TRANSCELL TECHNOLOGY, INC.

MODEL

LCT2 with EtherNet/IP (EIP)

Digital Weight Transmitter / Junction Box

Quick Start Guide

Revision 1.0 June 30, 2016

Contents

OVERVIEW

This manual covers the following products:

Model	*Communication Protocol*	*Data Link Layer*
LCT2	EtherNet/IP (EIP)	Ethernet

Introduction to LCT2

The LCT2 is a digital weight transmitter/intelligent junction box with advanced diagnostic and communication capabilities. Its primary function is to measure and sum four independent load cell signals and transmit this data serially via EtherNet/IP (EIP) protocol.

The LCT2 digital junction box is capable of the following operational modes:

1. Measure and transmit filtered weight data to a compatible host device
2. Measure and transmit ADC counts only to a compatible host device (*** factory default ***)
3. Configuration/calibration

The LCT2 is designed to run off of an external 24 VDC power supply (not included).

The LCT2 utilizes an XPort embedded device server which, to the network, appears to be an EtherNet/IP slave. EtherNet/IP (**Ethernet Industrial Protocol**) is a specific application layer protocol used in advanced industrial automation environments.

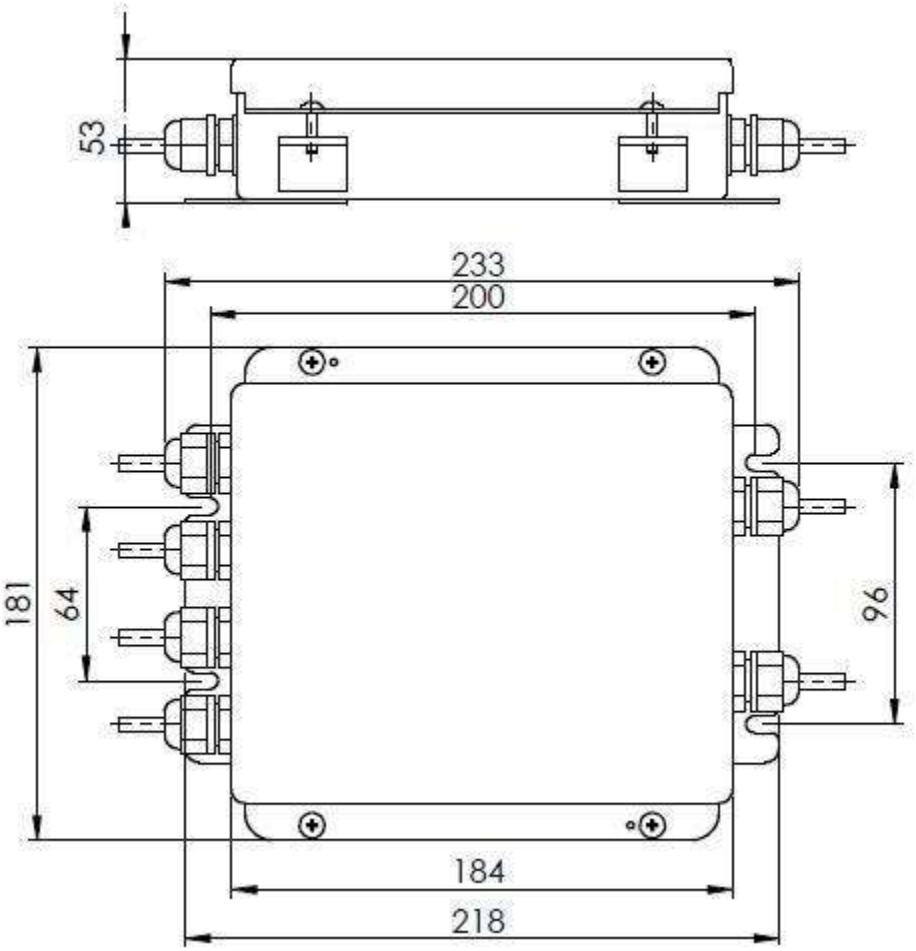
INSTALLATION

This section describes procedures for connecting load cell, power, and serial communications cables to the *LCT2* junction box.

Remember that the installer is ultimately responsible to assure that a particular installation will be and remain safe and operable under the specific conditions encountered.

