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# Chapter 1

## Display Descriptions

This installation and set up booklet covers four (4) models of remote displays:

RL16 1" LED,

RL16 SlimLine 1" LED

RL26 2" LED

RL36 3" LCD.

All are housed in NEMA 4 or NEMA 4X enclosures, and are provided with a graphics overlay panel with scratch resistant window. LCD units come equipped with back light as a standard.

Power supplies for these displays are 110 VAC or 220 VAC. All accept serial data via RS-232, RS-422, or 20mA current loop active or passive mode.

Enclosure & Mounting dimensions for each device:

RL16 1" Remote:  
8" x 6" x 4" Deep  
Mounts @ 8-1/2" L x 4" H

RL16 SlimLine 1" Remote:  
8" x 6" x 2" Deep  
Mounts @ 7-1/4" L x 3-3/4" H

RL26 2" Remote:  
14-1/2" x 6" x 4-1/4" Deep  
Mounts @ 13.40" L x 4.33" H

RL36 3" Remote:  
16" x 7-1/4" x 4" Deep  
Mounts @ 15.0" L x 7.87" H

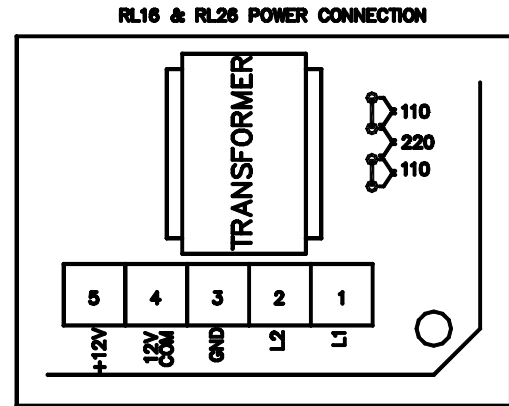
# Chapter 2

## Display Installation

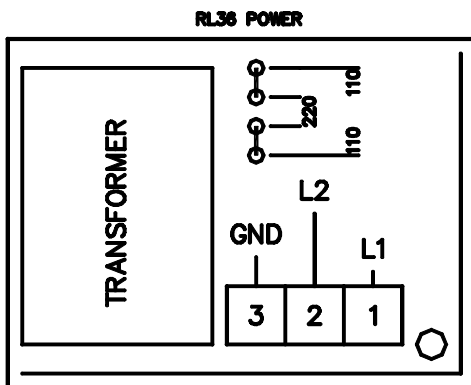
The Display enclosure is provided with mounting feet or through-holes for wall mount. Use #10 screws to secure the enclosure. Please note that mounting feet on the 1" displays are rotated underneath the enclosure for shipping purposes. Simply loosen the mounting foot screw and rotate the foot to proper position.

### 2.1 Power Connections

The Model RL16 1" Remote and the RL26 2" LED Remote both use a two board design; display board and mother board. The mother board contains a set of terminals as shown below. 110 VAC connects to terminal strip TB4, terminals 1, 2, & 3. All terminal strips on the #928 mother board are Header/Plug type, with the Plug removable for easy termination. To disconnect, grasp the top portion of the terminal block and pull straight up and away from the board.



Single Board RL16 SlimLine, and RL36 have power terminals located adjacent to the transformer, numbered 1, 2, & 3.



### 2.2 Serial Interface Connections

All models of Universal Remotes are capable of communicating via RS-232C, RS-422, and 20mA Current Loop; Active (current source in weigh meter), or Passive (current source in remote display)

All remotes also contain a set of three (3) colored LED's to assist in confirming proper interconnection and data communication.

