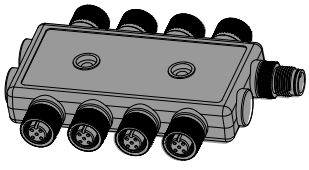
R95C 8-Port Discrete Bimodal to Modbus® Hub

Instruction Manual



- Compact bimodal to Modbus® device converter that connects discrete inputs and outputs the value
- Enabled Delay Modes: ON/OFF Delay, ON/OFF One-shot, ON/OFF/ Retriggerable One-shot, ON/OFF Pulse-stretcher and Totalizer
- Measurement Metrics: Count, Events Per Minute (EPM), and Duration
- Discrete Mirroring: Discrete signals (In/Out) from all eight ports can be mirrored to any of the eight ports, Discrete Out, or the host white wire output
- Outputs a discrete value as an input to a defined Modbus register
- Discrete input/output can be independently configured as NPN or PNP
- Rugged over-molded design meets IP65, IP67, and IP68
- Connects directly to a sensor or anywhere in-line for ease of use
- R95C Modbus hubs are a quick, easy, and economical way to integrate non-Modbus devices into a Modbus system

Models

Housing	Function		Converter		Control	Connector
R95	C	–	8B21	–	M	Q
	C = Converter		8B21 = 8-port, bimodal, 2 inputs, 1 output		M = Modbus	Q = M12 integral quick disconnect

Overview

The R95C-8B21-MQ hub connects two discrete channels to each of the eight unique ports, providing access to monitoring and configuring those ports via Modbus® registers. Host mirroring is available where a selected port input/output discrete signal can be routed to Pin 5 (male) on the PLC/Host connection.

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ПРОМЭЛЕКТРОНИКА/ sales@prom-elec.com

Configuration

The logic flow for **Pin 4 Selection** and **Pin 2 Selection** in the figure below is the same for all eight ports of the R95C 8-Port Hub.

Figure 1. Logic Flow

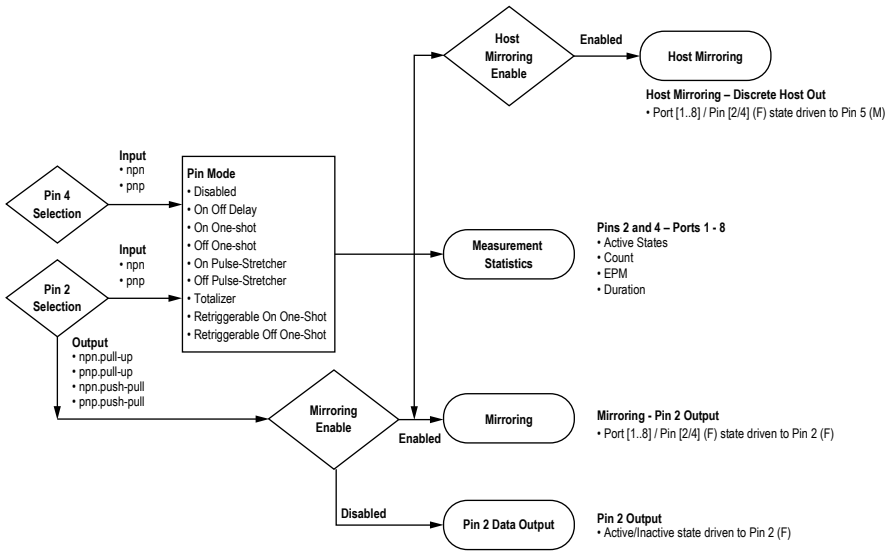


Table 1: Device Port States

Modbus Register Address	Description	I/O Range	Comments	Default	Access	Notes
40001	Active States	0..65535	Port 1..Port 8 Outputs to Pin 4 and Pin 2 Active States	-	RO	One bit per port, or one bit per Pin 2 and Pin 4
40002	Pin 2 Active State	0..255	Port 1..Port 8 Outputs to Pin 2 Output State	0	RW	One bit per port, or one bit per Pin 2

Table 2: Discrete Host Out Mirroring (Gray - Male)

Modbus Register Address	Description	I/O Range	Comments	Default	Access
40100	Host Mirroring Enable	0..1	0 = Disable, 1 = Enable	0	RW
40101	Mirroring Port Selection	0..7	0 = Port 1 1 = Port 2 2 = Port 3 3 = Port 4 4 = Port 5 5 = Port 6 6 = Port 7 7 = Port 8	0	RW
40102	Host Mirroring Channel Selection	0..1	0 = Pin 1, 1 = Pin 5	0	RW
40103	Host Mirroring Inversion	0..1	0 = Not Inverted, 1 = Inverted	0	RW
40104	Host Mirroring Polarity	0..1	0 = NPN Output, 1 = PNP Output	0	RW
40105	Host Mirroring Output Type	0..2	0 = Output with Internal Pull Up/Down 1 = Output Open Collector 2 = Output Push Pull	0	RW

Table 3: Modbus Configuration

Modbus Register Address	Description	I/O Range	Comments	Default	Access
40601	Baud Rate	0 = 9.6k 1 = 19.2k 2 = 38.4k	0 = 9600 1 = 19200 2 = 38400	1	RW

