Power Block io64 Order number: 77024-180-03

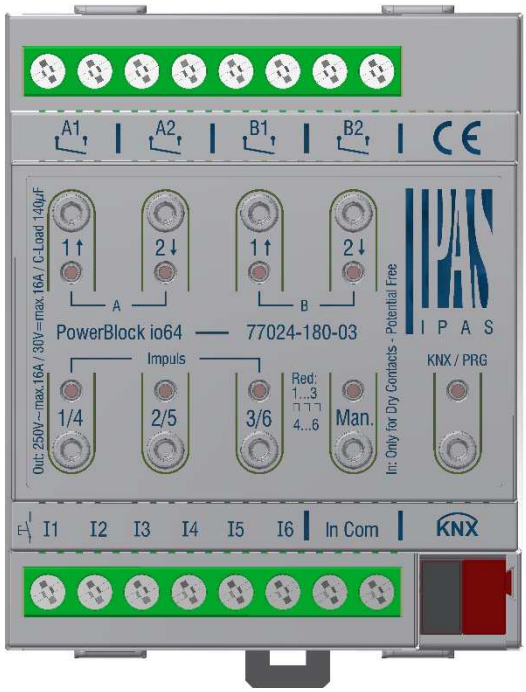
General usage

Ipas – Power Block series, multi-functional actuators ready for high current loads! – Finally, a powerful and economic Universal Binary & Blind Actuator with output independent phases.

The Power Block range consists of 3 different actuator types. It can be installed in a standard distribution board

- only 4 DIN Rail modules for 4 outputs and 6 inputs
- only 4 DIN Rail modules for 8 outputs
- only 8 DIN Rail modules for 16 outputs

In the ETS application's basic setting, the standard parameters for simple switch functions are visible. If the basic settings are changed, only those parameters are shown which are relevant to the selected function.



An overview of the functions:

- Binary inputs for the connection of:
  - Conventional motion detectors
  - Temperature sensors
  - Window contacts
  - Threshold value switches
  - Etc.

- Shutter channel outputs with objects for:
  - **Facade control**
  - **True height positioning for shutter/blind**
  - **Shutter slits control**
  - Central Up/Down functions
  - Lmits, scenes, presets, alarms, disable function, manual control etc.

- Binary channel outputs with objects for:
  - Current status notifications
  - Operating hours (counting bi-directionally)
  - Switching cycle counters (counting bi-directionally),
  - KNX scenes, timer functions, activation objects, etc.

- Advanced objects and functions such as:
  - Timers (with **cyclic sending of time remaining)**
  - Logic functions (Boolean, gate and filter functions, comparators, math.), data point conversion
  - KNX scenes **(with delays between events)**
  - Setpoints
  - Analogue and digital alarms
  - Overwrite end-user parametersr
  - Etc.

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Device type and accessories

At present the following device types are available in the Power Block control group

Ref.	Description	Order number:
Power Block 8	8 Capacitive outputs	77024-180-01
Power Block 16	16 Capacitive outputs	77024-180-02
Power Block io64	4 capacitive outpus & 6 analog/digital inputs	77024-180-03

Scope of delivery

The following individual components are included in the delivery of the Power Block io64 device:

- Complete device with connected bus connector
- 6 x 2,7kΩ end-line resistors to use for supervised/monitored inputs
- Operating and mounting instructions
- Delivered in break-proof individual packaging

Application programs

The following application programs are currently available for the Power Block io64 device:

- Actuator io64-01-0110

For application program functions, please see the application program description.

Installation device

- Risk of death by electric shock
- The device is intended for interior installation in dry rooms.
- The device must only be installed and commissioned by an accredited electrical engineer.
- Please follow country-specific safety and accident prevention rules as well as all current KNX guide lines.
- Please follow country-specific rules and regulations for the planning and construction of installations, especially with regard to emergency lighting systems.
- For the installation the device must be switched to zero potential.
- Do not open the device! Faulty devices must be returned to the manufacturer.

