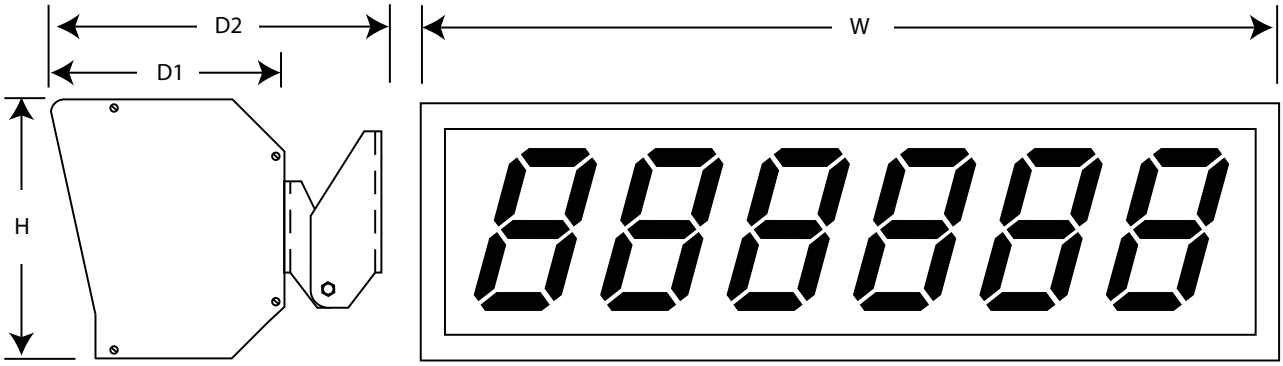
Contents

Mounting Dimensions/Viewing



Display Information

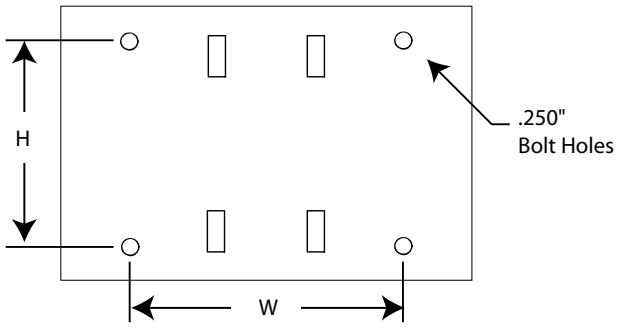
Viewing Distances (Ft.)

Model	W	X	H	X	D1	X	D2	Shipping Weight	Minimum	Optimum	Maximum
SBL-2	12.25		4.75		5.625		8.375	8 lbs.	2′	5-25′	75′
SBL-4	26		8.375		7		9.75	23 lbs.	10′	20-100′	150′
SBL4-SG	29.75		8.375		7		9.75	25 lbs.	10′	20-100′	150′
SBL-6	35.375		10.375		7		9.75	35 lbs.	15′	50-200′	250′
SBL-6SG	39.25		10.375		7		9.75	39 lbs.	15′	50-200′	250′
SBL-9	60		14.375		7		9.75	oversized	25′	75-300′	375′
SBL-9SG	69.5		14.375		7		9.75	oversized	25′	75-300′	375′

Mounting Dimensions

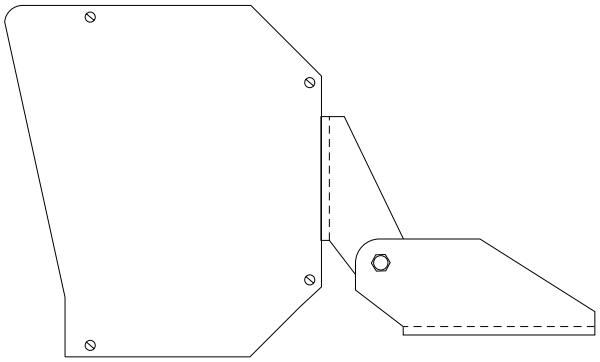
Model	W	H
SBL-2	4″	3″
SBL-4	4″	3″
SBL-6	8″	3″
SBL-9*	8″	3″

