H8920-4

Entegrator Lon Talk®
Integration Node

LonTalk® Controller

LonTalk Network

H8920-4 Lon Node

Modbus Network

H704-42/H663   **H704-42/H663**

VERIS INDUSTRIES

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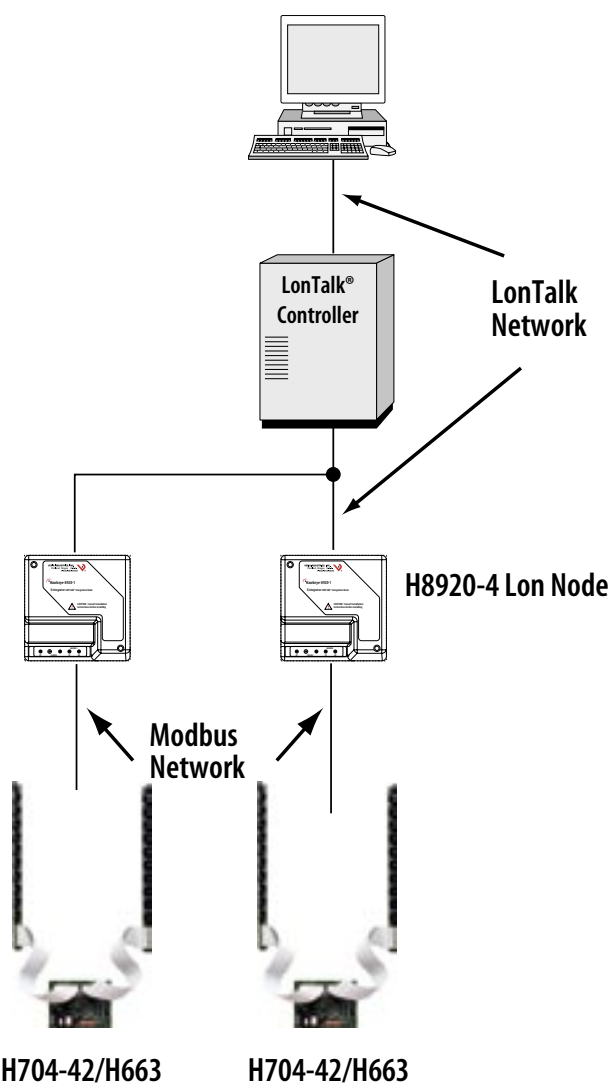
OPERATION

The Entegrator LON Talk Integration Node allows for the integration of Veris Industries H704 and H663 Series Branch Current Monitors (BCM) to a LON Works control/monitoring system.   The LON Talk Integration Node converts the 42 current metering values expressed by the BCM as Modbus protocol to LON Talk. Using an indexing technique, the LON® Node can report the data from up to 63 BCMs 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. The LON Node can also be dedicated to one H704/H663 for binding purposes.

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

- Potential electrocution hazard exists. This is a Class 2 low voltage device. Install only in Class 2 environments.

- Read instructions thoroughly prior to installation

Applications
- ■ Critical load monitoring
- ■ Energy management and performance contracting
- ■ Load shedding and demand control
- ■ Impending trip notification

