PCD3.B160

Digital input/output module with 16 I/O, configurable either as inputs or as outputs in groups of four (4)

Via plug-in I/O modules, you can expand the functions of the Saia PCD3 and adapt them to your individual needs.
The combined digital input and output modules can easily be plugged into the Saia PCD3 base device or a suitable I/O module holder. A combined input/output module with 16 configurable inputs and outputs grouped into blocks of 4 are available.

Inputs :   24 VDC, source operation, delay 0.2/8 ms
Outputs :   breaking capacity 5…30 VDC/0.5 A

PCD3.B160

General technical data on inputs and outputs

|	
Internal current consumption: (from +5 V bus)	120 mA
Internal current consumption: (from V+ bus)	4 mA
External current consumption	22 mA (for driver) at 24 V (without load current)
Terminals	2× Type K (Part No. 4 405 5048 0)

Technical data on inputs

|	
Number of inputs	16, source operation, not isolated (in groups of 4)
Input voltage	typ. 24 VDC
Input current	typ. 3 mA at 24 VDC
Input delay	8 ms (default) or 0.2 ms (configurable)
Overvoltage protection	Transient Suppressor Diode 39 V

Technical data on outputs

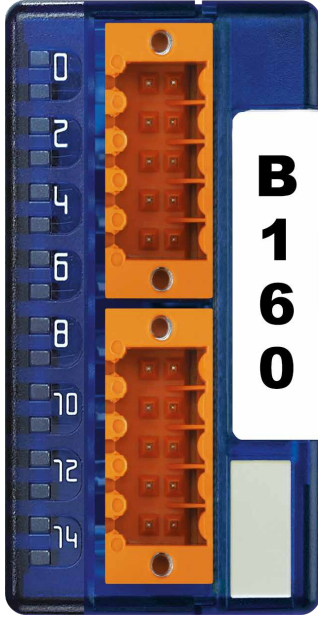|	
Number of outputs	16, source operation, not isolated (in groups of 4)
Voltage range	18…30 VDC
Output current	250 mA per channel
Total module current	2 A
Output delay (on/off)	typ. 2 µs
Inductive loads	Transient Suppressor Diode 39 V
Short circuit proof	Yes

Input wiring
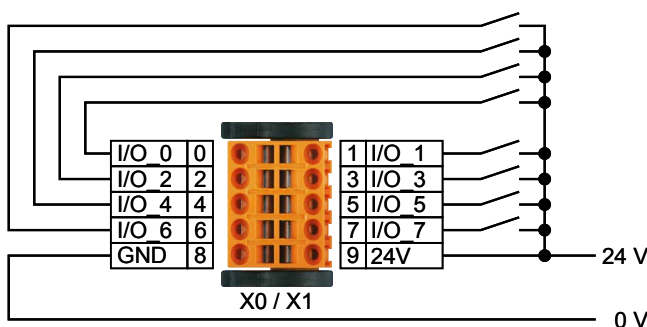
Output wiring

!	The supply pins of each connector must be powered. Be careful of the power polarity.
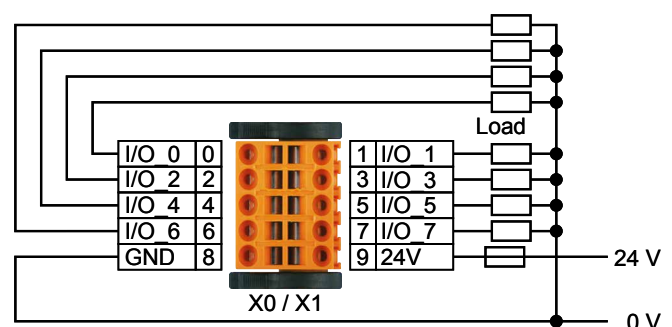
!	It is recommended that each supply connection should be separately protected with a fast-blow (S) fuse. The value depends on the application.

I/O connection

PCD3		Description			
	X0 IO 0…7	Connector X0 Type K			
		I/O_0	0	1	I/O_1
		I/O_2	2	3	I/O_3
		I/O_4	4	5	I/O_5
		I/O_6	6	7	I/O_7
		GND	8	9	24 V
		Connector X1 Type K			
		I/O_8	0	1	I/O_9
		I/O_10	2	3	I/O_11
		I/O_12	4	5	I/O_13
		I/O_14	6	7	I/O_15
		GND	8	9	24 V
	X1 IO 8…15				

LED signalization

The module has 16 LEDs.
Each channel has its own LED.