Modbus Register Address	Description	I/O Range	Comments	Default	Access
40602	Parity	0 = None 1 = Odd 2 = Even	0 = None 1 = Odd 2 = Even	0	RW
40603	Address	1-254	-	1	RW
40604	Reserved (cannot be read or written)	None	-	-	RW
40605	Restore Factory Configuration	0 = No Operation, 1 = Restore	-	-	WO

Table 4: Device Information

Modbus Register Address	Description	I/O Range	Comments	Default	Access	Notes
40606-40615	Banner Name	0..65535	-	Banner Engineering	RO	9 words/18 Characters
40616-40631	Product Name	0..65535	-	R95C-8B21-MQ	RO	16 words/32 Characters
40632	Item H	0..65535	814251 split into two 16-bit registers	12	RO	Banner Item Number
40633	Item L	0..65535	-	27819	RO	-
40634	Serial Number H	0..65535	-	-	RO	Serial Number is split into four 16-bit registers
40635	Serial Number	0..65535	-	-	RO	
40636	Serial Number	0..65535	-	-	RO	-
40637	Serial Number L	0..65535	-	-	RO	-
40644-40659	User Define Tag	0..65535	User writable space	More Sensors. More Solutions.	RW	16 words/32 Characters

Multi-Port Support

All register maps shown below are specific to port 1. For multi-port adapters, each port is given its own register range within the holding register space.

Register Range	Port Number
41001-41401	Port 1
42001-42401	Port 2
43001-43401	Port 3
44001-44401	Port 4
45001-45401	Port 5
46001-46401	Port 6
47001-47401	Port 7
48001-48401	Port 8

For a given register, the starting address of the port can be applied to determine the register address for the new port. For example, the calculation below demonstrates how to find the address of the process data output for port 8.

Equivalent Port 1 Register	Port	Port Starting Register	Offset	New Register
41051	1	41001	50	41051
41051	8	48001	50	48051

Register Maps

Table 5: Measurement Reads

Modbus Register Address	Description	I/O Range	Comments	Default	Access	Notes
41001	Pin 4 Active State	0..1	0 = Inactive, 1 = Active	-	RO	-
41002	Pin 2 Active State	0..1	0 = Inactive, 1 = Active	-	RO	-
41003	Pin 4 Count H	0..65535	Pin 4 Count Value Upper	-	RO	Upper 16 of 32 bits = Running count of the received input pulses

Modbus Register Address	Description	I/O Range	Comments	Default	Access	Notes
41004	Pin 4 Count L	0..65535	Pin 4 Count Value Lower	-	RO	Lower 16 of 32 bits = Running count of the received input pulses
41005	Pin 4 Duration H	0..65535	Pin 4 Duration Value Upper	-	RO	Upper 16 of 32 bits = Duration of the last input pulse in µs with 50 µs granularity
41006	Pin 4 Duration L	0..65535	Pin 4 Duration Value Lower	-	RO	Lower 16 of 32 bits = Duration of the last input pulse in µs with 50 µs granularity
41007	Pin 4 Events Per Minute H	0..65535	Pin 4 Events Per Minute Value Upper	-	RO	Upper 16 of 32 bits = Running count of the number of pulses received averaged over one minute Range 1 to 37,500
41008	Pin 4 Events Per Minute L	0..65535	Pin 4 Events Per Minute Value Lower	-	RO	Lower 16 of 32 bits = Running count of the number of pulses received averaged over one minute Range 1 to 37,500
41009	Pin 4 Totalizer Count H	0..65535	Pin 4 Totalizer Count Upper	-	RO	Upper 16 of 32 bits = Totalizer Count
41010	Pin 4 Totalizer Count L	0..65535	Pin 4 Totalizer Count Lower	-	RO	Lower 16 of 32 bits = Totalizer Count
41011	Pin 2 Count H	0..65535	Pin 2 Count Value Upper	-	RO	Upper 16 of 32 bits = Running count of the received input pulses
41012	Pin 2 Count L	0..65535	Pin 2 Count Value Lower	-	RO	Lower 16 of 32 bits = Running count of the received input pulses
41013	Pin 2 Duration H	0..65535	Pin 2 Duration Value Upper	-	RO	Upper 16 of 32 bits = Duration of the last input pulse in µs with 50 µs granularity
41014	Pin 2 Duration L	0..65535	Pin 2 Duration Value Lower	-	RO	Lower 16 of 32 bits = Duration of the last input pulse in µs with 50 µs granularity
41015	Pin 2 Events Per Minute H	0..65535	Pin 2 Events Per Minute Value Upper	-	RO	Upper 16 of 32 bits = Running count of the number of pulses received averaged over one minute Range: 1 to 37,500
41016	Pin 2 Events Per Minute L	0..65535	Pin 2 Events Per Minute Value Lower	-	RO	Lower 16 of 32 bits = Running count of the number of pulses received averaged over one minute Range: 1 to 37,500
41017	Pin 2 Totalizer Count H	0..65535	Pin 2 Totalizer Count Upper	-	RO	Upper 16 of 32 bits = Totalizer Count
41018	Pin 2 Totalizer Count L	0..65535	Pin 2 Totalizer Count Lower	-	RO	Lower 16 of 32 bits = Totalizer Count