Installation of LCT2

Find a suitable location for the digital junction box and use the mounting tabs to mount the unit to a wall or table. The junction box may be mounted vertically or horizontally. Use this handy guide for mounting the box to a wall or table:

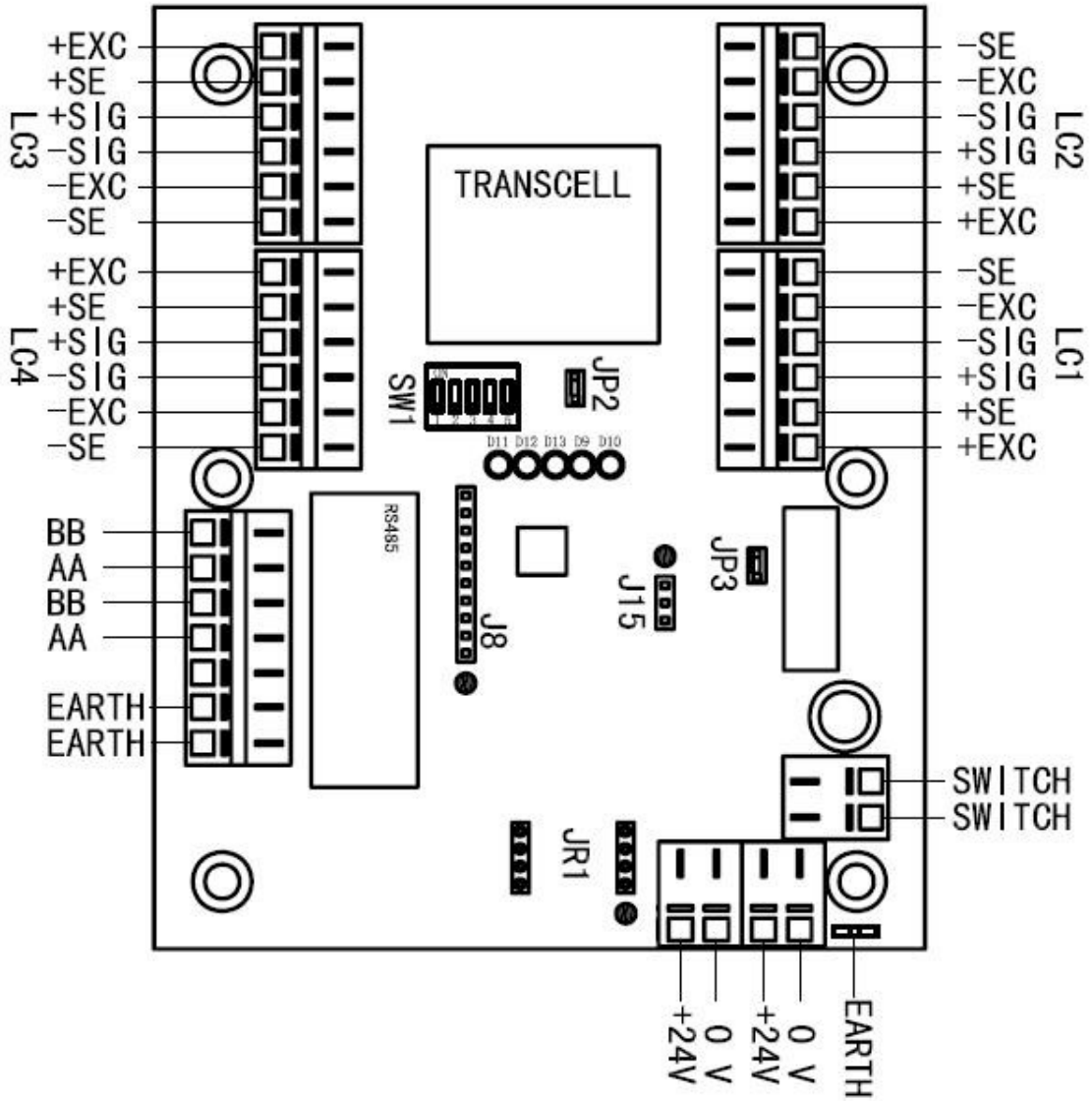


CONNECTIONS

The top cover must first be removed to make the appropriate connections to the weigh platform, power supply and Master (Client) device. To remove the top cover, simply remove the four (4) screws that secure it to the enclosure and set aside.

