



S100 Multi-Touch Display with Modbus® Product Manual

Original Instructions

p/n: 254778 Rev. B

10-Jul-26

© Banner Engineering Corp. All rights reserved. www.bannerengineering.com

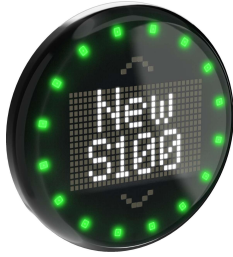
Contents

Chapter 1 Product Overview	3
1.1 Models	3
1.2 Touch Zone Locations	4
Chapter 2 Wiring.....	5
Chapter 3 Configuration Instructions.....	6
3.1 Modbus Overview	6
3.2 SNAP SIGNAL® Configuration Software	6
3.2.1 Connect the S100	6
Chapter 4 Modbus Register Map	8
4.1 Holding Register Column Definitions.....	8
4.2 Device Information.....	8
4.2.1 Example: Reading the S100's Serial Number	9
4.3 Modbus Communications	9
4.3.1 Example: Set the Baud Rate to 38.4k.....	9
4.4 Modes	9
4.4.1 Operation Mode	9
4.4.2 Run Mode	10
4.4.3 Four State Full Logic Mode.....	12
4.4.4 Level Mode	22
4.4.5 Timer Mode	36
4.4.6 Counter Mode	50
4.4.7 PICK-IQ Mode	63
4.5 Display Settings	70
4.5.1 Example: Centered Large White Text with Custom Startup Message	71
4.6 Button Settings	72
4.6.1 Input Button Settings	72
4.6.2 Output Button Settings.....	74
4.7 Custom Settings	75
4.7.1 Custom Color 1 Configuration	75
4.7.2 Custom Audio Configuration	75
4.7.3 Example: Customized Display, Color, and Audio	76
4.8 Factory Reset	76
4.8.1 Example: Restore the S100 to Factory Settings.....	76
Chapter 5 Specifications	77
5.1 FCC Part 15 Class B for Unintentional Radiators.....	77
5.2 Industry Canada ICES-003(B).....	77
5.3 Dimensions.....	78
Chapter 6 Accessories.....	79
6.1 Cordsets	79
6.2 Mounting Brackets.....	79
Chapter 7 Product Support and Maintenance	81
7.1 Encoding Table and Unicode Characters	81
7.2 Clean with Mild Detergent and Warm Water	84
7.3 Repairs and Translations (No Field-Replaceable Parts)	85
7.4 Contact Us	87
7.5 Banner Engineering Corp Limited Warranty	87
7.5.1 Mexican Importer	87

Chapter 1

Product Overview

The S100 Multi-Touch Display closes the gap between a traditional HMI and a panel full of push buttons for routine point-of-use operator interaction. Combining up to five touch zones with haptic feedback, audible alerts, an alphanumeric display, and a ring of 16 RGB LEDs in one low-profile housing, it gives machine builders and system integrators a compact, configurable way to build an interface that fits the task without the overhead of a traditional HMI.



- Provide direct on-device instruction and status with a configurable alphanumeric display
- Support at-a-glance awareness of machine state and progress with configurable colors and animations on a ring of 16 RGB LEDs
- Improve input accuracy with haptic feedback that confirms operator input
- Increase status awareness and input accuracy with audible alerts
- Streamline deployment out-of-the-box with prepared modes like takt timer, counter, measurement, pick-to-light, and more
- Modbus® supports dynamic control, allowing the controller to update interface states at runtime and build application-specific interaction
- Enable point-of-use operator interaction directly in washdown environments with a low-profile, IP69K-rated interface

IMPORTANT: Read the following instructions before operating the light. Please download the complete S100 Multi-Touch Display with Modbus technical documentation, available in multiple languages, from www.bannerengineering.com for details on the proper use, applications, Warnings, and installation instructions of this device.

IMPORTANT: Lea el siguiente instructivo antes de operar el luminario. Por favor descargue desde www.bannerengineering.com toda la documentación técnica de los S100 Multi-Touch Display with Modbus, disponibles en múltiples idiomas, para detalles del uso adecuado, aplicaciones, advertencias, y las instrucciones de instalación de estos dispositivos.

IMPORTANT: Lisez les instructions suivantes avant d'utiliser le luminaire. Veuillez télécharger la documentation technique complète des S100 Multi-Touch Display with Modbus sur notre site www.bannerengineering.com pour les détails sur leur utilisation correcte, les applications, les notes de sécurité et les instructions de montage.

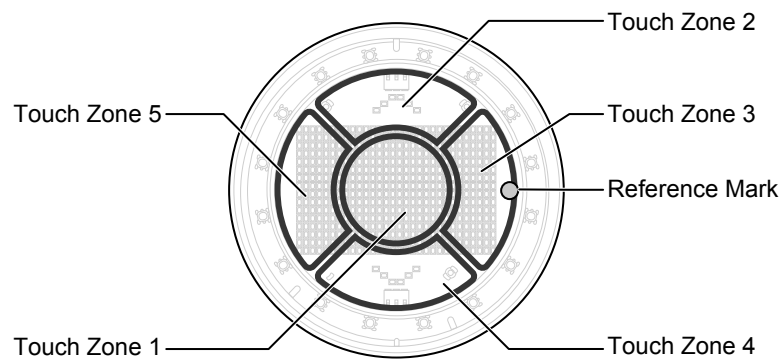
1.1 Models

Table 1. Model Key

Series	Style	Touch	Display	Display Text Color	Audible	Control	Window Color	Connector ⁽¹⁾
S100	P	TV	D2	W	A	S		Q
S100 = Status, 100 mm diameter	P = Pro	TV = Touch with Vibration	D2 = Two-row display	W = White	A = Audible	S = Modbus®	Blank = Smoky	Q = Integral 4-pin M12 male quick-disconnect connector

⁽¹⁾ Models with a quick-disconnect connector require a mating cordset.

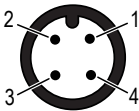
1.2 Touch Zone Locations



The Reference Mark should be on the right side of the device by default. Additional orientation options can be found in [Display Settings](#).

Chapter 2

Wiring

4-pin Male M12 Pinout	Pinout Key and Wiring
	1. Brown - 12 V DC to 30 V DC 2. White - RS-485 (+) 3. Blue - DC Common 4. Black - RS-485 (-)

Chapter 3 Configuration Instructions

3.1 Modbus Overview

Modbus® is an open standard serial communication protocol that allows for the bi-directional exchange of data from Modbus-supported devices, such as sensors, that are connected through Modbus back to a main controller or data gathering system. For the latest Modbus protocol and specifications, please visit <https://www.modbus.org/>.



Modbus is used to:

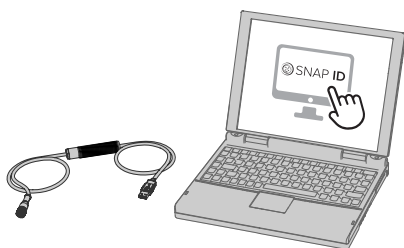
- Monitor and program Modbus-supported devices
- Communicate between Modbus-supported devices
- Monitor field devices using PCs and HMIs

Other advantages to a Modbus system include standardized wiring, remote configuration, simple device replacement, advanced diagnostics, and increased data availability. Because Modbus is an open standard, the devices can be integrated into almost any fieldbus or automation system.

A Modbus system consists of a Modbus client device (client) and a Modbus server device (server), such as a sensor, lighting product, Modbus hub, or actuator. The client device requests data from the server device, which supplies that data. The client can also write information to the servers. In a standard Modbus network, there is one client and up to 247 servers, each with a unique server address from 1 to 247.

The data collected by an individual server device, along with its functions and parameters, are represented in a Modbus register map. The Modbus register map contains information about identification, device parameters, process and diagnostic data, communication properties, and other details. It also defines what the data is, where the data is stored (for example, in which tables and Modbus register addresses), and how the data is stored (data types, byte and word ordering). Some server devices are built with a fixed map, while others allow the user to configure or program a custom map to fit their needs.

3.2 SNAP SIGNAL® Configuration Software



Banner's SNAP SIGNAL® Configuration Software offers an easy way to configure and demonstrate Banner Modbus devices.

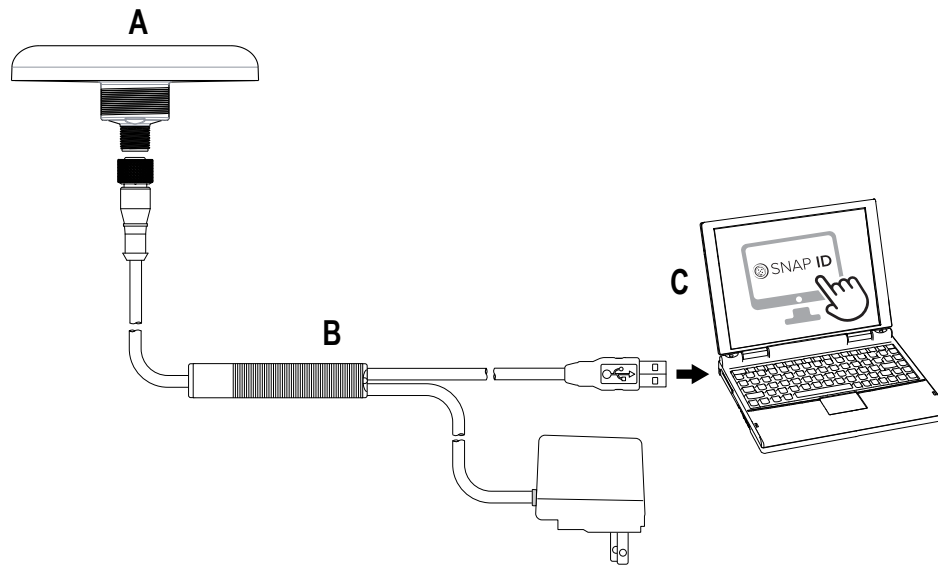
Users have full control of device configuration, the ability to visualize device data, and to demonstrate device features. The easy-to-use software provides a variety of tools and works with Banner Modbus devices.

Download the free SNAP SIGNAL Configuration Software at <https://www.bannerengineering.com/sg/en/products/software/snap-signal-configuration-software.html>.

For instructions on how to use the software to configure Modbus devices, use the SNAP SIGNAL Configuration Software Instruction Manual available from the software by going to **Help > Documentation**. The SNAP SIGNAL Configuration Software Instruction Manual can also be downloaded directly from www.bannerengineering.com.

3.2.1 Connect the S100

1. Connect the S100 to the female M12 connector of the BWA-UCT-900 adapter.
2. Plug the USB connector of the BWA-UCT-900 into the PC.
3. Plug the power cable of the BWA-UCT-900 into a wall outlet.



A = S100 Modbus device
B = BWA-UCT-900 Adapter Cable
C = PC Running SNAP SIGNAL Configuration Software

Chapter 4 Modbus Register Map

The Modbus Register Map is used to define how data is organized and accessed within a device for communication and control. It provides the information needed for external systems to read device status, configure settings, and send control commands.

4.1 Holding Register Column Definitions

Base 0 Address

Registers are addressed with the first register starting at zero

Base 1 Address

Registers are addressed with the first register starting at one

Description

Lists the functionality of the register

Holding Register Representation

Lists the allowed values of the register and the definition of those values

Default Value

Lists the factory default value of the register

Saved

Yes: The register value is stored in non-volatile memory, and is preserved when power is cycled

No: The register value is stored in volatile memory, and is reset to the default value when power is cycled

Access

Read Only (RO): The register can be read, but not written to

Read and Write (RW): The register can be read and written to

4.2 Device Information

The following registers list the model name and other device-specific information.

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access
40605-40615	40606-40616	Banner Name	0..65535	Banner Engineering	Yes	RO
40616-40631	40617-40632	Product Name	0..65535	S100PD2WASQ	Yes	RO
40632	40633	Item H	0..65535	See Device	Yes	RO
40633	40634	Item L	0..65535	See Device	Yes	RO
40634	40635	Serial Number 1 (H)	0..65535	See Device	Yes	RO
40635	40636	Serial Number 2	0..65535	See Device	Yes	RO
40636	40637	Serial Number 3	0..65535	See Device	Yes	RO
40637	40638	Serial Number 4 (L)	0..65535	See Device	Yes	RO
40638	40639	Firmware PN H	0..65535	See Device	Yes	RO
40639	40640	Firmware PN L	0..65535	See Device	Yes	RO
40640	40641	Firmware Version H	0..65535	See Device	Yes	RO
40641	40642	Firmware Version L	0..65535	See Device	Yes	RO
40642	40643	Firmware Build Number H	0..65535	See Device	Yes	RO
40643	40644	Firmware Build Number L	0..65535	See Device	Yes	RO
40644-40659	40645-40660	User-Defined Tag	0..65535	More Sensors. More Solutions.	Yes	RW

4.2.1 Example: Reading the S100's Serial Number

In this example, which uses the Base 0 address, the S100's serial number is read with the following command:

Read Holding Registers, starting at 40634, quantity 4

4.3 Modbus Communications

Use these registers to configure Modbus communications.

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access
46100	46101	Address	1-254	1	Yes	RW
46101	46102	Baud Rate	96 = 9.6k 192 = 19.2k 384 = 38.4k	192	Yes	RW
46102	46103	Parity	0 = None 1 = Odd 2 = Even	0	Yes	RW
46103	46104	Stop Bits	1 = 1 Bit 2 = 2 Bits 3 = 1.5 Bits	1	Yes	RW

4.3.1 Example: Set the Baud Rate to 38.4k

In this example, which uses the Base 0 address, the S100's baud rate is set to 38.4k:

46101 = 384 (Baud Rate = 38.4k)

4.4 Modes

4.4.1 Operation Mode

Use this register to select the main operation mode of the device.

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access
42200	42201	Operation Mode	0 = Run Mode 1 = Four State Full Logic Mode 2 = Level Mode 3 = Timer Mode 4 = Counter Mode 5 = PICK-IQ Mode	0	Yes	RW

Example: Set the S100 to Level Mode

In this example, which uses the Base 0 address, the S100 is set to Level Mode:

42200 = 2 (Operation Mode = Level Mode)

4.4.2 Run Mode

Use one register to activate the defined device state. Use additional non-volatile registers to define color, intensity, animation, and display message.

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42000	42001	Run Mode Animation	0 = Off 1 = Steady 2 = Flash 3 = Two Color Flash 4 = 50/50 5 = 50/50 Flash 6 = Chase 7 = Intensity Sweep 8 = Two Color Sweep 9 = Sequence 10 = Wave 11 = Double Wave 12 = Two Color Quadrant 13 = Four Color Quadrant	0	No	RW	
42001	42002	Run Mode Speed	0 = Slow 1 = Standard 2 = Fast 3 = Custom	0	No	RW	
42002	42003	Run Mode Pattern	0 = Normal 1 = Strobe 2 = 3-Pulse	0	No	RW	
42003	42004	Run Mode Sequence Value	0-255	0	No	RW	
42004	42005	Run Mode Sequence Shift	0-15	0	No	RW	
42005	42006	Run Mode Chevron Control	0-15	0	No	RW	4-bit value: (MSB) Left Chevron, Bottom Chevron, Right Chevron, Top Chevron (LSB)

Continued on page 11

Continued from page 10

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42006	42007	Run Mode Color 1	0 = Off	0	No	RW	
42007	42008	Run Mode Color 2	1 = Green	0	No	RW	
42008	42009	Run Mode Color 3	2 = Red	0	No	RW	
			3 = Orange				
			4 = Amber				
			5 = Yellow				
			6 = Lime Green				
			7 = Spring Green				
			8 = Cyan				
42009	42010	Run Mode Color 4	9 = Sky Blue	0	No	RW	
			10 = Blue				
			11 = Violet				
			12 = Magenta				
			13 = Rose				
			14 = White				
			15 = Custom 1				
42010	42011	Run Mode Direction	0 = Clockwise	0	No	RW	
			1 = Counter-clockwise				
42011	42012	Run Mode Haptic Feedback	0 = Disabled	0	No	RW	
			1 = Enabled				
			0 = Off				
			1 = Pulse				
			2 = Wobble				
			3 = Strobe				
			4 = Whoop				
			5 = Staccato				
			6 = Siren				
42012	42013	Run Mode Audible Type	7 = Continuous 1	0	No	RW	
			8 = Continuous 2				
			9 = Jingle				
			10 = Melody 1				
			11 = Melody 2				
			12 = Melody 3				
			13 = Custom				
42013-42019	42014-42020	Run Mode Line 1 String			No	RW	7 words / 14 characters
42020-42026	42021-42027	Run Mode Line 2 String			No	RW	7 words / 14 characters

Example: Steady Green Indication with Text

In this example, which uses the Base 0 address, the S100 is configured with steady green indication and "READY OK" text.

```

42200 = 0 (Operation Mode = Run Mode)
42000 = 1 (Animation = Steady)
42001 = 1 (Speed = Standard)
42006 = 1 (Color 1 = Green)
42013-42019 = (Line 1 String = "READY")
    42013 = 0x5245 ("RE")
    42014 = 0x4144 ("AD")
    42015 = 0x5920 ("Y ")
    42016 = 0x0000
    42017 = 0x0000
    42018 = 0x0000
    42019 = 0x0000
42020-42026 = (Line 2 String = "OK")
    42020 = 0x4F4B ("OK")
    42021 = 0x0000
    42022 = 0x0000
    42023 = 0x0000
    42024 = 0x0000
    42025 = 0x0000
    42026 = 0x0000

```

4.4.3 Four State Full Logic Mode

Use Four State Full Logic Mode to activate four devices states with one input wire and the touch button. The touch button also toggles the output(s).

