LON BOARD CONFIGURATION

Introduction

The serial interface boards for LonWorks® networks are optional accessories for the CL50 electronic controllers, which allow the controllers to be connected directly to a LonWorks® network.
The LonWorks® platform is one of the leading open solutions for building and home automation, industrial, transportation, and public utility control networks.

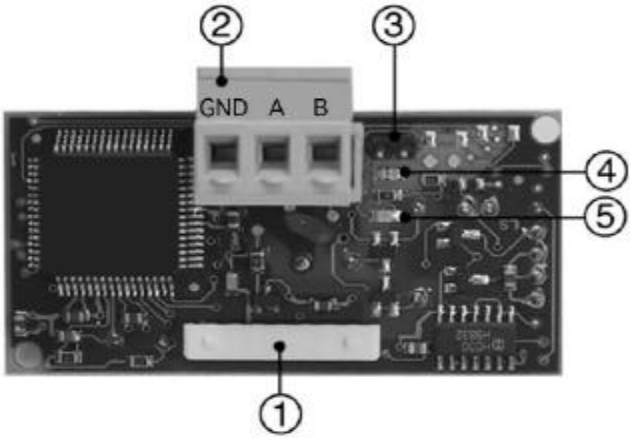
1. General characteristics

IMPORTANT WARNING: in order to become operational, the board must be programmed according to the application installed on the CL50.
The board will be programmed in the field by the system integrator, using LonMaker™ or other LonWorks® network installation and maintenance tools.
Lennox will provide **NXE** file (custom profiles) and **XIF** file (External Interface File) to be uploaded into the board.
In order to establish the communication between CL50 and LON board, **BMS type** (menu 3932) has to be configured in **Lonworks** mode and **BMS baudrate** (menu 3933) has to be set to **4800 baud** by CL50 service terminal.
Over LON Network CL50 publishes temperatures, humidities, alarms and allows to manage remote On/Off, time schedulings, temperature and humidity setpoints, alarm reset, etc.

NOTE
BMS setpoints are operative only if BMS **watchdog** counter is not 0 (force it to 999 each 10 minutes).

2. Hardware description

2.1 Board Layout



1. connector to the CL50;
2. terminal block for LonWorks® network (GND, A, B);
3. service pin[1];
4. green *service* LED;
5. red fault LED.

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2.2 Meanings of the LEDs

The green service LED signals the status of the node, as per the LonWorks® protocol:

- node configured (normal operation): ½ second ON at start-up, then always OFF;
- remains on during the activation of the service pin;
- remains on for one second when receiving a wink[2] command via the network.
- Hardware/firmware fault: always ON or always OFF;

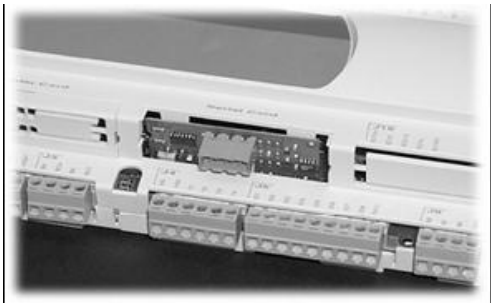
[1] For details on the activation of the *service pin*, see 4.Network Communication
[2] For details on wink command, see 4.Network Communications

- Software configuration errors: flashing;

The red fault LED signals problems in the connection between the board and the pCO.

WARNING
If the red LED comes on, make sure the instructions described under Installation have been carefully followed (IN PARTICULAR, THAT THE BMS COMMUNICATION BAUD RATE ON THE CL50 (menú 3933) HAS BEEN SET TO 4800 BAUD).

3. Installation



With reference to the figure, insert the board in the CL50 as follows:
1. disconnect the power supply to the CL50;
2. using a screwdriver, remove the serial card cover;
3. with cutting nippers, remove the pre-cut plastic part from the cover, thus making the opening for the 3-pin connector;
4. insert the optional board in the corresponding plug-in connector, initially holding it diagonally and then making sure it is properly inserted and pushed up against the two plastic supports on the case of the CL50;
5. close the cover again, aligning the connector on the serial board with the hole made in the cover.
6. reconnect the power supply to the CL50; if the CL50 BMS Baudrate has been set to 4800 baud, the red LED on the board will come on for a few seconds and then will go off immediately, indicating correct operation.

IMPORTANT WARNINGS:
Electrical damage may occur to the electronic components as a result of electrostatic discharges from the operator; a suitable precaution is to touch an earthed object before handling any electronic component or board.

3.1 Electrical Connections

The interface boards communicate via TP/FT-10 Free Topology Twisted Pair connected to A-B pines of the LON board terminal block. TP/FT-10 is non-polarized so A-B connections can be switched without any problem.
This bus has the following main characteristics:

- allows the connection of a maximum of 64 nodes for each network segment;
- the nodes can be connected without any restrictions in the topology: that is, star, ring, on one bus only, or with anycombination of these;
- communication speed: 78,125 kbps;
- maximum distance: 500m for connections between the nodes with free topology; 2700m for bus connections with double line terminator.

For further information on installation, maintenance, the cross-section and type of cable, refer to the LonWorks® literature.

4.Network Communications

To activate the **service pin**, simply momentarily short-circuit the two pins on the board with the tip of a screwdriver or a similar tool.The service pin must only be activated during the installation of the node. When the pin is activated, the node sends a broadcast message (Neuron ID) over the LonWorks® network, containing the information required for identification.
A generic supervisor can send the **WINK** command to a specific node on the LonWorks® network.
This generates an event that the application on the specific node can respond to with any action decided by the programmer. In this specific case, the service LED on the interface comes on for one second, thus making it possible to check the correct operation of the connection between the interface and LonWorks® network.