Holjeron
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## Description

The Holjeron Push Button Controller for SDS provides a convenient method to connect push button stations in a Smart Distributed System installation.

The Push Button Controller provides six (6) inputs and four (4) outputs. Inputs and outputs use bus power for their voltage source.

The Push Button Controller can be purchased as a stand-alone card, or with different brackets, depending on the application. Holjeron can also design brackets to meet specific packaging requirements.
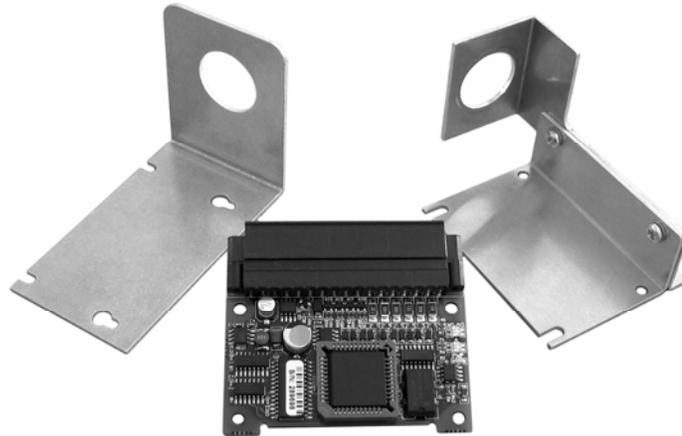
Warranty/Remedy

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 Number	Push Button Controller Only		PBC-SDS300
	PBC with Mini Bulkhead Bracket		PBC-SDS300-05
	PBC with 22.5 mm Bracket		PBC-SDS300-22
	PBC with 30.5 mm Bracket		PBC-SDS300-30
DeviceNet	Voltage Range		11-25 VDC
	Current Consumption		60 mA plus inputs and outputs
	Data Rates		125, 250, 500 and 1000 kbps
Inputs	Type		Open collector
	Number		Six (6)
	Voltage Range		11-25 VDC (bus voltage)
	Maximum Current		20 mA per input
Outputs	Type		Current Sourcing
	Number		Four (4)
	Voltage Range		11-25 VDC (bus voltage)
	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 (card only)		2.79" H x 2.00" W x 0.38" W
	Weight		6 oz
	Mounting	SDS300-05	Mini bulkhead bracket
		SDS300-22	22 mm button mount bracket
		SDS300-30	30 mm button mount bracket
	Terminations		Pluggable terminal block, 17 pos.
	Indication	Status	Red/Green
		Activity	Green

Dimensions

PBC-SDS300 Only
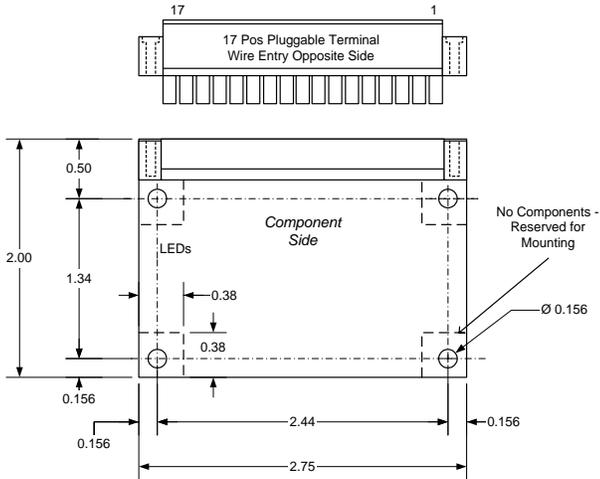
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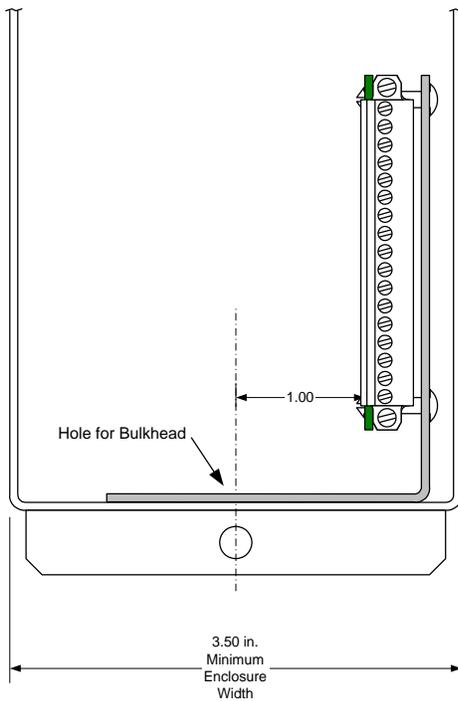
Wiring