*Two mounting brackets used

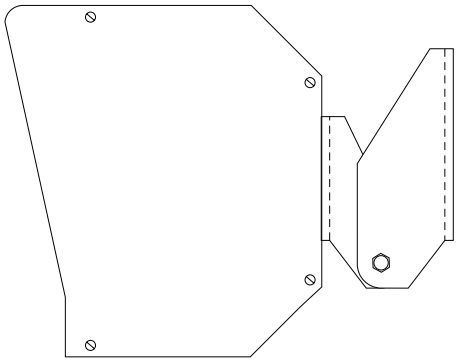


Mounting Options

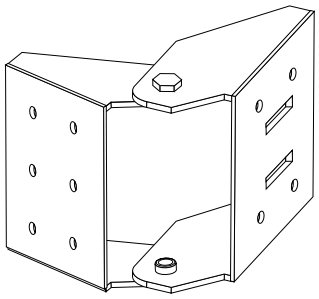
Roof Mount



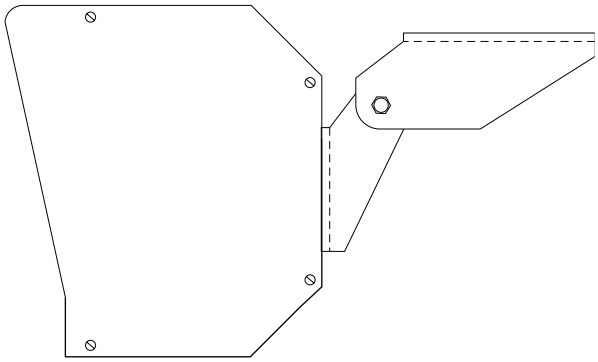
Wall Mount



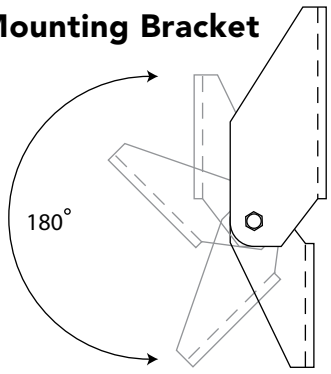
Side Mount



Eave Mount



Mounting Bracket



Connect the Scale indicator using the appropriate diagram.

	Indicator	Pin	Display
Indicators with Active 20 mA Output	+20mA	6	CL (+)
	–20mA	5	CL (–)
Indicators with Passive 20 mA Output	+20mA	1	VCC
		2	GND ┐ JUMP
		5	CL(–) ┘
	–20mA	6	CL(+)
Indicators with RS232 Output	TXD	3	232 RXD
	GND	2	GND
Indicators with RS422 Output	TX 422A (+)	7	RX 422A
	TX 422B (–)	8	RX 422B

Connector Pin Out

1	VCC
2	GND
3	232 RXD
4	232 TXD
5	CL(-)
6	CL(+)
7	RX 422A
8	RX 422B
9	TX CL(-)
10	TX CL(+)
11	TX 422A
12	TX 422B
13	13 GREEN
14	14 RED

The corresponding green LED will blink when the following three requirements are satisfied.

1. The display is powered on.
2. The indicator's port is enabled to transmit continuously.
3. The wires are connected to the terminal block as previously described.

The display will learn "automatically configure"to the transmitting device when the **LEARN** button is pressed at the end of startup. It will display the BAUD rate and then display the weight. Pressing LEFT or RIGHT will move the displayed stream accordingly until the desired data can be seen on the display.

Quick Setup Procedures

If possible place a weight on the scale. Wire up the display according to Section 2 and configure the transmitting device to output continuously. Press and release the RESET button on the display. While the display is counting down from 9 to 0 hold the LEARN button. At the end of countdown the display will flash a "LEARN" then the BAUD rate such as 1200 and then the weight. Shift the data using the LEFT and RIGHT buttons until the desired weight is in view.

SBL Series Specs

Power

117 VAC or 12 VDC
2 Amp max
12 Watt (AVG)
26 Watt (MAX)

Interface

RS 232
20 mA Current Loop Active/Passive
RS 422

Protocol

8 Data bits No Parity
7 Data bits Odd Parity
7 Data bits Even Parity
300 to 19200 Baud

The SBL Series has an echo feature which will take the received data stream and echo it out to further displays via RS 232, Current Loop or RS 422.
(To transmit RS 422 remove the 8 pin DS 75176 in socket U5 and place it in U8)

The echo feature transmits every other data stream unless option 4 is enabled.
See Section 6 for more details.

Section 4:
Changing Intensity

To change the display's intensity:

Press and release the **RESET** button

Hold the **RIGHT** button during countdown

At the end of countdown the **RIGHT** button will toggle between displaying "high" and "low"
(on 7 segment displays "lo" is displayed)

Select the desired intensity and press **LEARN** to save changes

Factory default is "low"

***Intensity may also be adjusted using Option 27**

Section 5:
Option Summary

To enter into the options hold the **LEFT** button during power up. At the end of the countdown the display will display "OPTION". Once in options, **LEFT** will cycle through the option numbers 0 through 20. The **RIGHT** button will toggle between On/Off for some options and will enter into an advanced menu for more complicated options. See specific options in Section 6 for more advanced option descriptions. Pressing **LEARN** at any time will save the settings and reset the display. To restore to factory default, press both the **LEFT** and **RIGHT** button simultaneously.