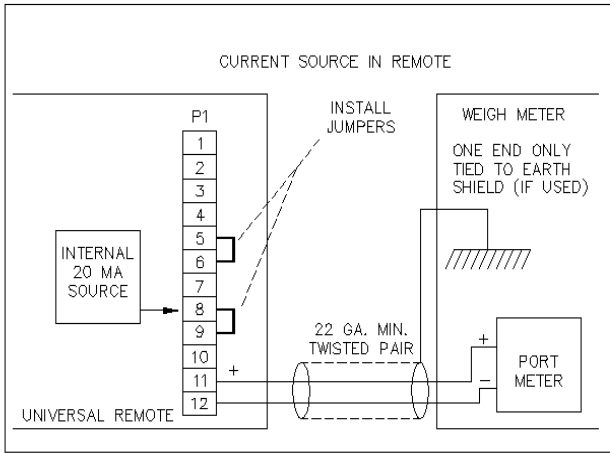
The GREEN LED is on if the serial connection is correct and the circuit is at "idle" or in a marking state. (connected but no data transferring)

The RED and GREEN LED's will toggle back and forth when data is being transmitted. If this occurs but no or meaningless data is displayed, then a change in either the protocols or data string may be required.

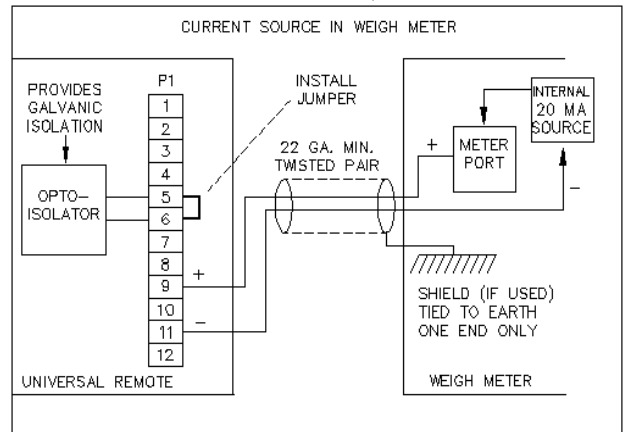
The Yellow LED confirms proper connection of the RS-422 port and will toggle on and off when data is transmitted.

It is critically important to install jumpers as shown in the following diagrams.

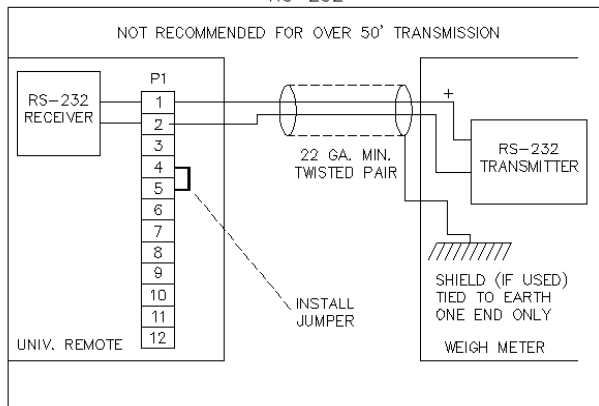
20mA Current Loop – Passive



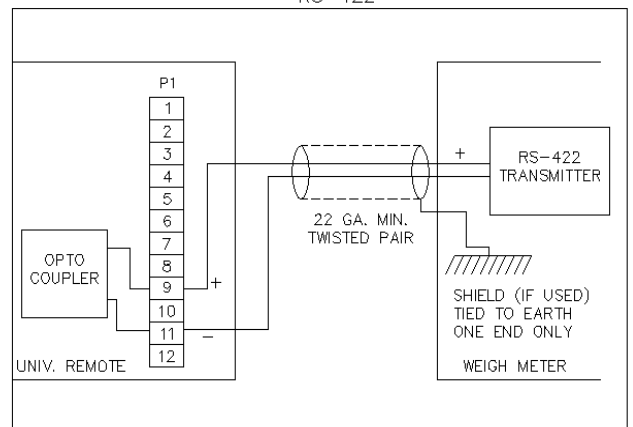
20mA Current Loop – Active



RS-232



RS-422



# Chapter 3

## Display Configuration

The following pages contain diagrams describing the dip switch settings required to configure the Universal Remote for use with your particular weigh meter or controller.

The first diagram labeled PROTOCOL offers a wide choice of Baud rate and hand shaking parameters. The second diagram labeled METER SELECTION is used to select one of three "UNIVERSAL" program codes that will recognize your weigh meter's particular data string.