Table 6: Metric Count Presets

Modbus Register Address	Description	I/O Range	Comments	Default	Access
41100	Pin 4 Count H	0..65535	Pin 4 Count Value Upper	-	RW
41101	Pin 4 Count L	0..65535	Pin 4 Count Value Lower	-	RW
41102	Pin 2 Count H	0..65535	Pin 2 Count Value Upper	-	RW
41103	Pin 2 Count L	0..65535	Pin 2 Count Value Lower	-	RW

Table 7: Pin 4 Port Configuration (Black - Female, Discrete 1)

Modbus Register Address	Description	I/O Range	Comments	Default	Access	Notes
41200	Pin 4 IO Selection	0..5	0 = NPN input, 1 = PNP input	0	RW	-
41201	Pin 4 Mode	0..8	0 = Disabled 1 = On Off Delay 2 = On One-shot 3 = Off One-shot 4 = On Pulse-stretcher 5 = Off Pulse-stretcher 6 = Totalizer 7 = Retriggerable On One-shot 8 = Retriggerable Off One-shot	0	RW	-
41202	Pin 4 Delay Timer 1 Upper	0..65535	Pin 4 On Delay, One-shot, Pulse-stretcher time, Totalizer Count	0	RW	Upper 16 of 32 Bits: Mode 1, 2, 3, 4, 5, 7, 8 = Milliseconds Mode 6 = Count
41203	Pin 4 Delay Timer 1 Lower	0..65535	Pin 4 On Delay, One-shot, Pulse-stretcher time, Totalizer Count	0	RW	Lower 16 of 32 Bits: Mode 1, 2, 3, 4, 5, 7, 8 = Milliseconds Mode 6 = Count
41204	Pin 4 Delay Timer 2 Upper	0..65535	Pin 4 Off Delay or Totalizer time	0	RW	Upper 16 of 32 Bits = Milliseconds
41205	Pin 4 Delay Timer 2 Lower	0..65535	Pin 4 Off Delay or Totalizer time	0	RW	Lower 16 of 32 Bits = Milliseconds

Table 8: Pin 2 Port Configuration (White - Female, Discrete 2)

Modbus Register Address	Description	I/O Range	Comments	Default	Access	Notes
41300	Pin 2 IO Selection	0..5	0 = NPN input 1 = PNP input 2 = NPN output with pull up 3 = PNP output with pull down 4 = NPN output push/pull 5 = PNP output push/pull	0	RW	-
41301	Pin 2 Mode	0..6	0 = Disabled 1 = On Off Delay 2 = On One-shot 3 = Off One-shot 4 = On Pulse-stretcher 5 = Off Pulse-stretcher 6 = Totalizer 7 = Retriggerable On One-shot 8 = Retriggerable Off One-shot	0	RW	-
41302	Pin 2 Delay Timer 1 Upper	0..65535	Pin 2 On Delay, One-shot, Pulse-stretcher time, or Totalizer Count	0	RW	Upper 16 of 32 Bits: Mode 1, 2, 3, 4, 5, 7, 8 = Milliseconds Mode 6 = Count
41303	Pin 2 Delay Timer 1 Lower	0..65535	Pin 2 On Delay, One-shot, Pulse-stretcher time, or Totalizer Count	0	RW	Lower 16 of 32 Bits: Mode 1, 2, 3, 4, 5, 7, 8 = Milliseconds Mode 6 = Count
41304	Pin 2 Delay Timer 2 Upper	0..65535	Pin 2 Off Delay or Totalizer time	0	RW	Upper 16 of 32 Bits = Milliseconds

Modbus Register Address	Description	I/O Range	Comments	Default	Access	Notes
41305	Pin 2 Delay Timer 2 Lower	0..65535	Pin 2 Off Delay or Totalizer time	0	RW	Lower 16 of 32 Bits = Milliseconds
41306	Pin 2 Mirroring Enable	0..1	0 = Disabled, 1 = Enabled	0	RW	-
41307	Mirroring Port Selection	0..7	0 = Port 1 1 = Port 2 2 = Port 3 3 = Port 4 4 = Port 5 5 = Port 6 6 = Port 7 7 = Port 8	0	RW	-
41308	Pin 2 Mirroring Selection	0..1	0 = Pin 4, 1 = Pin 2	0	RW	-
41309	Pin 2 Mirroring Inversion	0..1	0 = Not Inverted, 1 = Inverted	0	RW	-

Table 9: Active Configurations

Modbus Register Address	Description	I/O Range	Comments	Default	Access	Notes
41401	Pin 2 Data Output	0..1	0 = Inactive, 1 = Active	0	RW	If mirroring is disabled and IO selection is set to output, Data Output is set to inactive/active

Alias Registers

When reading an alias register, the data in the register is filled with the contents of the address that are present in the corresponding alias configuration register. The address can be stored in either direct or modicon addressing. Note that Read-Only aliased registers are read-only, and it is not possible to write to an alias Read-Only register.

Read-Only Registers and Addresses

By default, the read-only alias registers are configured to point to the active state status and count registers for Pin 2 and Pin 4 for all 8 ports.

Any alias registers that are configured to an unsupported register address, or where the read operation fails for some other reason, returns as a zero when read.

All Alias RO registers are part of Alias assignments.

