

11.8—LINKnet 6Ch Current Input Module

11.8.1—Module Description

The LINKnet 6Ch Current Input Module interfaces to six 4–20 mA transducers. There are two version of the module; one for loop powered transducers and the other for self-powered transducers. Mixing self-powered and loop powered transducers on the same module is not an option. See Appendix A for desired part numbers. The module has a built-in reference voltage that is used to verify proper operation of the A/D converter. Appropriate faults are annunciated through the application program.

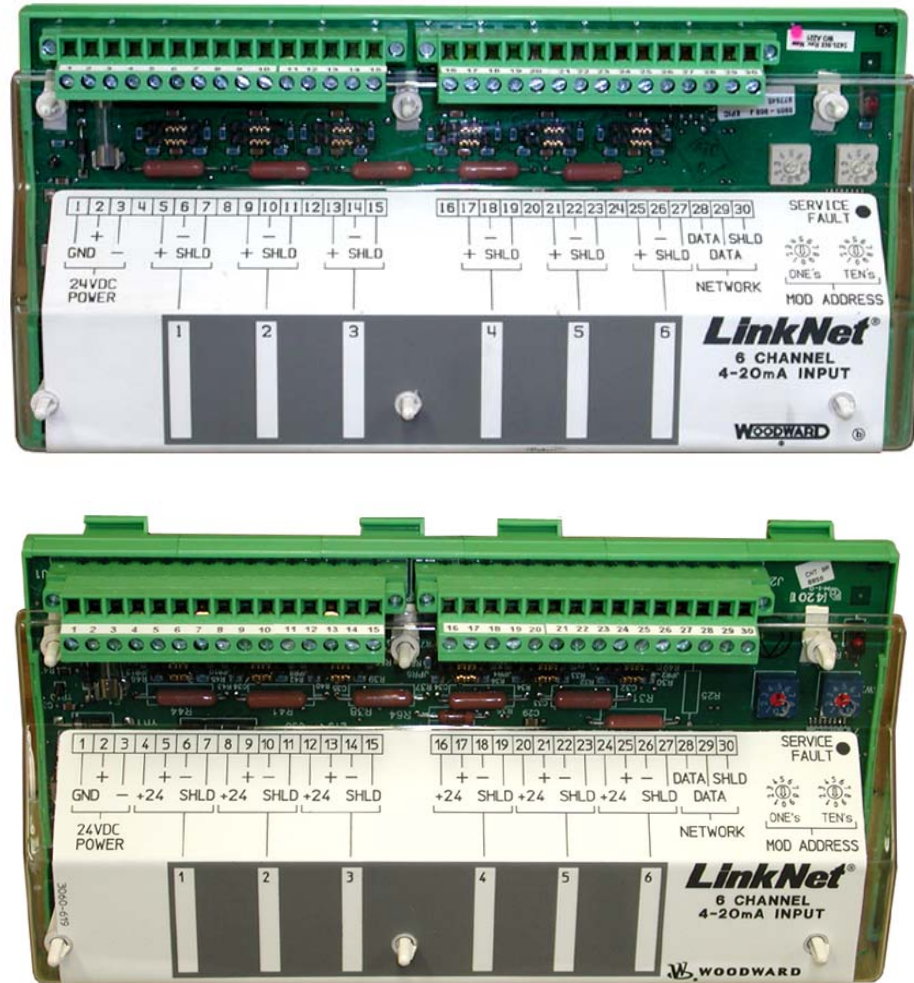


Figure 11-12—Both LINKnet 6Ch Current Input Modules

11.8.2—Module Specification

Table 11-7. LINKnet 6Ch Current Input Module Specification

Number of Inputs:	6
Input range:	0–25 mA
Resolution:	12 bits
Temp Coefficient (ppm/°C):	235
Accuracy:	1% at 25 °C (factory calibrated)
Input Impedance:	250 Ω
Power Supply Input:	18 to 32 Vdc
Power Required:	2.4 Watts at 24 Vdc (self-powered version) 5.3 Watts at 24 Vdc (loop powered version)

11.8.3—Isolation

Table 11-8. LINKnet 6Ch Current Input Module Isolation

Network to I/O channel:	277 Vac
Power supply input to network:	277 Vac
I/O channel to I/O channel:	0 V
PS input to I/O channel:	500 Vdc
Field Wiring:	14 AWG maximum wire size
Ambient Temperature Range:	–40 to +55 °C