X0		X1		Description
0	IO_0	0	IO_8	Mixed In-/Output
1	IO_1	1	IO_9	Mixed In-/Output
2	IO_2	2	IO_10	Mixed In-/Output
3	IO_3	3	IO_11	Mixed In-/Output
4	IO_4	4	IO_12	Mixed In-/Output
5	IO_5	5	IO_13	Mixed In-/Output
6	IO_6	6	IO_14	Mixed In-/Output
7	IO_7	7	IO_15	Mixed In-/Output
8	GND	8	GND	GND extern
9	24 V	9	24V	+24 V extern

Good to now

I/O modules and I/O terminal blocks may only be plugged in and removed when the CPU and the external +24 V are disconnected from the power supply.

Watchdog ..
.. in classic system
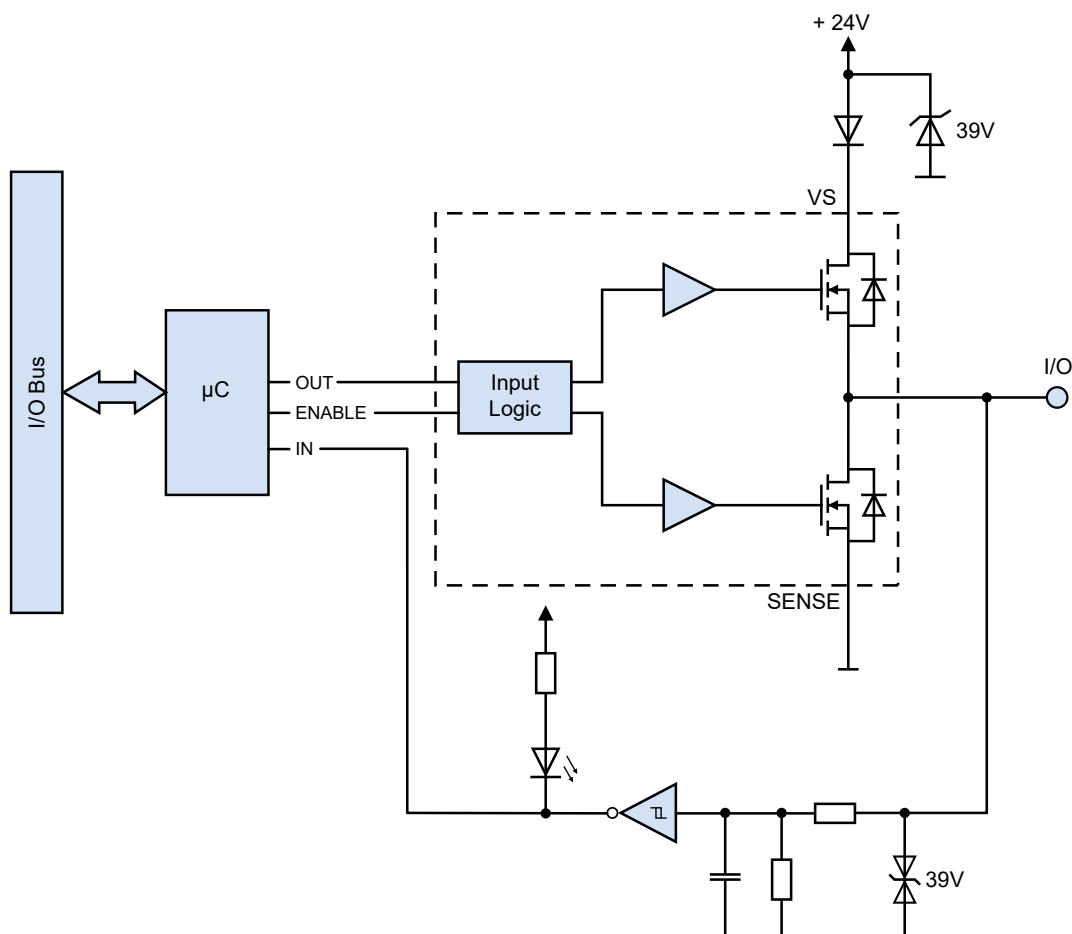The watchdog with his address 255 can influence this module if it is used at the base address 240.
.. in IEC-controller system
is not affected

Further information
More details, also about the watchdog, can be found in the manual:
"27-600_I/O-modules for PCD1 / PCD2 series and for PCD3".

Bloc Diagram

Hardware

The configuration of the I/O is done in groups of four.

Following combinations are possible:
16O/0I, 12O/4I, 8O/8I, 4O/12I, 0O/16I

The I/O module can be placed on any slot of a PCD3.M and their corresponding IO-Extension modules (except slot 15 because of the watch dog - I/O address 255).