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Technical data

POWER & OUTPUTS SPECIFICATIONS		
Power supply	Via KNX bus Max. current consumption	21..30VDC 9,5mA
Additional supply		No
Number of outputs		4 Dry contact (potential-free)
Output configuration		Up to 4 outputs / Up to 2 channels
Output nominal values	AC rated current / voltage DC rated current / voltage	16A / 250VAC 50/60Hz C-Loads max. = 140 µF 16A / 30 VDC
Device nominal values	Current/Voltage	16A /250VAC per Output
Max. load rating per device		4 out. x 16A = 64A / 250VAC 50/60Hz
Phases switching distribution		1 independent phase allowed per output
Output life expectance	Mechanical Electrical	$> 3x10^6$ operations (at 60 times/min) $> 4x10^4$ cycles with resistive load at max current
Connections	KNX bus connection terminal Terminal screw block Tightening torque for terminal screw	0,8mm² solid max. 6mm² Ø solid maximum 0.5 Nm

INPUTS SPECIFICATIONS		
Number of inputs	Total inputs	6 binary/analog mixed inputs with 2 common terminals
Type of inputs	Binary/Analog	Ready for: - Dry contacts - Standard movement detector with dry contact output - Sensor temperature NTC - Monitorized inputs with end line resistor
Scanning voltage		3,3V at common input
Input current		0,3mA per input
Protection		Short-circuit proof
Max cable length		40m for binary & analog inputs
Connections	KNX bus connection terminal Terminal screw block Tightening torque for terminal screw	0,8mm² solid max. 6mm² Ø solid maximum 0.5 Nm

GENERAL SPECIFICATIONS		
Control and display elements	Programming button LED 8 x buttons for manual channels/inputs control 8 x LEDs	To assign the physical address To switch On/Off outputs & move Up/Down channels / Binary input testing To display actual outputs channels & Binary input status
Mechanical data	Casing: Dimensions REG casing 4TE(Width/Height/Length) Weight: Mounting:	Plastic ABS – V0 60mm / 90mm / 72mm 230 gr 35mm DIN rail
Electrical safety	Degree of contamination:	2

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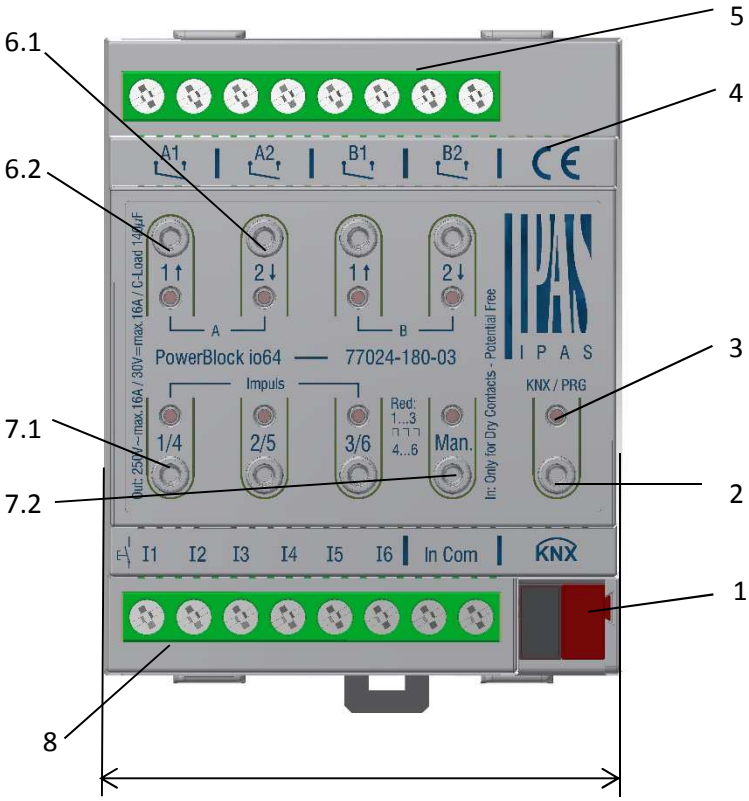
	Protection type (in accordance with EN60529): Protection class (according to IEC 1140): Overvoltage category: KNX Bus:	IP20 class II class III Separated extra-low voltage SELV DC 24
EMC requirements	Complies with:	EN 50491-5-2 / EN 50491-5-3
Environmental conditions	Clima conditions: Operation temperature: Storage temperature: Rel. humidity (non condensing):	EN 60721-3-3 class 3k5 -5°C to +45°C -25°C to +70°C 5 % to 93 %
Certification **CE-Signage**		KNX registered According to EMC-Guidelines (Residential and commercial buildings), Low Voltage guidelines

Location and function of the LEDs and control elements

The programming button and programming LED are required for commissioning and are only accessible in the distribution board when the cover is removed.



