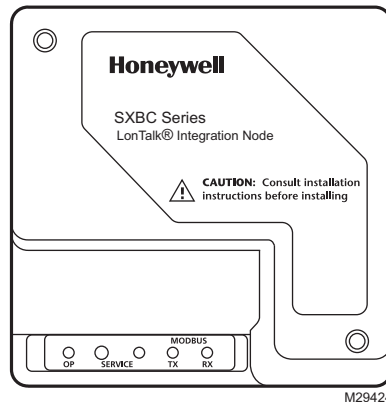


SXBC-5 LonTalk® Integration Node

INSTALLATION INSTRUCTIONS



APPLICATION

The SXBC-5 LonTalk Integration Node allows for the integration of Honeywell SXB35 series Power Meters to a LonWorks® control/monitoring system. The LonTalk Integration Node converts the 2 power metering values expressed by the SXB35 as Modbus protocol to LonTalk. Lon® Node can report the data from up to 63 SXB35 power meters which reside on the downstream modbus network. By adjusting an input variable, the Modbus address of the desired meter may be selected. The data can then be recorded before selecting another power meter. The Lon Node can also be dedicated to one SXB35 for binding purposes.

- Submetering for commercial tenants...allocate costs
- Energy management and performance contracting
- Load shedding and demand control
- Easy Integration to Lon Networks
- The SXBC-5 is pre-configured to accommodate both data points provided by up to 63 SXB35 Honeywell Meters
- Easy cost-effective connectivity to LonWorks systems...makes open connectivity possible

SPECIFICATIONS

LonWorks Network

Free topology transceiver, 78 kbps

Modbus Network

RTU 9600 BAUD, 8N1 format

Meter Data Network Variables

kWh, Consumption
kW, Real Power

Network Variable Type

Float

Power

12-24 VAC/DC<100mA isolated source

Temperature Range

0 to +60 °C (+32 to +140°F)

Humidity Range

0 - 95% non-condensing



Z205590-0A

62-0314-01

⚠ WARNING

This product is not intended for life or safety applications.
This product is not intended for installation in hazardous or classified locations.

⚠ CAUTION

Potential electrocution hazard exists. This is a Class 2 low voltage device. Install only in Class 2 environments.
Read instructions thoroughly prior to installation

⚠ CAUTION

This product is not intended for life or safety applications.
Do not install this product in hazardous or classified locations.
The installer is responsible for conformance to all applicable codes.

INSTALLATION

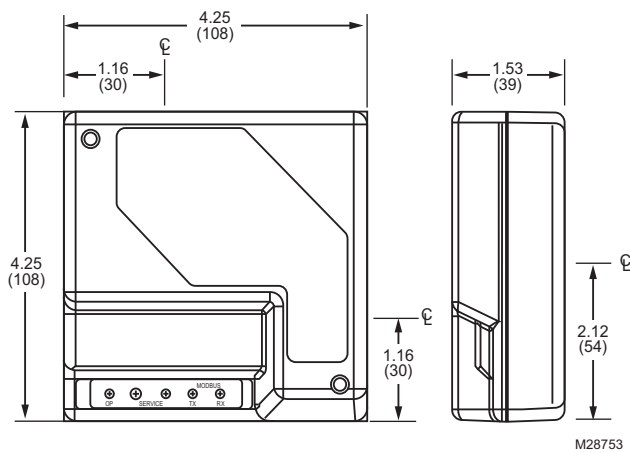


Fig. 1. SXBC-5 Dimensional diagram.

