

6.5.3 Digital I/O Module

6.5.3.1 Current State

The Current State screen displays the status of all digital inputs and outputs, and general information on the I/O module.

The input state and output state panes show which input and output channels are active. They only provide a visual indicator of the channel status; to enable or disable the individual channels, you need to navigate to the Input or Output tabs.

The Device Information pane shows basic version information about the I/O module.

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Current State
Input
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Alarm Status

Input State
Channel 0 Off
Channel 1 Off
Channel 2 Off
Channel 3 Off

Output State
Channel 0 Off
Channel 1 Off
Channel 2 Off
Channel 3 Off

Counter Control

Name	Counter	Counter Reset
Channel 0	0	Reset
Channel 1	0	Reset
Channel 2	0	Reset
Channel 3	0	Reset

Record Counters in the File Off

Device Informations
Device Type: Real Digital I/O Hardware Version: 1
Modbus Mapping Version: 1 Firmware Version: 1

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6.5.3.2 Input

The input screen allows the user to control the 4 digital input channels.

Enable or disable any of the four channels using the 'Enable' switches. Select a response parameter from the 'Select Parameter' box.

The 'Select Action On' box sets which input signal will trigger a response. There are two options: 'Pulse', and 'State'. 'Pulse' means that the response will trigger on a short pulse, the length of which should be at least twice the value listed in the Configuration > Admin > COM-Ports Setting > Master Control > Serial RTU > Timer In Second' box. 'State' sets the response to be effectively edge-triggered by the input signal. The 'Trigger Event On' pane sets which edge the response triggers on: falling edge for 'Low' and rising edge for 'High'.

Press the 'Apply' button after making changes to a given channel. Ensure you press 'Apply' for **all** channels that have been changed.

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Channel-0

Enable Off

Select Parameter Start Cleaning ▼

Select Action On Pulse ▼ Apply

Trigger Event On
☒ Low ☐ High

Hold Event
 Select Stream Stream 1 ▼ Minutes 1 ▲▼

Channel-1

Enable Off

Select Parameter Start Cleaning ▼

Select Action On Pulse ▼ Apply

Trigger Event On
☒ Low ☐ High

Hold Event
 Select Stream Stream 1 ▼ Minutes 1 ▲▼

Channel-2

Enable Off

Select Parameter Start Cleaning ▼

Select Action On Pulse ▼ Apply

Trigger Event On
☒ Low ☐ High

Hold Event
 Select Stream Stream 1 ▼ Minutes 1 ▲▼

Channel-3

Enable Off

Select Parameter Start Cleaning ▼

Select Action On Pulse ▼ Apply

Trigger Event On
☒ Low ☐ High

Hold Event
 Select Stream Stream 1 ▼ Minutes 1 ▲▼

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6.5.3.3 Output

The output screen allows the user to control the digital output channels. The screen is similar in layout to the input screen. Each channel can be toggled by the 'Enable' switches. The 'Select Parameter' drop-down box is used to select what parameter triggers an output signal, which includes warnings, alarms, and other events.

If the Dual Feed unit is being used, Channel-0 will need to be set to 'DualFeed'. See the Dual Feed manual for more information.

Press the 'Apply' button after making changes to a given channel. Ensure you press 'Apply' for **all** channels that have been altered.

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Channel-0

Enable Off 

Select Parameter Alarms ▼

Apply

Channel-1

Enable Off 

Select Parameter Alarms ▼

Apply

Channel-2

Enable Off 

Select Parameter Alarms ▼

Apply

Channel-3

Enable Off 

Select Parameter Alarms ▼

Apply

Slave ID

▲
▼

Save SlaveID

Air Bypass and Water Rinse Setting

Water Rinse Every min for min

Air Bypass Every of the Intake Purge

Apply

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6.5.3.4 Alarm Status

The Alarms Status screen lists the type of alarm (Name), whether it is currently active (Current State), the last date this alarm has occurred (Last Alarm), and the number of times this alarm has occurred since the Reset button has been pressed (Counter).

Press 'Reset' to put an alarm counter to zero or press Reset All to set the counters for all alarms to zero.

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Alarm Status

Name	Current State	Last Alarm	Counter	
Communication		2019-Jul-18 09:13 AM	0	Reset All Reset
Air Bypass Leak				Reset

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6.5.4 Analog Output (4-20mA)

6.5.4.1 Control

The Control screen allows the user to configure the 4-20 mA output channels. Toggle the State switches to turn on/off a specific channel. Select a water parameter for the output and configure the Min and Max values as per requirements.

The 'Stream' option is only needed for users with Dual Feed systems. Setting the Stream value to either 1 or 2 sets which Dual Feed stream the output channel is active for. When the Dual Feed switches to the other stream, the 4-20 mA output is temporarily frozen.

The 'Alarm Mode' will cause the 4-20 mA output channel to go to a low or high value if the system has an alarm, preventing wrong data from being communicated. The default alarm value is 22 mA.

The Board WDT Control, when enabled, will periodically check the communication status of the 4-20 mA output board. If there is no communication, it will trigger a system alarm. Generally, this option should be enabled.