1: KNX bus connector
2: Programming button
3: Programming LED
4: SD card slot (only for internal use)
5: Outputs connector: Channel A,B
LED output/channel status
6.1: Binary channel LED ON = Output ON, LED OFF = Output OFF/ Shutter: LED blinks while moving DOWN

- Blind channel:
  - Long press: Move Down (LED blinks while moving)
  - Short press: Stop/Step
- Binary channel: Short press: Output toggles ON/OFF

6.2: Binary channel LED ON = Output ON, LED OFF = Output OFF/ Shutter: LED blinks while moving UP

- Blind channel:
  - Long press: Move Up (LED blinks while moving)
  - Short press: Stop/Step
- Binary channel: Short press: Output toggles ON/OFF

7.1: Binary input LED ON = Contact closed, LED OFF = Contact open
7.2: Binary input "Manual action"/"Input 1..3 OR Input 4…6 range status selector"
8: Inputs terminal block connector

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Mounting and wiring

As an REG device, the uBrick series are suitable for mounting in distribution boxes on 35 mm DIN rails and wall boxes. To mount the device, it must be angled to slide onto the DIN rail from above and then locked into place with a downward movement.

Please make sure that the security latch at the bottom side of the device snaps into place and that the device is firmly attached to the rail. To dismount the device, the security latch can be pulled downwards with a suitable tool and then the device can be removed from the rail.

After the device has been inserted, the cables for the Inputs/Outputs should be attached to the upper (Outputs) and lower (Inputs) connectors. However, please make sure that these are labeled clearly.

The power supply is connected to the bottom right-hand side connector according to the order indicated on the casing. To connect the KNX cable, a standard bus connector is plugged into the respective entry on the device. Please make sure that there is double basic insulation between the KNX installation and the power supply. To do so, please insulate the wires of the KNX cable up to the bus connector with the enclosed shrinkable tubing.

Please make sure that the cables are laid in a way that ensures sufficient distance between the inputs and outputs cables

OUTPUTS / INPUTS SCHEMATIC
Each channel can be configured to be used as 2 binary outputs or as one blind channel. Each output can be powered by an **independent phase**.

Inputs can be configured to receive binary and analog signals (movement detector, temperature sensor and monitored input).

