

## DGOZ-DINUSI-6 - RAPIX DALI-2 DIN Mount Universal Switch Input

### With 6 Inputs and Application Controller

Suitable for direct connection to a DALI line for switching, dimming, timing, voltage-free sensors, group and scene control and similar functions.

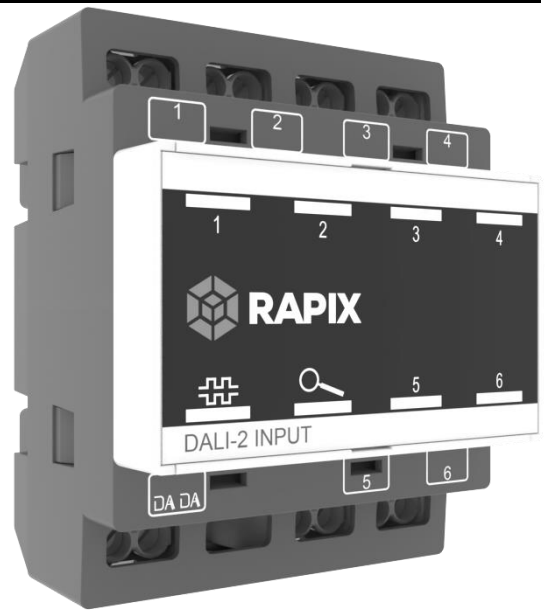
### Product summary and capabilities

This DIN mounted Universal Switch Input acts as an input device, powered directly from the DALI line. Each of the inputs by default operates with push-button switches, but can easily be configured to work with absolute inputs (toggle switches), or the voltage-free output contacts of a Movement or Presence sensor.

Each input has electrical isolation from DALI and the other inputs. Each input can support very long wiring runs, typically 250 m per input.

The Universal Switch Input works with DALI-2 Application Controllers and exposes 6 instances. It can also act as a RAPIX DALI Application Controller and can perform sensing, switching, dimming, timing, group control, scene control and similar functions using its local inputs.

The Universal Switch Input is commissioned using any DALI-2 commissioning software that supports DALI-2 Instance Types 1, 2 and 3. For the higher resilience of RAPIX and to set up the built-in Application Controller, use *RAPIX Addressing* or *RAPIX Integrator* software. These software packages are available at no charge from [ozuno.com](http://ozuno.com)



### Important notes and safety information



**WARNING** – Electric shock may result in serious injury or death. Follow all warnings in this guide and on the product. Work in accordance with the latest electrical safety practices.

- This DIN mounted Universal Switch Input product is powered only from DALI.
- DALI system wiring is only single insulated from mains. Treat DALI wiring the same as mains wiring.
- **The input connections do not provide any power source. Connect these only as shown in this guide.**
- **Do not connect any part of the switch input connections to any other power source, or to mains line or neutral.**
- There are **no user serviceable parts** inside the Universal Switch Input. Do not attempt to disassemble or operate the product with any covers removed.
- This product is intended for **indoor use only**.

### Indicators



Indicators are visible through the plastic housing, and have these colours and functions:

- DALI Activity:** A green indicator at the DALI terminals shows DALI activity. During installation this can be used to verify there is a DALI connection: A green glow with a blink about every 1 .. 2 seconds shows that DALI is connected and is supplying electrical power.
- Discovery:** A red indicator is located alongside the DALI indicator and terminal. This will blink when commissioning software activates the DALI-2 DEVICE IDENTIFY function. This allows physical location of the device if location discovery is needed.
- Input Channel:** Each input channel has a green indicator, which is lit when the connected switch or contact is CLOSED.

### Terminals

The DIN mounted Universal Switch Input device has screw terminals for each input, supporting up to 3 x 1.5 mm<sup>2</sup> or 2 x 2.5 mm<sup>2</sup> cross section cable.

## **Inputs**

Each input should be independently wired to its switch or contact.

**Inputs should not be linked to each other. Doing so may cause unexpected behaviour.**

The switch inputs are isolated from each other and from DALI.

This product provides Basic Insulation between DALI and each switch input, and Double Insulation between a switch input and any other switch input.

**Switch inputs are floating, and must not be connected to mains line or neutral voltages.** On very long cable runs, especially runs outside buildings:

- One of the two switch inputs may be connected to mains earth for improved tolerance of voltages surges;
- Use of surge protection for each input is recommended.

If switch inputs is connected to mains earth, the same (left terminal or right terminal) should be connected to earth for all inputs where this is required.

When open circuit, 5 V dc should be measurable across each of the switch terminals.

## **DALI-2 Instances**

This product has 6 instances. By default, Instances 0, 1, 2, 3, 4, 5 are DALI-2 Instance Type 1 Push Button.