However, if the 4-20 mA output module is going to be disabled in the interface, the Board WDT Control should be disabled first!

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AnalogOut

Channel-0

State Off ☐

Select Parameter **NONE**

Min **0.0** Stream **1**

Max **1.0** Alarm Mode

Apply

Channel-1

State Off ☐

Select Parameter **NONE**

Min **0.0** Stream **1**

Max **1.0** Alarm Mode

Apply

Channel-2

State Off ☐

Select Parameter **NONE**

Min **0.0** Stream **1**

Max **1.0** Alarm Mode

Apply

Channel-3

State Off ☐

Select Parameter **NONE**

Min **0.0** Stream **1**

Max **1.0** Alarm Mode

Apply

Device Informations

Device Type: Real 420mA Output

Modbus Mapping Version: 1

Hardware Version: 1

Firmware Version: 1

Booster Pump Speed

0.0

Apply

Board WDT Control

Enable Off ☐

Timer **15**

Apply

Slave ID

9

Save SlaveID

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6.5.4.2 Alarm Status

The Alarms Status screen lists the type of alarm (Name), whether it is currently active (Current State), the last date this alarm has occurred (Last Alarm), and the number of times this alarm has occurred since the Reset button has been pressed (Counter).

Press 'Reset' to put an alarm counter to zero or press Reset All to set the counters for all alarms to zero.

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Alarm Status

Name	Current State	Last Alarm	Counter	
Communication		2019-Oct-15 04:03 PM	8	Reset All Reset

ALERT

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6.5.5 Adding Your Own Sensor

To add your own sensor:

1. Go to the Configuration>Devices and Sensors Configuration page.
2. Click Add Sensor from the Configurations (Master Controls) External Sensors box.
3. The Add / Edit External Sensor popup appears (Popup 1).
4. Scroll to a selection and click it.
5. Popup 2 appears.
6. Follow the instructions in the textbox beside Popup 2.

No message will tell you a sensor has been added; however, if you click the Devices tab, you will see the sensor has been added to the vertical menu.

Devices and Sensors Configuration COM-Ports Setting Program...

ML-Sensors
Add Sensor [v]
Edit Sensor Remove Sensor

Configurations (Master Controls) External Sensors
Add Sensor [v]
Edit Sensor Remove Sensor

Smart- Sense Correlation
Add [v]
Edit Remove

Real Accessories
Add Device [v]
Edit Device Remove Device

Real Sensors
Add Sensor [v]
Edit Sensor Remove Sensor

Record External Sensor Log
Save Log Globally Off [v]
Every 1 Minutes Apply

Popup 1
Add/Edit External Sensor
Sensor Name [Ns] Unit [mg/L]
Sensor Type [4-20mA ADAM] Connection Type [Serial-RTU] [TCP]
Port [0]
Alarm Off [v]
High Value [100.0] Low Value [20.0]
High Value [70.0] Low Value [40.0]
Color [v]
Hold Spectrum values while alarm Off [v]
Add Cancel

Scroll to a selection, for example, Slave Sensor, and click it.

Overwrite 'Ns' with a more descriptive label for Sensor Name.

Make entries for: unit and set values for alarms and warnings if desired. After calibration of device, any span and offset can be entered on this page.

Click the Add button when entries are completed.

Popup 2
Add/Edit External Sensor
Sensor Name [Ns] Unit [mg/L]
Sensor Type [Slave Sensor] Connection Type [Serial-RTU] [TCP]
Modbus Info
Slave ID [0] Parameters [Parameter 1]
Select Type [Integer] [Float]
Scaling
Span [1.0] Offset [0.0]
Alarm Off [v]
High Value [100.0] Low Value [20.0]
Warning Off [v]
High Value [70.0] Low Value [40.0]
Color [v]
Hold Spectrum values while alarm Off [v]
Add Cancel

6.5.6 ABB Accessories

6.5.6.1 System Leak Detect

6.5.6.1.1 Data

Systems that are enclosed within Nema4x cabinets rather than on a backboard have system leak detect capability. The presence of any leak within the cabinet holding all system components (sensor, controller, cleaning or dilution system etc.) or absence of communication between the leak detect and the controller will shut down all pumps and generate an alarm. Leak thresholds are factory set so that high humidity is not mistaken for a leak.

BOX	FIELD / BUTTON	DESCRIPTION
Device Configuration	Device control	
	Auto Mode	Any leak value at 1000 or more sets alarm. Alarm flag cleared when leak value is above No Leak Threshold and less than Leak Threshold.
	Semi Auto Mode	Recommended default setting. Operator must press Reset Leak after alarm condition is cleared.
	Manual Mode	Not recommended.
	Valve Control – On / Off	Control of valve situated under cabinet to drain any water that has entered cabinet is set to On / Off.
	No Leak Threshold	A reading below this number equates to high humidity; no leak.
	Leak Threshold	Any measurement of moisture above this number indicates a leak.
	Leak Sense Time (sec)	Number of seconds leak is first detected before alarm is tripped. This ensures alarm is not a false positive.