Table 10: Alias RO Registers

Modbus Register Address	Description	I/O Range	Comments	Default	Access
40501	Port 1 Pin 4 Active State	0..1	0 = Inactive, 1 = Active	-	RO
40502	Port 1 Pin 2 Active State	0..1	0 = Inactive, 1 = Active	-	RO
40503	Port 2 Pin 4 Active State	0..1	0 = Inactive, 1 = Active	-	RO
40504	Port 2 Pin 2 Active State	0..1	0 = Inactive, 1 = Active	-	RO
40505	Port 3 Pin 4 Active State	0..1	0 = Inactive, 1 = Active	-	RO
40506	Port 3 Pin 2 Active State	0..1	0 = Inactive, 1 = Active	-	RO
40507	Port 4 Pin 4 Active State	0..1	0 = Inactive, 1 = Active	-	RO
40508	Port 4 Pin 2 Active State	0..1	0 = Inactive, 1 = Active	-	RO
40509	Port 5 Pin 4 Active State	0..1	0 = Inactive, 1 = Active	-	RO
40510	Port 5 Pin 2 Active State	0..1	0 = Inactive, 1 = Active	-	RO
40511	Port 6 Pin 4 Active State	0..1	0 = Inactive, 1 = Active	-	RO
40512	Port 6 Pin 2 Active State	0..1	0 = Inactive, 1 = Active	-	RO
40513	Port 7 Pin 4 Active State	0..1	0 = Inactive, 1 = Active	-	RO
40514	Port 7 Pin 2 Active State	0..1	0 = Inactive, 1 = Active	-	RO
40515	Port 8 Pin 4 Active State	0..1	0 = Inactive, 1 = Active	-	RO
40516	Port 8 Pin 2 Active State	0..1	0 = Inactive, 1 = Active	-	RO
40517	Port 1 Pin 4 Count H	0..65535	Port 1 Pin 4 Count Value Upper	-	RO
40518	Port 1 Pin 4 Count L	0..65535	Port 1 Pin 4 Count Value Lower	-	RO

Modbus Register Address	Description	I/O Range	Comments	Default	Access
40519	Port 2 Pin 4 Count H	0..65535	Port 2 Pin 4 Count Value Upper	-	RO
40520	Port 2 Pin 4 Count L	0..65535	Port 2 Pin 4 Count Value Lower	-	RO
40521	Port 3 Pin 4 Count H	0..65535	Port 3 Pin 4 Count Value Upper	-	RO
40522	Port 3 Pin 4 Count L	0..65535	Port 3 Pin 4 Count Value Lower	-	RO
40523	Port 4 Pin 4 Count H	0..65535	Port 4 Pin 4 Count Value Upper	-	RO
40524	Port 4 Pin 4 Count L	0..65535	Port 4 Pin 4 Count Value Lower	-	RO
40525	Port 5 Pin 4 Count H	0..65535	Port 5 Pin 4 Count Value Upper	-	RO
40526	Port 5 Pin 4 Count L	0..65535	Port 5 Pin 4 Count Value Lower	-	RO
40527	Port 6 Pin 4 Count H	0..65535	Port 6 Pin 4 Count Value Upper	-	RO
40528	Port 6 Pin 4 Count L	0..65535	Port 6 Pin 4 Count Value Lower	-	RO
40529	Port 7 Pin 4 Count H	0..65535	Port 7 Pin 4 Count Value Upper	-	RO
40530	Port 7 Pin 4 Count L	0..65535	Port 7 Pin 4 Count Value Lower	-	RO
40531	Port 8 Pin 4 Count H	0..65535	Port 8 Pin 4 Count Value Upper	-	RO
40532	Port 8 Pin 4 Count L	0..65535	Port 8 Pin 4 Count Value Lower	-	RO
40533	Port 1 Pin 2 Count H	0..65535	Port 1 Pin 2 Count Value Upper	-	RO
40534	Port 1 Pin 2 Count L	0..65535	Port 1 Pin 2 Count Value Lower	-	RO
40535	Port 2 Pin 2 Count H	0..65535	Port 2 Pin 2 Count Value Upper	-	RO
40536	Port 2 Pin 2 Count L	0..65535	Port 2 Pin 2 Count Value Lower	-	RO
40537	Port 3 Pin 2 Count H	0..65535	Port 3 Pin 2 Count Value Upper	-	RO
40538	Port 3 Pin 2 Count L	0..65535	Port 3 Pin 2 Count Value Lower	-	RO
40539	Port 4 Pin 2 Count H	0..65535	Port 4 Pin 2 Count Value Upper	-	RO
40540	Port 4 Pin 2 Count L	0..65535	Port 4 Pin 2 Count Value Lower	-	RO
40541	Port 5 Pin 2 Count H	0..65535	Port 5 Pin 2 Count Value Upper	-	RO
40542	Port 5 Pin 2 Count L	0..65535	Port 5 Pin 2 Count Value Lower	-	RO
40543	Port 6 Pin 2 Count H	0..65535	Port 6 Pin 2 Count Value Upper	-	RO
40544	Port 6 Pin 2 Count L	0..65535	Port 6 Pin 2 Count Value Lower	-	RO
40545	Port 7 Pin 2 Count H	0..65535	Port 7 Pin 2 Count Value Upper	-	RO
40546	Port 7 Pin 2 Count L	0..65535	Port 7 Pin 2 Count Value Lower	-	RO
40547	Port 8 Pin 2 Count H	0..65535	Port 8 Pin 2 Count Value Upper	-	RO
40548	Port 8 Pin 2 Count L	0..65535	Port 8 Pin 2 Count Value Lower	-	RO