Easy Integration to LON Networks
- ■ The H8920-4 is pre-configured to accomodate all 42 data points provided by up to 63 H704 or H663 Series Branch Current Monitors
- ■ Easy cost-effective connectivity to Lon Works® systems...makes open connectivity possible
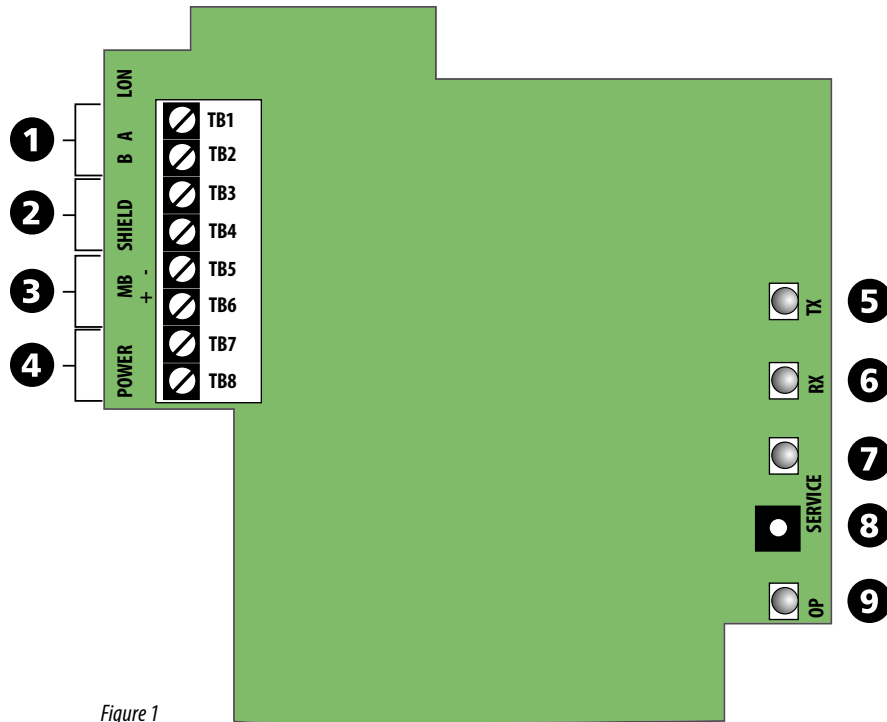
COMPONENT LOCATIONS

Figure 1

1. **LON Talk Terminal Block**
   Make connections to the LON Network at these terminals.

2. **Shield Terminal Block**
   Share this terminal block to provide communications shielding for both the LON Talk and Modbus communications networks.

3. **Modbus Terminal Block**
   Make connections to the Modbus network here.

4. **12-24VAC/DC 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 or unpowered. See the operation section on page 3 for further details.

PHYSICAL INSTALLATION

1. Remove screws from the lid of the H8920-4 housing. Lift lid and remove wire guide caps. Set to the side with the lid.

2. Bring the 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/VDC 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 H8920-4. The device can be flush mounted to a wall. Screw mounted to a 2 or 4s electrical encosure, or nipple mounted to an existing enclosure. The H8920-4 must be mounted in a class 2 environment.

8. Refer to the H704/H663 installation instructions for connection of the LON node to the H704/H663 BCM.

*Veris transformers such as XO20XXX, XO40XXX, or even XO50XXX or DC power supplies such as PS 24-7.5, 15, or 30 will fulfill the requirements. If the installation only has 24VAC available then a Veris 12 to 24VAC isolation transformer such as X020ADA can provide the necessary isolation.
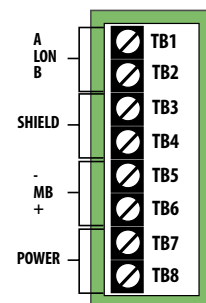

Figure 2

OPERATION AND CONFIGURATION

Operation
The H8920-4 continuously polls the chosen BCM 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 BCM are fully check-summed 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 comissioned), 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 (eg. no meter attached, wrong type of meter (H8035 instead of BCM), broken RS485 wires, etc.)
3. If the OP-LED is turned OFF for any reason covered in 2) above, it will be re-lit when a correct response is received from the Modbus network.
4. Under Condition 2)b) above, the SNVT data will be replaced with -1, indicating to the remote user that the data is no longer valid.

Index Feature
By adjusting a network input variable (nv43) the Modbus address used to populate all of the NVO's can be changed. This option is used to view and archive data from a Modbus network of up to 63 BCMs. 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 BCM.

Using the Meter-Index function
To ensure that the data read from the unit corresponds to the correct BCM, follow this algorithm:
   1) Change nviBCM Index to the desired BCM.

2) Wait for nvoBCM Index to change to the same value as nviBCM Index. Do not read data from the unit until this occurs: You will not be able to determine which BCM the data corresponds to until nvoBCM Index=nviBCM Index. Do not use "time-delays" to wait for the new data to be valid.

3) Once nvoBCM Index=nviBCM Index, you may poll values with the assurance that the data corresponds to the desired BCM.

BCM Configuration
Modbus address 1 must be used for the H704/H663 if binding is required. When employing the indexing method addresses 1-63 can be used. Please refer to the H704/H663 installation instructions for meter addressing information.

