Push Button Controller
for the Smart Distributed System
INSTALLATION INSTRUCTIONS

Instruction Sheet 5-022-2 0304

Description

The Holjeron Push Button Controller products for the Smart Distributed System provide a convenient and compact method for connecting small control panels to a System bus. Each Push Button Controller supports up to four(4) inputs and two(2) outputs.

The Push Button Controllers provide more than just a simple I/O interface to a host controller. The health of a light bulb or LED can be continuously monitored, and a diagnostic event is reported if a bulb is found to be missing or burnt out. A flash rate can be entered into the Push Button Controller. The control program can then energize an output as being on solid, or on and flashing.

Holjeron's innovative bracketing for the Push Button Controllers allows them to be used with any 22,5 or 30,5 mm push button.

Warranty/Remedy

Seller warrants its products to be free from defects in design, material and workmanship under normal use and service. Seller will repair or replace without charge any such products it finds to be so defective on its return to Seller within 18 months after date of shipment by Seller. **The foregoing is in lieu of all other expressed or implied warranties (except title), including those of merchantability and fitness for a particular purpose.** The foregoing is also purchaser's sole remedy and is in lieu of all other guarantees, obligations, or liabilities or any consequences incidental, or punitive damages attributable to negligence or strict liability, all by way of example.

While Holjeron provides application assistance, personally and through our literature, it is up to the customer to determine the suitability of the product in the application.

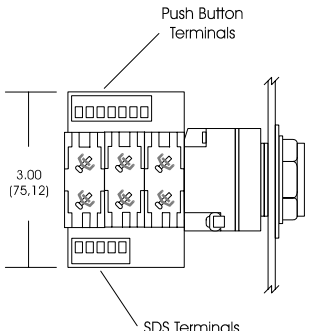
All information contained herein, including illustrations, specifications and dimensions, is believed to be reliable as of the date of publication, but is subject to change without notice.

Specifications

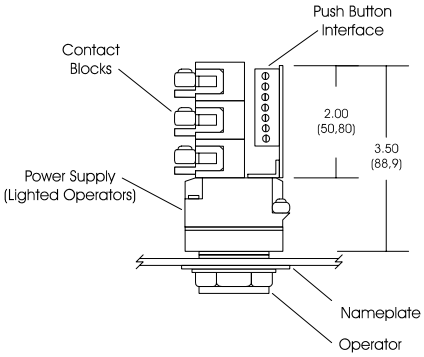
Part Numbers	22 mm Push Buttons		PBC-SDS220
	30 mm Push Buttons		PBC-SDS222
	GE CR104P 30 mm Push Buttons		PBC-GEP222
Electrical	SDS Voltage Range		11-25 VDC
	Current Consumption		40 mA plus inputs and outputs
	Data Rates		125, 250, 500 and 1000 kbps
Inputs	Type		Current Sinking (Sourcing load)
	Number		Four (4)
	Voltage Range		Bus Power
	Maximum Current		20 mA per input
Outputs	Type		Current Sinking
	Number		Two (2)
	Voltage Range		Bus Power
	Maximum Current		200 mA
Environmental	Temperature	Storage	-30° to 70° C (-22° to 158° F)
		Operating	0° to 60° C (32° to 140° F)
	Humidity		5-95% RH, non-condensing
	Vibration		2G at 10 to 500 Hz
	Shock		10G
Physical	Dimensions		3.00" H x 2.0" W (Card Only)
	Weight		12 oz
	Mounting		Bracket, depending on version
	Terminations	SDS	5 Pin Plug-in Terminal Block
		I/O	7 Pin Plug-in Terminal Block
	Indication	Power	Green
		Error	Red
		SDS	Green

Dimensions

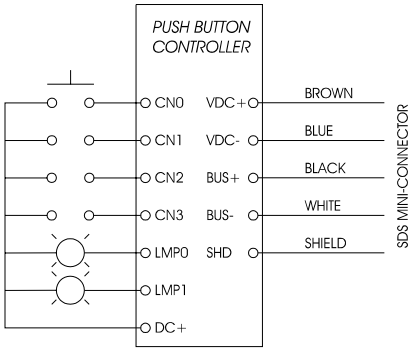
CR104P SIDE VIEW



CR104P SIDE VIEW



Wiring



NOTICE:

The push button enclosure must be connected to earth ground to protect against EMI and RFI.