If you are unable to get the Universal Remote "On-Line", please check your device port to insure it is transmitting data on a continuous mode, not on demand mode. Once you have established proper wiring and data transmission, and the remote still does not function properly, call our factory for further assistance. The following information will be necessary:

Weigh Meter or Device Model Number and Serial Number  
 Serial Port (please identify which port you're connected to if there's more than one)  
 Baud Rate  
 Hand Shaking (protocol data)  
 Sample of typical data string being transmitted.  
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Some devices such as those manufactured by Flex-Weigh and GSE offer a wide variety of data string configurations and protocols. Contact the factory for specific information on requirements for these devices.

Other devices such as those manufactured by Fairbanks Scales and Toledo Scale do not offer a true continuous data transmission. In these cases, a special dip switch setting will allow for a "time out" duration to exist between messages without causing the Universal Remote to detect and display an error message.

Thompson Scale will make every effort to establish communications between your weigh meter and the Universal Remote. New selections can be easily added at no additional cost.

Both tables shown below use 1's to designate On and 0's to designate Off positions of dip switches SW1 and SW2.

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### Meter Protocol

Dip Switch "SW1"

1	2	3	4	5	6	7	8	
0	0	0	0	0	0	0	0	19200 Baud
0	0	0	0	0	0	0	1	9600 Baud
0	0	0	0	0	0	1	0	4800 Baud
0	0	0	0	0	0	1	1	2400 Baud
0	0	0	0	0	1	0	0	1200 Baud
0	0	0	0	0	1	0	1	600 Baud
0	0	0	0	0	1	1	0	300 Baud
0	0	0	0	1				2 Stop Bits
0	0	0	0	0				1 Stop Bit
0	0	0	1					Parity Enabled
0	0	0	0					No Parity
0	0	1						8 Data Bits
0	0	0						7 Data Bits
0	1							Odd Parity
0	0							Even Parity
1								10 Second Time Out
0								2 Second Time Out

### Meter Selection

Dip Switch "SW2"

1	2	3	4	5	6	7	8	
0	0	0	0	0	0	0	0	"Universal" #3
0	0	0	0	0	0	0	1	Thompson 3657, Ver. 6.x
0	0	0	0	0	0	1	0	Special 810 or TSC 4693
0	0	0	0	0	0	1	1	WeighTronix WI-120 & 130
0	0	0	0	0	1	0	0	Cardinal 738
0	0	0	0	0	1	0	1	"Universal" #1
0	0	0	0	0	1	1	0	Thompson 3657, Ver. 5.x
0	0	0	0	0	1	1	1	Test/Demo Mode
0	0	0	0	1	0	0	0	Fairbanks (Most Models)
0	0	0	0	1	0	0	1	"Universal" #2
0	0	0	0	1	0	1	0	Thiele (Bemis) Computrac
0	0	0	0	1	0	1	1	Test Program
0	0	0	0	1	1	0	0	Toledo 8132 & 8142
0	0	0	0	1	1	0	1	Rice Lake 6500 Count Scale
0	0	0	0	1	1	1	0	Digi Model 120
0	0	0	0	1	1	1	1	Tara Instruments
0								Time out to "Error" Mode if No Data
1								No Time Out

Universal #1 Expects a Checksum before the Carriage Return/Line Feed

Universal #2 Does Not expect a Checksum before Carriage Return/Line Feed

Universal #3 Ignores Checksum. Try this one first.

TSC ver 5 & 6 are for Thompson Scale Model 3657 Checkweighers.

Thompson Scale 4693 Checkweighers and Filler Controls use "Universal #3"

The list below contains information on some of the known weighmeter interfaces:

**A & D AD-4322:** Set SW2 in remote to UNIVERSAL #3

**A & D AD-4323:** Set SW2 in remote to UNIVERSAL #3

**Applied Forces #F4** Set SW2 in remote to #5, 6, 7, & 8 ON

**Cardinal 748:** Set SW2 in remote to UNIVERSAL #3  
In configuration - set up mode, go to prompt "SB400?"  
Choose yes or no. Choices described below.

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**Flex-Weigh DMW IV:** Set SW2 in remote to UNIVERSAL #3  
**See Appendix A** This device offers many serial configuration options. Appendix A contains specific information on configuration of the DMW for use with the RL16/26/36 displays.