Table 11: Alias Read-Only Addresses

Modbus Register Address	Description	I/O Range	Comments	Default	Access
40701	Alias Register Address	0..65535	Value shows up in 40501	41001	RW
40702	Alias Register Address	0..65535	Value shows up in 40502	41002	RW
40703	Alias Register Address	0..65535	Value shows up in 40503	42001	RW
40704	Alias Register Address	0..65535	Value shows up in 40504	42002	RW
40705	Alias Register Address	0..65535	Value shows up in 40505	43001	RW
40706	Alias Register Address	0..65535	Value shows up in 40506	43002	RW
40707	Alias Register Address	0..65535	Value shows up in 40507	44001	RW
40708	Alias Register Address	0..65535	Value shows up in 40508	44002	RW
40709	Alias Register Address	0..65535	Value shows up in 40509	45001	RW
40710	Alias Register Address	0..65535	Value shows up in 40510	45002	RW
40711	Alias Register Address	0..65535	Value shows up in 40511	46001	RW
40712	Alias Register Address	0..65535	Value shows up in 40512	46002	RW
40713	Alias Register Address	0..65535	Value shows up in 40513	47001	RW
40714	Alias Register Address	0..65535	Value shows up in 40514	47002	RW
40715	Alias Register Address	0..65535	Value shows up in 40515	48001	RW

Modbus Register Address	Description	I/O Range	Comments	Default	Access
40716	Alias Register Address	0..65535	Value shows up in 40516	48002	RW
40717	Alias Register Address	0..65535	Value shows up in 40517	41003	RW
40718	Alias Register Address	0..65535	Value shows up in 40518	41004	RW
40719	Alias Register Address	0..65535	Value shows up in 40519	42003	RW
40720	Alias Register Address	0..65535	Value shows up in 40520	42004	RW
40721	Alias Register Address	0..65535	Value shows up in 40521	43003	RW
40722	Alias Register Address	0..65535	Value shows up in 40522	43004	RW
40723	Alias Register Address	0..65535	Value shows up in 40523	44003	RW
40724	Alias Register Address	0..65535	Value shows up in 40524	44004	RW
40725	Alias Register Address	0..65535	Value shows up in 40525	45003	RW
40726	Alias Register Address	0..65535	Value shows up in 40526	45004	RW
40727	Alias Register Address	0..65535	Value shows up in 40527	46003	RW
40728	Alias Register Address	0..65535	Value shows up in 40528	46004	RW
40729	Alias Register Address	0..65535	Value shows up in 40529	47003	RW
40730	Alias Register Address	0..65535	Value shows up in 40530	47004	RW
40731	Alias Register Address	0..65535	Value shows up in 40531	48003	RW
40732	Alias Register Address	0..65535	Value shows up in 40532	48004	RW
40733	Alias Register Address	0..65535	Value shows up in 40533	41011	RW
40734	Alias Register Address	0..65535	Value shows up in 40534	41012	RW
40735	Alias Register Address	0..65535	Value shows up in 40535	42011	RW
40736	Alias Register Address	0..65535	Value shows up in 40536	42012	RW
40737	Alias Register Address	0..65535	Value shows up in 40537	43011	RW
40738	Alias Register Address	0..65535	Value shows up in 40538	43012	RW
40739	Alias Register Address	0..65535	Value shows up in 40539	44011	RW
40740	Alias Register Address	0..65535	Value shows up in 40540	44012	RW
40741	Alias Register Address	0..65535	Value shows up in 40541	45011	RW
40742	Alias Register Address	0..65535	Value shows up in 40542	45012	RW
40743	Alias Register Address	0..65535	Value shows up in 40543	46011	RW
40744	Alias Register Address	0..65535	Value shows up in 40544	46012	RW
40745	Alias Register Address	0..65535	Value shows up in 40545	47011	RW
40746	Alias Register Address	0..65535	Value shows up in 40546	47012	RW
40747	Alias Register Address	0..65535	Value shows up in 40547	48011	RW
40748	Alias Register Address	0..65535	Value shows up in 40548	48012	RW

Read-Write Alias Registers and Addresses

By default, the read-write alias registers are configured to point to the Pin 2 output data and Pin 2 and Pin 4 metric count preset registers for all 8 ports.

If writing to an alias register fails (for example, if the aliased register is not writeable), then the write operation of the alias registers will NACK.

A register value that is set to 65535 is always read as 0, and no write operation will be attempted.

All Alias RW registers are part of RW Alias assignments.