Note
Outputs use SDS power. Lamp current consumption must be considered when calculating the total power used by an SDS network.
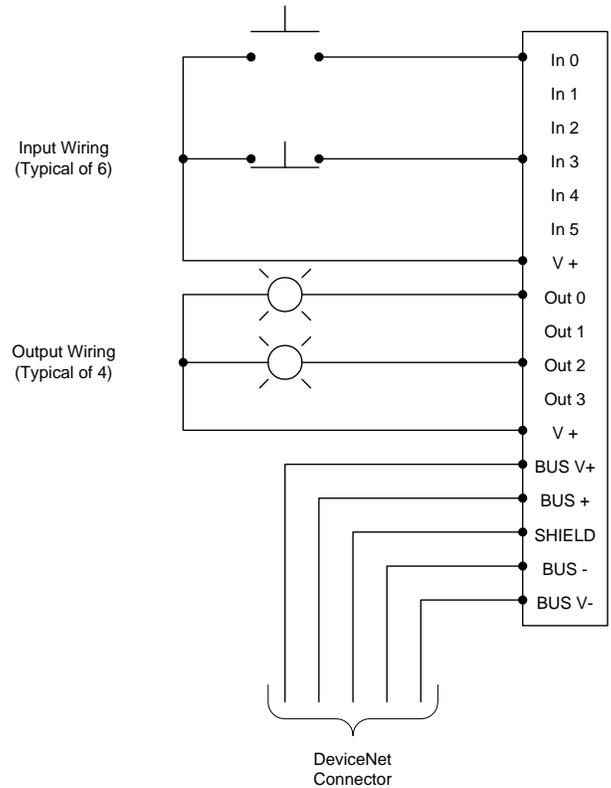
Configuration Tools

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

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.

Honeywell hand-held activator

The Honeywell activator may not supply enough power by itself. The SDS bus might require external power to be applied.

Think & Do Software

Requires a Honeywell PC Interface Card with separate bus power. Follow the instructions for installing the SDS Driver in I/O View.

Quick Start

The following steps are the minimum steps to configure Push Button Controller. Default values are shown in bold typeface.

Set Device Address

Using one of the tools described above, change the device address from the default. All units are shipped from the factory as **address 126**.

Note

Set the address before attaching any component to a complete bus. This will help prevent duplicate addresses on a bus.

Tag Name

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

Input/Output Variables

> **Note**
> *When using a packaged control system, such as Think & Do Software, it is not necessary to explicitly read input and output variables. The SDS I/O Driver and Interface Card perform this function. All that is required is to map inputs and outputs as described in the software user manual.*

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.

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
4	Input 4	State of physical input 4
5	Input 5	State of physical input 5
6	Reserved	
7	Reserved	

Attribute 34 functions as the output attribute for the Push Button Controller. Whenever the host controller changes the state of an output it is inherently writing to attribute 34.

Bit	Name	Description
0	Output 0	Controls the state of physical output 0
1	Output 1	Controls the state of physical output 1
2	Output 2	Controls the state of physical output 2
3	Output 3	Controls the state of physical output 3
4	Flash 0	When enabled concurrently with Output 0 causes Output 0 to flash.
5	Flash 1	When enabled concurrently with Output 1 causes Output 1 to flash.
6	Flash 2	When enabled concurrently with Output 2 causes Output 2 to flash.
7	Flash 3	When enabled concurrently with Output 3 causes Output 3 to flash.

Input NO/NC

The Push Button Controller can be configured to invert the state of an incoming input point by turning on the corresponding bit in **Input NO/NC (attribute 60)**.

Input Event Mode

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).

Alternate Action Mask

When a bit in the **Alternate Action Mask (attribute 63)** is set to a value of 1 and the physical input with the same bit number turns on, the value reported in the input variable will change state and remain in that state until the physical input is cycled.

Push-To-Test Mask

When a bit is set to 1 (enabled) in the **Push-To-Test Mask (attribute 70)**, and the input with same bit number is on, all outputs will be energized to test lamps in the system.

Flash Time (0-3)

The **Flash Time (attributes 64-67)** set the rate at which the output will alternate between on and off states when both the output and corresponding flash bits are set to 1. The time is entered in 10 millisecond increments (100 = 1 second).

For example, if attribute 64 has a value of 50 when bits 0 and 4 in the output variable are both enabled, output 0 will alternate states every ½ second.