**GSE Scale 550:** Set SW2 in remote to #5 ON, all others OFF

**Ohaus I10 or I20:** Set SW2 in remote to UNIVERSAL #3

**Pennsylvania 5400:** Set SW2 in remote to #4 ON, All others OFF \*Requires special configuration of the 5400. See Appendix A.

**Pennsylvania 7400** Set SW2 in remote to UNIVERSAL #3

**Rice Lake IQ310:** Set SW2 in remote to UNIVERSAL #3

**Rice Lake IQ550/600/700:** Set SW2 in remote to UNIVERSAL #3

**Rice Lake IQ6500:** Set SW1 in remote to 4 & 7 On. Set Counting Scale SW2 to 5, 6, & 8 On.

**Rice Lake IQ810:** Set SW2 in remote to UNIVERSAL #3

**Sensortronics 2205:** Set SW2 in remote to UNIVERSAL #3

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NO = CR, Polarity (+= spc., -=), leading zeros & weight value with decimal, status bit (motion or no motion), spc, Units (lb./kg/oz/g), spc, G/N/T bit, spc, spc, ETX.

YES= Polarity, leading spaces & weight value with decimal, status bit, spc, Units, spc, G/N/T bit, spc, spc, ETX

spc = space. commas used to define text. not used as delimiters in ASCII string.

**Consolidated Controls:** Set SW2 in remote to UNIVERSAL #3 UMC555/600/700

**Digi DC-120 Counting Scale** Set SW1 to 4 & 7 On. Set SW2 to 5, 6, & 7 On.

**Fairbanks H90-167-1:** Set SW2 in remote to #5 ON, all others OFF

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**Toledo 8142:** Set SW2 in remote to #5 & 6 ON, #7 & #8 OFF

**Toledo 8522:** Set SW2 in remote to #5 & #6 ON, #7 & #8 OFF

**Toledo 8530:** Set SW2 in remote to UNIVERSAL #2

**Transcell TI-500:** Set SW2 in remote to UNIVERSAL #2

**Tyrell Scale TC10S:** Set SW2 in remote to UNIVERSAL #3

**Weigh-Tronix WI-120:** Set SW2 in remote to UNIVERSAL #1

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## IQ810 with Multi-Scale (up to 4) & Thompson Scale 4693 Multi-Spout Filler Controller

Special programming available for the Rice Lake Weighing Systems IQ810 and the Thompson Scale Model 4693 Filler controller allow for transmission of a prefix letter corresponding to each of up to four channels. That is to say, weight data from scale #1 is prefixed with the letter "A", scale #2 is prefixed with "B", and so on.

Special programming within the Thompson Scale Universal Remote allows for dip switch settings to extract weight data from only one selected channel. In this way, a set of up to four universal remotes may be strung together, each displaying weight data for a separate scale.

### *Dip Switch "SW2"* Special Programming

Dip switch Position	2	3	
	0	0	"A" Prefix String
	0	1	"B" Prefix String
	1	0	"C" Prefix String
	1	1	"D" Prefix String

## Chapter 4

### Trouble Shooting

The Universal Remote contains an error code "Error 1", which indicates the device transmitting to the display is not properly connected, protocol is incorrectly set, or meter selection is not correct. This error will also display if data transmission is interrupted for more than two (2) seconds if the timeout feature is not enabled.

Another common problem is valid data being interrupted by flashes of erroneous data. This is almost always caused by a missing or faulty ground or incorrectly set Baud rate.

The Green LED found on the rear of single board designs, and on the motherboard of two board designs, indicates the serial connection has been established. If the Green LED is off, then communications are not established between the scale device and the remote.

The Red and Green LED's are used in conjunction to indicate the actual transmission of data to the remote. If these LED's do not toggle back and forth, then data is not being transmitted by the scale device.

The Yellow LED is for RS-422 connections only, and will be steadily on when the link is established, and will blink or toggle on and off as data is transmitted over the link.