Caution! Disconnect power source from junction box prior to removing top cover.

Caution! Strip each wire back 10 mm, tin and crimp onto studs before inserting into the spring loaded terminals.



CONNECTING THE LOAD CELLS

The LCT2 contains four connection terminals on the main board – one for each load cell. The designations are LC1, LC2, LC3 and LC4.

Connect your load cell cable (not included) to the appropriate terminal on the main board.

Load Cell Terminal Blocks (LC1-LC4)

Marking	Function
+EXC	+ Excitation
+SE	+ Sense
+SIG	+ Signal
- SIG	- Signal
-EXC	- Excitation
-SE	- Sense

Caution! If connecting less than four load cells to the LCT-2, then the +SIG and -SIG terminals **must be shunted with a jumper wire** on each unused load cell input terminal

CONNECTING TO THE NETWORK

The Xport device server is provided on a piggyback board plugged into the JR1 socket. A standard RJ-45 modular connector is provided for connection to your network.

NOTE: To allow remote configuration and calibration, the serial parameters of the RS-485 port are fixed as follows:

Baud: *19200*
Data Bits: *8*
Parity: *Even*
Stop Bits: *1*
Flow Control*: None (off)*

CONNECTING THE POWER SUPPLY (not included)

The LCT2 requires an external 24V DC power supply. The connection terminals (+24V, 0V and EARTH) are self-explanatory.

Two sets of terminals are provided for purposes of daisy chaining multiple LCT2 boxes together on the same power bus.