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
43000	43001	Button Output State	0-15	0	No	RO	Bitmask representing button state: (MSB) Left, Bottom, Right, Top, Center (LSB)
43001	43002	Current State	0 = Waiting State 1 = Job State 2 = Mispick State 3 = Acknowledge State	0	No	RO	
43040	43041	Job Input	0 = Waiting State 1 = Job State	0	No	RW	

State 1 Configuration

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
43300	43301	Animation	0 = Off 1 = Steady 2 = Flash 3 = Two Color Flash 4 = 50/50 5 = 50/50 Flash 6 = Chase 7 = Intensity Sweep 8 = Two Color Sweep 9 = Sequence 10 = Wave 11 = Double Wave 12 = Two Color Quadrant 13 = Four Color Quadrant	0	Yes	RW	
43301	43302	Speed	0 = Slow 1 = Standard 2 = Fast 3 = Custom	0	Yes	RW	
43302	43303	Pattern	0 = Normal 1 = Strobe 2 = 3-Pulse	0	Yes	RW	
43303	43304	Sequence Value	0-255	0	Yes	RW	
43304	43305	Sequence Shift	0-15	0	Yes	RW	
43305	43306	Chevron Control	0-15	0	Yes	RW	4-bit value: (MSB) Left Chevron, Bottom Chevron, Right Chevron, Top Chevron (LSB)

Continued on page 13

Continued from page 13

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
43306	43307	Color 1	0 = Off	0	Yes	RW	
43307	43308	Color 2	1 = Green	0	Yes	RW	
43308	43309	Color 3	2 = Red	0	Yes	RW	
43309	43310	Color 4	3 = Orange	0	Yes	RW	
			4 = Amber				
			5 = Yellow				
			6 = Lime Green				
			7 = Spring Green				
			8 = Cyan				
			9 = Sky Blue				
			10 = Blue				
			11 = Violet				
			12 = Magenta				
			13 = Rose				
			14 = White				
			15 = Custom 1				
43310	43311	Direction	0 = Clockwise 1 = Counter-clockwise	0	Yes	RW	
43311	43312	Haptic Feedback	0 = Disabled 1 = Enabled	0	Yes	RW	
43312	43313	Audible Type	0 = Off	0	Yes	RW	
			1 = Pulse				
			2 = Wobble				
			3 = Strobe				
			4 = Whoop				
			5 = Staccato				
			6 = Siren				
			7 = Continuous 1				
			8 = Continuous 2				
			9 = Jingle				
			10 = Melody 1				
			11 = Melody 2				
			12 = Melody 3				
			13 = Custom				
43313-43319	43314-43320	Line 1 String			Yes	RW	7 words / 14 characters
43320-43326	43321-43327	Line 2 String			Yes	RW	7 words / 14 characters

State 2 Configuration

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
43327	43328	Animation	0 = Off 1 = Steady 2 = Flash 3 = Two Color Flash 4 = 50/50 5 = 50/50 Flash 6 = Chase 7 = Intensity Sweep 8 = Two Color Sweep 9 = Sequence 10 = Wave 11 = Double Wave 12 = Two Color Quadrant 13 = Four Color Quadrant	1	Yes	RW	
43328	43329	Speed	0 = Slow 1 = Standard 2 = Fast 3 = Custom	0	Yes	RW	
43329	43330	Pattern	0 = Normal 1 = Strobe 2 = 3-Pulse	0	Yes	RW	
43330	43331	Sequence Value	0-255	0	Yes	RW	
43331	43332	Sequence Shift	0-15	0	Yes	RW	
43332	43333	Chevron Control	0-15	0	Yes	RW	4-bit value: (MSB) Left Chevron, Bottom Chevron, Right Chevron, Top Chevron (LSB)

Continued on page 15

Continued from page 15

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
43333	43334	Color 1	0 = Off	1	Yes	RW	
43334	43335	Color 2	1 = Green	0	Yes	RW	
43335	43336	Color 3	2 = Red	0	Yes	RW	
43336	43337	Color 4	3 = Orange	0	Yes	RW	
			4 = Amber				
			5 = Yellow				
			6 = Lime Green				
			7 = Spring Green				
			8 = Cyan				
			9 = Sky Blue				
			10 = Blue				
			11 = Violet				
			12 = Magenta				
43337	43338	Direction	0 = Clockwise	0	Yes	RW	
			1 = Counter-clockwise				
43338	43339	Haptic Feedback	0 = Disabled	0	Yes	RW	
43339	43340	Audible Type	1 = Enabled	0	Yes	RW	
			0 = Off				
			1 = Pulse				
			2 = Wobble				
			3 = Strobe				
			4 = Whoop				
			5 = Staccato				
			6 = Siren				
			7 = Continuous 1				
			8 = Continuous 2				
43340-43346	43341-43347	Line 1 String	9 = Jingle	PICK	Yes	RW	7 words / 14 characters
			10 = Melody 1				
			11 = Melody 2				
			12 = Melody 3				
			13 = Custom				
43347-43353	43348-43354	Line 2 String			Yes	RW	7 words / 14 characters

State 3 Configuration

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
43354	43355	Animation	0 = Off 1 = Steady 2 = Flash 3 = Two Color Flash 4 = 50/50 5 = 50/50 Flash 6 = Chase 7 = Intensity Sweep 8 = Two Color Sweep 9 = Sequence 10 = Wave 11 = Double Wave 12 = Two Color Quadrant 13 = Four Color Quadrant	1	Yes	RW	
43355	43356	Speed	0 = Slow 1 = Standard 2 = Fast 3 = Custom	0	Yes	RW	
43356	43357	Pattern	0 = Normal 1 = Strobe 2 = 3-Pulse	0	Yes	RW	
43357	43358	Sequence Value	0-255	0	Yes	RW	
43358	43359	Sequence Shift	0-15	0	Yes	RW	
43359	43360	Chevron Control	0-15	0	Yes	RW	4-bit value: (MSB) Left Chevron, Bottom Chevron, Right Chevron, Top Chevron (LSB)

Continued on page 17

Continued from page 17

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
43360	43361	Color 1	0 = Off	2	Yes	RW	
43361	43362	Color 2	1 = Green	0	Yes	RW	
43362	43363	Color 3	2 = Red	0	Yes	RW	
43363	43364	Color 4	3 = Orange	0	Yes	RW	
			4 = Amber				
			5 = Yellow				
			6 = Lime Green				
			7 = Spring Green				
			8 = Cyan				
			9 = Sky Blue				
			10 = Blue				
			11 = Violet				
			12 = Magenta				
			13 = Rose				
			14 = White				
			15 = Custom 1				
43364	43365	Direction	0 = Clockwise 1 = Counter-clockwise	0	Yes	RW	
43365	43366	Haptic Feedback	0 = Disabled 1 = Enabled	0	Yes	RW	
43366	43367	Audible Type	0 = Off	0	Yes	RW	
			1 = Pulse				
			2 = Wobble				
			3 = Strobe				
			4 = Whoop				
			5 = Staccato				
			6 = Siren				
			7 = Continuous 1				
			8 = Continuous 2				
			9 = Jingle				
			10 = Melody 1				
			11 = Melody 2				
			12 = Melody 3				
			13 = Custom				
43367-43373	43368-43374	Line 1 String		ERR	Yes	RW	7 words / 14 characters
43374-43380	43375-43381	Line 2 String			Yes	RW	7 words / 14 characters

State 4 Configuration

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
43381	43382	Animation	0 = Off 1 = Steady 2 = Flash 3 = Two Color Flash 4 = 50/50 5 = 50/50 Flash 6 = Chase 7 = Intensity Sweep 8 = Two Color Sweep 9 = Sequence 10 = Wave 11 = Double Wave 12 = Two Color Quadrant 13 = Four Color Quadrant	1	Yes	RW	
43382	43383	Speed	0 = Slow 1 = Standard 2 = Fast 3 = Custom	0	Yes	RW	
43383	43384	Pattern	0 = Normal 1 = Strobe 2 = 3-Pulse	0	Yes	RW	
43384	43385	Sequence Value	0-255	0	Yes	RW	
43385	43386	Sequence Shift	0-15	0	Yes	RW	
43386	43387	Chevron Control	0-15	0	Yes	RW	4-bit value: (MSB) Left Chevron, Bottom Chevron, Right Chevron, Top Chevron (LSB)

Continued on page 19

Continued from page 19

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
43387	43388	Color 1	0 = Off	5	Yes	RW	
43388	43389	Color 2	1 = Green	0	Yes	RW	
43389	43390	Color 3	2 = Red	0	Yes	RW	
			3 = Orange				
			4 = Amber				
			5 = Yellow				
			6 = Lime Green				
			7 = Spring Green				
			8 = Cyan				
43390	43391	Color 4	9 = Sky Blue	0	Yes	RW	
			10 = Blue				
			11 = Violet				
			12 = Magenta				
			13 = Rose				
			14 = White				
			15 = Custom 1				
43391	43392	Direction	0 = Clockwise	0	Yes	RW	
			1 = Counter-clockwise				
43392	43393	Haptic Feedback	0 = Disabled	0	Yes	RW	
			1 = Enabled				
			0 = Off				
			1 = Pulse				
			2 = Wobble				
			3 = Strobe				
			4 = Whoop				
			5 = Staccato				
			6 = Siren				
43393	43394	Audible Type	7 = Continuous 1	0	Yes	RW	
			8 = Continuous 2				
			9 = Jingle				
			10 = Melody 1				
			11 = Melody 2				
			12 = Melody 3				
			13 = Custom				
43394-43400	43395-43401	Line 1 String		GOOD	Yes	RW	7 words / 14 characters
43401-43407	43402-43408	Line 2 String			Yes	RW	7 words / 14 characters

Example: Setting Up Waiting, Job, Mispick, and Acknowledge States

In this example, which uses the Base 0 address, the S100 is configured with the following four states:

- Waiting State: steady green and quiet
- Job State: flashing amber with "PICK" text
- Mispick State: flashing red with "ERR" text

- Acknowledge State: steady white with "GOOD" text

1. Put the device in Four State Full Logic Mode.

```
42200 = 1 (Operation Mode = Four State Full Logic Mode)
```

2. Define the Job Input behavior. Setting to 0 (default) makes the device begin in the Waiting State.

```
43040 = 0 (Job Input = Waiting State)
```

3. Configure State 1 for Waiting State.

```
43300 = 1 (Animation = Steady)
43301 = 1 (Speed = Standard)
43306 = 1 (Color 1 = Green)
43313-43319 = (Line 1 String = "READY")
43313 = 0x5245 ("RE")
43314 = 0x4144 ("AD")
43315 = 0x5920 ("Y ")
43316 = 0x0000
43317 = 0x0000
43318 = 0x0000
43319 = 0x0000
43320-43326 = (Line 2 String = "WAIT")
43320 = 0x5741 ("WA")
43321 = 0x4954 ("IT")
43322 = 0x0000
43323 = 0x0000
43324 = 0x0000
43325 = 0x0000
43326 = 0x0000
```

4. Configure State 2 for Job State.

```
43327 = 2 (Animation = Flash)
43328 = 1 (Speed = Standard)
43333 = 4 (Color 1 = Amber)
43338 = 1 (Haptic Feedback = Enabled)
43339 = 1 (Audible Type = Pulse)
43340-43346 = (Line 1 String = "PICK")
43340 = 0x5049 ("PI")
43341 = 0x434B ("CK")
43342 = 0x0000
43343 = 0x0000
43344 = 0x0000
43345 = 0x0000
43346 = 0x0000
43347-43353 = (Line 2 String = "NOW")
43347 = 0x4E4F ("NO")
43348 = 0x5720 ("W ")
43349 = 0x0000
43350 = 0x0000
43351 = 0x0000
43352 = 0x0000
43353 = 0x0000
```

5. Configure State 3 for Misspick State.

```
43354 = 2 (Animation = Flash)
43355 = 2 (Speed = Fast)
43356 = 1 (Pattern = Strobe)
43360 = 2 (Color 1 = Red)
43365 = 1 (Haptic Feedback = Enabled)
43366 = 3 (Audible Type = Strobe)
```

```

43367-43373 = (Line 1 String = "ERR")
43367 = 0x4552 ("ER")
43368 = 0x5220 ("R ")
43369 = 0x0000
43370 = 0x0000
43371 = 0x0000
43372 = 0x0000
43373 = 0x0000
43374-43380 = (Line 2 String = "REPICK")
43374 = 0x4E4F ("RE")
43375 = 0x5049 ("PI")
43376 = 0x434B ("CK")
43377 = 0x0000
43378 = 0x0000
43379 = 0x0000
43380 = 0x0000

```

6. Configure State 4 for Acknowledge State.

```

43381 = 1 (Animation = Steady)
43382 = 1 (Speed = Standard)
43387 = 14 (Color 1 = White)
43393 = 9 (Audible Type = Jingle)
43394-43400 = (Line 1 String = "GOOD")
43394 = 0x474F ("GO")
43395 = 0x4F44 ("OD")
43396 = 0x0000
43397 = 0x0000
43398 = 0x0000
43399 = 0x0000
43400 = 0x0000
43401-43407 = (Line 2 String = "DONE")
43401 = 0x444F ("DO")
43402 = 0x4E45 ("NE")
43403 = 0x0000
43404 = 0x0000
43405 = 0x0000
43406 = 0x0000
43407 = 0x0000

```

4.4.4 Level Mode

Use Level Mode to display a level based on a scaled input value.

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access
42000	42001	Level Mode Value	0..65535	0	No	RW

Level Mode General Configuration

Use these registers to set the filter, labels, bar graph, and other settings of the mode.

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42700	42701	Filter Level	0 = None 1 = Low 2 = Medium 3 = High	0	Yes	RW	

Continued on page 23

Continued from page 22

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42701	42702	Hysteresis Level	0 = None 1 = Low 2 = Medium 3 = High	0	Yes	RW	
42702-42709	42703-42710	Data Label		Time =	Yes	RW	8 words / 16 characters
42710	42711	Display Value Enable	0 = Disabled 1 = Enabled	1	Yes	RW	
42711	42712	Display Data Label Enable	0 = Disabled 1 = Enabled	1	Yes	RW	
42712	42713	Display Bar Graph Enable	0 = Disabled 1 = Enabled	1	Yes	RW	
42713	42714	Gauge Mode Enable	0 = Disabled 1 = Enabled	0	Yes	RW	
42714	42715	Direction	0 = Clockwise 1 = Counter-clockwise	0	Yes	RW	
42715	42716	Shift	0-15	0	Yes	RW	
42716	42717	Gauge Mode Background Color	0 = Off 1 = Green 2 = Red 3 = Orange 4 = Amber 5 = Yellow 6 = Lime Green 7 = Spring Green 8 = Cyan 9 = Sky Blue 10 = Blue 11 = Violet 12 = Magenta 13 = Rose 14 = White 15 = Custom 1	0	Yes	RW	
42717	42718	Output Scale Value Low	0-65535	0	Yes	RW	
42718	42719	Output Scale Value High	0-65535	10	Yes	RW	
42719	42720	Input Scale Value Low	0-65535	0	Yes	RW	
42720	42721	Input Scale Value High	0-65535	65535	Yes	RW	
42721-42722	42722-42723	Value Label		s	Yes	RW	2 words / 4 characters

Continued on page 24

Continued from page 23

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42723	42724	Swap Data / Value Label Lines	0 = Disabled 1 = Enabled	0	Yes	RW	Swaps the two lines to display Value + Value Label on top, and Data Label on bottom
42724	42725	Bar Graph Orientation	0 = 0 degrees 1 = 180 degrees	0	Yes	RW	
42725	42726	Bar Graph Packages	0-16	0	Yes	RW	How many rows to use for the bar graph
42726	42727	Decimal Places	0-3	1	Yes	RW	
42727	42728	Display As Time	0 = Disabled 1 = Enabled	0	Yes	RW	Show the time in HH:MM:SS format

Level Mode Base Configuration

Use these registers to set the colors, animations, and audible for the mode.

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42728	42729	Display Override	0 = Disabled 1 = Enabled	0	Yes	RW	
42029-42035	42030-42036	Override Line 1 String		Base	Yes	RW	7 words / 14 characters
42036-42042	42037-42043	Override Line 2 String		Base	Yes	RW	7 words / 14 characters
42743	42744	Animation	0 = Off 1 = Steady 2 = Flash 3 = Two Color Flash 4 = 50/50 5 = 50/50 Flash 6 = Chase 7 = Intensity Sweep 8 = Two Color Sweep 9 = Sequence 10 = Wave 11 = Double Wave 12 = Two Color Quadrant 13 = Four Color Quadrant	0	Yes	RW	

Continued on page 25

Continued from page 24

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42744	42745	Speed	0 = Slow 1 = Standard 2 = Fast 3 = Custom	1	Yes	RW	
42745	42746	Pattern	0 = Normal 1 = Strobe 2 = 3-Pulse	0	Yes	RW	
42746	42747	Sequence Value	0-255	0	No	RW	
42747	42748	Sequence Shift	0-15	0	No	RW	
42748	42749	Chevron Control	0-15	0	No	RW	4-bit value: (MSB) Left Chevron, Bottom Chevron, Right Chevron, Top Chevron (LSB)
42749	42750	Color 1	0 = Off	0	Yes	RW	
42750	42751	Color 2	1 = Green	0	Yes	RW	
42751	42752	Color 3	2 = Red	0	Yes	RW	
42752	42753	Color 4	3 = Orange 4 = Amber 5 = Yellow 6 = Lime Green 7 = Spring Green 8 = Cyan 9 = Sky Blue 10 = Blue 11 = Violet 12 = Magenta 13 = Rose 14 = White 15 = Custom 1	0	Yes	RW	
42753	42754	Direction	0 = Clockwise 1 = Counter-clockwise	0	No	RW	
42754	42755	Haptic Feedback	0 = Disabled 1 = Enabled	0	No	RW	

Continued on page 26

Continued from page 25

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42755	42756	Audible Type	0 = Off 1 = Pulse 2 = Wobble 3 = Strobe 4 = Whoop 5 = Staccato 6 = Siren 7 = Continuous 1 8 = Continuous 2 9 = Jingle 10 = Melody 1 11 = Melody 2 12 = Melody 3 13 = Custom	0	No	RW	

Level Mode Threshold 1 Configuration

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42756	42757	Is Enabled	0 = Disabled 1 = Enabled	1	Yes	RW	
42757	42758	Percent	0-100	25	Yes	RW	
42758	42759	Type	0 = Less Than or Equal To 1 = Greater Than	0	Yes	RW	
42759	42760	Threshold Override	0 = Disabled 1 = Enabled	0	Yes	RW	
42760	42761	Display Override	0 = Disabled 1 = Enabled	0	Yes	RW	
42761-42767	42762-42768	Override Line 1 String		Thres1	Yes	RW	7 words / 14 characters
42768-42774	42769-42775	Override Line 2 String		Thres1	Yes	RW	7 words / 14 characters

Continued on page 27

Continued from page 26

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42775	42776	Animation	0 = Off 1 = Steady 2 = Flash 3 = Two Color Flash 4 = 50/50 5 = 50/50 Flash 6 = Chase 7 = Intensity Sweep 8 = Two Color Sweep 9 = Sequence 10 = Wave 11 = Double Wave 12 = Two Color Quadrant 13 = Four Color Quadrant	1	Yes	RW	
42776	42777	Speed	0 = Slow 1 = Standard 2 = Fast 3 = Custom	1	Yes	RW	
42777	42778	Pattern	0 = Normal 1 = Strobe 2 = 3-Pulse	0	Yes	RW	
42778	42779	Sequence Value	0-255	0	No	RW	
42779	42780	Sequence Shift	0-15	0	No	RW	
42780	42781	Chevron Control	0-15	0	No	RW	4-bit value: (MSB) Left Chevron, Bottom Chevron, Right Chevron, Top Chevron (LSB)

