEGER
.1.3.6.1.4.1.45840.1.2.2.0	acInputVoltageHigh	INTEGER
.1.3.6.1.4.1.45840.1.2.3.0	batteryVoltageLow	INTEGER
.1.3.6.1.4.1.45840.1.2.4.0	batteryVoltageHigh	INTEGER
.1.3.6.1.4.1.45840.1.2.5.0	batteryTemperatureLow	INTEGER
.1.3.6.1.4.1.45840.1.2.6.0	batteryTemperatureHigh	INTEGER
.1.3.6.1.4.1.45840.1.2.7.0	minDCOutputCurrent	INTEGER
.1.3.6.1.4.1.45840.1.2.8.0	IPMFault	INTEGER
.1.3.6.1.4.1.45840.1.2.9.0	IPMCommLost	INTEGER
.1.3.6.1.4.1.45840.1.2.10.0	IPMIncorrectDCVoltage	INTEGER
.1.3.6.1.4.1.45840.1.2.11.0	uimFault	INTEGER
.1.3.6.1.4.1.45840.1.2.12.0	batteryTempSensorFault	INTEGER
.1.3.6.1.4.1.45840.1.2.13.0	remoteDCVoltageSensingFault	INTEGER
.1.3.6.1.4.1.45840.1.2.14.0	groundFaultDetection	INTEGER

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5. All battery chargers ship set with a default IP address of 10.10.10.210 from the factory unless otherwise specified by the customer.
6. As a no-charge service, an XML file for Schweitzer Engineering Laboratories (SEL) devices can be provided to auto populate all of these to your SEL device. Contact your provider or industry partner to get this file emailed to you. Be aware you may have to update your SEL firmware version for this file to work.

**How to employ a Modbus Communication Protocol on Utility Battery Chargers.**

Modbus communication protocol must be specified when ordering because it is not a standard feature.

This optional communication package can be ordered as either RS-232 or RS-485

Models: 48 & 130V

Steps to activate:

1. Power the battery charger by applying AC or DC power to the charger. The UIM can operate on either AC or DC power.
2. Connect your relay to the serial port provided on the front of the charger located on the UIM.
3. In your relay input, configure the following settings for polling the battery charger as a slave: baud rate=19200, Bits=8, Stop Bit=1, Full Duplex(RS-232), Half Duplex (RS-485), Server address set=1, Poll Timeout=2000.
4. Below are the OIDs you will need to load into your SCADA manager, protective relay, etc. The OIDs correspond to the listed utility battery charger alarms. Also load the specified description of each alarm for displaying and reporting. The OID values are either “0” for alarms that are not triggered or “1” for alarms that are triggered.

.1.3.6.1.4.1.45840.1.2.1.0	acInputPowerLost	INTEGER
.1.3.6.1.4.1.45840.1.2.2.0	acInputVoltageHigh	INTEGER
.1.3.6.1.4.1.45840.1.2.3.0	batteryVoltageLow	INTEGER
.1.3.6.1.4.1.45840.1.2.4.0	batteryVoltageHigh	INTEGER
.1.3.6.1.4.1.45840.1.2.5.0	batteryTemperatureLow	INTEGER
.1.3.6.1.4.1.45840.1.2.6.0	batteryTemperatureHigh	INTEGER
.1.3.6.1.4.1.45840.1.2.7.0	minDCOutputCurrent	INTEGER
.1.3.6.1.4.1.45840.1.2.8.0	iPMFault	INTEGER
.1.3.6.1.4.1.45840.1.2.9.0	iPMCommLost	INTEGER
.1.3.6.1.4.1.45840.1.2.10.0	iPMIncorrectDCVoltage	INTEGER
.1.3.6.1.4.1.45840.1.2.11.0	uimFault	INTEGER
.1.3.6.1.4.1.45840.1.2.12.0	batteryTempSensorFault	INTEGER
.1.3.6.1.4.1.45840.1.2.13.0	remoteDCVoltageSensingFault	INTEGER
.1.3.6.1.4.1.45840.1.2.14.0	groundFaultDetection	INTEGER

5. As a no-charge service, an XML file for SEL devices can be provided to auto populate all of these to your SEL device. Contact your provider or industry partner to get this file emailed to you. Be aware you may have to update your SEL firmware version for this file to work.

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### Common RS485 configuration example.

Setting	Value	Range	Description
<b>Communications</b>			
Intermessage Transmit Del...	40	10-1000 (millise...	The delay between messages sent from the client to the server.
Polling period between req...	300000	250-100000000...	Polling period between requests to locate a new event when event collection is enabled.
ASCII SER Logging Polling ...	3600000	250-100000000...	Interval at which to poll for new ASCII SER messages to be logged.
Adjust ASCII SER Logging ...	False	True,False	Convert SER timestamps from the IED's time reference to the RTAC's time reference b...
Serial Communications Port	Com_03	Unused,Com_0...	Number of the RTAC serial port that the MODBUS Client will use.
Serial Communications Port...	EIA485/422	EIA232,EIA485/...	Serial communication type.
Baud Rate	19200	300,1200,2400,...	Baud Rate
Data Bits	8	7,8	Data Bits
Parity Bit	None	None,Even,Odd	Parity Bit
Stop Bit	1	1,2	Stop Bit
Full Duplex	True	True,False	Controls whether the port is in full or half duplex. Should be set to TRUE for 4-wire an...
Slow Poll Mode Multiplier	5	1-65535	Multiplication factor used to increase period times when the client enters Slow Poll Mod...
<b>MODBUS</b>			
Server MODBUS Address	1	1-255	MODBUS address of IED being polled.
Poll Timeout	2000	100-65535 (milli...	Time allowed for attached server to respond to a message.
Poll Retries	1	0-255	The number of message retries before the connected server is considered offline.
Write Multiple Coils Suppor...	False	True,False	Write Multiple Coils Supported
Write Multiple Holding Regi...	False	True,False	Write Multiple Holding Registers Supported

### Common RS232 configuration example.

Setting	Value	Range	Description
<b>Communications</b>			
Intermessage Transmit Del...	40	10-1000 (millise...	The delay between messages sent from the client to the server.
Polling period between req...	300000	250-100000000...	Polling period between requests to locate a new event when event collection is enabled.
ASCII SER Logging Polling ...	3600000	250-100000000...	Interval at which to poll for new ASCII SER messages to be logged.
Adjust ASCII SER Logging ...	False	True,False	Convert SER timestamps from the IED's time reference to the RTAC's time reference b...
Serial Communications Port	Com_03	Unused,Com_0...	Number of the RTAC serial port that the MODBUS Client will use.
Serial Communications Port...	EIA232	EIA232,EIA485/...	Serial communication type.
Baud Rate	19200	300,1200,2400,...	Baud Rate
Data Bits	8	7,8	Data Bits
Parity Bit	None	None,Even,Odd	Parity Bit
Stop Bit	1	1,2	Stop Bit
Full Duplex	True	True,False	Controls whether the port is in full or half duplex. Should be set to TRUE for 4-wire an...
Slow Poll Mode Multiplier	5	1-65535	Multiplication factor used to increase period times when the client enters Slow Poll Mod...
<b>MODBUS</b>			
Server MODBUS Address	1	1-255	MODBUS address of IED being polled.
Poll Timeout	2000	100-65535 (milli...	Time allowed for attached server to respond to a message.
Poll Retries	1	0-255	The number of message retries before the connected server is considered offline.
Write Multiple Coils Suppor...	False	True,False	Write Multiple Coils Supported
Write Multiple Holding Regi...	False	True,False	Write Multiple Holding Registers Supported