11.8.4—Shock and Vibration

Mil-Std-810, 30 G's sine wave at 11 ms

Mil-Std-167, 18-50 Hz

11.8.5—EMC

Emissions: EN 61000-6-4

Immunity: EN 61000-6-2

11.8.6—Installation

Install the LINKnet 6CH Current Input Module on the DIN rail and connect to the appropriate LINKnet network and 24 Vdc power. Wire the loop or self-powered transducers per Figure 11-13 depending on which module is used. Set module address one's and ten's rotary switches per application setup.

The LINKnet system accommodates hot-replacement of faulty nodes. When replacing a node, the network cable connections must remain intact. A faulty node can be removed from the network by pulling both terminal blocks out of their headers, and removing the node from the DIN rail. The address switches of the replacement node should be set to match those of the faulty node. The replacement node can then be mounted on to the DIN rail, and the terminal blocks pushed into the headers. It is then necessary to reset the node through the application program to reinitiate communications with the LINKnet controller module and to clear the "no message" fault.

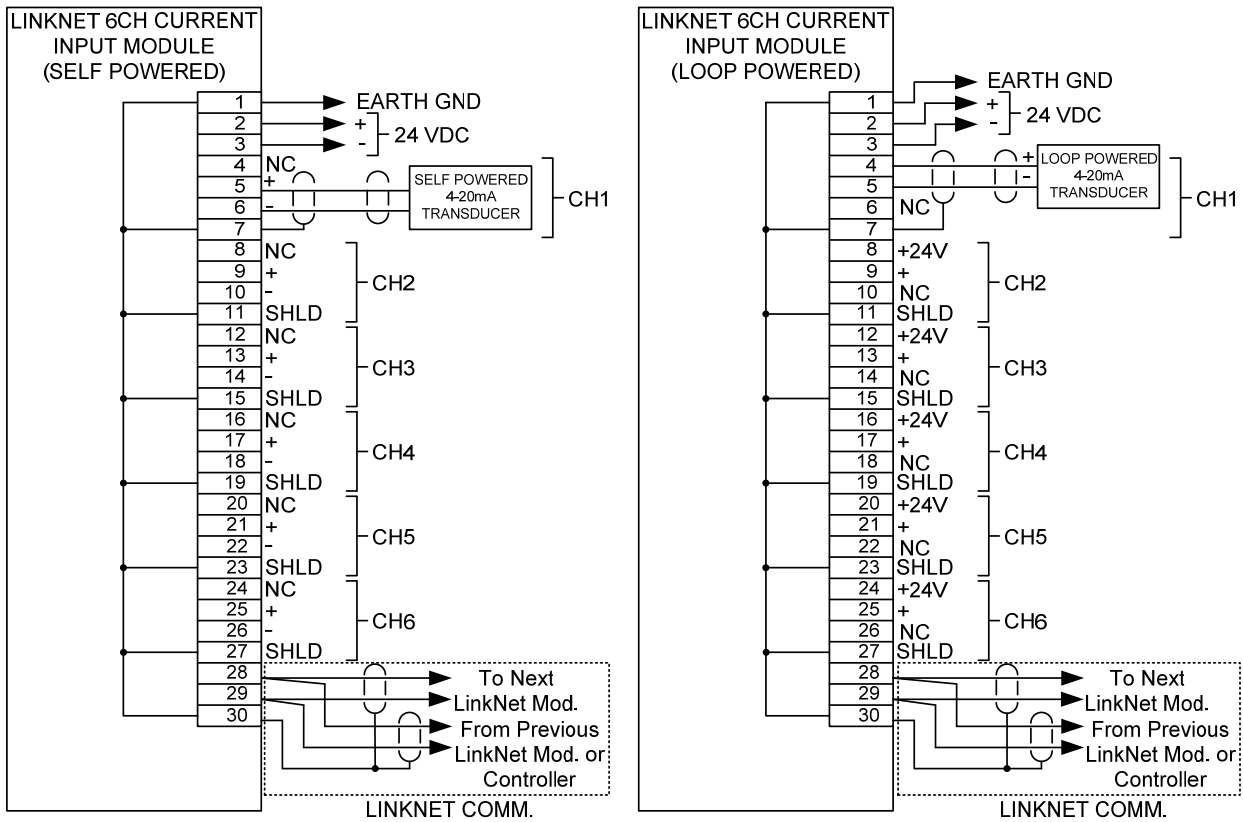


Figure 11-13—LINKnet 6CH Current Input Module Wiring

11.8.7—Troubleshooting

The module receives information from 4-20 mA sources, such as transducers. Power is provided for these transducers on one version of the module, but all module inputs must use the power provided. No inputs may use a separate power source, as all of the negatives are tied together and to 24 V common. The advantage of this module version is that it simplifies wiring to devices such as transducers that require external power. Each input is converted to a 0-5 V signal, and then multiplexed to a voltage-to-frequency converter. The module processor reads the period of this signal and converts it to a count, which it transmits through the transceiver to the LINKnet controller module. See Figure 11-14 for block diagram of the 4-20 mA input module.