#	Name	Description for "ON" Value
0	Reset	Resets all settings to factory defaults
1	Version	Displays the current software version
2	Toledo / Fairbanks	Decodes Toledo / Fairbanks status bytes
3	Timeout Length	Maximum time allowed between data transmissions Default = 5 seconds
4	On Demand	Updates display when a Print button is pressed Turn ON if transmissions are more than 2 sec. apart
5	No Data	Set to display "nodata", to blank or to retain the last value when not receiving data
6	Fixed Decimal	Sets a fixed decimal point position
7	No Count Down	Does not count down on startup
8	No 0 Suppression	Does not suppress leading 0's
9	Alpha	Will display alpha and numeric characters
10	Mirror	Displays data to be seen in a rearview mirror
11	Addressable	Makes the display addressable
12	No Auto Shift	Disable auto shifting while learning
13	Shift	Set or view the shift value
14	Baud Rate	Set or view the baud rate
15	End Character	Set or view the end character
16	Minimum Weight	Sets the minimum weight to display
17	Maximum Weight	Sets the maximum weight to display
18	Blank Out Character 1	Sets a character to cause the scoreboard to blank
19	Blank Out Character 2	Sets a character to cause the scoreboard to blank
20	Blank Out Character 3	Sets a character to cause the scoreboard to blank
21	Red Stoplight	See Section 7
22	Green Stoplight	See Section 7
23	Toledo High Speed	Display annunciators for grams and ounces
24	Fairbanks Addressable	Addressable for Fairbanks 40–41
25	Fixed Annunciators	Choose the LB/KB and GR/NT annunciators incicated regarless of data stream
26	Demo Mode	Cycle through different weights as a demo
27	Intensity	Set the intensity low (off) or high (on)
28	Siemens	Use a Siemens BW500 Modbus Protocol

0: Restore Factory Defaults
Option 0 resets the display to factory default. It erases all data stored in non-volatile RAM including shift amount, baud rate, end character, and sets all options to Off. Will display On when the unit has already been learned.

1: Version
Option 1 displays the software version of the display. The unit will display the month, followed by the year. This option is only used for trouble shooting purposes.

2: Toledo
When Option 2 is set to 1 or 3 the unit will decode standard Toledo Style Data Stream. When Option 2 is set to 2 or 4 the unit will decode extended Toledo Format Stream. Settings 1 and 2 will spell annunciators for the SBL-4A and SBL-6A, while settings 3 and 4 will decode LB/KG GR/NT for standard Matko units with annunciator dots.

Status Byte A

Decimal Position	Bit 2	Bit 1	Bit 0
X	0	1	0
0.X	0	1	1
0.0X	1	0	0
0.00X	1	0	1

Status Byte B

Function	Bit
Gross / Net, Net = 1	0
Under Zero, Negative = 1	1
Overcapacity = 1	2
Motion = 1	3
Lb / Kg, kg = 1	4

3: Timeout Length
Option 3 is used to set the timeout length. The timeout length is the maximum amount of time expected between data streams before communication is considered interrupted. The default (0/Off) acts as a 5 second timeout, all other values represent the number of seconds the display will wait for a new data stream. The display will then do one of three things after the timeout depending on how Option 5 is set. The maximum timeout allowed to be set is 255 seconds. While in setup for the time out option **LEFT** decrements the value and **RIGHT** increments.

4: Display on Demand
Option 4 sets the display for On Demand mode. It is recommended to be turned on when connected to the print button of an indicator or when data is only sent once every 2 or more seconds. While in On Demand mode the display will wait for and display every data stream. While in the default (off) the display uses every other data stream to ensure data integrity.

5: No Data
Option 5 sets the display to do one of three things after a data stream time out. The default is to display "NoData". The other two options are "Clear" (blank the display) and "Hold" (keep the last weight sent). The time out length can be specified with Option 3. **RIGHT** toggles between the three choices, "NoData", "Clear", and "Hold"

6: Fixed Decimal Point
Option 6 will set the display to illuminate a decimal point when it is not present in the data stream. Default (off) will show a decimal point only where it is located in the data stream. All other values represent the digit to attach a decimal point to, starting from right to left.

Value	Decimal Placement
0	Default
1	######
2	#####.#
3	####.##
4	###.###
5	##.####
6	#.#####

7: No Count Down
Option 7 set to 1 will disable any countdown upon power up. Setting option 7 to 2 will prevent the remote display from testing the annunciators, decimal point and stop and go lights during countdown as well as prevent the software revision from being displayed after countdown.

8: No Zero Suppression
Option 8 will disable the display's ability to suppress leading "0"s with spaces. The default (off) will display a space for all leading "0"s up to the final two in the 1s and 10s column or up to a "0" immediately in front of a decimal point. For example when the option is off the stream "000000" will become " 00" and the stream "0000.00" will become " 0.00".