Compatibility

▶ PG5 2.0 official version PG5 V2.0.210 or higher

▶ Qronox version 3.8.1 or higher

Configuration of the modules

Per default all channels of the modules act as input. They are configured during the power-up sequence of the PCD CPU.

After a first use, the module configuration is saved into flash memory and is loaded at power-up.

The module configuration must be carried out in the configuration tool of the programming environment.

Channels Direction	
Direction Channels 0 To 3	**Input** or **Output**
Direction Channels 4 To 7	**Input** or **Output**
Direction Channels 8 To 11	**Input** or **Output**
Direction Channels 12 To 15	**Input** or **Output**

Filter	
Input Filter Enabled (8 ms)	**Yes** or **No**

# Media-Mapping – Symbol name & description

RdDigitalIO

This array of 16 flags returns the states of each I/O whatever their configuration. We can read each flag separately with the symbol RdDigitalIO"y" where "y" = the number of the flag. Each flag corresponds to one I/O.
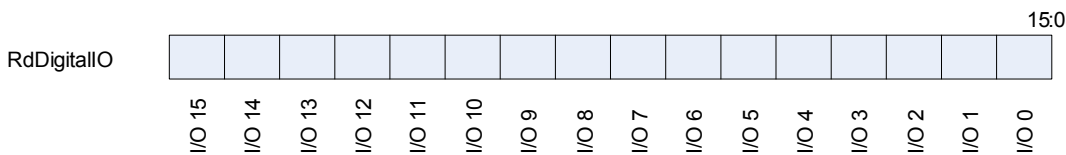

RdMaskDigitalIO

This symbol gives us which I/O are configured in outputs. In case you want have only the outputs value from the symbol RdMaskDigitalIO, you can do a mask.
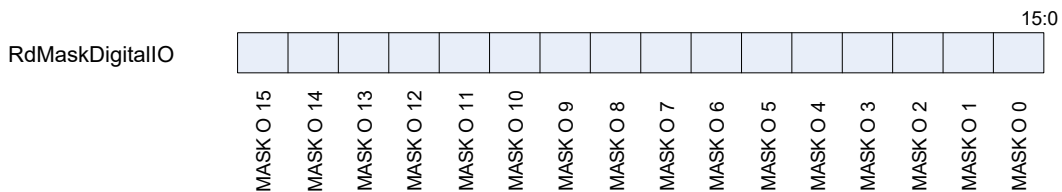
WrDigitalOutput

This array of 16 flags contains the value you want writing on the outputs. Each flag corresponds to one output. If you write a flag whose I/O is not configured in output, nothing happens.
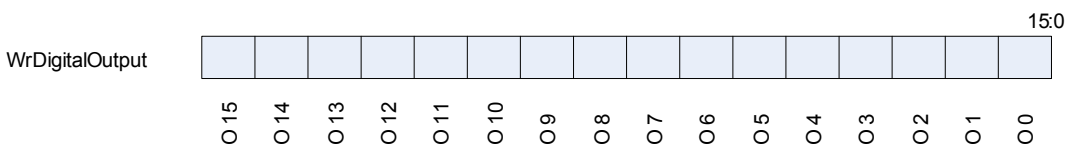
RdOutputError

This array of 16 flags returns the status of the outputs. They indicate if an output is not functioning correctly and is set in high impedance. The module puts the outputs in high impedance if there is a short circuit, an overcurrent or the supply pins of the connectors are not powered when using output.
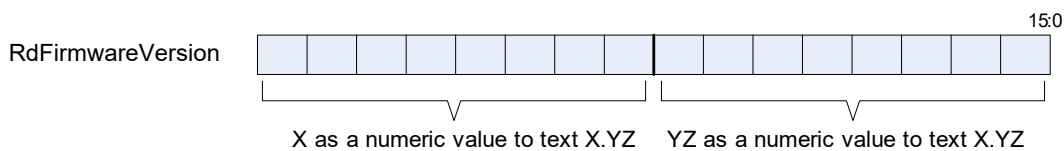
The module controls the outputs by pairs.

For example: if there is a short circuit on output 0 then the outputs 0 & 1 will be in high impedance and their respective status flags are set. The flags will be:

RdOutputError = 00000000 00000011.
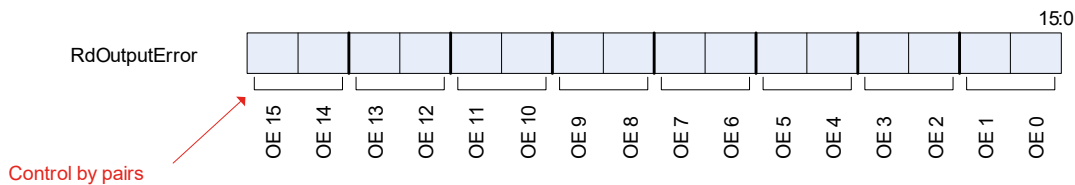
RdFirmwareVersion

This symbol returns the firmware version of the module in 2 bytes (3 nibbles) as binary values.