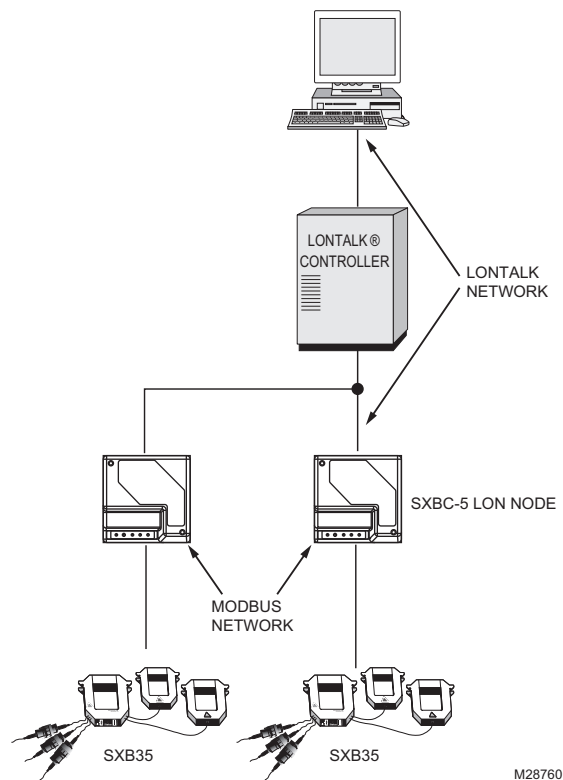


Fig. 2. LonTalk network overview.

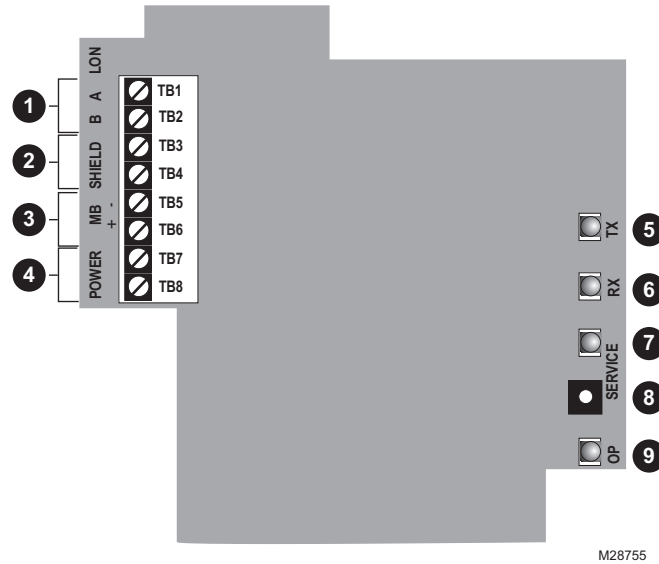


Fig. 3. Component locations for SXBC-5

1. LonTalk Terminal Block

Make connections to the LON Network at these terminals. Polarity is not important.

2. Shield Terminal Block

Share this terminal block to provide communications shielding for both the LonTalk and Modbus communications networks.

3. Modbus Terminal Block

Make connections to the Enercept Modbus network here. Ensure correct polarity.

4. 12-24 VAC/VDC Power

Two wire system power terminal block.

5. TX LED

Indicates transmission of Modbus network data

6. RX LED

Indicates reception of Modbus network data

7. Service LED

Standard LON Works Service LED. Used in concert with the Service Switch to locally view the commissioning status of the device.

LED status after the service switch is pushed:

- ON, then OFF solid = Device has been commissioned by a network tool.
- BLINK AT 1/2 Hz. rate = Device has not been commissioned by a network tool.
- ON, OFF, then solid ON = Device does not have an application.

8. Identification Service Switch

Standard LonWorks® Service Switch. Used in concert with the Service LED to locally view the commissioning status of the device.

9. OP LED

Normally on. The OP LED will blink off whenever there is an incomplete data exchange between the meter and the Lon Node. An always off indication means that the meter is not responding to data requests. This will occur if the meter is disconnected unpowered or is incorrectly wired. See "Operation" on page 4 for further details.

INSTALLATION

See Fig. 5.

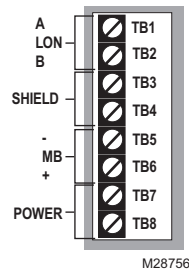


Fig. 4. SXBC-5 wiring block.

1. Remove screws from the lid of the SXBC-5 housing. Lift lid and remove wire guide caps. Set to the side with the lid.
2. Bring the SXB35 RS-485 network cable to the Modbus terminal block marked -MB+. Be sure to thread wires through wire guide before terminating. Connect the (+) to TB6. Connect the (-) wire to TB5. Connect the shield wire to TB4.
3. Bring the LON Works network cable to the terminal block marked BA LON. Be sure to thread wires through wire guide before terminating. Connect the A wire to TB1. Connect the B wire to TB2. Connect the LON network shield wire to TB3.
4. Connect the 12-24VAC/DC power wires to TB7 and TB8. The power terminals are not polarity sensitive. This power source must be separate and isolated from other circuits to prevent unwanted “ground loops.”
5. Thread wires through the most convenient openings in the housing.
6. Re-attach the lid and snap wire guides into place. Replace screws to hold the housing together.
7. Mount the SXBC-5. The device can be flush mounted to a wall, screw mounted to a 2 or 4s electrical enclosure, or nipple mounted to an existing enclosure. The SXBC-5 must be mounted in a class 2 environment.
8. Refer to the SXB35 installation instructions for connection of the Lon Node to the SXB35 power meter.