RAPIX Commissioning software uses a Template programming system, and this will automatically select an appropriate instance type for the desired function. This allows each input to also be used for toggle type Bi-stable Switches (DALI-2 Instance Type 2), or the voltage-free contacts of an occupancy sensor (DALI-2 Instance Type 3).

For other commissioning software or DALI-2 systems: each instance type can be changed by issuing the following command sequence:

Set DTR0 to 0x80

Send twice to the device short address: SET OPERATING MODE (Opcode 0x18)

Set DTR0 to the Instance Type required (value 1, 2 or 3)

Send twice to the device short address and instance number: SET INSTANCE TYPE (Opcode 0x69)

There is no requirement to set the operating mode away from 0x80 after changing the instance type. If the type of an instance is to be changed, this only needs to be done once, at the time of device setup.

At a future time, DALI-2 standards will include certification testing with official support for changing instance types.

## **Application Controller Features**

This Universal Switch Input contains an Application Controller. Available functions include Toggle (On/Off), Dimmer, Timer, Occupancy Sensor, Vacancy Sensor, and many more. Control is possible for DALI Short Addresses, Groups, Scenes, Broadcast and combinations of these.

The Application Controller can be set up using the free RAPIX Addressing or RAPIX Integrator software, available at [ozuno.com](http://ozuno.com). A RAPIX USB Interface or Zone Controller is required to connect the commissioning software / PC to the DALI line.







**RAPIX Zero-Commissioning: Out-of-box Functions**

This product supports RAPIX Zero-Commissioning out-of-box functions. All RAPIX Zero-Commissioning behaviour becomes automatically disabled when any commissioning or setup is made of this product.

**RAPIX Zero-Commissioning behaviour for this product will transmit DALI Broadcast commands with behaviour appropriate to the type of input being used:**

OUT OF BOX OPERATION TYPE	HOW TO SET UP & RESULTING BEHAVIOUR
<p style="text-align: center;"><b>NONE</b></p>	<p>Leave Inputs 5 and 6 unconnected.</p>
<p style="text-align: center;"><b>PUSH BUTTON ON / OFF / DIMMING</b></p> <p style="text-align: center;">(DALI-2 Instance Type 1)</p>	<p><b>Push Button On/Off and Dimming</b></p> <p>Connect the push button to the terminals of INPUT 1.                      Link the terminals of INPUT 6.                      Leave INPUT 5 unconnected.</p> <p><b>Result:</b></p> <p>Push / Release to broadcast ON/OFF.                      Push and hold to DIM UP/DOWN. Release to terminate the dimming.</p>
<p style="text-align: center;"><b>TOGGLE SWITCH ON / OFF</b></p> <p style="text-align: center;">(DALI-2 Instance Type 2)</p>	<p><b>Switched ON/OFF</b></p> <p>Connect the mechanical toggle switch the terminals of INPUT 1.                      Link the terminals of INPUT 5.                      Leave INPUT 6 unconnected.</p> <p><b>Result:</b></p> <p>Switch OPEN (or set to OFF position) transmits DALI OFF.                      Switch CLOSED (or set to ON position) transmits DALI ON at MAXIMUM.</p>
<p style="text-align: center;"><b>MOVEMENT SENSOR ON / OFF WITH MOVEMENT AND TIMEOUT</b></p> <p style="text-align: center;">(DALI-2 Instance Type 3 with default broadcast transmission)</p>	<p><b>Switched ON/OFF with Timer</b></p> <p>Connect the sensor relay contacts to the terminals of INPUT 1.                      Link the terminals of INPUT 5.                      Link the terminals of INPUT 6.</p> <p><b>Result:</b></p> <p>Movement detected: Transmits DALI ON at MAXIMUM.                      After 15 minute timeout: Transmits DALI OFF.                      If DALI OFF is seen from another unit (eg switch) then a 15 second exit delay is used – during that time the movement sensor will be ignored.                      Multiple sensors can be used on the same line.                      A switch can also be used on the same line.</p>

## Specifications

Property	Specification
Power source	DALI line
Compatibility	DALI and DALI-2
DALI Line Capacity	Connects to 1 DALI line
DALI operating voltage	16 V dc (nominal), operation from 9.5 V – 22.5 V
DALI Line current draw	6 mA (peak)
Mains tolerance	DALI inputs and switch inputs are mains voltage tolerant
Isolation	> 1500 V (Each input to DALI line, Basic Insulation) > 3000 V (Each input to any other input, Double Insulation)
Terminals	Screw – 3 x 1.5 mm <sup>2</sup> solid/stranded per tunnel
Maximum connection wire length	Up to 250 m per switch input
Allowable input types	DALI-2 Type 1 (Push button switch), Type 2 (Absolute / toggle switch) or Type 3 (voltage free contacts of an occupancy sensor). Changing instance type requires use of DALI Commissioning software and commands, or use RAPIX Addressing or Integrator software.
Indicators	7 x green – DALI operation and on each input 1 x red – Identification
Switch input – open circuit voltage	5 V dc nominal (for cable leakage resistance $\geq$ 500 k $\Omega$ )
Switch input – closed current	< 0.1 mA dc nominal
Ambient operating temperature	0 to 50° C
Ambient storage temperature	-10 to 70° C
Humidity	0% to 95% RH non-condensing
Ingress protection	IP20
Materials	Enclosure: Flame retardant Polycarbonate. DIN Clip: ABS.
Weight	180 g
DALI addresses used	One DALI-2 Control Device Short Address, no Control Gear Short Addresses
DALI Addressing types supported	Short Addresses, Group Addresses, Scenes, Broadcast
RAPIX Application Controller DALI addressing types supported	Control Gear Short Addresses, Group Addresses, Scenes, Broadcast
Additional Addressing Types	RAPIX Zones, RAPIX Flags, RAPIX Operating Properties
Approvals	     