9: Display Alpha Characters
Option 9 will enable the unit to display both alpha and numeric characters. The default (off) will replace all non-numerics with spaces. A 7 segment display is limited by the alpha characters it can display. For example it can not display characters such as "x", "q", "k", "!" or "?".

10: Mirror
Option 10 enables a display to be read in a rear view mirror. The default (off) is for direct viewing.

11: Addressable
Option 11 will set the display to be addressable. The display will ignore any characters until the addressable character is received, then display the data immediately following it. The addressable character can be set to any character from 1 to 255. The number selected represents the decimal equivalent of the desired character. For example if an "A" is at the beginning of the data stream then you would set the address to 65. **LEFT** decrements the character value and **RIGHT** increments the character value. See Section 9 for ASCII character values. If the indicator is sending 7 data bits even or odd parity then the parity bit may change the decimal value of the character by adding 128 to it. We recommend setting the indicator to 8 data bits no parity for convenience. Default (off) uses standard data stream.

12: No Auto Shift
Option 12 will cause the scoreboard to display the first 6 characters of the data stream when it is learned. When this option is off the scoreboard will attempt to shift the weight into view when learned.

13: Shift Value
Option 13 is used to set or view the shift amount. **LEFT** decrements the value and **RIGHT** increments the value. Has the same effect as shifting Left and Right during normal operation.

14: Baud Rate
Option 14 is used to set or view the Baud rate. **RIGHT** will cycle through the options. 0/Off indicates the units has not been set, 1=300, 2=600, 3=1200, 4=2400, 5-4800, 6=9600 and 7=19200.

15: End Character

Option 15 is used to set or view the end character. When in learn mode the unit will look for an end of text(ETX), line feed(LF) and a carriage return(CR), which have decimal values of 3, 10, and 13 respectively. Any character may be manually selected through this option be setting it to the desired decimal equivalent of the desired character. **LEFT** decrements the character value and **RIGHT** increments the character value. See Section 9 for ASCII character values. If the indicator is sending 7 data bits even or odd parity then the parity may change the decimal value of the character by adding 128 to it. We recommend setting the indicator to 8 data bits no parity for convenience.

16: Minimum Weight

Option 16 sets the minimum weight that the unit will display. **LEFT** will change the value of the selected digit and **RIGHT** will change which digit is selected. For example if you set the minimum weight to "000030" and the indicator is sending "000000" then the display will go **BLANK** until the threshold value is exceeded.

17: Maximum Weight

Option 17 sets the maximum weight that the unit will display. **LEFT** will change the value of the selected digit and **RIGHT** will change which digit is selected. For example if you set the maximum weight to "100000" and the indicator is sending "120000" then the display will go **BLANK** until the weight drops below the threshold value.

18: Blank Out Character 1

Option 18 sets a character in the data stream to look for to blank the display. For example if you want the display to blank when over capacity and the indicator sends an "O", set option 18 to 79.

19: Blank Out Character 2

Option 19 sets a character in the data stream to look for to blank the display. For example if you want the display to blank when over capacity and the indicator sends an "O", set option 18 to 79.

20: Blank Out Character 3
Option 20 sets a character in the data stream to look for to blank the display. For example if you want the display to blank when over capacity and the indicator sends an "O", set option 18 to 79.

21: Red Stoplight
See section 7.

22: Green Stoplight
See section 7.

23: Mettler Toledo High Speed
Annunciators will display according to the following chart when the designated character is in the data stream using the Mettler Toledo high Speed data format.

Character	Display	Designator for
"G" or "g"	"G"	Gross Weight
"N" or "n"	"N"	Net Weight
"L" or "l"	"L"	Pounds
"K" or "k"	"kg"	kilograms
"M" or "m"	"gr"	grams
"Z" or "z"	"oz"	Ounces

24: Fairbanks Addressable
Set option 24 only if the Fairbanks indicator is sending out multiple streams, ie. gross and tare weights. Set the option according to the chart.

Value	Addressable for	Value	Addressable for
1	40 with 7 data bits odd parity	7	42 with 7 data bits even parity
2	41 with 7 data bits odd parity	8	43 with 7 data bits even parity
3	42 with 7 data bits odd parity	9	40 with 8 data bits no parity
4	43 with 7 data bits odd parity	10	41 with 8 data bits no parity
5	40 with 7 data bits even parity	11	42 with 8 data bits no parity
6	41 with 7 data bits even parity	12	43 with 8 data bits no parity

25: Fixed Annunciators

Option 25 will disregard the characters in the data stream and force the annunciators on according to the following chart

Value	SBL-2	SBL-4 and SBL-6	SBL-4A and SBL-6A
0	Use data stream	Use data stream	Use data stream
1	LB - GR		lb - G
2	KG - GR		kg - G
3			gr - G
4			t - G
5			T - G
6			to - G
7		KG - NT	pw - G
8		LB - NT	oz - G
9	LB - NT		lb - N
10	KG - NT		kg - N
11			gr - N
12		LB - GR	t - N
13			T - N
14		KG - GR	to - N
15			pw - N
16			oz - N

26: Demo Mode

Option 26 is used to set the display to cycle through various weights for use as a demo unit without connecting to an indicator.