OPERATION AND CONFIGURATION

Operation

The SXBC-5 continuously polls the chosen meter for its full data set approximately once per second. All output network variables are immediately updated with this received data. All data exchanged between the node and the meter are fully checksummed to ensure data integrity. If corrupt data is detected, the output network variables are not updated and retain their previous value.

1. Upon power-up, the OP-LED will be lit.
2. During operation, the OP-LED will be turned off if any of the following occurs:
 - a. No Modbus requests are generated by the unit for 10 seconds. This occurs with new units (which have yet to be commissioned), or any units which are in “Unconfigured,” “Off-Line,” or “Disabled” LonTalk states. Under these conditions, the Neuron chip will not generate any requests to the Modbus network.
 - b. No response or an error response from the Modbus network (e.g. no meter attached, wrong type of meter--using SXB36 instead of SXB35, broken RS485 wires, etc.)
3. If the OP-LED is turned OFF for any reason covered in number 2 above, it will be re-lit when a correct response is received from the Modbus network.
4. Under Condition 2b above, the floating-point SNVT data will be replaced with floating-point-Not-a-Number (NaN,0x7FC00000), indicating to the remote user that the data is no longer valid.

Index Feature

By adjusting the network input variable nviMeter Index, the Modbus address used to populate all of the NVOs can be changed. This option is used to view and archive data from a Modbus network of up to 63 SXB35 power meters. Using this feature eliminates the possibility of binding any points from the node. If the application requires binding, the Lon Node can only view one meter.

Using the Meter-Index function

To ensure that the data read from the unit corresponds to the correct meter, follow this algorithm:

1. Change nviMeter Index to the desired meter.
2. Wait for nvoMeter Index to change to the same value as nviMeter Index. Do not read data from the unit until this occurs: You will not be able to determine which meter the data corresponds to until nvoMeter Index=nviMeter Index. Do not use “time-delays” to wait for the new data to be valid.
3. Once nvoMeter index=nviMeter Index, you may poll values with the assurance that the data corresponds to the desired meter.

Power Meter Configuration

Modbus address 1 must be used for the SXB35 power meter if binding is required. When employing the indexing method addresses 1-63 can be used. Please refer to the SXB35 Installation Instructions for meter addressing information.

Auto Propagate Feature

The SXBC-5 can automatically propagate all network variables. If nciMaxSendTg is set above zero (default is zero), all variables will be propagated periodically. Units are in tenths of a second. For example, if nciMaxSendTg is set to 100 the SXBC-5 will automatically propagate all variables every 10 seconds.

Resetting the Energy Accumulator

The Energy Accumulator nvoEgyWH may be reset to zero by using the input network variable nviEgyClr using the following procedure:

1. Ensure that nviEgyClr.state > 0 & nviEgyClr.value > 0. Default is {1,1}.
2. Set nviEgyClr.state =0 & nviEgyClr.value=0.
3. Set nviEgyClr.state =1 & nviEgyClr.value=1.

Once cleared, the meter will continue to count kWh from zero until another reset is commanded.

Node Identification

Wink: The Lon Node will light its service LED for 5 seconds in response to a WINK command.

Service Pin: A service pushbutton is provided for this method of identification. (See Fig. 3).

Neuron ID: The Neuron ID is located on a label on the back of the device. It can be written down or peeled off as a removable sticker with bar code for easy insertion to your network.

Program ID

The standard program ID for this product is 90:00:14:8A:0D:02:04:02.

NETWORK OPTIONS

Indexing Option: Allows the node to access up to 63 SXB35's for viewing and archiving purposes only.