## Standards and compliance

The product is designed to meet/exceed the following Australian and International standards:

### EMC and Electrical Safety Frameworks and Standards

EN 55015, AS/NZS CISPR 15, AS CISPR 15

EN 55032, AS/NZS CISPR 32

EN 61347-1, AS/NZS 61347.1

EN 61347-2-11, AS/NZS 61347.2.11

### DALI Standards and Compliance

IEC 62386-101 Ed 2 (DALI-2)

IEC 62386-103 (DALI-2 Control Devices)

IEC 62386-301 (DALI-2 Instance Type Push Button)

IEC 62386-302, -303 (DALI-2 Instance Absolute, Occupancy Sensor: tested, not certified)

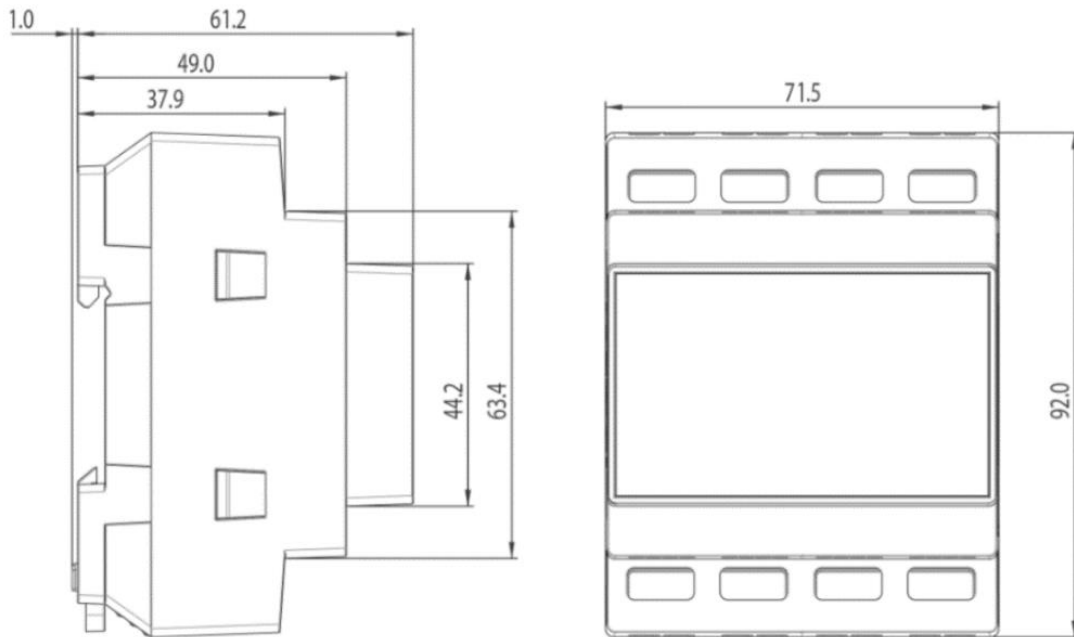
### EU Directives

2014/35/EU Low Voltage

2014/30/EU Electromagnetic Compatibility (EMC)

2015/863 Restriction of Hazardous Substances (RoHS) in Electrical and Electronic Equipment

## Product dimensions



## Warranty

This product has a TWO YEAR warranty against manufacturing defects. The warranty applies from the date of purchase.

Refer to [ozuno.com](https://www.ozuno.com) for the full conditions for warranty and returns process. A summary of the process:

1. Contact the seller of the goods, or in their absence contact Ozuno to request a return goods authorisation.
2. When a return is authorised, the goods must be returned to Ozuno at the owners expense for technical evaluation.
3. The warranty claim will be evaluated by Ozuno and accepted if the goods are found to be faulty, or rejected if the fault was caused by conditions beyond the responsibility of Ozuno. Considerations of installation, removal, return, freight and testing are not the responsibility of Ozuno.

The Australian Consumer Law requires the inclusion of the following statement with this Warranty:

***Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.***

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