Continued on page 28

Continued from page 27

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42781	42782	Color 1	0 = Off	0	Yes	RW	
42782	42783	Color 2	1 = Green	0	Yes	RW	
42783	42784	Color 3	2 = Red	0	Yes	RW	
42784	42785	Color 4	3 = Orange	0	Yes	RW	
			4 = Amber				
			5 = Yellow				
			6 = Lime Green				
			7 = Spring Green				
			8 = Cyan				
			9 = Sky Blue				
			10 = Blue				
			11 = Violet				
			12 = Magenta				
			13 = Rose				
			14 = White				
			15 = Custom 1				
42785	42786	Direction	0 = Clockwise 1 = Counter-clockwise	0	No	RW	
42786	42787	Haptic Feedback	0 = Disabled 1 = Enabled	0	No	RW	
42787	42788	Audible Type	0 = Off	0	No	RW	
			1 = Pulse				
			2 = Wobble				
			3 = Strobe				
			4 = Whoop				
			5 = Staccato				
			6 = Siren				
			7 = Continuous 1				
			8 = Continuous 2				
			9 = Jingle				
			10 = Melody 1				
			11 = Melody 2				
			12 = Melody 3				
			13 = Custom				

Level Mode Threshold 2 Configuration

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42788	42789	Is Enabled	0 = Disabled 1 = Enabled	1	Yes	RW	
42789	42790	Percent	0-100	50	Yes	RW	

Continued on page 29

Continued from page 28

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42790	42791	Type	0 = Less Than or Equal To 1 = Greater Than	0	Yes	RW	
42791	42792	Threshold Override	0 = Disabled 1 = Enabled	0	Yes	RW	
42792	42793	Display Override	0 = Disabled 1 = Enabled	0	Yes	RW	
42793-42799	42794-42800	Override Line 1 String		Thres2	Yes	RW	7 words / 14 characters
42800-42806	42801-42807	Override Line 2 String		Thres2	Yes	RW	7 words / 14 characters
42807	42808	Animation	0 = Off 1 = Steady 2 = Flash 3 = Two Color Flash 4 = 50/50 5 = 50/50 Flash 6 = Chase 7 = Intensity Sweep 8 = Two Color Sweep 9 = Sequence 10 = Wave 11 = Double Wave 12 = Two Color Quadrant 13 = Four Color Quadrant	1	Yes	RW	
42808	42809	Speed	0 = Slow 1 = Standard 2 = Fast 3 = Custom	1	Yes	RW	
42809	42810	Pattern	0 = Normal 1 = Strobe 2 = 3-Pulse	0	Yes	RW	
42810	42811	Sequence Value	0-255	0	No	RW	
42811	42812	Sequence Shift	0-15	0	No	RW	
42812	42813	Chevron Control	0-15	0	No	RW	4-bit value: (MSB) Left Chevron, Bottom Chevron, Right Chevron, Top Chevron (LSB)

Continued on page 30

Continued from page 29

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42813	42814	Color 1	0 = Off	3	Yes	RW	
42814	42815	Color 2	1 = Green	0	Yes	RW	
42815	42816	Color 3	2 = Red	0	Yes	RW	
42816	42817	Color 4	3 = Orange	0	Yes	RW	
			4 = Amber				
			5 = Yellow				
			6 = Lime Green				
			7 = Spring Green				
			8 = Cyan				
			9 = Sky Blue				
			10 = Blue				
			11 = Violet				
			12 = Magenta				
			13 = Rose				
			14 = White				
			15 = Custom 1				
42817	42818	Direction	0 = Clockwise 1 = Counter-clockwise	0	No	RW	
42818	42819	Haptic Feedback	0 = Disabled 1 = Enabled	0	No	RW	
42819	42820	Audible Type	0 = Off	0	No	RW	
			1 = Pulse				
			2 = Wobble				
			3 = Strobe				
			4 = Whoop				
			5 = Staccato				
			6 = Siren				
			7 = Continuous 1				
			8 = Continuous 2				
			9 = Jingle				
			10 = Melody 1				
			11 = Melody 2				
			12 = Melody 3				
			13 = Custom				

Level Mode Threshold 3 Configuration

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42820	42821	Is Enabled	0 = Disabled 1 = Enabled	1	Yes	RW	
42821	42822	Percent	0-100	75	Yes	RW	

Continued on page 31

Continued from page 30

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42822	42823	Type	0 = Less Than or Equal To 1 = Greater Than	0	Yes	RW	
42823	42824	Threshold Override	0 = Disabled 1 = Enabled	0	Yes	RW	
42824	42825	Display Override	0 = Disabled 1 = Enabled	0	Yes	RW	
42825-42831	42826-42832	Override Line 1 String		Thres3	Yes	RW	7 words / 14 characters
42832-42838	42833-42839	Override Line 2 String		Thres3	Yes	RW	7 words / 14 characters
42839	42840	Animation	0 = Off 1 = Steady 2 = Flash 3 = Two Color Flash 4 = 50/50 5 = 50/50 Flash 6 = Chase 7 = Intensity Sweep 8 = Two Color Sweep 9 = Sequence 10 = Wave 11 = Double Wave 12 = Two Color Quadrant 13 = Four Color Quadrant	1	Yes	RW	
42840	42841	Speed	0 = Slow 1 = Standard 2 = Fast 3 = Custom	1	Yes	RW	
42841	42842	Pattern	0 = Normal 1 = Strobe 2 = 3-Pulse	0	Yes	RW	
42842	42843	Sequence Value	0-255	0	No	RW	
42843	42844	Sequence Shift	0-15	0	No	RW	
42844	42845	Chevron Control	0-15	0	No	RW	4-bit value: (MSB) Left Chevron, Bottom Chevron, Right Chevron, Top Chevron (LSB)

Continued on page 32

Continued from page 31

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42845	42846	Color 1	0 = Off	2	Yes	RW	
42846	42847	Color 2	1 = Green	0	Yes	RW	
42847	42848	Color 3	2 = Red	0	Yes	RW	
			3 = Orange				
			4 = Amber				
			5 = Yellow				
			6 = Lime Green				
			7 = Spring Green				
			8 = Cyan				
42848	42849	Color 4	9 = Sky Blue	0	Yes	RW	
			10 = Blue				
			11 = Violet				
			12 = Magenta				
			13 = Rose				
			14 = White				
			15 = Custom 1				
42849	42850	Direction	0 = Clockwise	0	No	RW	
			1 = Counter-clockwise				
42850	42851	Haptic Feedback	0 = Disabled	0	No	RW	
			1 = Enabled				
			0 = Off				
			1 = Pulse				
			2 = Wobble				
			3 = Strobe				
			4 = Whoop				
			5 = Staccato				
			6 = Siren				
42851	42852	Audible Type	7 = Continuous 1	0	No	RW	
			8 = Continuous 2				
			9 = Jingle				
			10 = Melody 1				
			11 = Melody 2				
			12 = Melody 3				
			13 = Custom				

Level Mode Threshold 4 Configuration

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42852	42853	Is Enabled	0 = Disabled 1 = Enabled	1	Yes	RW	
42853	42854	Percent	0-100	100	Yes	RW	

Continued on page 33

Continued from page 32

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42854	42855	Type	0 = Less Than or Equal To 1 = Greater Than	0	Yes	RW	
42855	42856	Threshold Override	0 = Disabled 1 = Enabled	0	Yes	RW	
42856	42857	Display Override	0 = Disabled 1 = Enabled	0	Yes	RW	
42857-42863	42858-42864	Override Line 1 String		Thres4	Yes	RW	7 words / 14 characters
42864-42870	42865-42871	Override Line 2 String		Thres4	Yes	RW	7 words / 14 characters
42871	42872	Animation	0 = Off 1 = Steady 2 = Flash 3 = Two Color Flash 4 = 50/50 5 = 50/50 Flash 6 = Chase 7 = Intensity Sweep 8 = Two Color Sweep 9 = Sequence 10 = Wave 11 = Double Wave 12 = Two Color Quadrant 13 = Four Color Quadrant	7	Yes	RW	
42872	42873	Speed	0 = Slow 1 = Standard 2 = Fast 3 = Custom	1	Yes	RW	
42873	42874	Pattern	0 = Normal 1 = Strobe 2 = 3-Pulse	0	Yes	RW	
42874	42875	Sequence Value	0-255	0	No	RW	
42875	42876	Sequence Shift	0-15	0	No	RW	
42876	42877	Chevron Control	0-15	0	No	RW	4-bit value: (MSB) Left Chevron, Bottom Chevron, Right Chevron, Top Chevron (LSB)

Continued on page 34

Continued from page 33

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42877	42878	Color 1	0 = Off	2	Yes	RW	
42878	42879	Color 2	1 = Green	0	Yes	RW	
42879	42880	Color 3	2 = Red	0	Yes	RW	
			3 = Orange				
			4 = Amber				
			5 = Yellow				
			6 = Lime Green				
			7 = Spring Green				
			8 = Cyan				
42880	42881	Color 4	9 = Sky Blue	0	Yes	RW	
			10 = Blue				
			11 = Violet				
			12 = Magenta				
			13 = Rose				
			14 = White				
			15 = Custom 1				
42881	42882	Direction	0 = Clockwise	0	No	RW	
			1 = Counter-clockwise				
42882	42883	Haptic Feedback	0 = Disabled	0	No	RW	
			1 = Enabled				
			0 = Off				
			1 = Pulse				
			2 = Wobble				
			3 = Strobe				
			4 = Whoop				
			5 = Staccato				
			6 = Siren				
42883	42884	Audible Type	7 = Continuous 1	0	No	RW	
			8 = Continuous 2				
			9 = Jingle				
			10 = Melody 1				
			11 = Melody 2				
			12 = Melody 3				
			13 = Custom				

Example: Level Indication with a Low-Level Alert Threshold

In this example, which uses the Base 0 address, the S100 is configured as a percentage indicator with a bar graph, a live numeric value, a label, a base cyan display, and a low-level alert threshold that flashes red and shows a refill message.

1. Put the device in Level Mode.

42200 = 2 (Operation Mode = Level Mode)

2. Set the current Level Mode process value.

```
42000 = 650 (Level Mode Value = 650)
```

3. Configure the general Level Mode display.

```
42700 = 1 (Filter Level = Low)
42701 = 1 (Hysteresis Level = Low)
42702-42709 = (Data Label = "LEVEL")
    42703 = 0x4C45 ("LE")
    42704 = 0x5645 ("VE")
    42705 = 0x4C20 ("L ")
    42706 = 0x0000
    42707 = 0x0000
    42708 = 0x0000
    42709 = 0x0000
42718 = 100 (Output Scale Value High = 100)
42720 = 1000 (Input Scale Value High = 1000)
42721-42722 = (Value Label = "%")
    42721 = 0x0024 ("%")
    42722 = 0x0000
42725 = 8 (Bar Graph Packages = 8)
42726 = 0 (Decimal Places = 0)
```

4. Configure the base Level Mode appearance.

```
42729-42730 = (Override Line 1 String = "NORMAL")
    42729 = 0x4E4F ("NO")
    42730 = 0x524D ("RM")
    42731 = 0x414C ("AL")
    42732 = 0x0000
    42733 = 0x0000
    42734 = 0x0000
    42735 = 0x0000
42736-42742 = (Override Line 2 String = "LEVEL")
    42736 = 0x4C45 ("LE")
    42737 = 0x5645 ("VE")
    42738 = 0x4C20 ("L ")
    42739 = 0x0000
    42740 = 0x0000
    42741 = 0x0000
    42742 = 0x0000
42743 = 1 (Animation = Steady)
42744 = 1 (Speed = Standard)
42749 = 8 (Color 1 = Cyan)
```

5. Configure Threshold 1 as a low-level alarm.

```
42759 = 1 (Threshold Override = Enabled)
42760 = 1 (Display Override = Enabled)
42761-42767 = (Override Line 1 String = "LOW")
    42761 = 0x4C4F ("LO")
    42762 = 0x5720 ("W ")
    42763 = 0x0000
    42764 = 0x0000
    42765 = 0x0000
    42766 = 0x0000
    42767 = 0x0000
42768-42774 = (Override Line 2 String = "REFILL")
    42768 = 0x5245 ("RE")
    42769 = 0x4649 ("FI")
    42770 = 0x4C4C ("LL")
    42771 = 0x0000
    42772 = 0x0000
    42773 = 0x0000
    42774 = 0x0000
```

```

42775 = 2 (Animation = Flash)
42776 = 1 (Speed = Standard)
42781 = 2 (Color 1 = Red)
42787 = 1 (Audible Type = Pulse)

```

6. Disable Thresholds 2-4.

```

42788 = 0 ("Threshold 2" Is Enabled = Disabled)
42820 = 0 ("Threshold 3" Is Enabled = Disabled)
42852 = 0 ("Threshold 4" Is Enabled = Disabled)

```

4.4.5 Timer Mode

Use these registers to set the inputs and value of Timer Mode.

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access
42000	42001	Run / Pause Input	0 = Off (Paused) 1 = On (Counting)	0	No	RW
42001	42002	Reset Input	0 = Off 1 = On	0	No	RW

Timer Mode Settings

Use these registers to set the units, direction, and reset of Timer Mode.

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access
42900	42901	Timer Value	0..65535	10	Yes	RW
42901	42902	Timer Unit Type	0 = Days 1 = Hours 2 = Minutes 3 = Seconds 4 = Deciseconds 5 = Centiseconds 6 = Milliseconds	3	Yes	RW
42902	42903	Timer Count Type	0 = Down 1 = Up	0	Yes	RW
42903	42904	Reset Button	0 = Disabled 1 = Button 1 2 = Button 2 3 = Button 3 4 = Button 4 5 = Button 5	0	Yes	RW
42904	42905	Count Increment Button	0 = Disabled 1 = Button 1 2 = Button 2 3 = Button 3 4 = Button 4 5 = Button 5	0	Yes	RW

Continued on page 37

Continued from page 36

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access
42905	42906	Count Decrement Button	0 = Disabled 1 = Button 1 2 = Button 2 3 = Button 3 4 = Button 4 5 = Button 5	0	Yes	RW
42906	42907	Run / Pause Button	0 = Disabled 1 = Button 1 2 = Button 2 3 = Button 3 4 = Button 4 5 = Button 5	0	Yes	RW
42907	42908	Enable Auto Reload	0 = Disabled 1 = Enabled	0	Yes	RW

Timer Mode General Configuration

Use these registers to set the filter, labels, bar graph, and other settings of the mode.

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42700	42701	Filter Level	0 = None 1 = Low 2 = Medium 3 = High	0	Yes	RW	
42701	42702	Hysteresis Level	0 = None 1 = Low 2 = Medium 3 = High	0	Yes	RW	
42702-42709	42703-42710	Data Label		Time =	Yes	RW	8 words / 16 characters
42710	42711	Display Value Enable	0 = Disabled 1 = Enabled	1	Yes	RW	
42711	42712	Display Data Label Enable	0 = Disabled 1 = Enabled	1	Yes	RW	
42712	42713	Display Bar Graph Enable	0 = Disabled 1 = Enabled	1	Yes	RW	
42713	42714	Gauge Mode Enable	0 = Disabled 1 = Enabled	0	Yes	RW	
42714	42715	Direction	0 = Clockwise 1 = Counter-clockwise	0	Yes	RW	
42715	42716	Shift	0-15	0	Yes	RW	

Continued on page 38

Continued from page 37

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42716	42717	Gauge Mode Background Color	0 = Off 1 = Green 2 = Red 3 = Orange 4 = Amber 5 = Yellow 6 = Lime Green 7 = Spring Green 8 = Cyan 9 = Sky Blue 10 = Blue 11 = Violet 12 = Magenta 13 = Rose 14 = White 15 = Custom 1	0	Yes	RW	
42717	42718	Output Scale Value Low	0-65535	0	Yes	RW	
42718	42719	Output Scale Value High	0-65535	10	Yes	RW	
42719	42720	Input Scale Value Low	0-65535	0	Yes	RW	
42720	42721	Input Scale Value High	0-65535	65535	Yes	RW	
42721-42722	42722-42723	Value Label		s	Yes	RW	2 words / 4 characters
42723	42724	Swap Data / Value Label Lines	0 = Disabled 1 = Enabled	0	Yes	RW	Swaps the two lines to display Value + Value Label on top, and Data Label on bottom
42724	42725	Bar Graph Orientation	0 = 0 degrees 1 = 180 degrees	0	Yes	RW	
42725	42726	Bar Graph Packages	0-16	0	Yes	RW	How many rows to use for the bar graph
42726	42727	Decimal Places	0-3	1	Yes	RW	
42727	42728	Display As Time	0 = Disabled 1 = Enabled	0	Yes	RW	Show the time in HH:MM:SS format

Timer Mode Base Configuration

Use these registers to set the colors, animations, and audible for the mode.