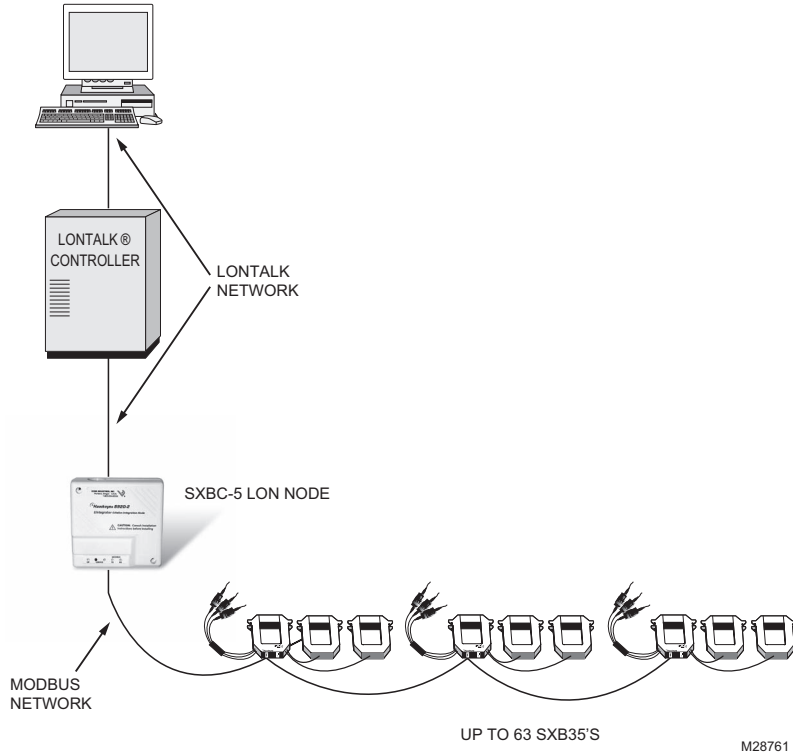


Fig. 5. Diagram of Modbus network utilizing the indexing option.

Bound Option: For all applications requiring binding

NOTE: If the bound option is employed each SXB35 must be addressed at 1.