Example: if the RdFirmwareVersion = 00000010 00000011 then the firmware version is 2.03.

RdModuleStatus

This symbol returns the status of the module. When there is no error all the bits are low. Symbol clears automatically after reading.

Communication Error: Sets when an error occurs during the communication between the PCD & the module.

Output Error: Sets when outputs are in high impedance because of short circuit, overcurrent or no power on connector.

Flash Error: Sets when module failed to save configuration into flash.
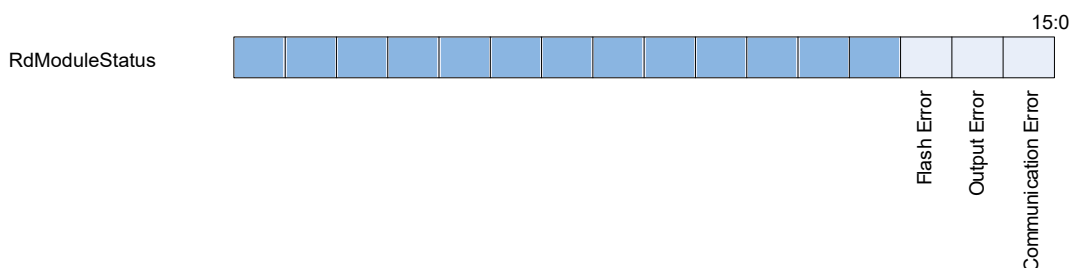
Configuration

Saia PG5® Controls Suite

PCD-System	Evaluation
Classic	The evaluation is performed by the firmware. It reads the values according to the configuration (Device Configurator or Network Configurator).

Saia QronoX ECS Engineering and Commisioning Suite

PCD-System	Evaluation
IEC-Controller	The evaluation is performed by the firmware. It reads the values according to the configuration (Device Configurator).

Information

Prameter

Mapping

Good to now

Further information
More details about this module can be found in the manual:
"27-600_I/O-modules for PCD1 / PCD2 series and for PCD3".

ATTENTION

These devices must only be installed by a professional electrician,
otherwise there is the risk of fire or the risk of an electric shock.

WARNING

Product is not intended to be used in safety critical applications,
using it in safety critical applications is unsafe.

WARNING - Safety

The unit is not suitable for the explosion-proof areas and the areas of use excluded in EN 61010 Part 1.

WARNING - Safety

Check compliance with nominal voltage before commissioning the device (see type label).
Check that connection cables are free from damage and that, when wiring up the device, they are not connected to voltage.
Do not use a damaged device!

NOTE

In order to avoid moisture in the device due to condensate build-up, acclimatise the device at room temperature for about half an hour before connecting.

CLEANING

The device can be cleaned in dead state with a dry cloth or cloth soaked in soap solution.
Do not use caustic or solvent-containing substances for cleaning.

MAINTENANCE

These devices are maintenance-free. If damaged during, no repairs should be undertaken by the user.

GUARANTEE

Opening the module invalidates the guarantee.

Observe this instructions (data sheet) and keep them in a safe place.
Pass on the instructions (data sheet) to any future user.

WEEE Directive 2012/19/EC Waste Electrical and Electronic Equipment directive
The product should not be disposed of with other household waste. Check for the nearest authorized collection centers or authorized recyclers. The correct disposal of end-of-life equipment will help prevent potential negative consequences for the environment and human health.

EAC Mark of Conformity for Machinery Exports to Russia, Kazakhstan or Belarus.

PCD3.B160

4 405 5048 0

Ordering information

Type	Short description	Description	Weight
PCD3.B160	Digital input/output module with 16 I/O	Digital input/output module with 16 I/O, configurable either as inputs or as outputs in groups of four (4). Inputs : 24 VDC, source operation, delay 0.2/8 ms Outputs : breaking capacity 5 … 30 VDC/0.5 A (2 connectors type K (4 405 5048 0) included)	100 g

Ordering information equipment

Type	Short description	Description	Weight
4 405 5048 0	Plug-in, type K	Plug-in spring terminal block, 2×5-pole up to 1.0 mm² (orange block), labelled 0 to 9, connector type "K"	6 g

Honeywell | Partner Channel

Subjects to change without notice.