Table 12: Alias RW Registers

Modbus Register Address	Description	I/O Range	Comments	Default	Access
40801	Port 1 Pin 2 Data Output	0..1	0 = Inactive, 1 = Active	0	RW
40802	Port 2 Pin 2 Data Output	0..1	0 = Inactive, 1 = Active	0	RW
40803	Port 3 Pin 2 Data Output	0..1	0 = Inactive, 1 = Active	0	RW
40804	Port 4 Pin 2 Data Output	0..1	0 = Inactive, 1 = Active	0	RW
40805	Port 5 Pin 2 Data Output	0..1	0 = Inactive, 1 = Active	0	RW
40806	Port 6 Pin 2 Data Output	0..1	0 = Inactive, 1 = Active	0	RW

Modbus Register Address	Description	I/O Range	Comments	Default	Access
40807	Port 7 Pin 2 Data Output	0..1	0 = Inactive, 1 = Active	0	RW
40808	Port 8 Pin 2 Data Output	0..1	0 = Inactive, 1 = Active	0	RW
40809	Port 1 Pin 4 Count H	0..65535	Pin 4 Count Value Upper	-	RW
40810	Port 1 Pin 4 Count L	0..65535	Pin 4 Count Value Lower	-	RW
40811	Port 2 Pin 4 Count H	0..65535	Pin 4 Count Value Upper	-	RW
40812	Port 2 Pin 4 Count L	0..65535	Pin 4 Count Value Lower	-	RW
40813	Port 3 Pin 4 Count H	0..65535	Pin 4 Count Value Upper	-	RW
40814	Port 3 Pin 4 Count L	0..65535	Pin 4 Count Value Lower	-	RW
40815	Port 4 Pin 4 Count H	0..65535	Pin 4 Count Value Upper	-	RW
40816	Port 4 Pin 4 Count L	0..65535	Pin 4 Count Value Lower	-	RW
40817	Port 5 Pin 4 Count H	0..65535	Pin 4 Count Value Upper	-	RW
40818	Port 5 Pin 4 Count L	0..65535	Pin 4 Count Value Lower	-	RW
40819	Port 6 Pin 4 Count H	0..65535	Pin 4 Count Value Upper	-	RW
40820	Port 6 Pin 4 Count L	0..65535	Pin 4 Count Value Lower	-	RW
40821	Port 7 Pin 4 Count H	0..65535	Pin 4 Count Value Upper	-	RW
40822	Port 7 Pin 4 Count L	0..65535	Pin 4 Count Value Lower	-	RW
40823	Port 8 Pin 4 Count H	0..65535	Pin 4 Count Value Upper	-	RW
40824	Port 8 Pin 4 Count L	0..65535	Pin 4 Count Value Lower	-	RW
40825	Port 1 Pin 2 Count H	0..65535	Pin 2 Count Value Upper	-	RW
40826	Port 1 Pin 2 Count L	0..65535	Pin 2 Count Value Lower	-	RW
40827	Port 2 Pin 2 Count H	0..65535	Pin 2 Count Value Upper	-	RW
40828	Port 2 Pin 2 Count L	0..65535	Pin 2 Count Value Lower	-	RW
40829	Port 3 Pin 2 Count H	0..65535	Pin 2 Count Value Upper	-	RW
40830	Port 3 Pin 2 Count L	0..65535	Pin 2 Count Value Lower	-	RW
40831	Port 4 Pin 2 Count H	0..65535	Pin 2 Count Value Upper	-	RW
40832	Port 4 Pin 2 Count L	0..65535	Pin 2 Count Value Lower	-	RW
40833	Port 5 Pin 2 Count H	0..65535	Pin 2 Count Value Upper	-	RW
40834	Port 5 Pin 2 Count L	0..65535	Pin 2 Count Value Lower	-	RW
40835	Port 6 Pin 2 Count H	0..65535	Pin 2 Count Value Upper	-	RW
40836	Port 6 Pin 2 Count L	0..65535	Pin 2 Count Value Lower	-	RW
40837	Port 7 Pin 2 Count H	0..65535	Pin 2 Count Value Upper	-	RW
40838	Port 7 Pin 2 Count L	0..65535	Pin 2 Count Value Lower	-	RW
40839	Port 8 Pin 2 Count H	0..65535	Pin 2 Count Value Upper	-	RW
40840	Port 8 Pin 2 Count L	0..65535	Pin 2 Count Value Lower	-	RW

Table 13: Alias Read-Write Addresses

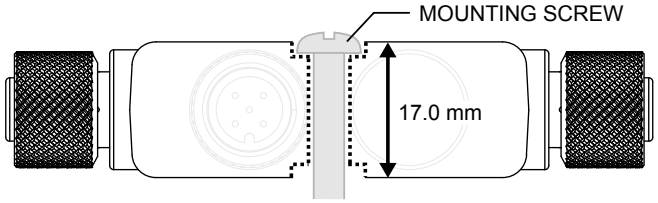
Modbus Register Address	Description	I/O Range	Comments	Default	Access
40901	Alias Register Address	0..65535	Value shows up in 40801	41401	RW
40902	Alias Register Address	0..65535	Value shows up in 40802	42401	RW
40903	Alias Register Address	0..65535	Value shows up in 40803	43401	RW
40904	Alias Register Address	0..65535	Value shows up in 40804	44401	RW
40905	Alias Register Address	0..65535	Value shows up in 40805	45401	RW
40906	Alias Register Address	0..65535	Value shows up in 40806	46401	RW
40907	Alias Register Address	0..65535	Value shows up in 40807	47401	RW
40908	Alias Register Address	0..65535	Value shows up in 40808	48401	RW
40909	Alias Register Address	0..65535	Value shows up in 40809	41100	RW
40910	Alias Register Address	0..65535	Value shows up in 40810	41101	RW
40911	Alias Register Address	0..65535	Value shows up in 40811	42100	RW