Configuration

The Push Button Controller can be configured using several tools. The information below summarizes the configuration tools available and hardware requirements for each tool.

Honeywell hand-held activator

The Honeywell activator does not supply enough power by itself. The SDS bus must have external power applied.

PC Control/Network Manager

Requires a Honeywell PC Interface Card with separate bus power.

Holjeron Device Manager for SDS

Requires an HSIM Portable (RS-232 to CAN converter) that connects to the serial port of a personal computer. The bus OR the HSIM Portable must have power.

The following steps are a guide to help the commissioning process to ensure the product will function as desired. Default values are shown in bold typeface.

1. Set the address of the device. All units are shipped from the factory as **address 126**.

   Note: Set the address before attaching a Push Button Controller to a complete bus. Otherwise, the entire bus will be configured with devices at address 126.

2. Verify the **Baud Rate (attribute 1)** is configured correctly for the application. In most cases the default value (autobaud) will provide the desired results. The following are the possible values for the baud rate:

   Baud Rate (Attribute 1)

Value	Baud Rate
0	**Autobaud**
1	1 megabaud
2	500 kilobaud
3	250 kilobaud
4	125 kilobaud

3. Most systems will require a Push Button Controller to generate an event whenever one or more inputs change state. This requires the **Unsolicit Mode (attribute 6)** be enabled by setting its value to **1**. Other options are to disable change of value events (Unsolicit Mode = 0) or use the Cyclic Timer (Attribute 10) by setting it to some non-zero value. The Cyclic Timer will transmit the input variable on an interval equal to the value in the Cyclic Timer attribute times 10 milliseconds (0.01 seconds).

4. Another I/O function that might be important is the **Output Watchdog Timer (attribute 50)**. When set to some value other than **0** the Output Watchdog Timer will cause the physical output to be set to a normalized state if there are no SDS messages to the Push Button Controller in the time allotted (value in Attribute 50 times 10 milliseconds). The normal state is off.

5. Each output can be configured to flash using one of two methods, as determined by the **Flasher Mode (attribute 59)**. When enabled (**1**), the output variable will be displayed as four (4) bits. Each output can be flashed by turning on the output and the flashing bit for that output. For example, output 0 would flash when bit 0 and bit 2 are both on. When Flasher Mode is disabled the output variable only contains two bits. An output can be configured to always flash by turning on a corresponding bit in the **Flasher Mask (attribute 64)**.

   Note that changes to the flasher mode do not take effect unless power is cycled on the Push Button Controller.

   The rate at which an output flashes is set in the **Flasher Timer (attribute 63)**. The value entered can be from **0** to 255 and is in ten (10) millisecond increments. For example, a flash rate of 1/2 second (500 milliseconds) would require a value of 50.

6. The Push Button Controller is equipped with circuitry to test for burnt or missing bulbs. This feature can be enabled/disabled using the **Bulb Test Mask (attribute 65)**. If a bulb is found to be missing, the corresponding bit in the **Failed Bulb Register (attribute 66)** will be set high and a diagnostic event will be generated to the host controller.

7. An input can be configured to perform as a **Push-To-Test (attribute 67)**. Turning on a bit that corresponds to an input bit will cause both outputs to turn on when the enabled input goes high.

8. **Tag Name (attribute 56)** is a 32-character string that the user can enter to describe the functionality and/or location of the Push Button Controller.

Operation

Input Variable

Attribute 18 functions as the input attribute for the Push Button Controller. Whenever an event is generated that reports the state of inputs, the data in attribute 18 will be passed.

