



INSTALLATION

READ THESE INSTRUCTIONS BEFORE YOU BEGIN INSTALLATION.

Ground yourself before touching board. The Neuron microprocessor on the bottom of this product and the FTT-10A transceiver on the top are very sensitive to electrostatic discharge. Keep product in the snap-track at all times, especially when powered.

MOUNTING:

Circuit board may be mounted in any position. If circuit board slides out of snap track, a nonconductive "stop" may be required. Use only fingers to remove board from snap track. Slide out of snap track or push against side of snap track and lift that side of the circuit board to remove. Do not flex board. Use no tools.

POWER CONNECTIONS - THIS PRODUCT ACCEPTS 24 VOLTS AC OR DC POWER.

Be sure to follow all local and electrical codes. Refer to wiring diagram for connection information.

- 1) The power supply output voltage should be measured at the interface terminals and isolated from earth ground, chassis ground, and neutral leg of the primary winding. Any field device connected to this transformer must use the same common. If you are not sure of other field device configuration, use separate transformers. Failure to follow these procedures can result in improper operation.
- 2) If the 24 volt AC power is shared with devices that have coils such as relays, solenoids, or other inductors, each coil must have an MOV, AC Transorb, or other spike snubbing device across each of the shared coils. Without these snubbers, coils produce very large voltage spikes when de-energizing that can cause malfunction or destruction of electronic circuits.
- 3) If the 24 volt DC power is shared with devices that have coils such as relays, solenoids, or other inductors, each coil must have an MOV, DC Transorb, or a diode placed across the coil or inductor. The cathode or banded side of the diode (or DC Transorb) connects to the positive side of the power supply.
- 4) You should measure the actual voltage output of the secondary. If the output is not fully loaded you may read a higher voltage than the circuit board can handle.



SETUP AND CHECKOUT

Use only with LonWorks FTT-10A free topology networks.

Jumper Shunt Selections: Select analog feedback range by correctly placing jumper shunts on jumper shunt block J1 as shown in diagram above.

Connect DC analog feedback input signal to terminals "IN" and "COM". Connection of a potentiometer feedback from an actuator motor is as follows: Connect the wiper to the "IN" terminal, connections from either end of the potentiometer to the "COM" (common) and "EXC" (excitation 5 VDC @ 20 mA maximum). See detail on page 1.

Connect Up and Down output signal wires to "C" and "NO" or "C" and "NC" on the UP and the DN terminal strip (on the end of the LMP) depending on action required to drive the motor in one direction or the other. Connect 24 VAC or 24 VDC to "24V" and "C". Connect LonWorks network to NET and NET (not polarity sensitive).

Supply power to terminals "24V" and "C" and the red LED power indicator will light and the green LED will blink once rapidly and turn off. This indicates the LMP is functioning properly. Any other LED action indicates a malfunction.

The green LED will illuminate when the service switch is pressed to identify the node to the network, and anytime a WINK command is received.

Board programmed software includes Standard Network Variable Types (SNVT's) containing values for the analog input.

NETWORK VARIABLE OPERATING INSTRUCTIONS

Name:	Request Status
Type:	SNVT_obj_request
Declaration:	network input sd_string("@0 1.Request Node Status") SNVT_obj_request nviRequest;
Restored On Power Up?:	No
Default Value When Programmed:	None
Default Value When Reset:	None
Legal Range:	RQ_NORMAL, UPDATE_DATA, REPORT_MASK,
Purpose/Usage:	Request that the status of the node be updated and transmitted.
Name:	Status Report
Type:	SNVT_obj_status
Declaration:	network output sd_string("@0 2.Node Status Report") SNVT_obj_status nvoStatus;
Restored On Power Up?:	No
Default Value When Programmed:	All zeros
Default Value When Reset:	None
Legal Range:	0 -1
Purpose/Usage:	Object_id, invalid_id, invalid_request
Name:	Maximum Status Send Time
Type:	SNVT_elapsed_tm
Declaration:	config network input sd_string("@0 3.Maximum Status Send Time \\\(RNG 0-59 min, 0-59 sec only)") eeprom SNVT_elapsed_tm nciMaxStsSendT = {0,0,0,0,0};
Restored On Power Up?:	Yes
Default Value When Programmed:	0 days, 0 hours, 0 minutes, 0 seconds, 0 milliseconds
Default Value When Reset:	None
Legal Range:	Minute = 0 - 59, second = 0 - 59, all others 0
Purpose/Usage:	Rate at which to automatically transmit the status. Only use the minutes and seconds fields. When set to 0, the automatic transmissions are stopped.