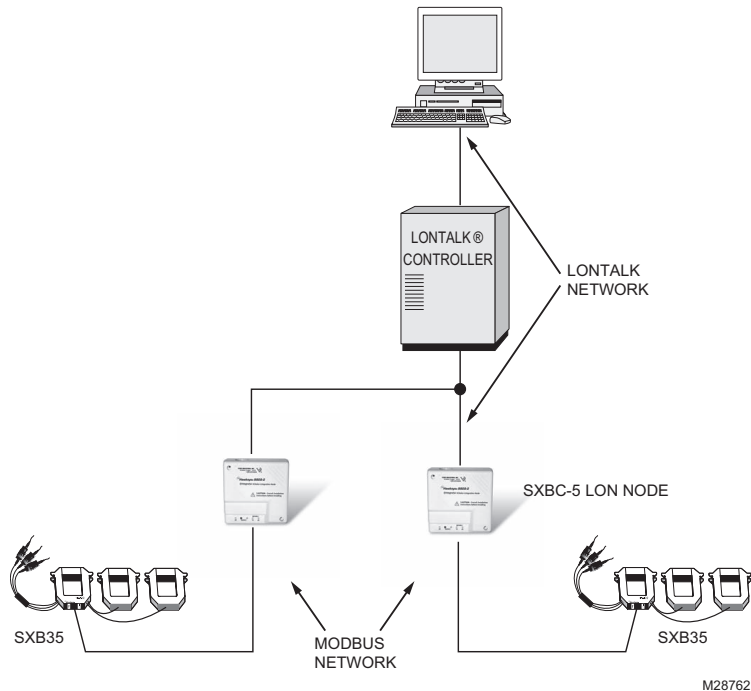
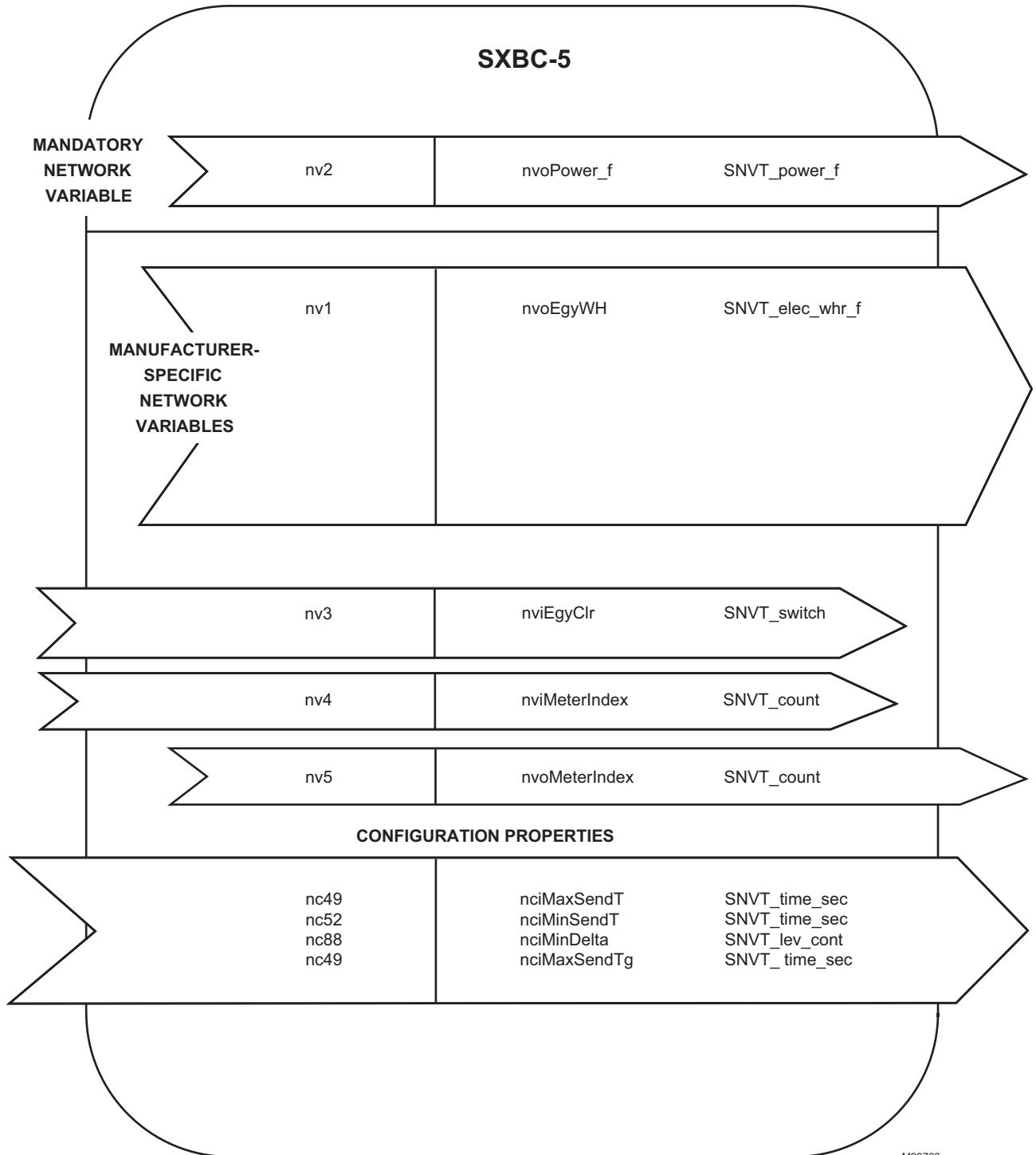


Fig. 6. Diagram of Modbus network configured with bound option.



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Fig. 7. SXBC-5 Network variables.

Table 1. Network Variable Details

Name	Type	Range	Description
nv1	nvoEgyWH	0-1e38kWH	kWH Consumption
nv2	nvoPower_f	0-1e38W	kW Real Power
nv3	nviEgyClr	See text	Used to reset nvoEgykWH to zero
nv4	nviMeterIndex	1-63	Used to select modbus address
nv5	nvoMeterIndex	1-63	Reports selected modbus address
nc49	nciMaxSendT	0.0-6553.4s	Maximum time between nvoPower updates. Default is 0 (disabled).
nc52	nciMinSendT	0.0-6553.4s	Minimum time between nvoPower updates. Default is 15 secs.
nc88	nciMinDelta	0.0-100%	Percent change in nvoPower which will force an nvoPower update. Default is 5%. Set to 0.0% to disable.
nc49	nciMaxSendTg	0.0-6553.4s	Maximum time between updates to all network variables. Default is 0 (disabled).

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