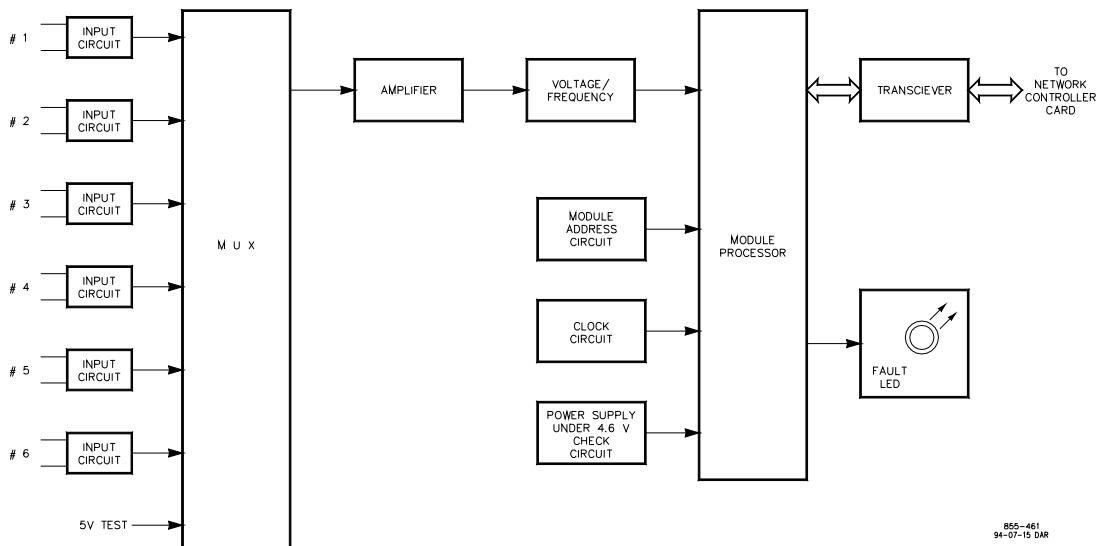


Figure 11-14—4-20 mA Input Module Block Diagram

The fault LED denotes the status of the module processor, and will be off during normal operation. If the fault LED is on or is blinking, and cycling power to the module does not change it, then the I/O module should be replaced.

The module address circuit reads the selected module address from the rotary switches on each node. This address should correspond to the address of the I/O module hardware in the application program. If these rotary switches are set incorrectly, the node will not communicate with the LINKnet controller module, and a "no message" fault will be annunciated through the application program. If two nodes are set to the same address, an "address" fault will be annunciated through the application program, and both nodes will not function. If the node address switches are changed, power to the module must be cycled before it will read the new module address and change its communication accordingly.

A "type" fault is annunciated through the application program when the wrong module type is installed at a given address. For example, installing a thermocouple module in place of an RTD module generates a type fault. If an output node receives data intended for a different module type, it will not update its outputs, and will set them to the "off" state when its watchdog timer times out.

No message faults, address faults, and type faults are non-latching. When these faults occur for an input module, the application program will give default values for each channel.

Troubleshooting Flowchart

If a problem occurs with the LINKnet network, use Figure 11-25 (Troubleshooting Flowchart) as a guide to find and repair the problem.