Trouble shooting basically consists of verifying dip switch settings and connections to your particular device. Once the device interconnections are complete, and the meter and display are both powered up, the Universal Remote will light all digits and decimal places for about 2 seconds, then go blank for a period of approximately 1 second before displaying active data.

**When making changes to dip switches, always power the remote off and back on. The microprocessor reads the dip switches on power up only and will not recognize changes until power is cycled off and then back on again.**

# Spare Parts

RL16 Mother Board	#928A board
RL16-LED Display	#9282 board
RL16 SlimLine Board	#9289 board
RL26-LED Mother Board	#928A board
RL26-LED Display	#9285 board
RL36 Single Board	#9287
RL36 Back Light Lamp	#9287LP
Power Supply Fuse	#3AG - 1 amp

## Appendix A

**Flex-Weigh DMW-IV Weigh meter configuration** must be set as shown below to be compatible with any Thompson remote.

Enter the Set-Up Procedure: Function Select Enable

START AT F3.0

- F3.0 Baud Rate Select: 12 (1200 Baud)
- F3.1 Parity Select: d (Disable)
- F3.2 Checksum Transmit: d (Disable)
- F3.3 Delay after CR-LF: 0.1
- F3.4 Consecutive Number Print: d (Disable)
- F3.5 I.D. Print: d (Disable)
- F3.6 Negative Print: d (Disable)
- F3.7 24 Hour Clock: E (Enable)
- F3.8 Preamble Character: (leave blank)  
Postamble Character: (leave blank)

## Product Warranty

New equipment manufactured by Thompson Scale Co., referred to herein as "the Company" is warranted against defects in workmanship and materials for a period of twelve (12) months from the date of shipment to the original user, subject to the limitations hereinafter set forth. Should any such defect be found and reported during that period, the Company will correct such deficiency furnishing necessary replacement parts and technician's service free of charge, providing the equipment is returned to Thompson Scale Company freight pre-paid.

This warranty shall not apply to any equipment where installation, calibration, or servicing of such equipment is made by other than personnel authorized by the Company, or where subjected to accident, alteration, or abuse, or is stored in a manner not approved by the Company.

The Company's liability under this warranty or any other warranty expressed or implied in law or fact will be limited to the repair or replacement at the Company's discretion for defective material or workmanship, and in no event shall it be liable for consequential or indirect damage.

Thompson Scale Co., Inc. makes no warranty, expressed or implied as to the suitability of this equipment for use in an explosive or hazardous environment.

- F4.0 Print Mode: 3 (positive value specified below)
- F4.1 Continuous Mode: Setting #4 (continuous)
- F4.2 Weight Change (%): 10% of your standard default
- F4.3 Minimum Print: 30 or your standard default
- F4.4 Bidirectional Communications: d (Disable)
- F4.5 Weight Data Format: 0 (Displayed Weight Only)
- F4.6 Time/Date Print Format: 0 (Disable)
- F4.7 Weight, Time/Date, ID and CN Print Format: 0 (Weight, ID, Time/Date, CN)
- F4.8 Total, Time/Date, ID and CN Print Format: 0
- F4.9 Weight Accumulation Enabled: d (Disable)
- F5.0 Piece Weight Enable: d (Disable)
- F5.1 Consecutive Number Enable: d (Disable)
- F5.2 ID Number Enable: d (Disable)
- F5.3 Total-Subtotal Enable: d (Disable)

F5.4 Time/Date Enable: d (Disable)

F5.5 Presets Enable: d (Disable)

F5.6 Recall Tare Enable: d (Disable)

NOTES

Remaining functions from F6.0 on will not affect data transmission

### **Pennsylvania Scale #5400 Counting Scale**

This device requires a special remote display setting of Dip Switch #2 (SW2) set to #4 ON, All others OFF. This special setting will display WEIGHT ONLY. Does not the count.

Protocol for the 5400 should be set to:

9600 Baud; 8 Data Bits; 1 Stop Bit; NO Parity

The 5400 must be configured to transmit "Displays" continuously:

Cal Step 16 2 Toggle standard BSAI abbreviated output (ABO) only

Cal Step 18 2 Continuous ABO's Interrupted by other transmission activity

Cal Step 19 0 Displays Only

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