27: Intensity

Option 27 is used to set the LED intensity to low (OFF) or High (ON). See Section 4 for an alternative way to set the intensity.

28: Siemens

Option 28 enables the remote display to use a Siemens Milltronics BW500 Integrator and will direct the remote into a Siemens Sub Menu. Siemens Sub Menu Options may be downlaoded at www.matko.com/siemens

Stoplight Instructions

The Stoplight Requires that options 21 and 22 be set for the desired configuration*
Pin 2 (GND) can be shared with the Stoplight and RS232 Signal Ground.

Switch
Option 21 = 1
Option 22 = 1
Connect a dry contact switch between pins 13 and pin 2 (GND).
Circuit Logic:
Open = Red, Closed = Green

Single Line TTL
Option 21 = 1
Option 22 = 1
Connect a TTL Output to Pin 13 and reference a common Ground from the transmitting device to Pin 2 (GND).
Circuit Logic TTL:
High = Red, Low = Green

Dual Line TTL (Open On)
Option 21 = 2
Option 22 = 2
Connect TTL Green Control Line to pin 13
Connect TTL Red Control Line to pin 14
Reference a common Ground between the display and outputting device.

Result
High turns Light On, Low turns Light Off

Dual Line TTL (Closed On)
Option 21 = 3
Option 22 = 3
Connect TTL Green Control Line to pin 13
Connect TTL Red Control Line to pin 14
Reference a common Ground between the display and outputting device.

Result
High turns Light Off, Low turns Light On

Momentary Green
Option 21 = 4
Option 22 = ####
Connect a switch between Ground and Pin 14. When pin 14 goes low the light will toggle from red to green and remain green for a certain number of data streams set with Option 22, then will go back to red.

Momentary Red
Option 21 = 5
Option 22 = ###
***Both options 21 and 22 must be set to a value of 6 or higher. Setting only one option will cause the remote to ignore ASCII control codes.**
Connect a switch between Ground and Pin 13. When pin 13 goes low the light will toggle from green to red and remain red for a certain number of data streams set with Option 22, then will go back to green.

ASCII Control
Option 21 = Any ASCII character from 06(ACK) to 127(DEL) for the Red light.
Option 22 = Any ASCII character from 06(ACK) to 127(DEL) for the Green light.
***Both options 21 and 22 must be set to a value of 6 or higher. Setting only one option will cause the remote to ignore ASCII control codes.**

Result
When the character set in option 21 is in the data stream the Red light will be on.
If the character is not in the data stream then the Red light will be off.
When the character set in option 22 is in the data stream the Green light will be on.
If the character is not in the data stream then the Green light will be off.
***When option 2 is set to 2 the stoplight will be controlled by the appropriate status byte.**
Setting options 21 and 22 will over ride the Toledo option byte.

Serial Traffic Commands
Option 21 = 0
Option 22 = 4
The Serial Traffic commands can be used to set the traffic lights with one time commands. Unlike the standard ASCII Control which controls the traffic lights via a character constantly within the stream, this option will set the traffic light based on the command code sent once and then that state will hold until a new command is sent. The command character must be within a set data stream format. If Option 11 is set then the command code must be after the addressable character and must be before the end character set as option 15. The command may be sent as a part of a larger stream including weight or in a simple two character stream of command character followed by the end character. The four command characters are:

DC1 (Decimal 17) = Turn Red Light On
DC2 (Decimal 18) = Turn Green Light On
DC3 (Decimal 19) = Turn Both Lights Off
DC4 (Decimal 20) = Turn Both Light On

Axle System Programming

There are three types of programs to select from to control traffic to receive axle weights and totals.

- A simple Axle Scale
- An Inbound Truck Scale (driving on)
- An Outbound Truck Scale (driving off)

The general rule for all systems is a green light means the remote is ready to accept the next axle.

A red light means to come to a stop when the next axle is in position.