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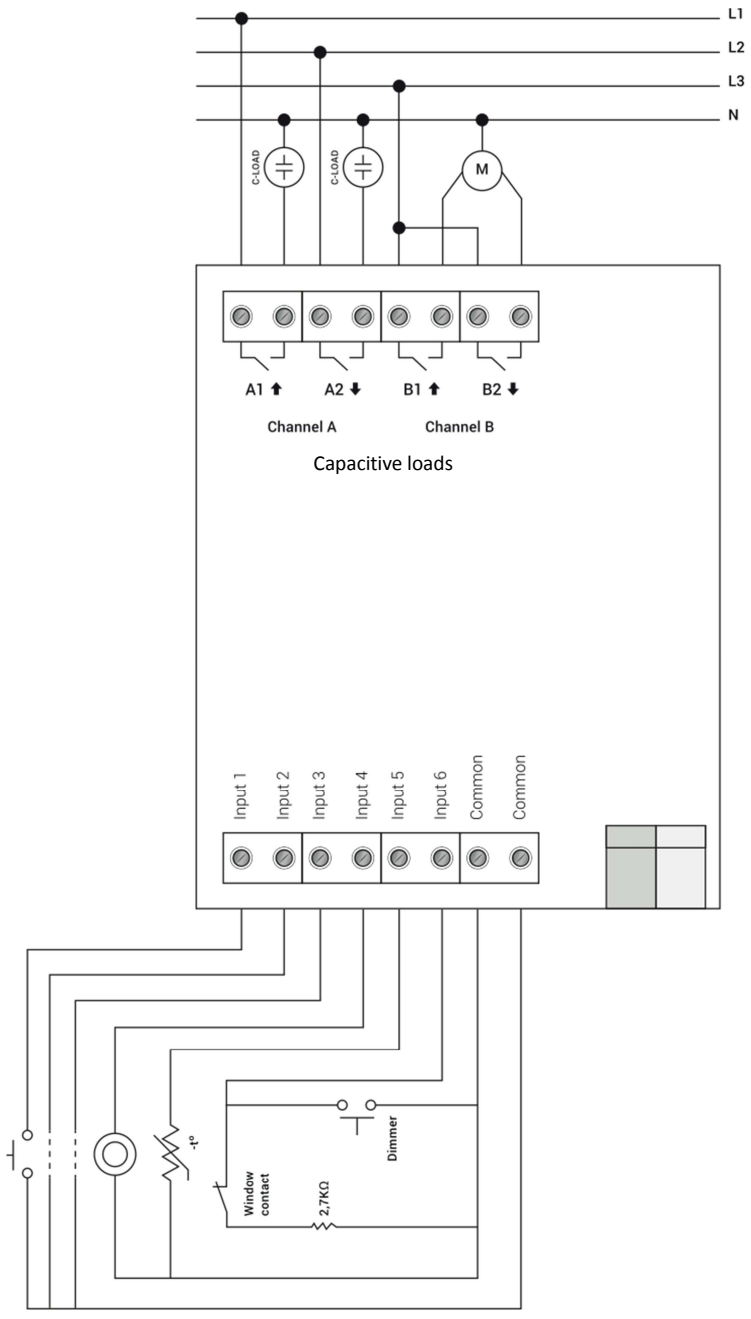
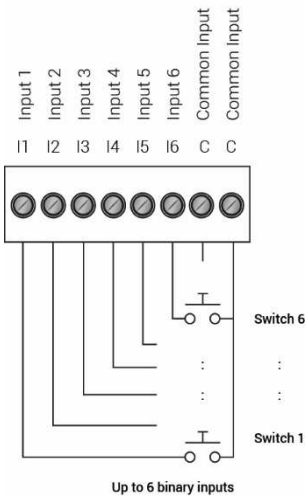
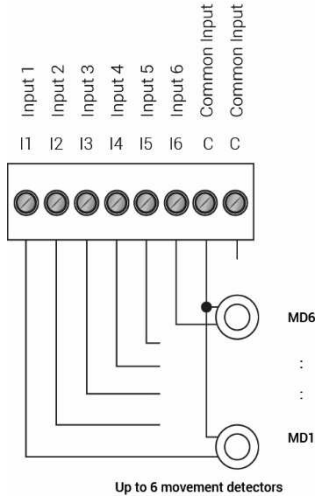


BINARY INPUT



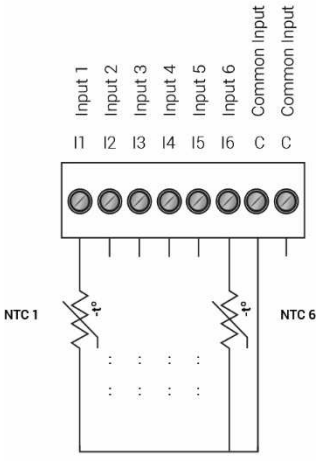
Up to 6 binary inputs

MOVEMENT DETECTOR



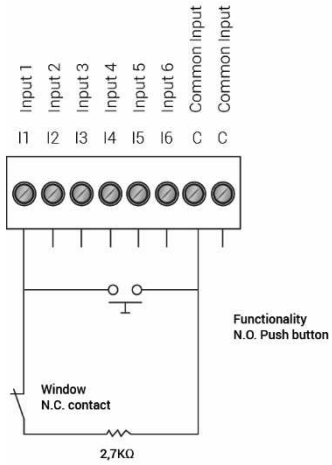
Up to 6 movement detectors

TEMPERATURE SENSOR



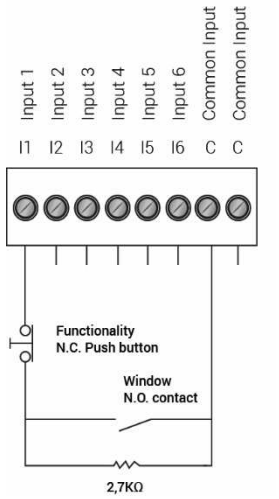
Up to 6 NTC temperature sensors

MONITORING INPUT
TYPE 1: Open Circuit Alarm (N.C. contact)

