## Honeywell

## 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 HPCD3 and adapt them to your individual needs.

The combined digital input and output modules can easily be plugged into the HPCD3 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 msOutputs :breaking capacity 5...30 VDC/0.5 A

## 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)

		Ronald March ACC	10000
111 a	NAN -		- And

PCD3.B160

Technical data on in	puts
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	1830 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





The supply pins of each connector must be powered.

Be careful of the power polarity.

#### Output wiring





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	Descripti	on			
X0 IO 07	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
B	I/O_6	6		7	I/O_7
	GND	8		9	24 V
6	Connecto	or >	(1 Туре К		
	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 815	ĺ				

<b>X0</b>		<b>X1</b>		Description
0	IO_0	0	IO_8	Mixed In-/Output
1	IO_1	1	IO_9	Mixed In-/Output
2	10_2	2	IO_10	Mixed In-/Output
3	IO_3	3	IO_11	Mixed In-/Output
4	10_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	10_7	7	IO_15	Mixed In-/Output
8	GND	8	GND	GND extern
9	24 V	9	24V	+24 V extern

#### Good to now

Galvanic separation of inputs to CPU, channels themselves not separated.



#### LED signalization

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

#### **Bloc Diagram**



#### Hardware

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

Following combinations are possible: 160/0I, 120/4I, 80/8I, 40/12I, 00/16I

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

► Control Edge 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.

																10.	U
RdDigitallO																	
	I/O 15	I/O 14	I/O 13	I/O 12	I/O 11	I/O 10	6 O/I	8 O/I	1/0 7	9 O/I	I/O 5	I/O 4	I/O 3	I/O 2	1/0 1	0 O/I	

#### RdMaskDigitallO

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.

													•			15:0	)
RdMaskDigitallO																	
	MASK 0 15	MASK 0 14	MASK O 13	MASK 0 12	MASK 0 11	MASK O 10	MASK O 9	MASK O 8	MASK 0 7	MASK O 6	MASK O 5	MASK 0 4	MASK O 3	MASK O 2	MASK 0 1	MASK O 0	

#### 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.



15.0

#### 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



The evaluation is performed by the firmware. It reads the values according to the configuration (Device Configurator)



ProScreenShots.project" - ControlEdge PCD Bu	ilder - BETA Version				- 0	×
le Edit View Project Build Online	Debug Tools Window H	alp				7
■ ■ ■   ■   ■   ■ ×   ■ = ×   ■ = ×   ■ = ×   ■ = ×   ■	S # S H 1 1 1 1 1 10	Str. D. M. Applement Device PLC L	oakt • 🖬 🗟 😋 🔍 🕞 🖬 📲 🖬 🗇	학 이용 [소] 종 [공] 한		
vice • • • X	System Information	System Configuration 🛛 🍅 Device	/ev 8160 x			
Andoreendhals						
R Provide (#PCD3.M6893)	PCD3.8160 Parameters	.4 General				
System Configuration	PCD3.81601/D Marcino	Sict number	0		Data Sheet	
23 System Information		Programmation at 5V	120 mA			
L Device User Hanagement	PCD3.81601EC Objects					
R C Association		4 Channels Direction				
Brace Hanney	Information					
I PLC_PRC (PRC)		Direction Channels 0 To 3		Post		
😑 🧱 Task Configuration		Direction Channels 4 To 7		Input		
= 🕲 MainTaik		Direction Channels & To 11		land.		
I PLC_PRS		Children Chamber of To 11		a des		
<ul> <li>If M689(Base (PCD3.M6893 Base)</li> </ul>		Direction Channels 12 To 15		Input		
Cheven 2 Chevret						
- Fill CANhon 1 (CANhon)		J Fiber				
45 455 (Seriel Port X2)		Input Filter Enabled (8ms)		703		
C steer>						
🖙 🔠 Slots (Onbeard)						
I/V 8960 (PCD3.8966)						
10 8380_1 (PCD3.8380)						
• WS25 (PCD1, WS25)						
- Work [1 (+CD3.W928)						
Messages - Total O error(s), O warning(s), O mes	maga(s)					
			Last build: 🔷 0 🙂 0	Precomple 🧹 🥸	Project user (nobody)	0