Modbus Register Address	Description	I/O Range	Comments	Default	Access
40912	Alias Register Address	0..65535	Value shows up in 40812	42101	RW
40913	Alias Register Address	0..65535	Value shows up in 40813	43100	RW
40914	Alias Register Address	0..65535	Value shows up in 40814	43101	RW
40915	Alias Register Address	0..65535	Value shows up in 40815	44100	RW
40916	Alias Register Address	0..65535	Value shows up in 40816	44101	RW
40917	Alias Register Address	0..65535	Value shows up in 40817	45100	RW
40918	Alias Register Address	0..65535	Value shows up in 40818	45101	RW
40919	Alias Register Address	0..65535	Value shows up in 40819	46100	RW
40920	Alias Register Address	0..65535	Value shows up in 40820	46101	RW
40921	Alias Register Address	0..65535	Value shows up in 40821	47100	RW
40922	Alias Register Address	0..65535	Value shows up in 40822	47101	RW
40923	Alias Register Address	0..65535	Value shows up in 40823	48100	RW
40924	Alias Register Address	0..65535	Value shows up in 40824	48101	RW
40925	Alias Register Address	0..65535	Value shows up in 40825	41102	RW
40926	Alias Register Address	0..65535	Value shows up in 40826	41103	RW
40927	Alias Register Address	0..65535	Value shows up in 40827	42102	RW
40928	Alias Register Address	0..65535	Value shows up in 40828	42103	RW
40929	Alias Register Address	0..65535	Value shows up in 40829	43102	RW
40930	Alias Register Address	0..65535	Value shows up in 40830	43103	RW
40931	Alias Register Address	0..65535	Value shows up in 40831	44102	RW
40932	Alias Register Address	0..65535	Value shows up in 40832	44103	RW
40933	Alias Register Address	0..65535	Value shows up in 40833	45102	RW
40934	Alias Register Address	0..65535	Value shows up in 40834	45103	RW
40935	Alias Register Address	0..65535	Value shows up in 40835	46102	RW
40936	Alias Register Address	0..65535	Value shows up in 40836	46103	RW
40937	Alias Register Address	0..65535	Value shows up in 40837	47102	RW
40938	Alias Register Address	0..65535	Value shows up in 40838	47103	RW
40939	Alias Register Address	0..65535	Value shows up in 40839	48102	RW
40940	Alias Register Address	0..65535	Value shows up in 40840	48103	RW

Mechanical Installation

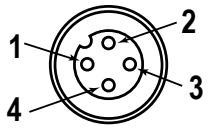
Install the R95C 8-Port Hub to allow access for functional checks, maintenance, and service or replacement. Do not install the R95C 8-Port Hub in such a way to allow for intentional defeat.

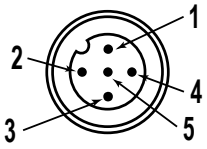
All mounting hardware is supplied by the user. Fasteners must be of sufficient strength to guard against breakage. Use of permanent fasteners or locking hardware is recommended to prevent the loosening or displacement of the device. The mounting hole (4.5 mm) in the R95C 8-Port Hub accepts M4 (#8) hardware. See the figure below to help in determining the minimum screw length.



CAUTION: Do not overtighten the R95C 8-Port Hub's mounting screw during installation. Overtightening can affect the performance of the R95C 8-Port Hub.

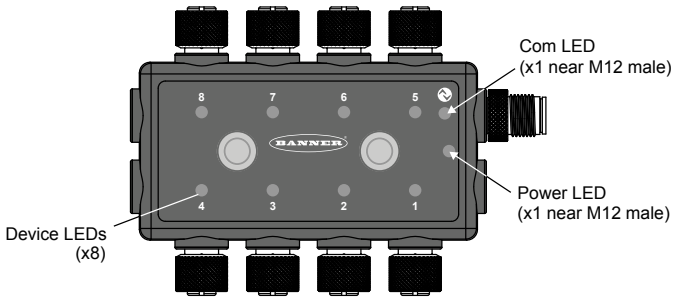
Wiring

Port 1-Port 8 — Female	Pin	Signal Description
	1	12 V DC to 30 V DC
	2	Discrete 2 (IN/OUT)
	3	Ground
	4	Discrete 1 (IN)

Male	Pin	Signal Description
	1	12 V DC to 30 V DC
	2	RS485/D1/B/+
	3	Ground
	4	RS485/D0/A/-
	5	Banner 1-wire

Status Indicators

The R95C 8-Port Discrete Bimodal to Modbus® Hub has matching amber LED indicators on both sides for each discrete device port to allow for installation needs and still provide adequate indication visibility. There is also an additional amber LED indicator on both sides of the converter, which is specific to Modbus communication.