Axle Scale Program – Use only with axle scales

Set Option 21 = 0
Set Option 22 = 6
Sequence of Operations

- Scale is at zero with a green light.
- Truck pulls on first axle. The light will turn red signaling to stop when the axle is in position. Once stable it will display "A-1" for axle 1 then will show the weight.
- The light will turn green to signal ready for next axle.
- Truck will pull on each additional axle on the scale one at a time. The light will turn red to signal stop when axle is in position, display "A-N" for the axle number then the weight.
- After the last axle is weighed and the truck pulls off the display will show "total" then the total weight of all axles.
- The system will then reset for the next truck with a green light.

Inbound Truck Scale Program – Use with a full truck scale

Set Option 21 = 0
Set Option 22 = 7
Sequence of Operations

- Scale is at zero with a green light.
- Truck pulls on first axle. The light will turn red signaling to stop when the axle is in position. Once stable it will display "A-1" for axle 1 then will show the weight.
- The light will turn green to signal ready for next axle.
- Truck will pull on each additional axle on the scale one at a time. The light will turn red to signal stop when axle is in position, display "A-N" for the axle number then the weight.
- After the last axle is weighed and the truck remains on the scale. The display will show "total" then the total weight of all axles.
- The system will then reset for the next truck with a green light.

Outbound Truck Scale Program – Use with a full truck scale

Set Option 21 = 0
Set Option 22 = 8
Sequence of Operations

- Scale is at zero with a green light.
- Truck pulls all the way onto the scale. The light will go red signaling stop when in position. After the scale is stable it will display "total" then display the total weight.
- The light will turn green to signal ready to remove the next axle.
- Truck pulls off first axle. The light will turn red signaling to stop when the axle is in position. Once stable it will display "A-1" for axle 1 then will show the weight.
- Truck will pull off each additional axle on the scale one at a time. The light will turn red to signal stop when axle is in position, display "A-N" for the axle number then the weight.
- After the truck pulls off the scale and the last axle is displayed the system will reset and the light will turn green.

Transceiver Setup

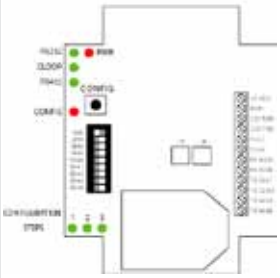


Figure 2 **–XT300 Transceiver**

1. Set the upper 5 DIP switches on the transceiver to the same baud rate as the indicator. If all switches are set to off or more than one switch is turned on then the unit will default to 9600 baud
2. Set the dip switch 1to 4 on the transceiver for a system ID. There are 16 possible system IDs available 0 (all off) to 15 (all on). If more than one wireless system are present each system requires a unique ID
3. Press the CONFIG button on the transceiver to save the dip switch settings. The three green configuration LEDs will illuminate as setup progresses. LED 1 indicates setup initiated. LEDs 1 and 2 indicate internal communication established. LEDs 1, 2, and 3 indicate setup complete. If there is a problem with configuration the red CONFIG LED will blink every 5 seconds up to 6 times as internal communication is re-established. The red CONFIG LED will then blink several times rapidly. Wait a minimum of 5 seconds before pressing CONFIG again.
4. Wire the transceiver to the indicator according to Figure 1. When properly wired the corresponding LED (RS232, CLOOP, or RS422) will blink with each data transmission

Receiver Setup

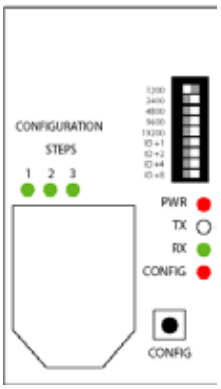


Figure 3 **–XT300 Receiver**

1. Set the dip switch 5 to 9 on the transceiver to the same baud rate as the indicator. If all switches are set to off or more than one switch is turned on then the unit will operate at 9600 baud
2. Set the dip switch 1to 4 on the transceiver for a system ID. There are 16 possible system IDs available, 0 (all off) to 15 (all on) for the XT300, 2 IDs for the XT200 and 1 ID for the XT100. If more than one wireless system is present each system requires a unique ID. All transmitters and receivers on the same system must have the same system ID
3. Press the CONFIG button on the transceiver to save the dip switch settings. The three green configuration LEDs will illuminate as setup progresses. LED 1 indicates setup initiated. LEDs 1 and 2 indicate internal communication established. LEDs 1, 2, and 3 indicate setup complete. If there is a problem with configuration the red CONFIG LED will blink every 5 seconds up to 6 times as internal communication is re-established. The red CONFIG LED will then blink several times rapidly. Wait a minimum of 5 seconds before pressing CONFIG again.
4. The RX LED will blink to indicate that the scoreboard is receiving the wireless signal.