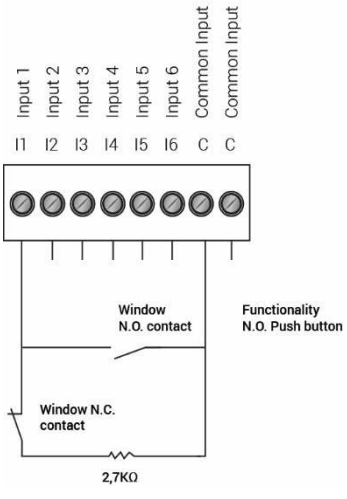


Up to 2 different funtions per input

MONITORING INPUT
TYPE 2: Short Circuit Alarm (N.O. contact)



MONITORING INPUT
TYPE 3: Both (N.C. & N.O. Alarm contact)



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ANNEX 1: MANUAL CONTROL

The **outputs** of the actuator have 2 push buttons and 2 status LEDs for each output channel on the front side.

- These buttons can be activated to control each and every channel/output individually if you select “yes” in the relevant parameter options in Binary outputs and/or Shutter/Blinds.
- The LEDs represent:
  - For Binary outputs: The top row: channels A1, A2, B1, B2.
  - For Shutter/blinds: The top row: channel’s first relay A1->UP, A2->DOWN, B1-UP, etc.

The **inputs** of the actuator have 1 push button and 1 status LED for each input on the below LED row

- These buttons can be activated to control each and every input individually if you select “yes” in the relevant parameter options in Binary Input.
- The LEDs represent: The below row inputs 1&4, 2&5, 3&6 actual input status

MANUAL CONTROL – PARAMETER MODE

The Parameter Mode allows you to control all the channels of the actuator as configured in the ETS.

The Action simulates a telegram received at the switching object of the selected channel.

BINARY	**SHUTTER/BLIND**
Press action: Sends Toggle ON/OFF command “0/1” to the “Switching” object  LED = ON (indicates channel status)  LED = OFF (indicates channel status)	- <u>Long press action (Channel output 1)</u>: Sends a UP command “0” to the “Move” object. - <u>Long press action (Channel output 2)</u>: Sends a DOWN command “1” to the “Move” object. - <u>Short press action (any output)</u> (while shutter/blind is moving) of same button: sends a Stop command to the “Stop…” object.  LED blinks while moving UP/DOWN during parameterized time

BINARY INPUT

<u>Press action on 1&4, 2&5, 3&6</u>: Sends Toggle ON/OFF command 0/1 to the “associated object” of the input (simulates the close/open action on the binary contact)

 LED = ON (indicates input status -> Input contact closed)
 LED = OFF (indicates channel status -> Input contact open)

“Man” push button in the right side for selection inputs status range between input 1..3 (LED = OFF) and inputs 4..6 (LED = Blinking)

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MANUAL CONTROL – TEST MODE

The Test Mode allows you to test all the loads/wiring connected to the channels. It is independent from the ETS configuration of the actuator (since the "Manual Control / Param mode + Test mode" is a default option, you can use the Test mode even before programming the actuator).

Important note: Should a blind/shutter be connected to a channel, the 2 channels may never be closed at the same time. Therefore, even in Test mode, if the channel is configured as a blind, this safety measure is implemented. For this reason, it is better to first commission the OUTPUT: CHANNEL TYPE SELECTION before using the Test mode.

To change into the test mode, any button can be used depending of the channel configuration:
- If "Binary" channel is configured: Press any button for at least 500ms
- If "Blind" channel is configured: Press the two buttons of any channel at the same time for at least 500ms

To change back to the normal "Parameter Mode" the same procedure should be repeated. Be aware by changing back to "Parameter Mode" the device will restart. Also after the device has restarted and if the channel is configured to be a blind channel, it will do a calibration movement on the first movement command.

 In order to indicate that the actuator is in Manual Control / Test Mode, the LED of the selected channel is continuously making a short blinking action every second; no matter whether the channel is ON (LED ON) or OFF (LED OFF).

The Action switches/moves the channel, as you can see in the table below:

BINARY	**SHUTTER/BLIND**
- Press action: Sends toggle ON/OFF command to the relay (ON = Contact closed / OFF = Contact open)  LED = ON (indicates channel status)  LED = OFF (indicates channel status)	- Rising edge press action (Channel X): Contact closed - Falling edge press action (Channel X): Contact open  LED = ON (indicates channel status)  LED = OFF (indicates channel status)
BINARY INPUT	
Don't apply	