Discrete Device Amber LEDs	
Indication	**Status**
Off	Discrete OUT is inactive
Solid Amber	Discrete OUT is active

Power Indicator Green LED	
Indication	**Status**
Off	Power off
Solid Green	Power on

Modbus Communication Amber LED	
Indication	**Status**
Off	Modbus communications are not present
Flashing Amber (4 Hz)	Modbus communications are active
Solid Amber for 2 Seconds, Then to Off	Modbus communications are lost after connection
Solid Amber for 2 Seconds, Then to Flashing Amber (4 Hz)	Modbus communications momentarily lost, but then communication was reestablished

Specifications

Supply Voltage
12 V DC to 30 V DC at 400 mA maximum

Power Pass-Through Current
500 mA per port maximum

Discrete Output Load Rating
100 mA

Supply Protection Circuitry
Protected against reverse polarity and transient voltages

Leakage Current Immunity
400 µA

Indicators
Green: Power
Amber: Modbus communications
Amber: Discrete OUT status

Connections
(8) Integral 4-pin M12 female quick disconnect
(1) Integral 5-pin M12 male quick-disconnect connector

Construction
Coupling Material: Nickel-plated brass
Connector Body: PVC translucent black

Vibration and Mechanical Shock
Meets IEC 60068-2-6 requirements (Vibration: 10 Hz to 55 Hz, 0.5 mm amplitude, 5 minutes sweep, 30 minutes dwell)
Meets IEC 60068-2-27 requirements (Shock: 15G 11 ms duration, half sine wave)

Certifications

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

Turck Banner LTD Blenheim House, Blenheim Court, Wickford, Essex SS11 8YT, Great Britain

Environmental Rating
IP65, IP67, IP68
UL Type 1

Operating Conditions
Temperature: –40 °C to +70 °C (–40 °F to +158 °F)
90% at +70 °C maximum relative humidity (non-condensing)
Storage Temperature: –40 °C to +80 °C (–40 °F to +176 °F)

Required Overcurrent Protection

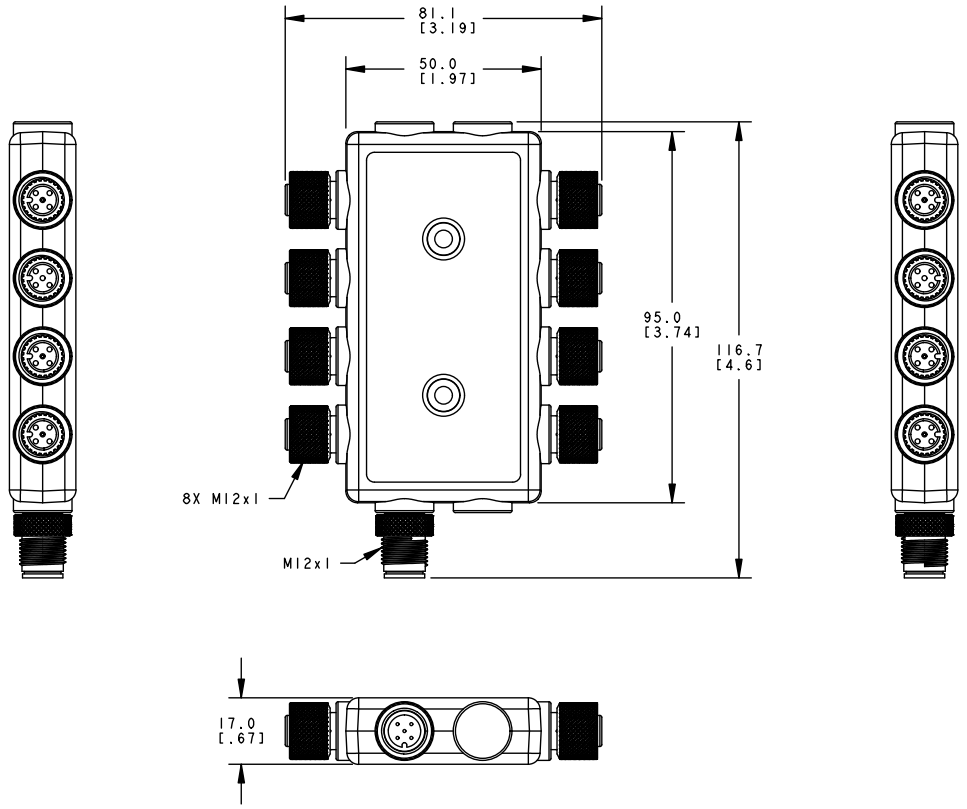
WARNING: Electrical connections must be made by qualified personnel in accordance with local and national electrical codes and regulations.

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 (Amps)
20	5.0
22	3.0
24	2.0
26	1.0
28	0.8
30	0.5

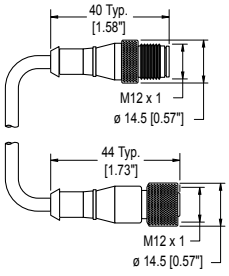
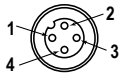
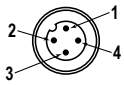
Dimensions

All measurements are listed in millimeters [inches], unless noted otherwise.



Accessories

Cordsets

4-Pin Threaded M12 Cordsets—Double Ended				
Model	**Length**	**Style**	**Dimensions**	**Pinout**
MQDEC-401SS	0.31 m (1 ft)	Male Straight/ Female Straight		Female  Male  1 = Brown 2 = White 3 = Blue 4 = Black
MQDEC-403SS	0.91 m (2.99 ft)			
MQDEC-406SS	1.83 m (6 ft)			
MQDEC-412SS	3.66 m (12 ft)			
MQDEC-420SS	6.10 m (20 ft)			
MQDEC-430SS	9.14 m (30.2 ft)			
MQDEC-450SS	15.2 m (49.9 ft)			

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.

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

FCC Part 15 Class 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.

Industry Canada

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.

SNAP SIGNAL®

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more sensors, more solutions

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