Auto Propagate Feature
The H8920-4 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 H8920-4 will automatically propagate all variables every 10 seconds.

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 figure 1).

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 90:00:14:48:14:04:04:05

NETWORK OPTIONS

Indexing Option: Allows the node to access up to 63 H704/663's for viewing and archiving purposes only.

Lon Talk® Controller

LON Talk® Network

H8920-4 LON Node

Modbus Network

Up to 63 BCM's
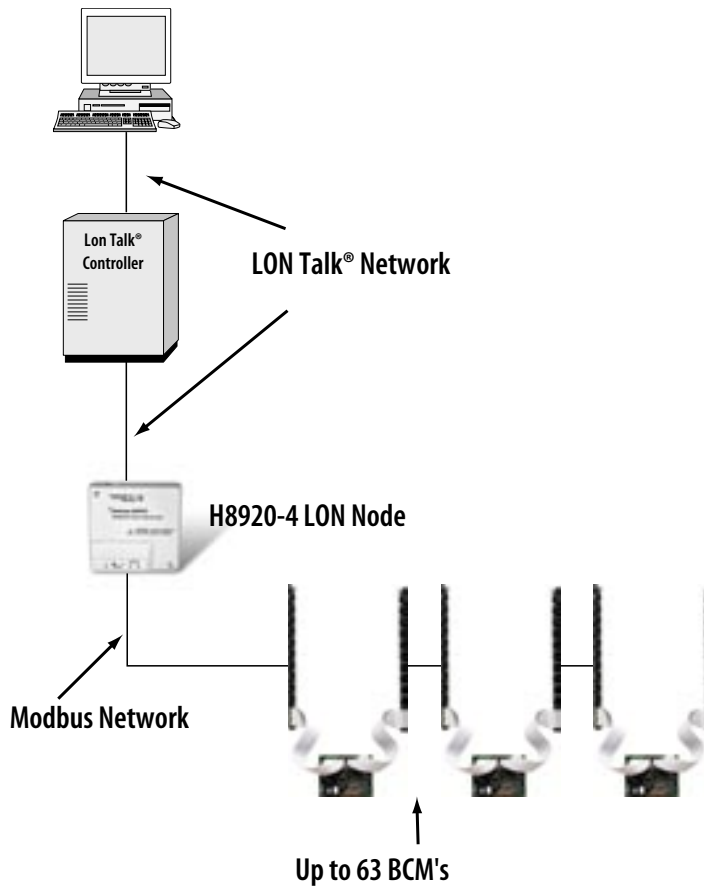
Bound Option: For all applications requiring binding.

Lon Talk® Controller

LON Talk® Network

H8920-4 LON Node

* BCM

BCM*

Modbus Network
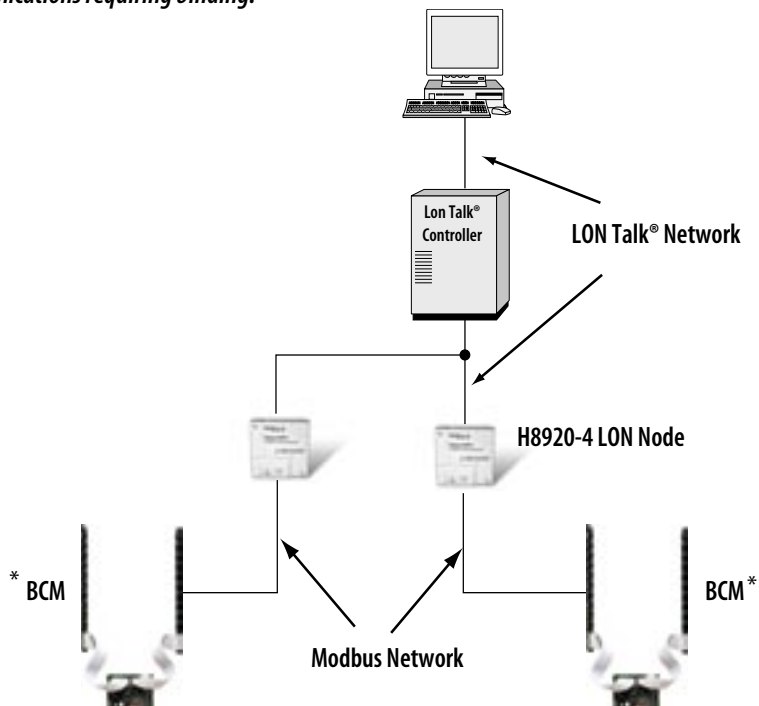
*If the bound option is employed each H704 must be addressed at 1.