Name: Actuator Set Point
Type: SNVT_count
Declaration: network input sd_string("@1|1.Input To Motor Control Actuator (RNG 0 - 255)") eeprom SNVT_count nviSetPoint;
Restored On Power Up?: Yes
Default Value When Programmed: None
Default Value When Reset: None
Legal Range: 0 - 255
Purpose/Usage: Set the motor's position.

Name: Re-Calibrate
Type: SNVT_count
Declaration: network input sd_string("@1|2.change this to re-calibrate the motor \ (RNG 0-65535)") SNVT_count nviRecalibrate;
Restored On Power Up?: No
Default Value When Programmed: None
Default Value When Reset: None
Legal Range: 0 - 65535
Purpose/Usage: When the LMP receives this variable (any value) the 're-calibrate' feature is triggered. The motor is re-calibrated by turning the motor all the way down, then back up to the set-point.

Name: Motor Drive Time
Type: SNVT_count
Declaration: network input sd_string("@1|3.time from one extreme to the other \ (RES .01 sec RNG 0-655.35)") eeprom SNVT_count nciDriveT = MOTORTIMEOUT;
Restored On Power Up?: Yes
Default Value When Programmed: 5.00 seconds
Default Value When Reset: None
Legal Range: 2.55 - 655.35 seconds
Purpose/Usage: The time it takes the motor to travel from one extreme to the other extreme. If this variable is set for less than 255, then resolution will be reduced. It is legal to set it for less than 255.

Name: Analog Input Value
Type: SNVT_count
Declaration: network output sd_string("@2|1.analog input to LMP (RNG 0-255)") SNVT_count nvoSensorVal;
Restored On Power Up?: No
Default Value When Programmed: None
Default Value When Reset: Current Analog Input
Legal Range: 0 - 255
Purpose/Usage: Current unit less value of the sensor.

Name: Maximum Send Sensor Time
Type: SNVT_elapsed_tm
Declaration: network input sd_string("@2|2.Max time before txing the sensor's value \ (RES 1 milsec, RNG 0-59 sec, 0-999 milsec only)") eeprom config SNVT_elapsed_tm nciMaxSendSnsr = {0L,0,0,0,0L};
Restored On Power Up?: Yes
Default Value When Programmed: Day = 0, hour = 0, minute = 0, second = 0, millisecond = 0
Default Value When Reset: None
Legal Range: Second = 0 - 59, millisecond = 0 - 999, all others 0
Purpose/Usage: The maximum time, in milliseconds, to allow between sensor value transmissions

Name: Minimum Sensor Change
Type: SNVT_count
Declaration: network input sd_string("@2|3.Min sensor change before transmission
 \\(RNG 1-255)") eeprom config SNVT_count nciMinDelta = MINDELTA;
Restored On Power Up?: Yes
Default Value When Programmed: 2
Default Value When Reset: None
Legal Range: 1 - 255
Purpose/Usage: The change in the sensed value must be greater than or equal to this value before the sensed value is transmitted. This value doesn't apply when the nciMaxSendSnsr time expires. It is possible to set this configuration property for a value of 0, but it makes not legal because it doesn't make any sense to have a change of 0.

Name: Sensor Sample Rate
Type: SNVT_time_sec
Declaration: network input sd_string("@2|4.sensor sample rate (RES .1 sec,
 RNG .3-65.5)") eeprom config SNVT_time_sec nciSampleRate =
 SAMPLERATE / 100L;
Restored On Power Up?: Yes
Default Value When Programmed: 300 milliseconds
Default Value When Reset: None
Legal Range: .3 - 65.535 seconds and 0
Purpose/Usage: Rate at which the sensed value is sampled. A sample takes over 210 milliseconds, so the minimum rate is 300 milliseconds. To stop sampling all together, set this time to 0.

Power Consumption:	180 mA maximum
Input Signal Ranges/Impedance:	1) 0-5 VDC/1,500,000 ohms 2) 0-10 VDC/200,000 ohms 3) 0-20 mA/249 ohms 4) 10,000 ohm thermistor All inputs have over and under voltage protection.
Output Signal Ranges:	Two Form C Relays independently controlled by LonWorks network "EXC" - 5 VDC with current limited to 20mA