Holjeron
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Description

The Holjeron MicroBlock I/O Module for the Smart Distributed System is designed to handle small amounts of I/O in a limited amount of space. The MicroBlock I/O provides two inputs and two outputs in a compact enclosure.

The inputs and outputs both use bus power, eliminating the need to connect additional power.

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.
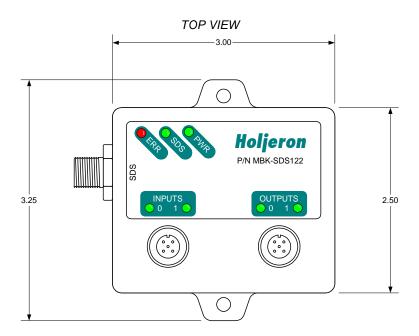
Specifications

Part Number	MicroBlock 2 in/2 out Module		MBK-SDS122
Electrical	SDS Voltage Range		11-25 VDC
	Current Consumption		50 mA plus inputs
	Data Rates		125, 250, 500 and 1000 kbps
Inputs	Type		Current Sourcing (NPN Sensors)
	Number		Two (2)
	Voltage Range		12-24 VDC
	Maximum Current		20 mA maximum
Outputs	Type		Current Sinking
	Number		Two (2)
	Voltage Range		11-25 VDC (bus voltage)
	Maximum Current		500 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
	Sealing		NEMA 1
Physical	Dimensions		3.0" H x 2.5" W x 1.00" W
	Weight		4 oz
	Color		Black
	Case Material		Polycarbonate
	Mounting		Back panel foot mount
	Terminations	SDS	4 pin micro connector, male
		Inputs (2 per)	5 pin micro connector, female
		Outputs (2 per)	5 pin micro connector, female
	Indication	Power	Green
		Error	Red
		SDS	Green

Dimensions

TOP VIEW

Wiring

All connections are to the MicroBlock module are quick connect cables. The following table shows the pinouts for each connector:

Pin	SDS	Input	Output
1	DC+	DC+	Not Used
2	GND	Input 1	Not Used
3	Bus -	GND	Output 1
4	Bus +	Input 0	Output 0
5		Not Used	GND

Configuration Tools

A MicroBlock module 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 MicroBlock module. 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 MicroBlock Digital I/O Module.

Operation

The MicroBlock Digital I/O module reads inputs and writes outputs using the attributes settings defined in this section.

Input NO/NC

The MicroBlock Digital I/O Module 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 Variable

Attribute 18 functions as the input attribute for the MicroBlock Digital I/O Module. Whenever an event is generated that reports the state of inputs, the data in attribute 18 will be passed.

Note that if the Sensor Diagnostic Mode is enabled, the second input is used for a diagnostic signal from a sensor.

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.

Input Event Mode

Most systems will require a MicroBlock I/O Module 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).

Output Variable

Attribute 34 functions as the output attribute for the MicroBlock Digital I/O Module. Whenever the host controller changes the state of an output it is writing to attribute 34.

Double-Acting Valve Mode

Enabling (setting to a value of 1) the **Double-Acting Valve Mode (attribute 62)** prevents both outputs from being energized at the same time. This is useful when applying the MicroBlock output with a double-acting valve as it prevents both coils on the solenoid from being energized simultaneously.

Diagnostics

The Diagnostics Register (**attribute 9**) is two bytes and contains the minimum diagnostics required for the Smart Distributed System, plus additional diagnostics specific to the MicroBlock Digital I/O module.

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	RSVD	Reserved
2	RSVD	Reserved
3	RSVD	Reserved
4	LOGAIN	Sensor Low Gain
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 MicroBlock module 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 MicroBlock module 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, and 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 MicroBlock module is unable to read or write EEPROM.

LOGAIN

MicroBlock modules are equipped to work with sensors that have diagnostic signals. Typically, these signals are used to depict a photoelectric is receiving less light than is optimal.

The MicroBlock has two attributes to support a sensor diagnostic. The first attribute is **Sensor Diagnostic Mode (attribute 63)**. The table below lists valid entries and their meaning.

Sensor Diagnostic Mode

Value	Description
0	Sensor diagnostic disabled
1	Light Operate Sensor (Diffuse)
2	Dark Operate Sensor (Retro)

The second attribute is **Sensor Diagnostic Limit (attribute 64)**. Every sensor diagnostic signal will cause an internal counter to increment by 8. Every input without a diagnostic signal decrements the counter by 1. If the counter exceeds the value in attribute 64 then a LOGAIN diagnostic event will be transmitted.

Other Diagnostic Functions

MicroBlocks are equipped with two attributes that aid in maintaining a system.

The first is **Number of Resets (attribute 53)**. This is the total number of times the products has been reset. If one product on a bus is being reset more often than others, then there is a likely problem with the bus cabling to that product.

The second attribute is **Service Life (attribute 54)**. This is the total number of hours the product has been powered. This attribute can be monitored and used to trigger preventative maintenance on a system.

MicroBlock Digital I/O Module
for the Smart Distributed System
TECHNICAL DATA

Attributes

ID	Description	R/W	Data Type	*Size*	*Count*	Default
0	Network Data Descriptor	R	Unsigned	Byte	3	12h,01h,01h,22h,81h,01h
1	Baud Rate	R	Unsigned	Byte	1	0 [autobaud]
2	Object Model	R	Unsigned	Byte	5	1, 41, 5, 7, 2
3	Vendor Id	R	Unsigned	Word	1	9 [Holjeron]
4	Logical Address	R	Unsigned	Byte	1	125
6	Un/solicited Mode	W	Boolean	Undef	1	1
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
11	Serial Number	R	Unsigned	Long	1	
12	Date Code	R	Character	Undef	4	
13	Catalog Listing	R	Character	Undef	32	MBK-SDS122
14	Vendor	R	Character	Undef	32	Holjeron
15	Description	W	Character	Undef	32	2 In/2 Out MicroBlock
18	Input Variable	R	Boolean	Undef	2	
34	Output Variable	W	Boolean	Undef	2	
50	Output Watchdog Timer	W	Unsigned	Word	1	0 [disabled]
51	Default Output	W	Boolean	Undef	2	0
53	Number of Resets	R	Unsigned	Word	1	
54	Service Time	R	Unsigned	Word	1	
55	Manufacturing Codes	R	Unsigned	Byte	1	0
56	Tag Name	W	Character	Undef	32	
60	NO/NC	W	Boolean	Undef	2	0
62	Double-Acting Valve	W	Boolean	Undef	1	0 [disabled]
63	Sensor Diagnostic Mode	W	Unsigned	Byte	1	0 [disabled]
64	Sensor Diagnostic Limit	W	Unsigned	Byte	1	128

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	
52	Unforce State	---	---
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 diagnostic bits set in Attribute 9
3	End of Timer	Attribute, Input Variable
6	Change of Value	Attribute, Input Variable
7	NOOP	---