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42728	42729	Display Override	0 = Disabled 1 = Enabled	0	Yes	RW	
42029-42035	42030-42036	Override Line 1 String		Base	Yes	RW	7 words / 14 characters
42036-42042	42037-42043	Override Line 2 String		Base	Yes	RW	7 words / 14 characters
42743	42744	Animation	0 = Off 1 = Steady 2 = Flash 3 = Two Color Flash 4 = 50/50 5 = 50/50 Flash 6 = Chase 7 = Intensity Sweep 8 = Two Color Sweep 9 = Sequence 10 = Wave 11 = Double Wave 12 = Two Color Quadrant 13 = Four Color Quadrant	0	Yes	RW	
42744	42745	Speed	0 = Slow 1 = Standard 2 = Fast 3 = Custom	1	Yes	RW	
42745	42746	Pattern	0 = Normal 1 = Strobe 2 = 3-Pulse	0	Yes	RW	
42746	42747	Sequence Value	0-255	0	No	RW	
42747	42748	Sequence Shift	0-15	0	No	RW	
42748	42749	Chevron Control	0-15	0	No	RW	4-bit value: (MSB) Left Chevron, Bottom Chevron, Right Chevron, Top Chevron (LSB)

Continued on page 39

Continued from page 39

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42749	42750	Color 1	0 = Off	0	Yes	RW	
42750	42751	Color 2	1 = Green	0	Yes	RW	
42751	42752	Color 3	2 = Red	0	Yes	RW	
42752	42753	Color 4	3 = Orange	0	Yes	RW	
			4 = Amber				
			5 = Yellow				
			6 = Lime Green				
			7 = Spring Green				
			8 = Cyan				
			9 = Sky Blue				
			10 = Blue				
			11 = Violet				
			12 = Magenta				
			13 = Rose				
			14 = White				
			15 = Custom 1				
42753	42754	Direction	0 = Clockwise 1 = Counter-clockwise	0	No	RW	
42754	42755	Haptic Feedback	0 = Disabled 1 = Enabled	0	No	RW	
42755	42756	Audible Type	0 = Off	0	No	RW	
			1 = Pulse				
			2 = Wobble				
			3 = Strobe				
			4 = Whoop				
			5 = Staccato				
			6 = Siren				
			7 = Continuous 1				
			8 = Continuous 2				
			9 = Jingle				
			10 = Melody 1				
			11 = Melody 2				
			12 = Melody 3				
			13 = Custom				

Timer Mode Threshold 1 Configuration

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42756	42757	Is Enabled	0 = Disabled 1 = Enabled	1	Yes	RW	
42757	42758	Percent	0-100	25	Yes	RW	

Continued on page 41

Continued from page 40

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42758	42759	Type	0 = Less Than or Equal To 1 = Greater Than	0	Yes	RW	
42759	42760	Threshold Override	0 = Disabled 1 = Enabled	0	Yes	RW	
42760	42761	Display Override	0 = Disabled 1 = Enabled	0	Yes	RW	
42761-42767	42762-42768	Override Line 1 String		Thres1	Yes	RW	7 words / 14 characters
42768-42774	42769-42775	Override Line 2 String		Thres1	Yes	RW	7 words / 14 characters
42775	42776	Animation	0 = Off 1 = Steady 2 = Flash 3 = Two Color Flash 4 = 50/50 5 = 50/50 Flash 6 = Chase 7 = Intensity Sweep 8 = Two Color Sweep 9 = Sequence 10 = Wave 11 = Double Wave 12 = Two Color Quadrant 13 = Four Color Quadrant	1	Yes	RW	
42776	42777	Speed	0 = Slow 1 = Standard 2 = Fast 3 = Custom	1	Yes	RW	
42777	42778	Pattern	0 = Normal 1 = Strobe 2 = 3-Pulse	0	Yes	RW	
42778	42779	Sequence Value	0-255	0	No	RW	
42779	42780	Sequence Shift	0-15	0	No	RW	
42780	42781	Chevron Control	0-15	0	No	RW	4-bit value: (MSB) Left Chevron, Bottom Chevron, Right Chevron, Top Chevron (LSB)

Continued on page 42

Continued from page 41

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42781	42782	Color 1	0 = Off	0	Yes	RW	
42782	42783	Color 2	1 = Green	0	Yes	RW	
42783	42784	Color 3	2 = Red	0	Yes	RW	
42784	42785	Color 4	3 = Orange	0	Yes	RW	
			4 = Amber				
			5 = Yellow				
			6 = Lime Green				
			7 = Spring Green				
			8 = Cyan				
			9 = Sky Blue				
			10 = Blue				
			11 = Violet				
			12 = Magenta				
			13 = Rose				
			14 = White				
			15 = Custom 1				
42785	42786	Direction	0 = Clockwise 1 = Counter-clockwise	0	No	RW	
42786	42787	Haptic Feedback	0 = Disabled 1 = Enabled	0	No	RW	
42787	42788	Audible Type	0 = Off	0	No	RW	
			1 = Pulse				
			2 = Wobble				
			3 = Strobe				
			4 = Whoop				
			5 = Staccato				
			6 = Siren				
			7 = Continuous 1				
			8 = Continuous 2				
			9 = Jingle				
			10 = Melody 1				
			11 = Melody 2				
			12 = Melody 3				
			13 = Custom				

Timer Mode Threshold 2 Configuration

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42788	42789	Is Enabled	0 = Disabled 1 = Enabled	1	Yes	RW	
42789	42790	Percent	0-100	50	Yes	RW	

Continued on page 43

Continued from page 42

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42790	42791	Type	0 = Less Than or Equal To 1 = Greater Than	0	Yes	RW	
42791	42792	Threshold Override	0 = Disabled 1 = Enabled	0	Yes	RW	
42792	42793	Display Override	0 = Disabled 1 = Enabled	0	Yes	RW	
42793-42799	42794-42800	Override Line 1 String		Thres2	Yes	RW	7 words / 14 characters
42800-42806	42801-42807	Override Line 2 String		Thres2	Yes	RW	7 words / 14 characters
42807	42808	Animation	0 = Off 1 = Steady 2 = Flash 3 = Two Color Flash 4 = 50/50 5 = 50/50 Flash 6 = Chase 7 = Intensity Sweep 8 = Two Color Sweep 9 = Sequence 10 = Wave 11 = Double Wave 12 = Two Color Quadrant 13 = Four Color Quadrant	1	Yes	RW	
42808	42809	Speed	0 = Slow 1 = Standard 2 = Fast 3 = Custom	1	Yes	RW	
42809	42810	Pattern	0 = Normal 1 = Strobe 2 = 3-Pulse	0	Yes	RW	
42810	42811	Sequence Value	0-255	0	No	RW	
42811	42812	Sequence Shift	0-15	0	No	RW	
42812	42813	Chevron Control	0-15	0	No	RW	4-bit value: (MSB) Left Chevron, Bottom Chevron, Right Chevron, Top Chevron (LSB)

Continued on page 44

Continued from page 43

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42813	42814	Color 1	0 = Off	3	Yes	RW	
42814	42815	Color 2	1 = Green	0	Yes	RW	
42815	42816	Color 3	2 = Red	0	Yes	RW	
42816	42817	Color 4	3 = Orange	0	Yes	RW	
			4 = Amber				
			5 = Yellow				
			6 = Lime Green				
			7 = Spring Green				
			8 = Cyan				
			9 = Sky Blue				
			10 = Blue				
			11 = Violet				
			12 = Magenta				
42817	42818	Direction	0 = Clockwise	0	No	RW	
			1 = Counter-clockwise				
42818	42819	Haptic Feedback	0 = Disabled	0	No	RW	
42819	42820	Audible Type	1 = Enabled	0	No	RW	
			0 = Off				
			1 = Pulse				
			2 = Wobble				
			3 = Strobe				
			4 = Whoop				
			5 = Staccato				
			6 = Siren				
			7 = Continuous 1				
			8 = Continuous 2				
			9 = Jingle				
			10 = Melody 1				
			11 = Melody 2				
			12 = Melody 3				
			13 = Custom				

Timer Mode Threshold 3 Configuration

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42820	42821	Is Enabled	0 = Disabled	1	Yes	RW	
			1 = Enabled				
42821	42822	Percent	0-100	75	Yes	RW	

Continued on page 45

Continued from page 44

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42822	42823	Type	0 = Less Than or Equal To 1 = Greater Than	0	Yes	RW	
42823	42824	Threshold Override	0 = Disabled 1 = Enabled	0	Yes	RW	
42824	42825	Display Override	0 = Disabled 1 = Enabled	0	Yes	RW	
42825-42831	42826-42832	Override Line 1 String		Thres3	Yes	RW	7 words / 14 characters
42832-42838	42833-42839	Override Line 2 String		Thres3	Yes	RW	7 words / 14 characters
42839	42840	Animation	0 = Off 1 = Steady 2 = Flash 3 = Two Color Flash 4 = 50/50 5 = 50/50 Flash 6 = Chase 7 = Intensity Sweep 8 = Two Color Sweep 9 = Sequence 10 = Wave 11 = Double Wave 12 = Two Color Quadrant 13 = Four Color Quadrant	1	Yes	RW	
42840	42841	Speed	0 = Slow 1 = Standard 2 = Fast 3 = Custom	1	Yes	RW	
42841	42842	Pattern	0 = Normal 1 = Strobe 2 = 3-Pulse	0	Yes	RW	
42842	42843	Sequence Value	0-255	0	No	RW	
42843	42844	Sequence Shift	0-15	0	No	RW	
42844	42845	Chevron Control	0-15	0	No	RW	4-bit value: (MSB) Left Chevron, Bottom Chevron, Right Chevron, Top Chevron (LSB)

Continued on page 46

Continued from page 45

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42845	42846	Color 1	0 = Off	2	Yes	RW	
42846	42847	Color 2	1 = Green	0	Yes	RW	
42847	42848	Color 3	2 = Red	0	Yes	RW	
			3 = Orange				
			4 = Amber				
			5 = Yellow				
			6 = Lime Green				
			7 = Spring Green				
			8 = Cyan				
42848	42849	Color 4	9 = Sky Blue	0	Yes	RW	
			10 = Blue				
			11 = Violet				
			12 = Magenta				
			13 = Rose				
			14 = White				
			15 = Custom 1				
42849	42850	Direction	0 = Clockwise	0	No	RW	
			1 = Counter-clockwise				
42850	42851	Haptic Feedback	0 = Disabled	0	No	RW	
			1 = Enabled				
			0 = Off				
			1 = Pulse				
			2 = Wobble				
			3 = Strobe				
			4 = Whoop				
			5 = Staccato				
			6 = Siren				
42851	42852	Audible Type	7 = Continuous 1	0	No	RW	
			8 = Continuous 2				
			9 = Jingle				
			10 = Melody 1				
			11 = Melody 2				
			12 = Melody 3				
			13 = Custom				

Timer Mode Threshold 4 Configuration

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42852	42853	Is Enabled	0 = Disabled 1 = Enabled	1	Yes	RW	
42853	42854	Percent	0-100	100	Yes	RW	

Continued on page 47

Continued from page 46

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42854	42855	Type	0 = Less Than or Equal To 1 = Greater Than	0	Yes	RW	
42855	42856	Threshold Override	0 = Disabled 1 = Enabled	0	Yes	RW	
42856	42857	Display Override	0 = Disabled 1 = Enabled	0	Yes	RW	
42857-42863	42858-42864	Override Line 1 String		Thres4	Yes	RW	7 words / 14 characters
42864-42870	42865-42871	Override Line 2 String		Thres4	Yes	RW	7 words / 14 characters
42871	42872	Animation	0 = Off 1 = Steady 2 = Flash 3 = Two Color Flash 4 = 50/50 5 = 50/50 Flash 6 = Chase 7 = Intensity Sweep 8 = Two Color Sweep 9 = Sequence 10 = Wave 11 = Double Wave 12 = Two Color Quadrant 13 = Four Color Quadrant	7	Yes	RW	
42872	42873	Speed	0 = Slow 1 = Standard 2 = Fast 3 = Custom	1	Yes	RW	
42873	42874	Pattern	0 = Normal 1 = Strobe 2 = 3-Pulse	0	Yes	RW	
42874	42875	Sequence Value	0-255	0	No	RW	
42875	42876	Sequence Shift	0-15	0	No	RW	
42876	42877	Chevron Control	0-15	0	No	RW	4-bit value: (MSB) Left Chevron, Bottom Chevron, Right Chevron, Top Chevron (LSB)

Continued on page 48

Continued from page 47

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42877	42878	Color 1	0 = Off	2	Yes	RW	
42878	42879	Color 2	1 = Green	0	Yes	RW	
42879	42880	Color 3	2 = Red	0	Yes	RW	
			3 = Orange				
			4 = Amber				
			5 = Yellow				
			6 = Lime Green				
			7 = Spring Green				
			8 = Cyan				
42880	42881	Color 4	9 = Sky Blue	0	Yes	RW	
			10 = Blue				
			11 = Violet				
			12 = Magenta				
			13 = Rose				
			14 = White				
			15 = Custom 1				
42881	42882	Direction	0 = Clockwise	0	No	RW	
			1 = Counter-clockwise				
42882	42883	Haptic Feedback	0 = Disabled	0	No	RW	
			1 = Enabled				
			0 = Off				
			1 = Pulse				
			2 = Wobble				
			3 = Strobe				
			4 = Whoop				
			5 = Staccato				
			6 = Siren				
42883	42884	Audible Type	7 = Continuous 1	0	No	RW	
			8 = Continuous 2				
			9 = Jingle				
			10 = Melody 1				
			11 = Melody 2				
			12 = Melody 3				
			13 = Custom				

Example: 30-Second Countdown Timer with End-of-Cycle Warning

In this example, which uses the Base 0 address, the S100 is configured as a 30-second countdown timer with a visible value, a label, a bar graph, a base green display, and an end-of-cycle warning that flashes red and shows an ending soon message.

1. Put the device in Timer Mode.

42200 = 2 (Operation Mode = Timer Mode)

2. Set the Timer Mode inputs to an idle starting state (defaults).

```
42000 = 0 (Run / Pause Input = Off, Paused)
42001 = 0 (Reset Input = Off)
```

3. Configure timer behavior.

```
42900 = 30 (Timer Value = 30)
42903 = 1 (Reset Button = Button 1)
42906 = 2 (Run / Pause Button = Button 2)
42907 = 1 (Enable Auto Reload = Enabled)
```

4. Configure the general Timer Mode display.

```
42700 = 1 (Filter Level = Low)
42701 = 1 (Hysteresis Level = Low)
42702-42709 = (Data Label = "CYCLE")
42703 = 0x4359 ("CY")
42704 = 0x434C ("CL")
42705 = 0x4520 ("E ")
42706 = 0x0000
42707 = 0x0000
42708 = 0x0000
42709 = 0x0000
42718 = 30 (Output Scale Value High = 30)
42720 = 30 (Input Scale Value High = 30)
42721-42722 = (Value Label = "s", default)
42725 = 8 (Bar Graph Packages = 8)
42726 = 0 (Decimal Places = 0)
```

5. Configure the base Timer Mode appearance.

```
42729-42730 = (Override Line 1 String = "COUNT")
42729 = 0x434F ("CO")
42730 = 0x554E ("UN")
42731 = 0x5420 ("T ")
42732 = 0x0000
42733 = 0x0000
42734 = 0x0000
42735 = 0x0000
42736-42742 = (Override Line 2 String = "DOWN")
42736 = 0x444F ("DO")
42737 = 0x574E ("WN")
42738 = 0x0000
42739 = 0x0000
42740 = 0x0000
42741 = 0x0000
42742 = 0x0000
42743 = 1 (Animation = Steady)
42744 = 1 (Speed = Standard)
42749 = 1 (Color 1 = Green)
```

6. Configure Threshold 1 as the end-of-cycle warning.

```
42759 = 1 (Threshold Override = Enabled)
42760 = 1 (Display Override = Enabled)
42761-42767 = (Override Line 1 String = "END")
42761 = 0x454E ("EN")
42762 = 0x4420 ("D ")
42763 = 0x0000
42764 = 0x0000
42765 = 0x0000
42766 = 0x0000
42767 = 0x0000
```

```

42768-42774 = (Override Line 2 String = "SOON")
42768 = 0x534F ("SO")
42769 = 0x4F4E ("ON")
42770 = 0x0000
42771 = 0x0000
42772 = 0x0000
42773 = 0x0000
42774 = 0x0000
42775 = 2 (Animation = Flash)
42776 = 1 (Speed = Standard)
42781 = 2 (Color 1 = Red)
42787 = 1 (Audible Type = Pulse)

```

7. Disable Thresholds 2-4.

```

42788 = 0 ("Threshold 2" Is Enabled = Disabled)
42820 = 0 ("Threshold 3" Is Enabled = Disabled)
42852 = 0 ("Threshold 4" Is Enabled = Disabled)

```

4.4.6 Counter Mode

Use Counter Mode to count up or down from a value based on an input signal.

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42000	42001	Count Increment Input	0 = Off 1 = Count Up (Pulse)	0	No	RW	Must be pulsed
42001	42002	Count Decrement Input	0 = Off 1 = Count Down (Pulse)	0	No	RW	Must be pulsed
42002	42003	Reset Input	0 = Off 1 = Reset Count	0	No	RW	

Counter Mode General Configuration

Use these registers to set the filter, labels, bar graph, and other settings of the mode.

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42700	42701	Filter Level	0 = None 1 = Low 2 = Medium 3 = High	0	Yes	RW	
42701	42702	Hysteresis Level	0 = None 1 = Low 2 = Medium 3 = High	0	Yes	RW	
42702-42709	42703-42710	Data Label		Time =	Yes	RW	8 words / 16 characters
42710	42711	Display Value Enable	0 = Disabled 1 = Enabled	1	Yes	RW	
42711	42712	Display Data Label Enable	0 = Disabled 1 = Enabled	1	Yes	RW	

Continued on page 51

Continued from page 50

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42712	42713	Display Bar Graph Enable	0 = Disabled 1 = Enabled	1	Yes	RW	
42713	42714	Gauge Mode Enable	0 = Disabled 1 = Enabled	0	Yes	RW	
42714	42715	Direction	0 = Clockwise 1 = Counter-clockwise	0	Yes	RW	
42715	42716	Shift	0-15	0	Yes	RW	
42716	42717	Gauge Mode Background Color	0 = Off 1 = Green 2 = Red 3 = Orange 4 = Amber 5 = Yellow 6 = Lime Green 7 = Spring Green 8 = Cyan 9 = Sky Blue 10 = Blue 11 = Violet 12 = Magenta 13 = Rose 14 = White 15 = Custom 1	0	Yes	RW	
42717	42718	Output Scale Value Low	0-65535	0	Yes	RW	
42718	42719	Output Scale Value High	0-65535	10	Yes	RW	
42719	42720	Input Scale Value Low	0-65535	0	Yes	RW	
42720	42721	Input Scale Value High	0-65535	65535	Yes	RW	
42721-42722	42722-42723	Value Label		s	Yes	RW	2 words / 4 characters
42723	42724	Swap Data / Value Label Lines	0 = Disabled 1 = Enabled	0	Yes	RW	Swaps the two lines to display Value + Value Label on top, and Data Label on bottom
42724	42725	Bar Graph Orientation	0 = 0 degrees 1 = 180 degrees	0	Yes	RW	
42725	42726	Bar Graph Packages	0-16	0	Yes	RW	How many rows to use for the bar graph
42726	42727	Decimal Places	0-3	1	Yes	RW	

Continued on page 52

Continued from page 51

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42727	42728	Display As Time	0 = Disabled 1 = Enabled	0	Yes	RW	Show the time in HH:MM:SS format

Counter Mode Base Configuration

Use these registers to set the colors, animations, and audible for the mode.