Input Variable Bit Definitions

Bit	Name	Description
0	Input 0	State of physical input 0
1	Input 1	State of physical input 1
2	Input 2	State of physical input 2
3	Input 3	State of physical input 3

Output Variable

Attribute 34 contains the information for the outputs.

Note that bits 2 and 3 only exist when the Flasher Mode is enabled.

Output Variable Bit Definitions

Bit	Name	Description
0	Output 0	Controls the state of physical output 0
1	Output 1	Controls the state of physical output 1
2	Flash 0	Flash output 0 when it is on.
3	Flash 1	Flash output 1 when it is on.

Diagnostics

The Diagnostics Register (attribute 9) is two bytes and contains the minimum diagnostics required for the Smart Distributed System and a couple additional diagnostics relevant to the Push Button Controller.

Diagnostic Register Bit Definitions

Byte	Bit	Name	Description
1	0	CHKSUM	ROM checksum error
	1	WDOG	Output watchdog timer expired
	2	BUSOFF	Off bus communications error
	3	DEVERR	Fatal component error
	4	NODE	Missing node detected
	5	RSVD	Reserved
	6	RSVD	Reserved
	7	EPRM	EEPROM error detected
2	8	Reserved	
	9	FBULB	A bulb test has failed. Attribute 66 contains which output has failed.
	10	Reserved	
	11	Reserved	
	12	Reserved	
	13	Reserved	
	14	Reserved	
	15	Reserved	

Attributes

ID	Description	R/W	Data Type	Size	Count	Default
0	Network Data Descriptor	R	Unsigned	Byte	6	
1	Baud Rate	R	Unsigned	Byte	1	0 [autobaud]
2	Object Model	R	Unsigned	Byte	5	
3	Vendor Id	R	Unsigned	Word	1	9 [Holjeron]
4	Logical Address	R	Unsigned	Word	1	125
6	Unsolicit Mode	W	Boolean	Undef	1	1 [enabled]
7	Software Version	R	Character	Undef	12	
8	Diagnostic Counter	R	Unsigned	Byte	1	
9	Diagnostic Register	W	Unsigned	Byte	1	
10	Cyclic Timer	W	Unsigned	Word	1	0 [disabled]
11	Serial Number	R	Unsigned	Long	1	
12	Date Code	R	Character	Undef	4	
13	Catalog Listing	R	Character	Undef	32	Dependent on module
14	Vendor	R	Character	Undef	32	Holjeron
15	Description	W	Character	Undef	32	Push Button Controller
18	Input Variable	R	Boolean	Undef	4	
34	Output Variable	W	Boolean	Undef	2/4	Dependent on Attr 59
50	Output Watchdog Timer	W	Unsigned	Word	1	0 [disabled]
55	Manufacturing Codes	R	Unsigned	Byte	1	
56	Tag Name	W	Character	Undef	32	
59	Flasher Mode	W	Boolean	Undef	1	1
60	Input NO/NC	W	Boolean	Undef	4	00h (N.O.)
63	Flasher Timer	W	Unsigned	Byte	1	0
64	Flasher Mask	W	Boolean	Undef	2	00h
65	Bulb Test Mask	W	Boolean	Undef	2	00h
66	Failed Bulb Register	R	Boolean	Undef	2	
67	Push-To-Test Mask	W	Boolean	Undef	4	00h

Actions

ID	Description	Request Data	Response Data
0	NOOP	---	---
1	Change Address	New logical address	
2	Self Test	---	---
6	Clear All Errors	---	---
8	Enroll Logical Device	Address	Vendor Id, Serial Number
10	Change Baud Rate	New baud rate (0…4)	
51	Force State	Input variable value	
52	Unforce States		
53	Read Attribute Descriptor	Attribute Id	Attribute ID, Attribute Descriptor
57	Password	Password	
60	Reset Factory Defaults		

Events

ID	Description	Event Data
0	Diagnostic Event	Number of enabled diagnostic bits in attribute 9
3	End-Of-Timer	Attribute, Input variable
6	Change of Value	Attribute, Input variable
7	NOOP	---