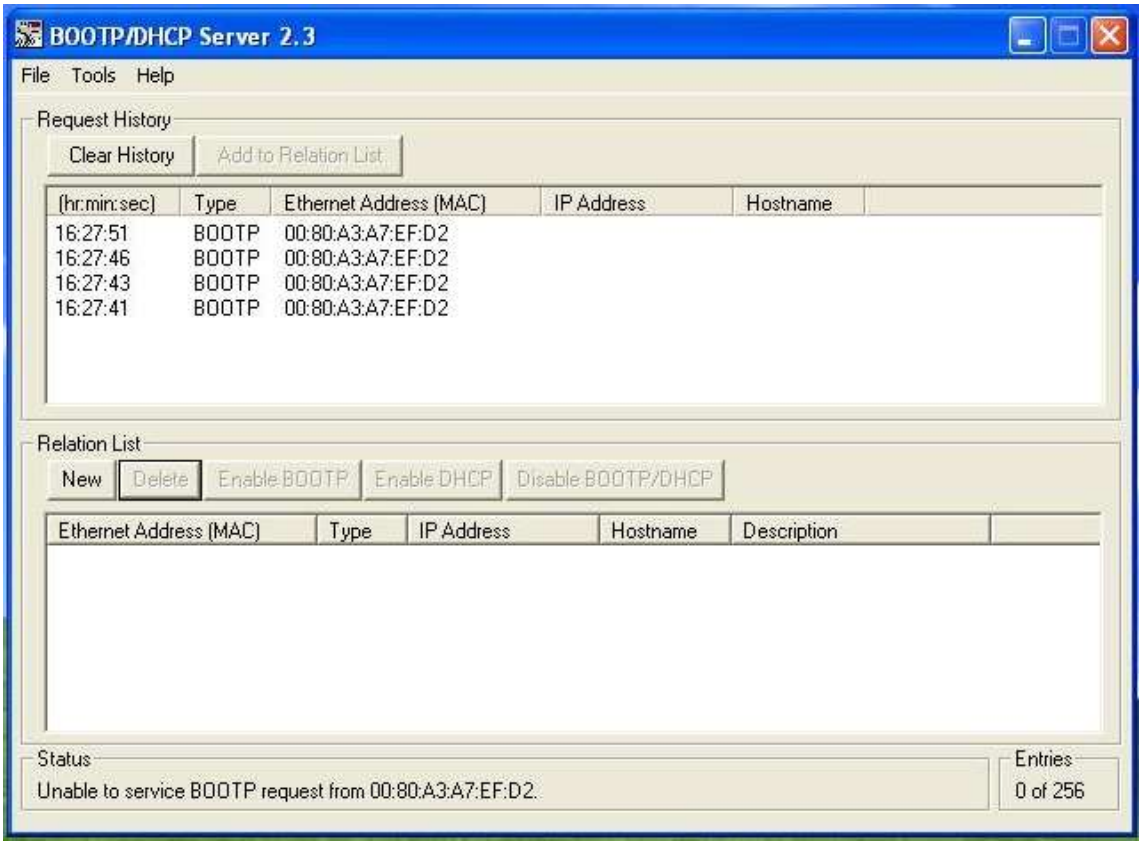
CONFIGURATION

Step One

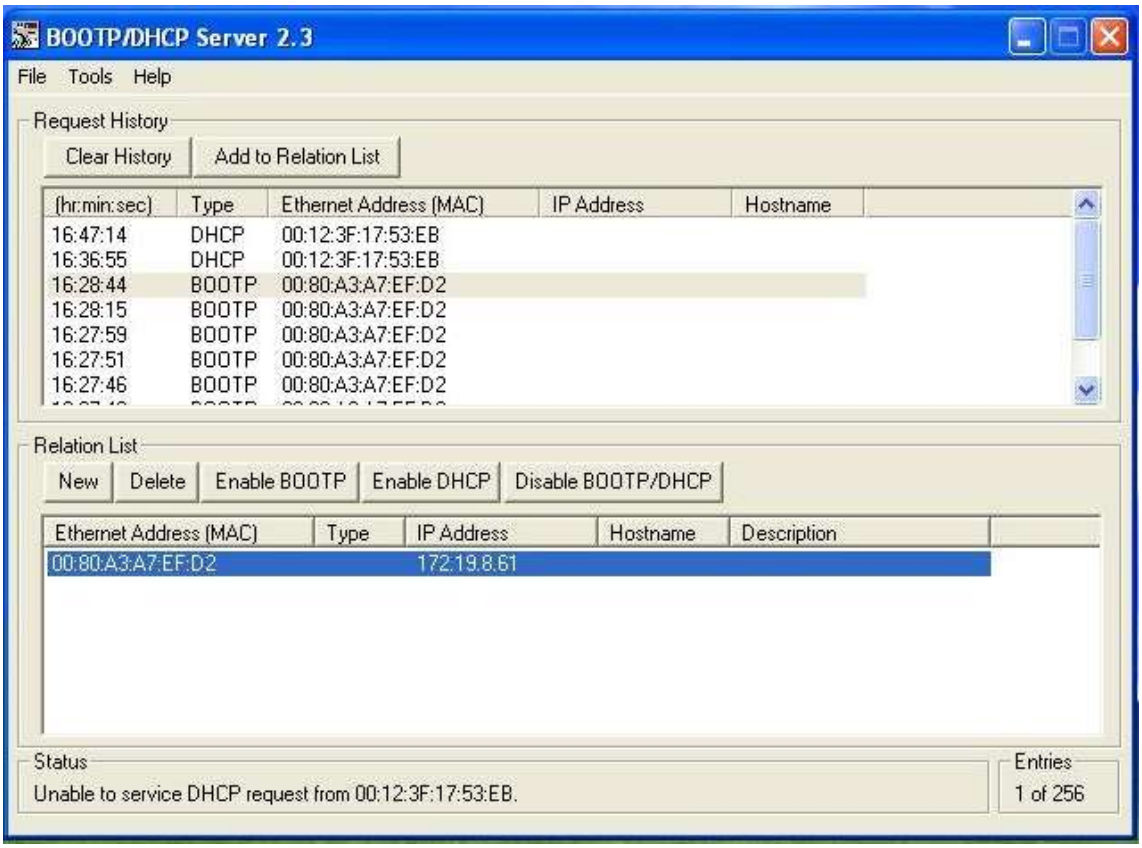
Configure the Xport device server located inside of the LCT2 to join your network.