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42728	42729	Display Override	0 = Disabled 1 = Enabled	0	Yes	RW	
42029-42035	42030-42036	Override Line 1 String		Base	Yes	RW	7 words / 14 characters
42036-42042	42037-42043	Override Line 2 String		Base	Yes	RW	7 words / 14 characters
42743	42744	Animation	0 = Off 1 = Steady 2 = Flash 3 = Two Color Flash 4 = 50/50 5 = 50/50 Flash 6 = Chase 7 = Intensity Sweep 8 = Two Color Sweep 9 = Sequence 10 = Wave 11 = Double Wave 12 = Two Color Quadrant 13 = Four Color Quadrant	0	Yes	RW	
42744	42745	Speed	0 = Slow 1 = Standard 2 = Fast 3 = Custom	1	Yes	RW	
42745	42746	Pattern	0 = Normal 1 = Strobe 2 = 3-Pulse	0	Yes	RW	
42746	42747	Sequence Value	0-255	0	No	RW	
42747	42748	Sequence Shift	0-15	0	No	RW	

Continued on page 53

Continued from page 52

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42748	42749	Chevron Control	0-15	0	No	RW	4-bit value: (MSB) Left Chevron, Bottom Chevron, Right Chevron, Top Chevron (LSB)
42749	42750	Color 1	0 = Off	0	Yes	RW	
42750	42751	Color 2	1 = Green	0	Yes	RW	
42751	42752	Color 3	2 = Red	0	Yes	RW	
42752	42753	Color 4	3 = Orange 4 = Amber 5 = Yellow 6 = Lime Green 7 = Spring Green 8 = Cyan 9 = Sky Blue 10 = Blue 11 = Violet 12 = Magenta 13 = Rose 14 = White 15 = Custom 1	0	Yes	RW	
42753	42754	Direction	0 = Clockwise 1 = Counter-clockwise	0	No	RW	
42754	42755	Haptic Feedback	0 = Disabled 1 = Enabled	0	No	RW	
42755	42756	Audible Type	0 = Off 1 = Pulse 2 = Wobble 3 = Strobe 4 = Whoop 5 = Staccato 6 = Siren 7 = Continuous 1 8 = Continuous 2 9 = Jingle 10 = Melody 1 11 = Melody 2 12 = Melody 3 13 = Custom	0	No	RW	

Counter Mode Threshold 1 Configuration

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42756	42757	Is Enabled	0 = Disabled 1 = Enabled	1	Yes	RW	
42757	42758	Percent	0-100	25	Yes	RW	
42758	42759	Type	0 = Less Than or Equal To 1 = Greater Than	0	Yes	RW	
42759	42760	Threshold Override	0 = Disabled 1 = Enabled	0	Yes	RW	
42760	42761	Display Override	0 = Disabled 1 = Enabled	0	Yes	RW	
42761-42767	42762-42768	Override Line 1 String		Thres1	Yes	RW	7 words / 14 characters
42768-42774	42769-42775	Override Line 2 String		Thres1	Yes	RW	7 words / 14 characters
42775	42776	Animation	0 = Off 1 = Steady 2 = Flash 3 = Two Color Flash 4 = 50/50 5 = 50/50 Flash 6 = Chase 7 = Intensity Sweep 8 = Two Color Sweep 9 = Sequence 10 = Wave 11 = Double Wave 12 = Two Color Quadrant 13 = Four Color Quadrant	1	Yes	RW	
42776	42777	Speed	0 = Slow 1 = Standard 2 = Fast 3 = Custom	1	Yes	RW	
42777	42778	Pattern	0 = Normal 1 = Strobe 2 = 3-Pulse	0	Yes	RW	
42778	42779	Sequence Value	0-255	0	No	RW	
42779	42780	Sequence Shift	0-15	0	No	RW	

Continued on page 54

Continued from page 54

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42780	42781	Chevron Control	0-15	0	No	RW	4-bit value: (MSB) Left Chevron, Bottom Chevron, Right Chevron, Top Chevron (LSB)
42781	42782	Color 1	0 = Off	0	Yes	RW	
42782	42783	Color 2	1 = Green	0	Yes	RW	
42783	42784	Color 3	2 = Red	0	Yes	RW	
42784	42785	Color 4	3 = Orange 4 = Amber 5 = Yellow 6 = Lime Green 7 = Spring Green 8 = Cyan 9 = Sky Blue 10 = Blue 11 = Violet 12 = Magenta 13 = Rose 14 = White 15 = Custom 1	0	Yes	RW	
42785	42786	Direction	0 = Clockwise 1 = Counter-clockwise	0	No	RW	
42786	42787	Haptic Feedback	0 = Disabled 1 = Enabled	0	No	RW	
42787	42788	Audible Type	0 = Off 1 = Pulse 2 = Wobble 3 = Strobe 4 = Whoop 5 = Staccato 6 = Siren 7 = Continuous 1 8 = Continuous 2 9 = Jingle 10 = Melody 1 11 = Melody 2 12 = Melody 3 13 = Custom	0	No	RW	

Counter Mode Threshold 2 Configuration

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42788	42789	Is Enabled	0 = Disabled 1 = Enabled	1	Yes	RW	
42789	42790	Percent	0-100	50	Yes	RW	
42790	42791	Type	0 = Less Than or Equal To 1 = Greater Than	0	Yes	RW	
42791	42792	Threshold Override	0 = Disabled 1 = Enabled	0	Yes	RW	
42792	42793	Display Override	0 = Disabled 1 = Enabled	0	Yes	RW	
42793-42799	42794-42800	Override Line 1 String		Thres2	Yes	RW	7 words / 14 characters
42800-42806	42801-42807	Override Line 2 String		Thres2	Yes	RW	7 words / 14 characters
42807	42808	Animation	0 = Off 1 = Steady 2 = Flash 3 = Two Color Flash 4 = 50/50 5 = 50/50 Flash 6 = Chase 7 = Intensity Sweep 8 = Two Color Sweep 9 = Sequence 10 = Wave 11 = Double Wave 12 = Two Color Quadrant 13 = Four Color Quadrant	1	Yes	RW	
42808	42809	Speed	0 = Slow 1 = Standard 2 = Fast 3 = Custom	1	Yes	RW	
42809	42810	Pattern	0 = Normal 1 = Strobe 2 = 3-Pulse	0	Yes	RW	
42810	42811	Sequence Value	0-255	0	No	RW	
42811	42812	Sequence Shift	0-15	0	No	RW	

Continued on page 56

Continued from page 56

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42812	42813	Chevron Control	0-15	0	No	RW	4-bit value: (MSB) Left Chevron, Bottom Chevron, Right Chevron, Top Chevron (LSB)
42813	42814	Color 1	0 = Off	3	Yes	RW	
42814	42815	Color 2	1 = Green	0	Yes	RW	
42815	42816	Color 3	2 = Red	0	Yes	RW	
42816	42817	Color 4	3 = Orange 4 = Amber 5 = Yellow 6 = Lime Green 7 = Spring Green 8 = Cyan 9 = Sky Blue 10 = Blue 11 = Violet 12 = Magenta 13 = Rose 14 = White 15 = Custom 1	0	Yes	RW	
42817	42818	Direction	0 = Clockwise 1 = Counter-clockwise	0	No	RW	
42818	42819	Haptic Feedback	0 = Disabled 1 = Enabled	0	No	RW	
42819	42820	Audible Type	0 = Off 1 = Pulse 2 = Wobble 3 = Strobe 4 = Whoop 5 = Staccato 6 = Siren 7 = Continuous 1 8 = Continuous 2 9 = Jingle 10 = Melody 1 11 = Melody 2 12 = Melody 3 13 = Custom	0	No	RW	

Counter Mode Threshold 3 Configuration

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42820	42821	Is Enabled	0 = Disabled 1 = Enabled	1	Yes	RW	
42821	42822	Percent	0-100	75	Yes	RW	
42822	42823	Type	0 = Less Than or Equal To 1 = Greater Than	0	Yes	RW	
42823	42824	Threshold Override	0 = Disabled 1 = Enabled	0	Yes	RW	
42824	42825	Display Override	0 = Disabled 1 = Enabled	0	Yes	RW	
42825-42831	42826-42832	Override Line 1 String		Thres3	Yes	RW	7 words / 14 characters
42832-42838	42833-42839	Override Line 2 String		Thres3	Yes	RW	7 words / 14 characters
42839	42840	Animation	0 = Off 1 = Steady 2 = Flash 3 = Two Color Flash 4 = 50/50 5 = 50/50 Flash 6 = Chase 7 = Intensity Sweep 8 = Two Color Sweep 9 = Sequence 10 = Wave 11 = Double Wave 12 = Two Color Quadrant 13 = Four Color Quadrant	1	Yes	RW	
42840	42841	Speed	0 = Slow 1 = Standard 2 = Fast 3 = Custom	1	Yes	RW	
42841	42842	Pattern	0 = Normal 1 = Strobe 2 = 3-Pulse	0	Yes	RW	
42842	42843	Sequence Value	0-255	0	No	RW	
42843	42844	Sequence Shift	0-15	0	No	RW	

Continued on page 58

Continued from page 58

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42844	42845	Chevron Control	0-15	0	No	RW	4-bit value: (MSB) Left Chevron, Bottom Chevron, Right Chevron, Top Chevron (LSB)
42845	42846	Color 1	0 = Off	2	Yes	RW	
42846	42847	Color 2	1 = Green	0	Yes	RW	
42847	42848	Color 3	2 = Red	0	Yes	RW	
42848	42849	Color 4	3 = Orange 4 = Amber 5 = Yellow 6 = Lime Green 7 = Spring Green 8 = Cyan 9 = Sky Blue 10 = Blue 11 = Violet 12 = Magenta 13 = Rose 14 = White 15 = Custom 1	0	Yes	RW	
42849	42850	Direction	0 = Clockwise 1 = Counter-clockwise	0	No	RW	
42850	42851	Haptic Feedback	0 = Disabled 1 = Enabled	0	No	RW	
42851	42852	Audible Type	0 = Off 1 = Pulse 2 = Wobble 3 = Strobe 4 = Whoop 5 = Staccato 6 = Siren 7 = Continuous 1 8 = Continuous 2 9 = Jingle 10 = Melody 1 11 = Melody 2 12 = Melody 3 13 = Custom	0	No	RW	

Counter Mode Threshold 4 Configuration

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42852	42853	Is Enabled	0 = Disabled 1 = Enabled	1	Yes	RW	
42853	42854	Percent	0-100	100	Yes	RW	
42854	42855	Type	0 = Less Than or Equal To 1 = Greater Than	0	Yes	RW	
42855	42856	Threshold Override	0 = Disabled 1 = Enabled	0	Yes	RW	
42856	42857	Display Override	0 = Disabled 1 = Enabled	0	Yes	RW	
42857-42863	42858-42864	Override Line 1 String		Thres4	Yes	RW	7 words / 14 characters
42864-42870	42865-42871	Override Line 2 String		Thres4	Yes	RW	7 words / 14 characters
42871	42872	Animation	0 = Off 1 = Steady 2 = Flash 3 = Two Color Flash 4 = 50/50 5 = 50/50 Flash 6 = Chase 7 = Intensity Sweep 8 = Two Color Sweep 9 = Sequence 10 = Wave 11 = Double Wave 12 = Two Color Quadrant 13 = Four Color Quadrant	7	Yes	RW	
42872	42873	Speed	0 = Slow 1 = Standard 2 = Fast 3 = Custom	1	Yes	RW	
42873	42874	Pattern	0 = Normal 1 = Strobe 2 = 3-Pulse	0	Yes	RW	
42874	42875	Sequence Value	0-255	0	No	RW	
42875	42876	Sequence Shift	0-15	0	No	RW	

Continued on page 60

Continued from page 60

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42876	42877	Chevron Control	0-15	0	No	RW	4-bit value: (MSB) Left Chevron, Bottom Chevron, Right Chevron, Top Chevron (LSB)
42877	42878	Color 1	0 = Off	2	Yes	RW	
42878	42879	Color 2	1 = Green	0	Yes	RW	
42879	42880	Color 3	2 = Red	0	Yes	RW	
42880	42881	Color 4	3 = Orange 4 = Amber 5 = Yellow 6 = Lime Green 7 = Spring Green 8 = Cyan 9 = Sky Blue 10 = Blue 11 = Violet 12 = Magenta 13 = Rose 14 = White 15 = Custom 1	0	Yes	RW	
42881	42882	Direction	0 = Clockwise 1 = Counter-clockwise	0	No	RW	
42882	42883	Haptic Feedback	0 = Disabled 1 = Enabled	0	No	RW	
42883	42884	Audible Type	0 = Off 1 = Pulse 2 = Wobble 3 = Strobe 4 = Whoop 5 = Staccato 6 = Siren 7 = Continuous 1 8 = Continuous 2 9 = Jingle 10 = Melody 1 11 = Melody 2 12 = Melody 3 13 = Custom	0	No	RW	

Example: Parts Counter with 50% and 90% Warnings

In this example, which uses the Base 0 address, the S100 is configured as a parts counter that counts up to 100, with a label, a bar graph, a base blue display, an amber progress indication after the count passes 50%, and a near-complete warning that flashes red after the count passes 90%.

1. Put the device in Counter Mode.

```
42200 = 3 (Operation Mode = Counter Mode)
```

2. Set the Counter Mode inputs to an idle starting state (defaults).

```
42000 = 0 (Count Increment Input = Off)
42001 = 0 (Count Decrement Input = Off)
42002 = 0 (Reset Input = Off)
```

3. Configure the general Counter Mode display.

```
42700 = 1 (Filter Level = Low)
42701 = 1 (Hysteresis Level = Low)
42702-42709 = (Data Label = "PARTS")
42703 = 0x5041 ("PA")
42704 = 0x5254 ("RT")
42705 = 0x5320 ("S ")
42706 = 0x0000
42707 = 0x0000
42708 = 0x0000
42709 = 0x0000
42718 = 100 (Output Scale Value High = 100)
42720 = 100 (Input Scale Value High = 100)
42721-42722 = (Value Label = "ct")
42721 = 0x6374 ("ct")
42722 = 0x0000
42725 = 8 (Bar Graph Packages = 8)
42726 = 0 (Decimal Places = 0)
```

4. Configure the base Counter Mode appearance.

```
42729-42730 = (Override Line 1 String = "PART")
42729 = 0x5041 ("PA")
42730 = 0x5254 ("RT")
42731 = 0x0000
42732 = 0x0000
42733 = 0x0000
42734 = 0x0000
42735 = 0x0000
42736-42742 = (Override Line 2 String = "COUNT")
42736 = 0x434F ("CO")
42737 = 0x554E ("UN")
42738 = 0x5420 ("T ")
42739 = 0x0000
42740 = 0x0000
42741 = 0x0000
42742 = 0x0000
42743 = 1 (Animation = Steady)
42744 = 1 (Speed = Standard)
42749 = 10 (Color 1 = Blue)
```

5. Configure Threshold 1 as the 50% progress indicator.

```
42757 = 50 (Percent = 50)
42758 = 1 (Type = Greater Than)
42759 = 1 (Threshold Override = Enabled)
42760 = 1 (Display Override = Enabled)
```

```

42761-42767 = (Override Line 1 String = "HALF")
42761 = 0x4841 ("HA")
42762 = 0x4C46 ("LF")
42763 = 0x0000
42764 = 0x0000
42765 = 0x0000
42766 = 0x0000
42767 = 0x0000
42768-42774 = (Override Line 2 String = "WAY")
42768 = 0x5741 ("WA")
42769 = 0x5920 ("Y ")
42770 = 0x0000
42771 = 0x0000
42772 = 0x0000
42773 = 0x0000
42774 = 0x0000
42775 = 1 (Animation = Steady)
42776 = 1 (Speed = Standard)
42781 = 4 (Color 1 = Amber)

```

6. Configure Threshold 2 as the near-complete warning.

```

42789 = 90 (Percent = 90)
42790 = 1 (Type = Greater Than)
42791 = 1 (Threshold Override = Enabled)
42792 = 1 (Display Override = Enabled)
42793-42799 = (Override Line 1 String = "DONE")
42793 = 0x4841 ("HA")
42794 = 0x4C46 ("LF")
42795 = 0x0000
42796 = 0x0000
42797 = 0x0000
42798 = 0x0000
42799 = 0x0000
42800-42806 = (Override Line 2 String = "SOON")
42800 = 0x534F ("SO")
42801 = 0x4F4E ("ON")
42802 = 0x0000
42803 = 0x0000
42804 = 0x0000
42805 = 0x0000
42806 = 0x0000
42807 = 2 (Animation = Flash)
42808 = 1 (Speed = Standard)
42813 = 2 (Color 1 = Red)
42819 = 1 (Audible Type = Pulse)

```

7. Disable Thresholds 3-4.

```

42820 = 0 ("Threshold 3" Is Enabled = Disabled)
42852 = 0 ("Threshold 4" Is Enabled = Disabled)

```

4.4.7 PICK-IQ Mode

PICK-IQ Mode requires the configuration of the device to define the visual settings for the four standard pick-to-light logic states, defined below.

These settings are embedded inside the device and do not require communication from the client device to change visual states after the device is actuated. This allows the device to respond immediately to any interaction and allows the communication to the client to happen simultaneously.