Wiring Diagram

	Indicator	Pin	Transceivor
Indicators with Active 20 mA Output	+20 mA	6	CL (+)
	-20 mA	5	CL (-)
Indicators with Passive 20 mA Output	+20 mA	1	+9 VDC
		2	GND -JUMP
		5	CL (-) -JUMP
	-20 mA	6	CL (+)
Indicators with RS232 Output	GND	2	GND
	TXD	3	232 RXD
Indicators with RS422 Output	TX 422A (+)	7	RX 422A
	TX 422B (-)	8	RX 422B

Notes:
Mount all units in a direct line of sight with each other with all antennas on the same plane (all vertical for example).

XT400 Input Output Setup

The XT400 units have the ability for up to 4 lines of digital IO line passing, useful for stop and go light control. A built in Switch can be added for inputs. Relays can be added to outputs for remote zero and remote printing for many indicators. Each transceiver can either be set up for inputs or outputs, but not both. To make a transceiver accept digital inputs place the blue jumper on IN and place the two MCT62 ICs in the sockets under the label "IN", closest to the heat sink on the far right hand side. To make the transceiver output TTL levels place the blue jumper on OUT and place the two MCT62 ICs in the sockets under the label "OUT".

*Any serial devices can be connected using XT Series Wireless transceivers. PCs can be connected to printers or multiple indicators can be networked together… Matko remotes are not required for a wireless system.

RF Exposure

WARNING: To satisfy FCC RF exposure requirements for mobile transmitting devices, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during device operation. To ensure compliance, operations at closer than this distance is not recommended. The antenna used for this transmitter must not be co-located in conjunction with any other antenna or transmitter. The preceding statement must be included as a CAUTION statement in OEM product manuals in order to alert users of FCC RF Exposure compliance.

Product Comparison

	XT100	XT200	XT300	XT400
Baud Rate				
1200		▲	▲	▲
2400		▲	▲	▲
4800		▲	▲	▲
9600	9600 (Fixed)	▲	▲	▲
19200	6	▲	▲	▲
Line of Sight Distance				
Outdoor				
¼ Mile	▲	▲	▲	▲
½ Mile		▲	▲	▲
1 Mile			▲	▲
Indoor				
75 Feet	▲	▲	▲	▲
150 Feet		▲	▲	▲
300 Feet			▲	▲
Protocol				
RS232	▲	▲	▲	▲
20 ma CL Active		▲	▲	▲
20ma CL Passive		▲	▲	▲
RS422		▲	▲	▲
RS485			▲	▲
Approvals				
US (FCC)	▲	▲	▲	▲
Canada (IC)			▲	▲
Europe (ETSI)			▲	▲
Network ID's	1	2	16	16
TTL Line Passing	0	0	0	4
Configuration	Fixed	In Field	In Field	In Field
Enclosure	NEMA4	NEMA4	NEMA4	NEMA4

The red LED is on and the display reads "NoData".
Communication was lost.

Suggestions:
Make sure the unit is powered on.
Make sure the indicator port is enabled to transmit data continuously.
Make sure the wiring is correct. (The corresponding green LED should blink with every data transmission).

If data delay between data streams is greater than 2 seconds, turn on option 4.

The unit displays the incorrect digits.

Suggestions:
Try shifting the data to the right or left.
Lower the BAUD rate.

Rice lake indicators:

Suggestions:
Set End of Line Delay (EOL Delay) to 250 ms or higher.
Do not set to 0 ms.

Display updates slowly.

Suggestions:
Increase the frequency of data transmission.
Turn on option 4.

General Purpose Solution:
Set the transmitting device to 1200 BAUD; 8 data bits; no parity. Make sure the data stream contains 6 weight characters followed by a carriage return, line feed or end of text. Set the display to factory default and re-learn the display.

ASCII Table

Dec	Hex	Char	
0	0	NUL	null
1	1	SOH	start of heading
2	2	STX	start of text
3	3	ETX	end of text
4	4	EOT	end of transmission
5	5	ENQ	enquiry
6	6	ACK	acknowledge
7	7	BEL	bell
8	8	BS	backspace
9	9	TAB	horizontal tab
10	A	LF	line feed
11	B	VT	vertical tab
12	C	FF	form feed, new page
13	D	CR	carriage return
14	E	SO	shift out
15	F	SI	shift in
16	10	DLE	data link escape
17	11	DC1	device control 1
18	12	DC2	device control 2
19	13	DC3	device control 3
20	14	DC4	device control 4
21	15	NAK	negative acknowledge
22	16	SYN	synchronous idle
23	17	ETB	end of trans. block
24	18	CAN	cancel
25	19	EM	end of medium
26	1A	SUB	substitute
27	1B	ESC	escape
28	1C	FS	file separator
29	1D	GS	group separator
30	1E	RS	record separator
31	1F	US	unit separator
32	20	Space	
33	21	!	
34	22	"	
35	23	#	
36	24	$	
37	25	%	
38	26	&	
39	27	'	
40	28	(	
41	29	)	
42	2A	*	