Diagnostics

The **Diagnostic Register** (**attribute 9**) is two bytes and contains the minimum diagnostics required for the Smart Distributed System, plus additional diagnostics specific to the Push Button Controller.

Diagnostic Register Bit Definitions Byte 0

Bit	Name	Description
0	CHKSUM	ROM checksum error
1	WDOG	Output watchdog timer expired
2	BUSOFF	Off us communications error
3	DEVERR	Fatal component error
4	NODE	Missing node detected
5	RSVD	Reserved
6	RSVD	Reserved
7	EPRM	EEPROM error detected

Diagnostic Register Bit Definitions Byte 1

Bit	Name	Description
0	RSVD	Reserved
1	FBULB	Failed Bulb Test. The specific bulb is identified in attribute 69.
2	RSVD	Reserved
3	RSVD	Reserved
4	RSVD	Reserved
5	RSVD	Reserved
6	RSVD	Reserved
7	RSVD	Reserved

SDS host controllers are equipped to receive a diagnostic event, then automatically obtain the information from the **Diagnostic Register (attribute 9)**. Consult the documentation for the host controller being used to determine how errors are handled.

CHKSUM

A ROM checksum error is generated on power up if there is a memory error test.

WDOG

The WDOG diagnostic occurs whenever the **Output Watchdog Timer (attribute 50)** times out.

The Output Watchdog Timer is reset whenever the Push Button Controller receives a message over SDS. If a message is not received in the time entered any point configured as an output will be set to the state for that bit in the **Default Output (attribute 51)**.

The Output Watchdog Timer is entered in increments of 10 milliseconds (0.01 seconds). For example, a value of 100 equals 1 second.

BUSOFF

The CAN controller on the Push Button Controller counts error messages. Every error message increments a counter by 8, every good message decrements the counter by 1. If the counter reaches 128 then the module will go BUSOFF. The microcontroller on the PBC will attempt to reset if a BUSOFF occurs. If the PBC is unable to reset itself, it will need to be reset by the host controller.

DEVERR

The DEVERR diagnostic bit will be set if a fatal error is detected within the component.

NODE

The host controller will report the node is missing using the NODE bit.

EPRM

The EPRM error will occur when the microprocessor on the Push Button Controller is unable to read or write EEPROM.

FBULB

The Push Button Controller contains circuitry that determines whether a lamp is missing or burnt out. Setting each bit in the **Lamp Test Mask (attribute 68)** that corresponds with outputs that are driving lamps enables the lamp test for that output.

When the lamp test is enabled for an output and the lamp is missing or burnt out the **Failed Lamp Register (attribute 69)** will contain a value of 1 in the bit location that corresponds with that output.

Device Monitoring

In addition to diagnostic events, there are two attributes that can be used to monitor a node for maintenance purposes.

Reset Count

The **Reset Count (attribute 53)** is the number of times the microprocessor on the Push Button Controller has been reset, including power cycles and resets from fault conditions. A unit on a bus that has a higher reset count than other nodes on the same bus may be experiencing communications difficulties.

Service Time

Service Time (attribute 54) is the number of hours the Push Button Controller has been in operation.

Push Button Controller
for the Smart Distributed System
PBC-5030-1   Page 6   **TECHNICAL DATA**

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	Byte	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	2	
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	PBC-SDS300
14	Vendor	R	Character	Undef	32	Holjeron
15	Description	W	Character	Undef	32	Push Button Controller
18	Input Variable	R	Boolean	Undef	6	
34	Output Variable	W	Boolean	Undef	8	
50	Output Watchdog Timer	W	Unsigned	Word	1	0 [disabled]
51	Default Output	W	Boolean	Undef	8	0
53	Reset Count	R	Unsigned	Word	1	
54	Service Time (hours)	R	Unsigned	Word	1	
55	Manufacturing Codes	R	Unsigned	Byte	1	
56	Tag Name	W	Character	Undef	32	
60	Input NO/NC	W	Boolean	Undef	6	0 (N.O.)
63	Alternate Action Mask	W	Boolean	Undef	6	0
64	Flash Time – Output 0	W	Unsigned	Byte	1	50
65	Flash Time – Output 1	W	Unsigned	Byte	1	50
66	Flash Time – Output 2	W	Unsigned	Byte	1	50
67	Flash Time – Output 3	W	Unsigned	Byte	1	50
68	Lamp Test Mask	W	Boolean	Undef	4	0
69	Failed Lamp Register	R	Boolean	Undef	4	
70	Push-To-Test Mask	W	Boolean	Undef	6	0

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	---	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	---

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