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access
46000	46001	Button 1 output type	0 = Disabled 1 = Enabled	1		
46001	46002	Button 1 on delay (ms)	0-65535	0		
46002	46003	Reserved				
46003	46004	Reserved				
46004	46005	Button 2 output type	0 = Disabled 1 = Enabled	1		
46005	46006	Button 2 on delay (ms)	0-65535	0		
46006	46007	Reserved				
46007	46008	Reserved				
46008	46009	Button 3 output type	0 = Disabled 1 = Enabled	1		
46009	46010	Button 3 on delay (ms)	0-65535	0		
46010	46011	Reserved				
46011	46012	Reserved				
46012	46013	Button 4 output type	0 = Disabled 1 = Enabled	1		
46013	46014	Button 4 on delay (ms)	0-65535	0		
46014	46015	Reserved				
46015	46016	Reserved				
46016	46017	Button 5 output type	0 = Disabled 1 = Enabled	1		
46017	46018	Button 5 on delay (ms)	0-65535	0		
46018	46019	Reserved				
46019	46020	Reserved				
-	-	-	-	-	-	-
46200	46201	Indicator intensity, basic mode only	0 = Low 1 = Standard 2 = High	1		
46201	46202	Reserved		0		
46202	46203	Touch sensor sensitivity	0 = Low 1 = Standard 2 = High	1		
		State Mode Registers				
46300	46301	Enable state mode	0 = Disabled 1 = Enabled	0		

Continued on page 64

Continued from page 64

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access
46301	46302	Waiting State: Animation	0 = Off 1 = Steady 2 = Flash 3 = Two Color Flash 4 = Half/Half Top/Bottom 5 = Half/Half Left/Right 6 = Half/Half Rotate 7 = Chase 8 = Intensity Sweep 9 = Two Color Sweep 10 = Wave 11 = Double Wave 12 = Two Color Quadrant 13 = Four Color Quadrant	0		
46302	46303	Waiting State: Color 1	0 = Off	0		
46303	46304	Waiting State: Color 2	1 = Red	0		
46304	46305	Waiting State: Color 3	2 = Green	0		
46305	46306	Waiting State: Color 4	3 = Yellow 4 = Blue 5 = Magenta 6 = Cyan 7 = White 8 = Amber 9 = Rose 10 = Lime Green 11 = Orange 12 = Sky Blue 13 = Violet 14 = Spring Green	0		
46306	46307	Waiting State: Animation speed	0 = Slow 1 = Standard 2 = Fast	1		
46307	46308	Waiting State: Animation pattern	0 = Normal 1 = Strobe 2 = 3-Pulse 3 = SOS 4 = Random	0		
46308	46309	Waiting State: Animation direction	0 = Clockwise 1 = Counterclockwise	0		
46309	46310	Waiting State: Chevron Control	0-15	0		
46310-46316	46311-46317	Waiting State: Line 1 Text	14 character, 7-word ASCII string			
46317-46323	46318-46324	Waiting State: Line 2 Text	14 character, 7-word ASCII string			
46324	46325	Reserved				

Continued on page 66

Continued from page 65

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access
46325	46326	Mispick State: Animation	0 = Off 1 = Steady 2 = Flash 3 = Two Color Flash 4 = Half/Half Top/Bottom 5 = Half/Half Left/Right 6 = Half/Half Rotate 7 = Chase 8 = Intensity Sweep 9 = Two Color Sweep 10 = Wave 11 = Double Wave 12 = Two Color Quadrant 13 = Four Color Quadrant	1		
46326	46327	Mispick State: Color 1	0 = Off	1		
46327	46328	Mispick State: Color 2	1 = Red	0		
46328	46329	Mispick State: Color 3	2 = Green	0		
46329	46330	Mispick State: Color 4	3 = Yellow 4 = Blue 5 = Magenta 6 = Cyan 7 = White 8 = Amber 9 = Rose 10 = Lime Green 11 = Orange 12 = Sky Blue 13 = Violet 14 = Spring Green	0		
46330	46331	Mispick State: Animation speed	0 = Slow 1 = Standard 2 = Fast	1		
46331	46332	Mispick State: Animation pattern	0 = Normal 1 = Strobe 2 = 3-Pulse 3 = SOS 4 = Random	0		
46332	46333	Mispick State: Animation direction	0 = Clockwise 1 = Counterclockwise	0		
46333	46334	Mispick State: Chevron Control	0-15	0		
46334-46340	46335-46341	Mispick State: Line 1 Text	14 character, 7-word ASCII string	ERR		
46341-46347	46342-46348	Mispick State: Line 2 Text	14 character, 7-word ASCII string			
46348	46349	Reserved				

Continued on page 67

Continued from page 66

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access
46349	46350	Job State: Animation	0 = Off 1 = Steady 2 = Flash 3 = Two Color Flash 4 = Half/Half Top/Bottom 5 = Half/Half Left/Right 6 = Half/Half Rotate 7 = Chase 8 = Intensity Sweep 9 = Two Color Sweep 10 = Wave 11 = Double Wave 12 = Two Color Quadrant 13 = Four Color Quadrant	1		
46350	46351	Job State: Color 1	0 = Off	2		
46351	46352	Job State: Color 2	1 = Red	0		
46352	46353	Job State: Color 3	2 = Green	0		
46353	46354	Job State: Color 4	3 = Yellow 4 = Blue 5 = Magenta 6 = Cyan 7 = White 8 = Amber 9 = Rose 10 = Lime Green 11 = Orange 12 = Sky Blue 13 = Violet 14 = Spring Green	0		
46354	46355	Job State: Animation speed	0 = Slow 1 = Standard 2 = Fast	1		
46355	46356	Job State: Animation pattern	0 = Normal 1 = Strobe 2 = 3-Pulse 3 = SOS 4 = Random	0		
46356	46357	Job State: Animation direction	0 = Clockwise 1 = Counterclockwise	0		
46357	46358	Job State: Chevron Control	0-15	0		
46358-46364	46359-46365	Job State: Line 1 Text	14 character, 7-word ASCII string	PICK		
46365-46371	46366-46372	Job State: Line 2 Text	14 character, 7-word ASCII string			
46372	46373	Reserved				

Continued on page 68

Continued from page 67

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access
46373	46374	Acknowledge State: Animation	0 = Off 1 = Steady 2 = Flash 3 = Two Color Flash 4 = Half/Half Top/Bottom 5 = Half/Half Left/Right 6 = Half/Half Rotate 7 = Chase 8 = Intensity Sweep 9 = Two Color Sweep 10 = Wave 11 = Double Wave 12 = Two Color Quadrant 13 = Four Color Quadrant	1		
46374	46375	Acknowledge State: Color 1	0 = Off	3		
46375	46376	Acknowledge State: Color 2	1 = Red	0		
46376	46377	Acknowledge State: Color 3	2 = Green	0		
46377	46378	Acknowledge State: Color 4	3 = Yellow 4 = Blue 5 = Magenta 6 = Cyan 7 = White 8 = Amber 9 = Rose 10 = Lime Green 11 = Orange 12 = Sky Blue 13 = Violet 14 = Spring Green	0		
46378	46379	Acknowledge State: Animation speed	0 = Slow 1 = Standard 2 = Fast	1		
46379	46380	Acknowledge State: Animation pattern	0 = Normal 1 = Strobe 2 = 3-Pulse 3 = SOS 4 = Random	0		
46380	46381	Acknowledge State: Animation direction	0 = Clockwise 1 = Counterclockwise	0		
46381	46382	Job State: Chevron Control	0-15	0		
46382-46388	46383-46389	Job State: Line 1 Text	14 character, 7-word ASCII string	GOOD		
46389-46395	46390-46396	Job State: Line 2 Text	14 character, 7-word ASCII string			
46396	46397	Reserved				

Example: Pick-to-Light Station with Four Visual States

In this example, which uses the Base 0 address, the S100 is configured as a pick-to-light station with state mode enabled, using these four visual states: Waiting, Job, Mispick, and Acknowledge.

1. Put the device in PICK-IQ Mode.

```
42200 = 3 (Operation Mode = PICK-IQ Mode)
```

2. Enable all five button outputs (defaults).

```
46000 = 1 (Button 1 output type = Enabled)
46001 = 0 (Button 1 on delay = 0 ms)
46004 = 1 (Button 2 output type = Enabled)
46005 = 0 (Button 2 on delay = 0 ms)
46008 = 1 (Button 3 output type = Enabled)
46009 = 0 (Button 3 on delay = 0 ms)
46012 = 1 (Button 4 output type = Enabled)
46013 = 0 (Button 4 on delay = 0 ms)
46016 = 1 (Button 5 output type = Enabled)
46017 = 0 (Button 5 on delay = 0 ms)
```

3. Set indicator intensity and touch sensitivity.

```
46200 = 2 (Indicator intensity, basic mode only = High)
46202 = 2 (Touch sensor sensitivity = High)
```

4. Enable state mode.

```
46300 = 1 (Enable state mode = Enabled)
```

5. Configure Waiting State.

```
46301 = 1 (Animation = Steady)
46302 = 4 (Color 1 = Blue)
46310-46316 = (Line 1 Text = "READY")
46310 = 0x5245 ("RE")
46311 = 0x4144 ("AD")
46312 = 0x5920 ("Y ")
46313 = 0x0000
46314 = 0x0000
46315 = 0x0000
46316 = 0x0000
46317-46323 = (Line 2 Text = "SCAN")
46317 = 0x5343 ("SC")
46318 = 0x414E ("AN")
46319 = 0x0000
46320 = 0x0000
46321 = 0x0000
46322 = 0x0000
46323 = 0x0000
```

6. Configure Mispick State.

```
46325 = 2 (Animation = Flash)
46330 = 2 (Speed = Fast)
46331 = 1 (Pattern = Strobe)
46334-46340 = (Line 1 Text = "ERR", default)
46341-46347 = (Line 2 Text = "CHECK")
46341 = 0x4348 ("CH")
46342 = 0x4543 ("EC")
46343 = 0x4B20 ("K ")
46344 = 0x0000
46345 = 0x0000
```

```
46346 = 0x0000
46347 = 0x0000
```

7. Configure Job State.

```
46349 = 7 (Animation = Chase)
46358-46364 = (Line 1 Text = "PICK", default)
46365-46371 = (Line 2 Text = "ITEM")
46365 = 0x4954 ("IT")
46366 = 0x454D ("EM")
46367 = 0x0000
46368 = 0x0000
46369 = 0x0000
46370 = 0x0000
46371 = 0x0000
```

8. Configure Acknowledge State.

```
46374 = 7 (Color 1 = White)
46382-46388 = (Line 1 Text = "GOOD", default)
46389-46395 = (Line 2 Text = "DONE")
46389 = 0x444F ("DO")
46390 = 0x4E45 ("NE")
46391 = 0x0000
46392 = 0x0000
46393 = 0x0000
46394 = 0x0000
46395 = 0x0000
```

4.5 Display Settings

Use these registers to set the general Display Settings for the device.

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42300	42301	Text Color	0 = White 1 = Black	0	Yes	RW	
42301	42302	Intensity	0 = High 1 = Medium 2 = Low 3 = Off 4 = Custom	0	Yes	RW	
42302	42303	Scroll Direction	0 = Away From Key 1 = Towards Key	0	Yes	RW	
42303	42304	Scroll Speed	0 = Slow 1 = Standard 2 = Fast 3 = Custom	1	Yes	RW	
42304	42305	Font Size	0 = Small 1 = Large	0	Yes	RW	

Continued on page 71

Continued from page 70

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
42305	42306	Scroll Mode Line 1	0 = Auto 1 = On 2 = Off	0	Yes	RW	
42306	42307	Scroll Mode Line 2	0 = Auto 1 = On 2 = Off	0	Yes	RW	
42307	42308	Synchronous Scroll	0 = On 1 = Off	1	Yes	RW	
42308	42309	Orientation	0 = 0 Degrees 1 = 180 Degrees	0	Yes	RW	
42309	42310	Horizontal Justification	0 = Left 1 = Right 2 = Center	0	Yes	RW	
42310	42311	Vertical Justification	0 = Top 1 = Bottom 2 = Center	0	Yes	RW	
42311	42312	Deadspace Enabled	0 = Disabled 1 = Enabled	0	Yes	RW	
42312	42313	Deadspace Value	0..255	0	Yes	RW	
42313	42314	Startup Message Type	0 = None 1 = Modbus information 2 = Custom	1	Yes	RW	
42314	42315	Startup Message Display Time	0..65535	5000	Yes	RW	Time in ms
42315-42324	42316-42325	Startup Message		Startup	Yes	RW	5 words / 10 characters

4.5.1 Example: Centered Large White Text with Custom Startup Message

This example uses the Base 0 address.

In this example, which uses the Base 0 address, the S100's display is globally configured for white text, high intensity, toward-key scrolling, large font, centered justification, and a custom startup message that displays for three seconds.

```

42300 = 0 (Text Color = White, default)
42301 = 0 (Intensity = High, default)
42302 = 1 (Scroll Direction = Towards Key)
42304 = 1 (Font Size = Large)
42306 = 2 (Scroll Mode Line 2 = Off)
42309 = 2 (Horizontal Justification = Center)
42310 = 2 (Vertical Justification = Center)
42311 = 1 (Deadspace Enabled = Enabled)
42312 = 2 (Deadspace Value = 2)
42313 = 2 (Startup Message Type = Custom)
42314 = 3000 (Startup Message Display Time = 3000 ms)
42315-42324 = (Startup Message = "HELLO")
  42315 = 0x4552 ("HE")
  42316 = 0x5220 ("LL")
  42317 = 0x0000 ("O ")
  42318 = 0x0000
  42319 = 0x0000
  42320 = 0x0000
  46321 = 0x0000
  46322 = 0x0000

```

46323 = 0x0000
46324 = 0x0000

4.6 Button Settings

4.6.1 Input Button Settings

Use these registers to set the general Input Button Settings for the device.

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
43430	43431	Touch Sensitivity	0 = Low 1 = Standard 2 = High	0	Yes	RW	
43431	43432	Use First Config Only	0 = Disabled 1 = Enabled	0	Yes	RW	
43432	43433	Button 1 Type	0 = Momentary 1 = Toggle	0	Yes	RW	
43433	43434	Button 1 Mute Enable	0 = Disabled 1 = Enabled	0	Yes	RW	
43434	43435	Button 1 Group Override	0 = Disabled 1 = Button 1 2 = Button 2 3 = Button 3 4 = Button 4 5 = Button 5	0	Yes	RW	
43435	43436	Button 1 On Delay	0..65535	0	Yes	RW	Time in ms
43436	43437	Button 2 Type	0 = Momentary 1 = Toggle	0	Yes	RW	
43437	43438	Button 2 Mute Enable	0 = Disabled 1 = Enabled	0	Yes	RW	
43438	43439	Button 2 Group Override	0 = Disabled 1 = Button 1 2 = Button 2 3 = Button 3 4 = Button 4 5 = Button 5	0	Yes	RW	
43439	43440	Button 2 On Delay	0..65535	0	Yes	RW	Time in ms
43440	43441	Button 3 Type	0 = Momentary 1 = Toggle	0	Yes	RW	
43441	43442	Button 3 Mute Enable	0 = Disabled 1 = Enabled	0	Yes	RW	

Continued on page 73

Continued from page 72

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
43442	43443	Button 3 Group Override	0 = Disabled 1 = Button 1 2 = Button 2 3 = Button 3 4 = Button 4 5 = Button 5	0	Yes	RW	
43443	43444	Button 3 On Delay	0..65535	0	Yes	RW	Time in ms
43444	43445	Button 4 Type	0 = Momentary 1 = Toggle	0	Yes	RW	
43445	43446	Button 4 Mute Enable	0 = Disabled 1 = Enabled	0	Yes	RW	
43446	43447	Button 4 Group Override	0 = Disabled 1 = Button 1 2 = Button 2 3 = Button 3 4 = Button 4 5 = Button 5	0	Yes	RW	
43447	43448	Button 4 On Delay	0..65535	0	Yes	RW	Time in ms
43448	43449	Button 5 Type	0 = Momentary 1 = Toggle	0	Yes	RW	
43449	43450	Button 5 Mute Enable	0 = Disabled 1 = Enabled	0	Yes	RW	
43450	43451	Button 5 Group Override	0 = Disabled 1 = Button 1 2 = Button 2 3 = Button 3 4 = Button 4 5 = Button 5	0	Yes	RW	
43451	43452	Button 5 On Delay	0..65535	0	Yes	RW	Time in ms

Example: Practical Operator Layout for Input Settings

In this example, which uses the Base 0 address, the S100's five buttons are configured with standard touch sensitivity, with Button 1 and Button 5 as toggle buttons, Buttons 2-4 as momentary buttons, and a mix of mute and on-delay settings.

```

43430 = 1 (Touch Sensitivity = Standard, default)
43432 = 1 (Button 1 Type = Toggle)
43435 = 50 (Button 1 On Delay = 50 ms)
43436 = 0 (Button 2 Type = Momentary, default)
43440 = 0 (Button 3 Type = Momentary, default)
43443 = 100 (Button 3 On Delay = 100 ms)
43444 = 0 (Button 4 Type = Momentary, default)
43445 = 1 (Button 4 Mute Enable = Enabled)
43448 = 1 (Button 5 Type = Toggle)
43451 = 300 (Button 5 On Delay = 300 ms)

```

4.6.2 Output Button Settings

Use these registers to set the general Output Button Settings for the device.