VERIS H704/H663 SERIES
BRANCH CURRENT MONITORS

nv1	nvoI_1	SNVT_amp
nv2	nvoI_2	SNVT_amp
nv3	nvoI_3	SNVT_amp
nv4	nvoI_4	SNVT_amp
nv5	nvoI_5	SNVT_amp
nv6	nvoI_6	SNVT_amp
nv7	nvoI_7	SNVT_amp
nv8	nvoI_8	SNVT_amp
nv9	nvoI_9	SNVT_amp
nv10	nvoI_10	SNVT_amp
nv11	nvoI_11	SNVT_amp
nv12	nvoI_12	SNVT_amp
nv13	nvoI_13	SNVT_amp
nv14	nvoI_14	SNVT_amp
nv15	nvoI_15	SNVT_amp
nv16	nvoI_16	SNVT_amp
nv17	nvoI_17	SNVT_amp
nv18	nvoI_18	SNVT_amp
nv19	nvoI_19	SNVT_amp
nv20	nvoI_20	SNVT_amp
nv21	nvoI_21	SNVT_amp
nv22	nvoI_22	SNVT_amp
nv23	nvoI_23	SNVT_amp
nv24	nvoI_24	SNVT_amp
nv25	nvoI_25	SNVT_amp
nv26	nvoI_26	SNVT_amp
nv27	nvoI_27	SNVT_amp
nv28	nvoI_28	SNVT_amp
nv29	nvoI_29	SNVT_amp
nv30	nvoI_30	SNVT_amp
nv31	nvoI_31	SNVT_amp
nv32	nvoI_32	SNVT_amp
nv33	nvoI_33	SNVT_amp
nv34	nvoI_34	SNVT_amp
nv35	nvoI_35	SNVT_amp
nv36	nvoI_36	SNVT_amp
nv37	nvoI_37	SNVT_amp
nv38	nvoI_38	SNVT_amp
nv39	nvoI_39	SNVT_amp
nv40	nvoI_40	SNVT_amp
nv41	nvoI_41	SNVT_amp
nv42	nvoI_42	SNVT_amp

MANUFACTURER-SPECIFIC NETWORK VARIABLES

| Nv43 | nviBCMIndex | SNVT_count |

| Nv44 | nvoBCMIndex | SNVT_count |

CONFIGURATION PROPERTIES

| nc45 | nciMaxSendTg | SNVT_ time_sec |

DIMENSIONS
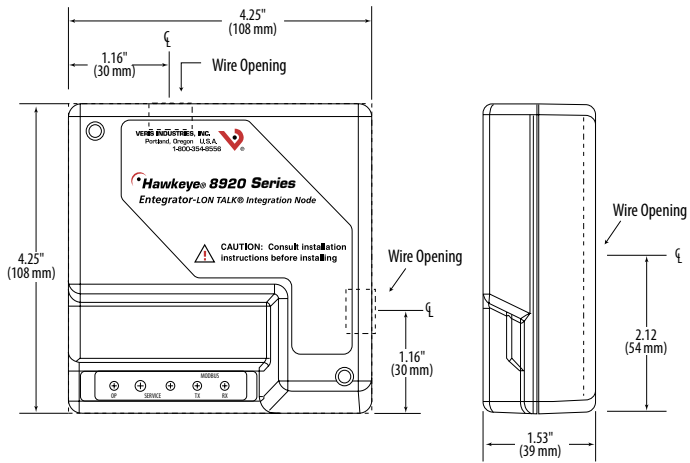
SPECIFICATIONS

LonWorks® Network .... Free topology transceiver, 78 kbps
Modbus Network .... RTU 9600 BAUD, 8N1 format
Meter Data Network Variables .... Current, 1-42
Network Variable Type .... Fixed point real
Power .... 12-24 VAC/DC<100mA isolated source
Temperature Range .... 0 to 60º C
Humidity Range .... 0 - 95% non-condensing