1. Use BOOTP (Bootstrap Protocol) to assign an IP address to the LCT-2

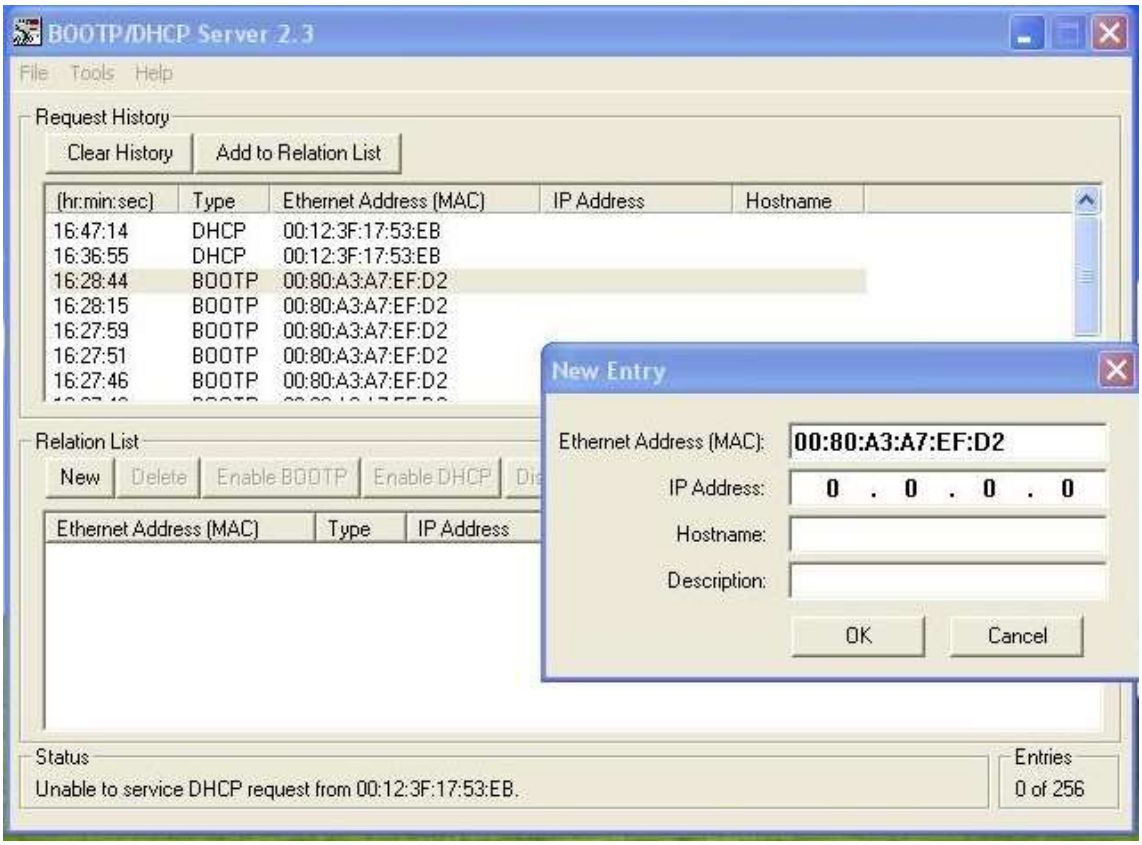
1.1 Make a BOOTP request



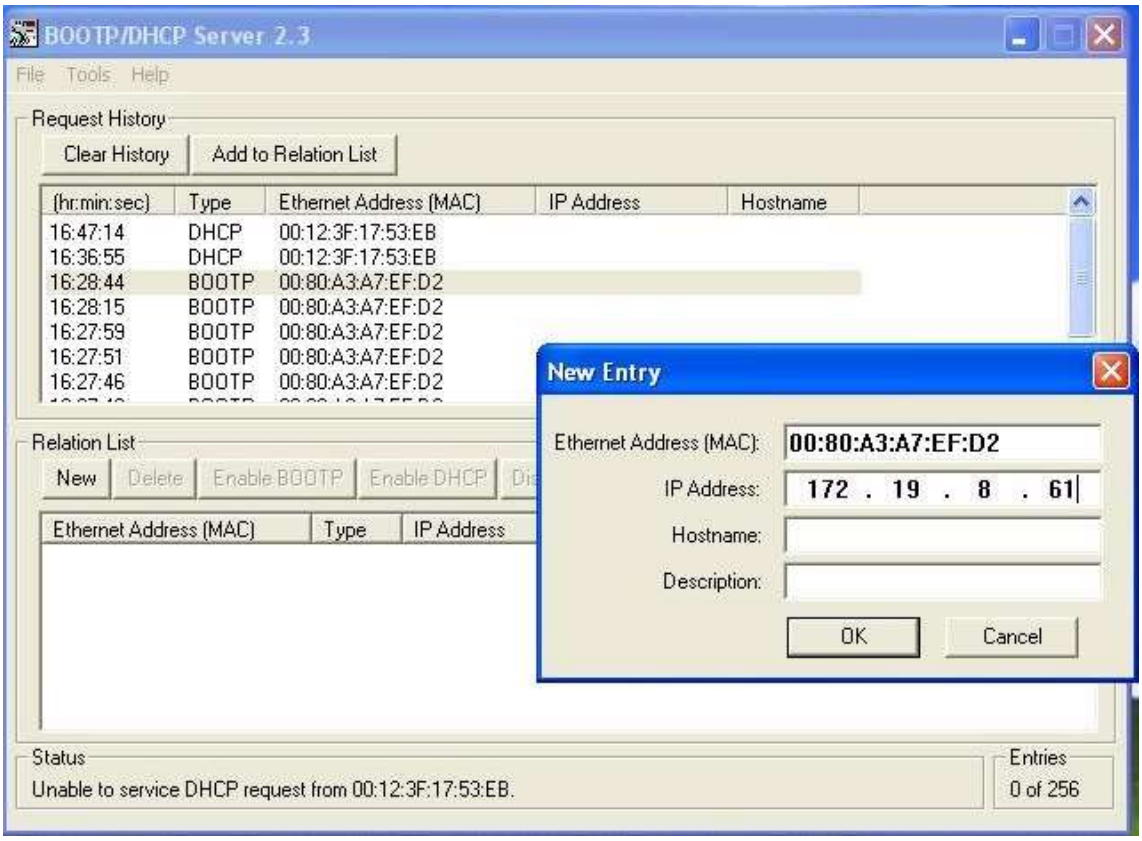
1.2 Highlight the device in the selection list



1.3 Click Add to Relation List



1.4 Enter the IP address and press OK



The XPort device server module is now configured.

Step Two

The LCT2 can be configured, calibrated and run in various test modes via its RS-485 port using Modbus RTU protocol. A free PC utility ***coming soon***.

SYSTEM CALIBRATION

The LCT2 supports several robust calibration modes including single point span, multi-point span, digital corner balancing and mV/V calibration.

Documentation ***coming soon!***