#### HPS ControlEdge PCD Builder

ProScreenShots.project" - ControlEdge PCD Br	alder - BETA Version						- 0
File Edit View Project Build Online	Debug Tools Window h	telp					
	ALL AN ALL HE REPORTED TO	Dire 18 100 Literature Project	and the second second	W HT CE CE			121A B 21A
		1 Cl. Cl. Chief officeron france	receipt)				2 10   *   90   W   V
	1						
Devices • 0 ×	System Information	System Configuration # De	vice / ##	B160 x			
<ul> <li>Ansicremittats</li> </ul>	0001 8160 0	Find		Filter Syna all			Add FB for IO Channel* Go to Instance
<ul> <li>Penice (PCD3,M6893)</li> </ul>	PCDD. TOO Parameter						
<ul> <li>System Comparation</li> </ul>	PCD3.8160 UD Mateiro	Variable	Mapping	Channel	Address	Type	Unit Description
Iz] System Information		* \$100_III DiptelOutput0	N	WrDight/Output0	14000.0	800K	Write digital output 0 (usage depends on configuration)
L Device User Hanagement	PCD3.8160 IEC Objects	* #set_wrtigtalOutputs		WOgtsOutputs	%Q90.1	ROOK	Write digital output 1 (usage depends on configuration)
- B) RC tope		*# \$150_WDigtalOutput2		WOgte/Output2	54090.2	8000	Write digital output 2 (usage depends on configuration)
- O Appecade	Information	\$100_WOIgtalOutput3		WrDigitalOutput3	16000.0	2003	Write digital output 3 (usage depends on configuration)
Ecrary Hanager		* \$160, WDigtalOutput*	1 No.	WORKOWH	5050.4	8003	Write digital output 4 (usage depends on configuration)
PLC_PRE (PRE)		*# \$150_VPDgtalOuput5		WrDigtelOutput5	%Q00.5	500L	Write digital output 5 (usage depends on configuration)
· gg Lac Conguisson		* # # # # # # # # # # # # # # # # # # #		WrDigitalOutpub5	16000.6	ROOK	Write digital output 6 (usage depends on configuration)
- go Hantak		*# \$150_WOgtalOutput7		WOgteOutput7	54090.7	8000	Write digital output 7 (usage depends on configuration)
- Windows		\$100_WDigtalOutput8		WrDigitalOutput3	16011.0	2003	Write digital output 8 (usage depends on configuration)
A Constant (Constant)		* \$160 WOotsOutsUP	× .	WOgtelOutput9	%Q11.1	8000	Write digital output 9 (usage depends on configuration)
I crere(, terere)		\$150_VPOiptalOutput13		WOgte/Output10	50112	500X	Write digital output 10 (usage depends on configuration)
The contract's (contract)		# #set_wr0igtalOutput11		WOgb/Output11	96011.3	8003	Write digital output 11 (usage depends on configuration)
CARDER_1 (CARDER)		*9 \$150_WOgtalOutput12		WOgteOutput12	5001.4	8000	Write digital output 12 (usage depends on configuration)
<ul> <li>KS_Hes (penal Port k2)</li> </ul>		\$100_WOigtalOutput13		WOgts/Output13	160115	8000	Write digital output 13 (usage depends on configuration)
N CLEARS		+11uguOletgiOwy_568 4*-	× .	WOgtsOutput14	%Q11.6	8000	Write digital output 14 (usage depends on configuration)
- B sectoreard		\$150_WrDigtalOutput15		WOgteOutput15	50117	500X	Write digital output 15 (usage depends on configuration)
() ( 5300 (PCD3 5300)		* * Side_RobutputError	×	RdDutputError	96001	UD/T	Read digital output errors (usage depends on configuration)
BIC #360_1 (CDU.#360)		* * soot_ndbgsabb		RdDigtat0	5002	UDIT	Read digital 30s (usage depends on configuration)
<ul> <li>W 525 (PCD3 W525)</li> </ul>		\$100_RdNakDigtaD0		RdHaskOigteBD	16203	LIDIT	Read digital 3D mask
<ul> <li>Movement (Ammental)</li> </ul>		8 % 8060_RdFirmvareVersion	× .	AdFinisteriersion	5688		Read module firmware version
		* \$ \$350_RdNoduleStatus	N	RdModuleStatue	56015	UDIT	Read module status
				Our a Manada a			
		-		Nexe rapping			use parent device setting
		Sa - Create new variable	- No -	Mep to existing verial	ie .		



PCD3.B160



4 405 5048 0

Ordering information			
Туре	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 in	nformation equipment		
Туре	Short description	Description	Weight
4 405 5048 0	Plug-in, type K	Plug-in spring terminal block, 2×5-pole up to 1.0 mm <sup>2</sup> (orange block), labelled 0 to 9, connector type "K"	6 g



#### 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 EN61010 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.

#### **Sales and Service**

For application assistance, current specifications, pricing, or name of the nearest Authorized Distributor, contact one of the offices below.

#### **ASIA PACIFIC**

Honeywell Process Solutions, (TAC) <u>hfs-tac-support@honeywell.com</u>

#### Australia

Honeywell Limited Phone: +(61) 7-3846 1255 FAX: +(61) 7-3840 6481 Toll Free 1300-36-39-36 Toll Free Fax: 1300-36-04-70

#### China – PRC - Shanghai

Honeywell China Inc. Phone: (86-21) 5257-4568 Fax: (86-21) 6237-2826

#### Singapore

Honeywell Pte Ltd. Phone: +(65) 6580 3278 Fax: +(65) 6445-3033

#### South Korea

Honeywell Korea Co Ltd Phone: +(822) 799 6114 Fax: +(822) 792 9015

#### WARRANTY/REMEDY

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Contact your local sales office for warranty information. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace without charge those items it finds defective. The foregoing is Buyer's sole remedy and is **in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose.** Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this printing. However, we assume no responsibility for its use.

While we provide application assistance personally, through our literature and the Honeywell web site, it is up to the customer to determine the suitability of the product in the application.

Specifications are subject to change without notice.

#### For more information

Learn more about ControlEdge PCD, visit our website <u>www.honeywellprocess.com/ControlEdgePCD</u> or contact your Honeywell account manager.

#### **Honeywell Process Solutions**

Building #1, 555 Huanke Road,

2101 CityWest Blvd, Houston TX 77042 Honeywell House, Skimped Hill Lane

Bracknell, Berkshire, England RG12 1EB UK ©2020 Honeywell International Inc.

Zhangjiang Hi-Tech Industrial Park, Pudong New Area, Shanghai 201203 Document No.: 51-52-03-64 Rev.3.1 February 2022

#### EMEA

Honeywell Process Solutions, Phone: +80012026455 or +44 (0)1344 656000

Email: (Sales) <u>FP-Sales-Apps@Honeywell.com</u> or (TAC) <u>hfs-tac-support@honeywell.com</u>

#### AMERICA'S

Honeywell Process Solutions, Phone: (TAC) 1-800-423-9883 or 215/641-3610 (Sales) 1-800-343-0228

Email: (Sales) <u>FP-Sales-Apps@Honeywell.com</u> or (TAC) <u>hfs-tac-support@honeywell.com</u>