Dec	Hex	Char
43	2B	+
44	2C	,
45	2D	-
46	2E	.
47	2F	/
48	30	0
49	31	1
50	32	2
51	33	3
52	34	4
53	35	5
54	36	6
55	37	7
56	38	8
57	39	9
58	3A	:
59	3B	;
60	3C	<
61	3D	=
62	3E	>
63	3F	?
64	40	@
65	41	A
66	42	B
67	43	C
68	44	D
69	45	E
70	46	F
71	47	G
72	48	H
73	49	I
74	4A	J
75	4B	K
76	4C	L
77	4D	M
78	4E	N
79	4F	O
80	50	P
81	51	Q
82	52	R
83	53	S
84	54	T
85	55	U

Dec	Hex	Char
86	56	V
87	57	W
88	58	X
89	59	Y
90	5A	Z
91	5B	[
92	5C	\
93	5D	]
94	5E	^
95	5F	_
96	60	`
97	61	a
98	62	b
99	63	c
100	64	d
101	65	e
102	66	f
103	67	g
104	68	h
105	69	i
106	6A	j
107	6B	k
108	6C	l
109	6D	m
110	6E	n
111	6F	o
112	70	p
113	71	q
114	72	r
115	73	s
116	74	t
117	75	u
118	76	v
119	77	w
120	78	x
121	79	y
122	7A	z
123	7B	{
124	7C	|
125	7D	}
126	7E	~
127	7F	DEL

Replacement Parts

Part Number	Description
PWR	110-220 AC Switching Power Supply
LMB	Motherboard for LED Display
LMB-SG	Motherboard for LED Display with stop and go lights
L2-Main	Digit board for SBL-2
L4-Master	Master Digit board for SBL-4, 1s 10s, and 100s digits
L4-Slave	Slave Digit board for SBL-4, 1,000s. 10,000s and 100,000s digits
L6-Master	Master Digit board for SBL-6, 1s and 10s digits
L6-Slave3/4	Slave Digit board for SBL-6, 100s and 1,000s digits
L6-Slave5/6	Slave Digit board for SBL-6, 10,000s and 100,000s digits
XT-ANT	2.4 GHz antenna for all XT Series models
XT100 Receiver	XT100 Series receiver mounted internally to an SBL Series Remote Display. Fixed at 9600 Baud rate and 1 System ID
XT200 Receiver	XT200 Series receiver mounted internally to an SBL Series Remote Display. Selectable Baud Rate and 2 System IDs
XT300 Receiver	XT300 Series receiver mounted internally to an SBL Series Remote Display. Selectable Baud Rate and 16 System IDs
XT400 Receiver	XT300 Series receiver mounted internally to an SBL Series Remote Display. Selectable Baud Rate and 16 System IDs. 2 Digital output
XT100 Transceiver*	XT100 Series Transmitter/Receiver in a NEMA 4 case. Fixed at 9600 Baud rate and 1 System ID
XT200 Transceiver*	XT200 Series Transmitter/Receiver in a NEMA 4 case. Selectable Baud Rate and 2 System IDs
XT300 Transceiver*	XT300 Series Transmitter/Receiver in a NEMA 4 case. Selectable Baud Rate and 16 System IDs
XT400 Transceiver*	XT300 Series Transmitter/Receiver in a NEMA 4 case. Selectable Baud Rate and 16 System IDs. 4 Digital inputs or 4 digital outputs.
PWR-9v	9 volt 500mA brick power supply for XT Transceivers and RD-100 units
SGB	Stop and Go Light board
Enclosure-MB-2/4	Mounting Bracket for SBL-2 and SBL-4 Remotes
Enclsoure-MB-6/9	Mounting Bracket for SBL-6 and SBL-9 Remotes

Section 12:
Manual Revision History

Revision	Descriptions
05/07	Wiring diagram and explanations changed to reflect 4 LED interface as opposed to the 2 LED interface. Corrected Numbering for Option 24.
10/07	Adding setting 3 and 4 to Option 2 to correctly display annunciator dots with a Toledo data stream.
6/08	Option 1 changed to display the software version, previously located under option 20. Option 19 for test mode was removed and options 19 and 20 were added to perform the same way as option 18 to allow a total of 3 blank out characters.
10/10	Updated Enclosure dimension chart. Modified Options 13, 14, 15, and 23. Added Options 25-27. Expanded Stoplight options to allow for values 3-5. Added new Section for replacement parts.
11/12	Siemens Sub Menu added under option 28 to interface with a Modbus protocol on a BW500. Option may also be entered by holding the RIGHT and LEARN buttons during countdown. Added Wireless manual. Revised dimension chart to add SBL-9 unit.
07/13	Expanded Stoplight Options to allow for one time ASCII commands.