EIP COMMANDS

The LCT2 is packed with several robust EtherNet/IP (EIP) commands including read combined weight, read individual channel weight, read ADC (each channel), configure individual channels, calibration, etc.

NOTE: LCT-2(EIP) uses Little Endian Data format
(example: 0x12 0x34 0x56 0x78 =>0x78563412)

1. READ FOUR CHANNEL A/D COUNTS

Using controller software or EIPScan tool, create a Class 1 I/O connection per the data listed in the following table:

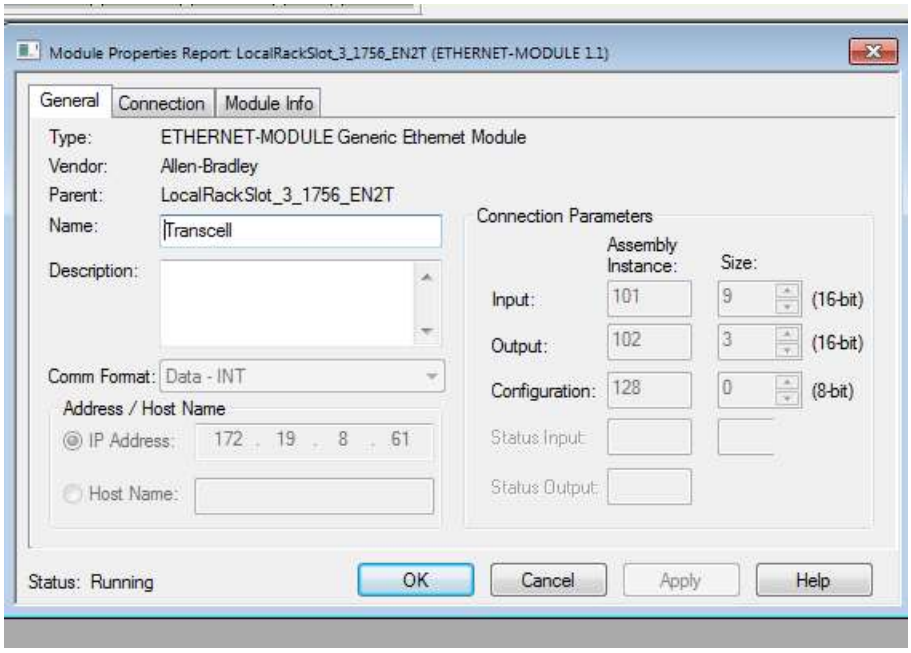
Input T->O	Assembly instance=0x65(101)	
	Size = 18 bytes	9 (16-bits)
Output O->T	Assembly instance=0x66(102)	
	Size = 6 bytes	3 (16-bits)
Configuration	Assembly instance=0x80(128)	
	Size = 0	0 (16-bits)