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
43452	43453	Output State	0 = Normally Open 1 = Normally Closed	0	Yes	RW	
43453	43454	Button 1 Off Delay Type	0 = Leading Edge 1 = Trailing Edge	0	Yes	RW	
43454	43455	Button 1 Audible Override	0 = Disabled 1 = Enabled	0	Yes	RW	
43455	43456	Button 1 Haptic Override	0 = Disabled 1 = Enabled	0	Yes	RW	
43456	43457	Button 1 Off Delay	0..65535	0	Yes	RW	Time in ms
43457	43458	Button 2 Off Delay Type	0 = Leading Edge 1 = Trailing Edge	0	Yes	RW	
43458	43459	Button 2 Audible Override	0 = Disabled 1 = Enabled	0	Yes	RW	
43459	43460	Button 2 Haptic Override	0 = Disabled 1 = Enabled	0	Yes	RW	
43460	43461	Button 2 Off Delay	0..65535	0	Yes	RW	Time in ms
43461	43462	Button 3 Off Delay Type	0 = Leading Edge 1 = Trailing Edge	0	Yes	RW	
43462	43463	Button 3 Audible Override	0 = Disabled 1 = Enabled	0	Yes	RW	
43463	43464	Button 3 Haptic Override	0 = Disabled 1 = Enabled	0	Yes	RW	
43464	43465	Button 3 Off Delay	0..65535	0	Yes	RW	Time in ms
43465	43466	Button 4 Off Delay Type	0 = Leading Edge 1 = Trailing Edge	0	Yes	RW	
43466	43467	Button 4 Audible Override	0 = Disabled 1 = Enabled	0	Yes	RW	
43467	43468	Button 4 Haptic Override	0 = Disabled 1 = Enabled	0	Yes	RW	
43468	43469	Button 4 Off Delay	0..65535	0	Yes	RW	Time in ms
43469	43470	Button 5 Off Delay Type	0 = Leading Edge 1 = Trailing Edge	0	Yes	RW	
43470	43471	Button 5 Audible Override	0 = Disabled 1 = Enabled	0	Yes	RW	
43471	43472	Button 5 Haptic Override	0 = Disabled 1 = Enabled	0	Yes	RW	
43472	43473	Button 5 Off Delay	0..65535	0	Yes	RW	Time in ms

Example: Practical Operator Layout for Output Settings

In this example, which uses the Base 0 address, the S100's five buttons are configured with a normally open output state. Additionally, Button 1, Button 3, and Button 5 are configured with trailing edge outputs, while Button 2 and Button 4 are configured with leading edge outputs. There is also a mix of audible, haptic, and off-delay settings.

```

43452 = 0 (Output State = Normally Open, default)
43453 = 1 (Button 1 Off Delay Type = Trailing Edge)
43454 = 1 (Button 1 Audible Override = Enabled)
43455 = 1 (Button 1 Haptic Override = Enabled)
43456 = 500 (Button 1 Off Delay = 500 ms)
43457 = 0 (Button 2 Off Delay Type = Leading Edge, default)
43461 = 1 (Button 3 Off Delay Type = Trailing Edge)
43463 = 1 (Button 3 Haptic Override = Enabled)
43464 = 150 (Button 3 Off Delay = 150 ms)
43465 = 0 (Button 4 Off Delay Type = Leading Edge, default)
43468 = 100 (Button 4 Off Delay = 100 ms)
43469 = 1 (Button 5 Off Delay Type = Trailing Edge)
43470 = 1 (Button 5 Audible Override = Enabled)
43471 = 1 (Button 5 Haptic Override = Enabled)
43472 = 1000 (Button 5 Off Delay = 1000 ms)

```

4.7 Custom Settings

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access
42908	42909	Custom Intensity	0..100	100	Yes	RW
42909	42910	Custom Flash Rate (dHz)	1..255	10	Yes	RW
42910	42911	Custom Display Intensity	0..100	100	Yes	RW
42911	42912	Custom Display Scroll Speed	0..255	15	Yes	RW

4.7.1 Custom Color 1 Configuration

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access
42912	42913	Custom Color 1 Red	0..255	255	Yes	RW
42913	42914	Custom Color 1 Green	0..255	255	Yes	RW
42914	42915	Custom Color 1 Blue	0..255	255	Yes	RW

4.7.2 Custom Audio Configuration

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access
42918	42919	Type	0 = Beep 1 = Sweep 2 = Tone	0	Yes	RW
42919	42920	Sweep Type	0 = Up 1 = Down 2 = Up Down 3 = Down Up	0	Yes	RW
42920	42921	Frequency 1	0 = Off 1 = Low 2 = Standard 3 = High	0	Yes	RW

Continued on page 76

Continued from page 75

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access
42921	42922	Frequency 2	0 = Off 1 = Low 2 = Standard 3 = High	0	Yes	RW

4.7.3 Example: Customized Display, Color, and Audio

In this example, which uses the Base 0 address, the S100 is configured with a custom visual intensity, scroll speed, purple color, and audio sweep sound.

```

42908 = 75 (Custom Intensity = 75)
42909 = 20 (Custom Flash Rate = 20 dHz)
42910 = 80 (Custom Display Intensity = 80)
42911 = 25 (Custom Display Scroll Speed = 25)
42912 = 128 (Custom Color 1 Red = 128)
42913 = 0 (Custom Color 1 Green = 0)
42914 = 255 (Custom Color 1 Blue = 255, default)
42918 = 1 ("Custom Audio" Type = Sweep)
42919 = 2 ("Custom Audio" Sweep Type = Up Down)
42920 = 2 ("Custom Audio" Frequency 1 = Standard)
42921 = 3 ("Custom Audio" Frequency 2 = High)

```

4.8 Factory Reset

Use the Factory Reset register to restore the configurations to factory settings.

Base 0 Address	Base 1 Address	Description	Holding Register Representation	Default Value	Saved	Access	Comments
46600	46601	Factory Reset	0 = Disabled 1 = Enabled	0	Yes	RW	Restores configuration to factory settings when 1 is written

4.8.1 Example: Restore the S100 to Factory Settings

In this example, which uses the Base 0 address, the S100's configurations are immediately restored to their factory settings when enabled.

```

46600 = 1 (Factory Reset = Enabled)

```

Chapter 5 Specifications

Supply Voltage

12 V DC to 30 V DC

Use only with a suitable Class 2 power supply (UL) or SELV power supply (CE)

See the electrical characteristics on the product label.

Supply Current

415 mA max. at 12 V DC

210 mA max. at 24 V DC

165 mA max. at 30 V DC

Supply Protection Circuitry

Protected against reverse polarity and transient voltages

Touch Response Time

300 ms maximum

Connections

Integral 4-pin M12 male quick-disconnect connector

Models require a mating cordset

Operating Temperature

−40 °C to +50 °C (−40 °F to +122 °F)

Storage Temperature

−40 °C to +70 °C (−40 °F to +158 °F)

Environmental Rating

IP66, IP69K per ISO 20653

UL Type 4X

Vibration and Mechanical Shock

Meets IEC 60068-2-6 requirements (Vibration: 10 Hz to 55 Hz, 1.0 mm amplitude, 5 minutes sweep, 30 minutes dwell)

Meets IEC 60068-2-27 requirements (Shock: 15G 11 ms duration, half sine wave)

Construction

Black polycarbonate housing

Internal silicone-encapsulated LEDs

Smoky polycarbonate window

Communication

Interface: RS-485 Serial

Baud Rates: 9.6k, 19.2k (default), or 38.4k

Data Format: 8 data bits, no parity (default), 1 stop bit (even or odd parity available)

Protocol: Modbus RTU

Character Limit

Small Font: 13 characters per line (26 characters total)

Large Font: 13 characters total

Certifications



Banner Engineering BV
Park Lane, Culliganlaan 2F bus 3
1831 Diegem, BELGIUM



Required Overcurrent Protection



WARNING: Electrical connections must be made by qualified personnel in accordance with local and national electrical codes and regulations.

Overcurrent protection is required to be provided by end product application per the supplied table.

Overcurrent protection may be provided with external fusing or via Current Limiting, Class 2 Power Supply.

Supply wiring leads < 24 AWG shall not be spliced.

For additional product support, go to www.bannerengineering.com.

Supply Wiring (AWG)	Required Overcurrent Protection (A)	Supply Wiring (AWG)	Required Overcurrent Protection (A)
20	5.0	26	1.0
22	3.0	28	0.8
24	2.0	30	0.5

Mounting

M30 x 1.5 threaded base, maximum torque 4.5 N·m (40 in·lbf)

5.1 FCC Part 15 Class B for Unintentional Radiators

(Part 15.105(b)) This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

(Part 15.21) Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

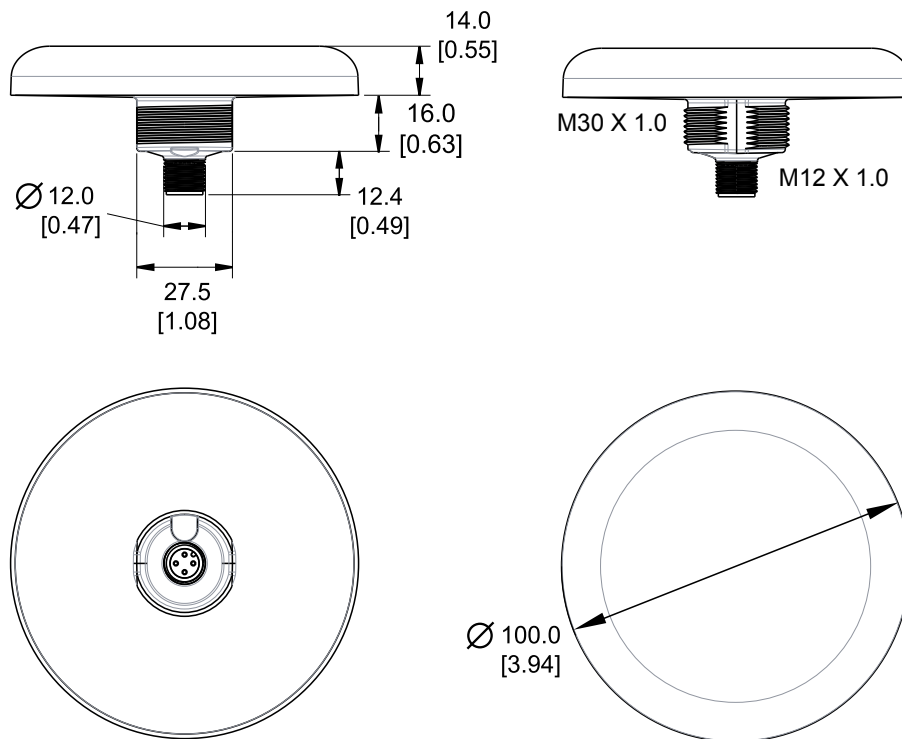
5.2 Industry Canada ICES-003(B)

This device complies with CAN ICES-3 (B)/NMB-3(B). Operation is subject to the following two conditions: 1) This device may not cause harmful interference; and 2) This device must accept any interference received, including interference that may cause undesired operation.

Cet appareil est conforme à la norme NMB-3(B). Le fonctionnement est soumis aux deux conditions suivantes : (1) ce dispositif ne peut pas occasionner d'interférences, et (2) il doit tolérer toute interférence, y compris celles susceptibles de provoquer un fonctionnement non souhaité du dispositif.

5.3 Dimensions

All measurements are listed in millimeters [inches], unless noted otherwise. The measurements provided are subject to change.



Chapter 6 Accessories

6.1 Cordsets

4-pin A-Code Double-Ended M12 Female to M12 Male Cordsets (datasheet p/n 236186)				
Model	Length	Dimensions (mm)	Pinouts	
BC-M12F4-M12M4-22-1	1 m (3.28 ft)		Female	1 = Brown 2 = White 3 = Blue 4 = Black 5 = Unused
BC-M12F4-M12M4-22-2	2 m (6.56 ft)		5	
BC-M12F4-M12M4-22-3	3 m (9.84 ft)		4	
BC-M12F4-M12M4-22-4	4 m (13.12 ft)		3	
BC-M12F4-M12M4-22-5	5 m (16.4 ft)		2	
BC-M12F4-M12M4-22-10	10 m (30.81 ft)		1	
BC-M12F4-M12M4-22-15	15 m (49.2 ft)		Male	

4-Pin M12 Female RS-485 to USB Adapter Cordset, with Wall Plug (datasheet p/n 140377)			
Model	Length		Pinout (Female)
BWA-UCT-900	1 m (3.28 ft)		1 = Brown 2 = White 3 = Blue 4 = Black

6.2 Mounting Brackets

LMB30RAS

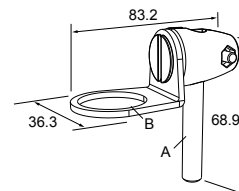
- Right-angle bracket for indicator light mounting
- Fits M30 × 2 base
- Stainless steel
- CAD Files: [DXF](#), [PDF](#), [IGS](#), [STP](#)



SMB30FA

- Swivel bracket with tilt and pan movement for precise adjustment
- Mounting hole for 30 mm sensor
- 12-gauge 304 stainless steel
- Easy sensor mounting to extrude rail T-slot
- Metric- and inch-size bolt available
- CAD Files: [DXF](#), [PDF](#), [IGS](#), [STP](#)

Bolt thread: SMB30FA, A=3/8 - 16 × 2 in; SMB30FAL, A=3/8 - 16 × 4 in; SMB30FAM10, A=M10 - 1.5 × 50
Hole size: B=ø 30.1

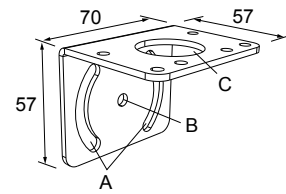


SMB30MM

- 12-gauge stainless steel bracket with curved mounting slots for versatile orientation
- Clearance for M6 (1/4 in) hardware
- Mounting hole for 30 mm sensor
- CAD Files: [DXF](#), [PDF](#), [IGS](#), [STP](#)

Hole center spacing: A=51, A to B=25.4

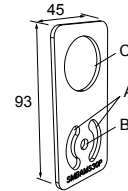
Hole size: A=42.6 × 7, B=∅ 6.4, C=∅ 30.1

**SMBAMS30P**

- Flat SMBAMS series bracket
- 30 mm hole for mounting sensors
- Articulation slots for 90°+ rotation
- 12-gauge 300 series stainless steel
- CAD Files: [DXF](#), [PDF](#), [IGS](#), [STP](#)

Hole center spacing: A=26.0, A to B=13.0

Hole size: A=26.8 × 7.0, B=∅ 6.5, C=∅ 31.0



Chapter 7 Product Support and Maintenance

7.1 Encoding Table and Unicode Characters

Unicode Code Point	Character	Name
U+0020		SPACE
U+0021	!	EXCLAMATION MARK
U+0022	"	QUOTATION MARK
U+0023	#	NUMBER SIGN
U+0024	\$	DOLLAR SIGN
U+0025	%	PERCENT SIGN
U+0026	&	AMPERSAND
U+0027	'	APOSTROPHE
U+0028	(	LEFT PARENTHESIS
U+0029	)	RIGHT PARENTHESIS
U+002A	*	ASTERISK
U+002B	+	PLUS SIGN
U+002C	,	COMMA
U+002D	-	HYPHEN-MINUS
U+002E	.	FULL STOP
U+002F	/	SOLIDUS
U+0030	0	DIGIT ZERO
U+0031	1	DIGIT ONE
U+0032	2	DIGIT TWO
U+0033	3	DIGIT THREE
U+0034	4	DIGIT FOUR
U+0035	5	DIGIT FIVE
U+0036	6	DIGIT SIX
U+0037	7	DIGIT SEVEN
U+0038	8	DIGIT EIGHT
U+0039	9	DIGIT NINE
U+003A	:	COLON
U+003B	;	SEMICOLON
U+003C	<	LESS-THAN SIGN
U+003D	=	EQUALS SIGN
U+003E	>	GREATER-THAN SIGN
U+003F	?	QUESTION MARK
U+0040	@	COMMERCIAL AT
U+0041	A	LATIN CAPITAL LETTER A
U+0042	B	LATIN CAPITAL LETTER B
U+0043	C	LATIN CAPITAL LETTER C
U+0044	D	LATIN CAPITAL LETTER D
U+0045	E	LATIN CAPITAL LETTER E
U+0046	F	LATIN CAPITAL LETTER F
U+0047	G	LATIN CAPITAL LETTER G
U+0048	H	LATIN CAPITAL LETTER H
U+0049	I	LATIN CAPITAL LETTER I
U+004A	J	LATIN CAPITAL LETTER J
U+004B	K	LATIN CAPITAL LETTER K

Continued on page 82

Continued from page 81

Unicode Code Point	Character	Name
U+004C	L	LATIN CAPITAL LETTER L
U+004D	M	LATIN CAPITAL LETTER M
U+004E	N	LATIN CAPITAL LETTER N
U+004F	O	LATIN CAPITAL LETTER O
U+0050	P	LATIN CAPITAL LETTER P
U+0051	Q	LATIN CAPITAL LETTER Q
U+0052	R	LATIN CAPITAL LETTER R
U+0053	S	LATIN CAPITAL LETTER S
U+0054	T	LATIN CAPITAL LETTER T
U+0055	U	LATIN CAPITAL LETTER U
U+0056	V	LATIN CAPITAL LETTER V
U+0057	W	LATIN CAPITAL LETTER W
U+0058	X	LATIN CAPITAL LETTER X
U+0059	Y	LATIN CAPITAL LETTER Y
U+005A	Z	LATIN CAPITAL LETTER Z
U+005B	[	LEFT SQUARE BRACKET
U+005C	\	REVERSE SOLIDUS
U+005D	]	RIGHT SQUARE BRACKET
U+005E	^	CIRCUMFLEX ACCENT
U+005F	_	LOW LINE
U+0060	`	GRAVE ACCENT
U+0061	a	LATIN SMALL LETTER A
U+0062	b	LATIN SMALL LETTER B
U+0063	c	LATIN SMALL LETTER C
U+0064	d	LATIN SMALL LETTER D
U+0065	e	LATIN SMALL LETTER E
U+0066	f	LATIN SMALL LETTER F
U+0067	g	LATIN SMALL LETTER G
U+0068	h	LATIN SMALL LETTER H
U+0069	i	LATIN SMALL LETTER I
U+006A	j	LATIN SMALL LETTER J
U+006B	k	LATIN SMALL LETTER K
U+006C	l	LATIN SMALL LETTER L
U+006D	m	LATIN SMALL LETTER M
U+006E	n	LATIN SMALL LETTER N
U+006F	o	LATIN SMALL LETTER O
U+0070	p	LATIN SMALL LETTER P
U+0071	q	LATIN SMALL LETTER Q
U+0072	r	LATIN SMALL LETTER R
U+0073	s	LATIN SMALL LETTER S
U+0074	t	LATIN SMALL LETTER T
U+0075	u	LATIN SMALL LETTER U
U+0076	v	LATIN SMALL LETTER V
U+0077	w	LATIN SMALL LETTER W
U+0078	x	LATIN SMALL LETTER X
U+0079	y	LATIN SMALL LETTER Y
U+007A	z	LATIN SMALL LETTER Z
U+007B	{	LEFT CURLY BRACKET
U+007C		VERTICAL LINE
U+007D	}	RIGHT CURLY BRACKET
U+007E	~	TILDE

Continued on page 83

Continued from page 82

Unicode Code Point	Character	Name
U+00A0		NO-BREAK SPACE
U+00A1	¡	INVERTED EXCLAMATION MARK
U+00A2	¢	CENT SIGN
U+00A3	£	POUND SIGN
U+00A4	¤	CURRENCY SIGN
U+00A5	¥	YEN SIGN
U+00A6		BROKEN BAR
U+00A7	§	SECTION SIGN
U+00A8	¨	DIAERESIS
U+00A9	©	COPYRIGHT SIGN
U+00AA	ª	FEMININE ORDINAL INDICATOR
U+00AB	«	LEFT-POINTING DOUBLE ANGLE QUOTATION MARK
U+00AC	¬	NOT SIGN
U+00AD		SOFT HYPHEN
U+00AE	®	REGISTERED SIGN
U+00AF	—	MACRON
U+00B0	°	DEGREE SIGN
U+00B1	±	PLUS-MINUS SIGN
U+00B2	²	SUPERSCRIP TWO
U+00B3	³	SUPERSCRIP THREE
U+00B4	´	ACUTE ACCENT
U+00B5	µ	MICRO SIGN
U+00B6	¶	PILCROW SIGN
U+00B7	·	MIDDLE DOT
U+00B8	¸	CEDILLA
U+00B9	¹	SUPERSCRIP ONE
U+00BA	º	MASCULINE ORDINAL INDICATOR
U+00BB	»	RIGHT-POINTING DOUBLE ANGLE QUOTATION MARK
U+00BC	¼	VULGAR FRACTION ONE QUARTER
U+00BD	½	VULGAR FRACTION ONE HALF
U+00BE	¾	VULGAR FRACTION THREE QUARTERS
U+00BF	¿	INVERTED QUESTION MARK
U+00C0	À	LATIN CAPITAL LETTER A WITH GRAVE
U+00C1	Á	LATIN CAPITAL LETTER A WITH ACUTE
U+00C2	Â	LATIN CAPITAL LETTER A WITH CIRCUMFLEX
U+00C3	Ã	LATIN CAPITAL LETTER A WITH TILDE
U+00C4	Ä	LATIN CAPITAL LETTER A WITH DIAERESIS
U+00C5	Å	LATIN CAPITAL LETTER A WITH RING ABOVE
U+00C6	Æ	LATIN CAPITAL LETTER AE
U+00C7	Ç	LATIN CAPITAL LETTER C WITH CEDILLA
U+00C8	È	LATIN CAPITAL LETTER E WITH GRAVE
U+00C9	É	LATIN CAPITAL LETTER E WITH ACUTE
U+00CA	Ê	LATIN CAPITAL LETTER E WITH CIRCUMFLEX
U+00CB	Ë	LATIN CAPITAL LETTER E WITH DIAERESIS
U+00CC	Ì	LATIN CAPITAL LETTER I WITH GRAVE
U+00CD	Í	LATIN CAPITAL LETTER I WITH ACUTE
U+00CE	Î	LATIN CAPITAL LETTER I WITH CIRCUMFLEX
U+00CF	Ï	LATIN CAPITAL LETTER I WITH DIAERESIS
U+00D0	Ð	LATIN CAPITAL LETTER ETH
U+00D1	Ñ	LATIN CAPITAL LETTER N WITH TILDE
U+00D2	Ò	LATIN CAPITAL LETTER O WITH GRAVE

Continued on page 84

Continued from page 83

Unicode Code Point	Character	Name
U+00D3	Ó	LATIN CAPITAL LETTER O WITH ACUTE
U+00D4	Ô	LATIN CAPITAL LETTER O WITH CIRCUMFLEX
U+00D5	Õ	LATIN CAPITAL LETTER O WITH TILDE
U+00D6	Ö	LATIN CAPITAL LETTER O WITH DIAERESIS
U+00D7	×	MULTIPLICATION SIGN
U+00D8	Ø	LATIN CAPITAL LETTER O WITH STROKE
U+00D9	Ù	LATIN CAPITAL LETTER U WITH GRAVE
U+00DA	Ú	LATIN CAPITAL LETTER U WITH ACUTE
U+00DB	Û	LATIN CAPITAL LETTER U WITH CIRCUMFLEX
U+00DC	Ü	LATIN CAPITAL LETTER U WITH DIAERESIS
U+00DD	Ý	LATIN CAPITAL LETTER Y WITH ACUTE
U+00DE	Þ	LATIN CAPITAL LETTER THORN
U+00DF	ß	LATIN SMALL LETTER SHARP S
U+00E0	à	LATIN SMALL LETTER A WITH GRAVE
U+00E1	á	LATIN SMALL LETTER A WITH ACUTE
U+00E2	â	LATIN SMALL LETTER A WITH CIRCUMFLEX
U+00E3	ã	LATIN SMALL LETTER A WITH TILDE
U+00E4	ä	LATIN SMALL LETTER A WITH DIAERESIS
U+00E5	å	LATIN SMALL LETTER A WITH RING ABOVE
U+00E6	æ	LATIN SMALL LETTER AE
U+00E7	ç	LATIN SMALL LETTER C WITH CEDILLA
U+00E8	è	LATIN SMALL LETTER E WITH GRAVE
U+00E9	é	LATIN SMALL LETTER E WITH ACUTE
U+00EA	ê	LATIN SMALL LETTER E WITH CIRCUMFLEX
U+00EB	ë	LATIN SMALL LETTER E WITH DIAERESIS
U+00EC	ì	LATIN SMALL LETTER I WITH GRAVE
U+00ED	í	LATIN SMALL LETTER I WITH ACUTE
U+00EE	î	LATIN SMALL LETTER I WITH CIRCUMFLEX
U+00EF	ï	LATIN SMALL LETTER I WITH DIAERESIS
U+00F0	ð	LATIN SMALL LETTER ETH
U+00F1	ñ	LATIN SMALL LETTER N WITH TILDE
U+00F2	ò	LATIN SMALL LETTER O WITH GRAVE
U+00F3	ó	LATIN SMALL LETTER O WITH ACUTE
U+00F4	ô	LATIN SMALL LETTER O WITH CIRCUMFLEX
U+00F5	õ	LATIN SMALL LETTER O WITH TILDE
U+00F6	ö	LATIN SMALL LETTER O WITH DIAERESIS
U+00F7	÷	DIVISION SIGN
U+00F8	ø	LATIN SMALL LETTER O WITH STROKE
U+00F9	ù	LATIN SMALL LETTER U WITH GRAVE
U+00FA	ú	LATIN SMALL LETTER U WITH ACUTE
U+00FB	û	LATIN SMALL LETTER U WITH CIRCUMFLEX
U+00FC	ü	LATIN SMALL LETTER U WITH DIAERESIS
U+00FD	ý	LATIN SMALL LETTER Y WITH ACUTE
U+00FE	þ	LATIN SMALL LETTER THORN
U+00FF	ÿ	LATIN SMALL LETTER Y WITH DIAERESIS

7.2 Clean with Mild Detergent and Warm Water

Wipe down the device with a soft cloth dampened with a mild detergent and warm water solution. Do not use any other chemicals for cleaning.

7.3 Repairs and Translations (No Field-Replaceable Parts)

English

Contact Banner Engineering for troubleshooting of this device. **Do not attempt any repairs to this Banner device; it contains no field-replaceable parts or components.** If the device, device part, or device component is determined to be defective by a Banner Applications Engineer, they will advise you of Banner's RMA (Return Merchandise Authorization) procedure.

IMPORTANT: If instructed to return the device, pack it with care. Damage that occurs in return shipping is not covered by warranty.

Obtain assistance with product repairs by contacting your local Banner Engineering Corp distributor or by calling Banner directly at (763) 544-3164. Access literature translated into your native language on the Banner website at www.bannerengineering.com or contact Banner directly at (763) 544-3164.

Deutsch

Wenden Sie sich zur Fehlerbehebung dieses Geräts an Banner Engineering. **Versuchen Sie nicht, Reparaturen an diesem Banner-Gerät vorzunehmen. Das Gerät enthält keine am Einsatzort auszuwechselnden Teile oder Komponenten.** Wenn ein Banner-Anwendungstechniker zu dem Schluss kommt, dass dieses Gerät, ein Teil oder eine Komponente davon defekt ist, erhalten Sie von dem Techniker Erläuterungen zu Banners RMA-Verfahren (Return Merchandise Authorization) für die Warenrückgabe.

WICHTIG: Wenn Sie der Techniker anweist, das Gerät zurückzusenden, verpacken Sie es bitte sorgfältig. Transportschäden bei der Rücksendung werden von der Garantie nicht abgedeckt.

Unterstützung bei Produktreparaturen erhalten Sie von Ihrem örtlichen Banner Engineering Corp Händler oder direkt von Banner unter Tel. (763) 544-3164. Die in Ihre Muttersprache übersetzte Literatur finden Sie auf der Banner-Website unter www.bannerengineering.com oder kontaktieren Sie Banner direkt unter Tel. (763) 544-3164.

Français

Pour plus d'informations sur le dépannage du produit, contactez Banner Engineering. **Ne tentez pas de réparer ce dispositif Banner. Il ne contient aucun composant ou pièce qui puisse être remplacé sur place.** Si un ingénieur de Banner conclut que le dispositif ou l'une de ses pièces ou composants est défectueux, il vous informera de la procédure à suivre pour le retour des produits (RMA).

Important : Si vous devez retourner le dispositif, emballez-le avec soin. Les dégâts occasionnés pendant le transport de retour ne sont pas couverts par la garantie.

Pour vous aider lors de la réparation de produits, contactez votre distributeur Banner local ou appelez directement Banner au (763) 544-3164. La documentation traduite dans votre langue est disponible sur le site internet de Banner www.bannerengineering.com ou contactez directement Banner au (763) 544-3164.

Italiano

Per le procedure di individuazione e riparazione dei guasti di questo dispositivo, contattare Banner Engineering. **Non tentare di riparare questo dispositivo Banner, in quanto non contiene parti o componenti sostituibili dall'utente.** Se il dispositivo, una parte del dispositivo o un componente del dispositivo viene riscontrato difettoso da un tecnico Banner, il nostro personale vi comunicherà la procedura da seguire per ottenere l'autorizzazione al reso.

Importante: Se si ricevono istruzioni di rispedire il dispositivo al produttore, imballarlo con cura. I danni dovuti al trasporto non sono coperti dalla garanzia.

Per assistenza nelle riparazioni dei prodotti, contattare il distributore locale Banner Engineering Corp o contattare direttamente Banner al numero (763) 544-3164. È possibile accedere alla documentazione tradotta nella propria lingua madre sul sito Web Banner all'indirizzo www.bannerengineering.com o contattare direttamente Banner al numero (763) 544-3164.

Español

Comuníquese con Banner Engineering para solucionar de problemas de este dispositivo. **No intente ninguna reparación a este dispositivo de Banner, contiene piezas o componente que no se pueden cambiar en terreno.** Si algún ingeniero de aplicaciones de Banner determina que el dispositivo, alguna de las piezas o alguno de los componentes del dispositivo está defectuoso, le informará el procedimiento de autorización de devolución de mercancía (RMA, por sus siglas en inglés) de Banner.

Importante: Si se le solicita devolver el dispositivo, empáquelo con cuidado. Puede haber daños durante el envío de devolución que no estén cubiertos por la garantía.

Para reparaciones de productos, por favor contacte a su distribuidor local de Banner Engineering o llame a Banner directamente al 00 1 (763) 544-3164. Vea la literatura traducida en su idioma en el sitio web Banner en www.bannerengineering.com o comuníquese con Banner directamente al 00 1 (763) 544-3164.

中国人

如需对本装置进行故障排查, 请联系邦纳。请勿尝试自行维修该邦纳装置; 本装置不包含任何可在现场更换的部件或组件。若经邦纳应用工程师确认设备、设备部件或组件存在缺陷, 他们将告知您邦纳退货授权 (RMA) 流程。

重要注意事项: 如被要求退回装置, 请妥善包装后寄回。退货运输过程中发生的损坏不在保修范围内。

请联系当地的 Banner Engineering Corp 经销商或直接致电 Banner +1 (763) 544-3164, 以获得产品维修帮助。请访问邦纳网站 www.bannerengineering.com 或直接拨打 +1 (763) 544-3164 联系邦纳, 获取翻译成您母语的资料。

한국인

이 장치의 문제를 해결하려면 Banner Engineering에 문의하십시오. 이 Banner 장치에는 현장에서 교체할 수 있는 부품 또는 구성품이 없으므로 수리를 시도하지 마십시오. Banner 애플리케이션 엔지니어가 장치, 장치 부품 또는 장치 구성품에 결함이 있는 것으로 판정하면, Banner의 RMA(제품 반송 승인) 절차에 대해 안내해 드립니다.

중요: 제품을 반송하도록 안내 받으셨다면 잘 포장해주시십시오. 반송 도중에 발생한 손상은 보증 서비스가 적용되지 않습니다.

제품 수리에 대한 지원은 지역 Banner Engineering Corp 대리점에 문의하거나 Banner에 직접 (763) 544-3164로 문의하실 수 있습니다. 사용자의 모국어로 번역된 자료는 Banner 웹사이트 www.bannerengineering.com에서 액세스하거나 Banner에 직접 (763) 544-3164로 문의하실 수 있습니다.

日本語

この装置のトラブルシューティングについては、バナーエンジニアリングにお問い合わせください。このバナー装置には、現場では交換できない部品またはコンポーネントが含まれているため、修理を試みてはいけません。バナーのアプリケーションエンジニアが装置、装置の部品、または装置のコンポーネントに欠陥があると判断した場合、バナーのRMA（返品承認）手続きについてお知らせします。

重要： 返品を指示された場合は、装置を丁寧に梱包してください。返品時に発生した破損は保証の対象外となります。

製品の修理については、最寄りのBanner Engineering Corp代理店にお問い合わせいただくか、米国+1 (763) 544-3164まで直接お電話でお問い合わせください。バナーのウェブサイト (www.bannerengineering.com) でお客様の言語に翻訳された資料にアクセスするか、米国+1 (763) 544-3164まで直接お電話でお問い合わせください。

čeština

Pro řešení problémů se zařízením kontaktujte společnost Banner Engineering. **Neprovádějte žádné opravy zařízení Banner. Neobsahují žádné komponenty nebo části, které by byly vyměnitelné.** Pokud je zařízení, jeho část nebo díl označen technikem společnosti Banner jako poškozený, bude Vám doporučeno vyplnit reklamční RMA protokol.

Důležité: Pokud byl vydán požadavek na vrácení zařízení, pečlivě ho zabalte. Poškození vzniklé při dopravě není považováno za záruční opravu.

Pokud produkt potřebuje opravu, vyžádejte si pomoc od místního distributora společnosti Banner Engineering Corp nebo přímo na telefonním čísle (763) 544-3164. Dokumentaci přeloženou do vašeho jazyka si vyhledejte na webových stránkách společnosti Banner na adrese www.bannerengineering.com nebo se obraťte přímo na společnost Banner na telefonním čísle (763) 544-3164.

Polski

W celu rozwiązania problemów z urządzeniem należy skontaktować się z działem technicznym firmy Banner Engineering. **Pod żadnym pozorem nie próbuj naprawiać tego urządzenia firmy Banner; nie zawiera ono części ani elementów, które można wymieniać samodzielnie.** Jeśli urządzenie, jego część lub element zostaną uznane za wadliwe przez inżyniera technicznego Banner, poinformuje on użytkownika o firmowej procedurze zwrotu towaru (RMA) firmy Banner.

Ważne: Jeśli urządzenie ma zostać zwrócone, należy je starannie zapakować. Uszkodzenia powstałe podczas odsyłki nie są objęte gwarancją.

Aby uzyskać pomoc w zakresie naprawy produktu, należy skontaktować się z lokalnym dystrybutorem Banner Engineering Corp lub zadzwonić bezpośrednio do firmy Banner pod numer (763) 544-3164. Dostęp do literatury przetłumaczonej na swój język ojczysty można uzyskać na stronie internetowej firmy Banner pod adresem www.bannerengineering.com lub kontaktując się bezpośrednio z firmą Banner pod numerem (763) 544-3164.

Português

Entre em contato com a Engenharia da Banner para a solução de problemas deste dispositivo. **Não tente fazer nenhum reparo neste dispositivo Banner; ele não contém peças ou componentes substituíveis em campo.** Se um técnico de aplicações da Banner determinar que o dispositivo, peça ou componente do dispositivo está com defeito, ele o informará sobre o procedimento de RMA (Autorização de Devolução de Mercadoria) da Banner.

Importante: Se for instruído a devolver o dispositivo, embale-o com cuidado. Os danos ocorridos no transporte de devolução não são cobertos pela garantia.

Obtenha assistência para reparos do produto entrando em contato com o distribuidor local da Banner Engineering Corp ou ligando diretamente para a Banner no telefone (763) 544-3164. Acesse a literatura traduzida para seu idioma nativo no site da Banner em www.bannerengineering.com ou entre em contato diretamente com a Banner pelo telefone (763) 544-3164.

Türkçe

Bu cihazda sorun giderme işlemleri için Banner Engineering ile iletişime geçin. **Bu Banner cihazını onarmaya çalışmayın; cihaz sahada değiştirilebilir parça veya bileşen içermez.** Bir Banner Uygulama Mühendisi tarafından cihazın, cihazın bir parçasının veya bir cihaz bileşeninin kusurlu olduğu tespit edilirse, Banner RMA (İade Mal Yetkilendirme) prosedürü hakkında bilgilendirilirsiniz.

ÖNEMLİ: İade etmeniz istenirse, cihazı dikkatli bir şekilde paketleyin. İade nakliyesinde meydana gelecek hasarlar garanti kapsamında değildir.

Yerel Banner Engineering Corp distribütörünüzle iletişime geçerek veya doğrudan (763) 544-3164 numaralı telefondan Banner'ı arayarak ürün onarımlarıyla ilgili yardım alın. Ana dilinize çevrilmiş dokümanlara www.bannerengineering.com adresindeki Banner web sitesinden erişilebilir veya (763) 544-3164 numaralı telefondan doğrudan Banner ile iletişime geçebilirsiniz.

7.4 Contact Us

Banner Engineering Corp. | 9714 Tenth Avenue North | Plymouth, MN 55441, USA | Phone: + 1 888 373 6767

For worldwide locations and local representatives, visit www.bannerengineering.com.

7.5 Banner Engineering Corp Limited Warranty

Banner Engineering Corp. warrants its products to be free from defects in material and workmanship for one year following the date of shipment. Banner Engineering Corp. will repair or replace, free of charge, any product of its manufacture which, at the time it is returned to the factory, is found to have been defective during the warranty period. This warranty does not cover damage or liability for misuse, abuse, or the improper application or installation of the Banner product.

THIS LIMITED WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES WHETHER EXPRESS OR IMPLIED (INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE), AND WHETHER ARISING UNDER COURSE OF PERFORMANCE, COURSE OF DEALING OR TRADE USAGE.

This Warranty is exclusive and limited to repair or, at the discretion of Banner Engineering Corp., replacement. **IN NO EVENT SHALL BANNER ENGINEERING CORP. BE LIABLE TO BUYER OR ANY OTHER PERSON OR ENTITY FOR ANY EXTRA COSTS, EXPENSES, LOSSES, LOSS OF PROFITS, OR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES RESULTING FROM ANY PRODUCT DEFECT OR FROM THE USE OR INABILITY TO USE THE PRODUCT, WHETHER ARISING IN CONTRACT OR WARRANTY, STATUTE, TORT, STRICT LIABILITY, NEGLIGENCE, OR OTHERWISE.**

Banner Engineering Corp. reserves the right to change, modify or improve the design of the product without assuming any obligations or liabilities relating to any product previously manufactured by Banner Engineering Corp. Any misuse, abuse, or improper application or installation of this product or use of the product for personal protection applications when the product is identified as not intended for such purposes will void the product warranty. Any modifications to this product without prior express approval by Banner Engineering Corp will void the product warranties. All specifications published in this document are subject to change; Banner reserves the right to modify product specifications or update documentation at any time. Specifications and product information in English supersede that which is provided in any other language. For the most recent version of any documentation, refer to: www.bannerengineering.com.

For patent information, see www.bannerengineering.com/patents.

7.5.1 Mexican Importer

Banner Engineering de México, S. de R.L. de C.V. | David Alfaro Siqueiros 103 Piso 2 Valle oriente | San Pedro Garza Garcia Nuevo León, C. P. 66269

81 8363.2714