(T->O data: 2 bytes of status + 16 bytes of A/D count = 18 bytes)

(O->T data: 2 bytes of status + 4 bytes of register value = 6 bytes)

Continued =>

1.2 Working Generic Module.



1.3 Working generic module's data table values (16-bit Data):

Status is located at Data [0],

Loadcell-1 A/D count is located at Data [1] and Data [2],

Loadcell-2 A/D count is located at Data [3] and Data [4],

Loadcell-3 A/D count is located at Data [5] and Data [6],

Loadcell-4 A/D count is located at Data [7] and Data [8],

Transcell:I.Data	{...}
Transcell:I.Data[0]	0
Transcell:I.Data[1]	0
Transcell:I.Data[2]	13218
Transcell:I.Data[3]	0
Transcell:I.Data[4]	8435
Transcell:I.Data[5]	0
Transcell:I.Data[6]	1219
Transcell:I.Data[7]	0
Transcell:I.Data[8]	8924

2. READ FOUR CHANNEL A/D COUNTS + FOUR CHANNEL WEIGHT VALUES

NOTE: LCT2 with EIP must first be configured via its RS485 port – contact factory for more details

Using controller software or EIPScan tool, create a Class 1 I/O connection per the data listed in the following table:

Input T->O	Assembly instance=0x65(101)	
	Size = 34 bytes	17 (16-bits)
Output O->T	Assembly instance=0x66(102)	
	Size = 6 bytes	3 (16-bits)
Configuration	Assembly instance=0x80(128)	
	Size = 0	0 (16-bits)

(T->O data: 2 bytes of status + 16 bytes of A/D count + 16 bytes of Weight = 34 bytes)

(O->T data: 2 bytes of status + 4 bytes of register value = 6 bytes)

3. READ FOUR CHANNEL A/D COUNTS + FOUR CHANNEL WEIGHT VALUES + COMPOUND WEIGHT + STATUS

NOTE: LCT2 with EIP must first be configured via its RS485 port – contact factory for more details

Using controller software or EIPScan tool, create a Class 1 I/O connection per the data listed in the following table:

Input T->O	Assembly instance=0x65(101)	
	Size = 42 bytes	21 (16-bits)
Output O->T	Assembly instance=0x66(102)	
	Size = 6 bytes	3 (16-bits)
Configuration	Assembly instance=0x80(128)	
	Size = 0	0 (16-bits)

(T->O data: 2 bytes status + 16 bytes A/D count + 16 bytes Weight + 8 bytes compound WT & Status = 42 bytes)

(O->T data: 2 bytes status + 4 bytes register value = 6 bytes)

Transcell Tech Support: (847) 419-9180

Limited 12-month Warranty

This product is warranted by Transcell Technology against manufacturing defects in material and workmanship under normal use for twelve (12) months from the date of purchase. For complete warranty details and service information, please contact us at the address below.

Contents subject to change without notice.

Transcell Technology, Inc.
975 Deerfield Parkway
Buffalo Grove, IL 60089
Tel (847) 419-9180
Fax (847) 419-1515
Web: www.transcell.com