## FEATURES

Network peripheral with 8 inputs and 8 outputs without communication module. It is possible to equip **IND-8 base** with modules: **FTT10A** (Lon Works bus), **485-IG** (485 galvanically isolated bus) and **485** (485 polarized bus) depending on the requirements of the plant.

## INPUTS

Double balance inputs for a total of four states: STANDBY, ALARM, SHORT CIRCUIT, and CUT

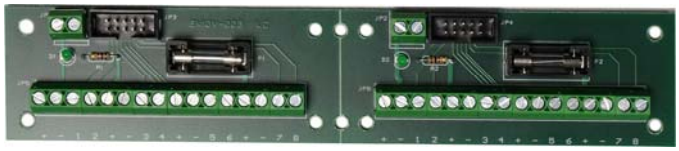
**Each input is completely independent and can be programmed as follows:**

- Double balance
- Single balance
- Normally Open
- Normally Closed

**The configuration allows to set:**

- Detection time
- Self-exclusion on enabling
- Enabling delay
- Alarm delay
- Maximum number of alarms, with the possibility to define the interval
- Maximum number of detections before alarm, with the possibility to define the interval
- Tampering signal exclusion (short circuit and cut)
- Event generation
- Logic zone

The inputs are available on flat cable suitable for the connection to the board **MORS-0**.



MORS-0 has two banks, 8 inputs each that can be easily divided thanks to the pre-incision on the board.
Each bank has:

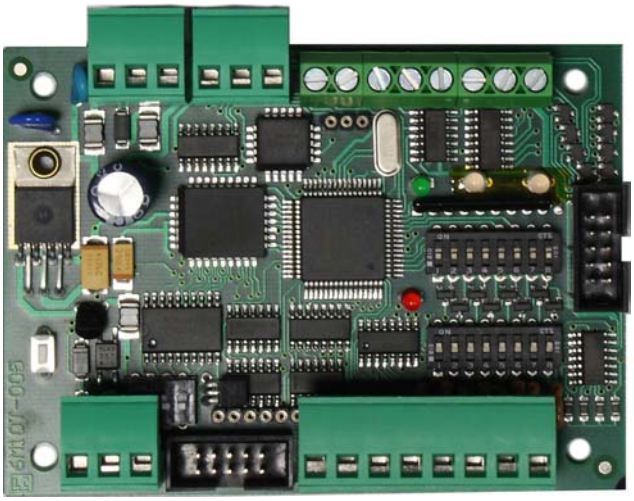
- Flat cable connector for connection with modules: INC-8 base, IND-8 base and IND-16 base
- Couple of power terminals input
- Power fuse (2A)
- Couple of output power terminals every couple of inputs

## OUTPUTS

Open Collector outputs (500mA) on connector for flat cable suitable for the connection to the relay boards MORS-1, and MORS-2 and MORS-3.

### Outputs support the following commands:

- Positive security (inverted functioning logic)
- Continuously enabled
- 1Hz pulsing
- 2Hz pulsing
- Standby



## SPECIAL FUNCTIONS

Special functions available:

- battery and power control
- signaling of communication fault on output 8

Other information available in the section Installation.

## INSTALLATION

IND-8 has been designed to be installed into wall mounting box or rack box, which must be fixed with the 4 spacers 10mm supplied. Fix the board avoiding bending; mechanical stresses can damage the board.
During insertion and removal of connectors, block the board in order to avoid bending. After fixing operations check that line module's board and connectors are completely inserted into their plugs.

## COMMISSIONING

Commissioning steps:

- Make sure that the control panel is not powered.
- Set peripheral's number through dip-switches.
- Power the peripheral.
- Check that L2 Led blinks RED fast.
- Press SW1 key until L2 Led becomes GREEN, fixed first and blinking then.
- Check through PC or TAD-M terminal that peripheral is online.

## EXCEPTIONS

### L2 RED Led on steady

- No communication between peripheral and control panel.
- Check network connections.
- Check that line module and connectors are completely inserted into their plug.
- If the connections are correct, it is possible that the device has in memory the binding of another line or another control panel. In this case, delete the old binding.

### L2 Led blinks RED/YELLOW/GREEN

The device has a memory of a binding with a device number different to the current setting. Set the correct peripheral number or delete the old binding.

## DELETE BINDING

The cancellation of the binding occurs through software MONITOR or terminaleTAD-FTT. If is impossible delete the bindings use the following procedure:

- remove peripheral power
- press and hold SERVICE key
- reconnect power

The cancellation of the binding is indicated by fast flashing RED LED L2.

## LINE MODULE

Check P0 jumper's position on line module.
P0 jumper set the line termination.
For 485IG and 485 modules, jumpers are two. To choose points where add terminations, see technical manual in NETWORK CONFIGURATION paragraph.

## INPUTS

Input schemes can be found in SCHEMES INPUT paragraph.

## POWER SUPPLY AND BATTERY CONTROL

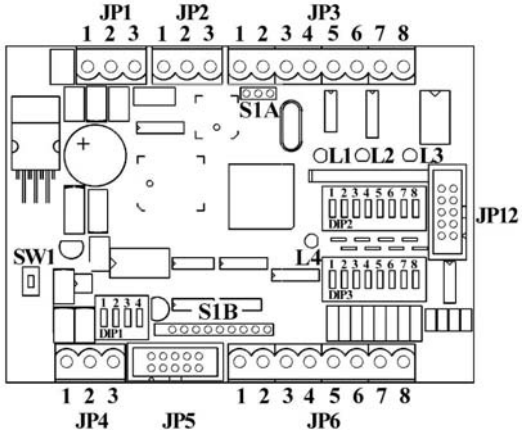
This control is used when the peripheral is installed in a sub-control panel with separated power supply. When this function is active, the peripheral controls power supply and battery status each hour or when SW1 button is pressed.
Power supply check uses input 1, battery check input 2 and output 1, that can't be used for other functions.
Battery check is enabled setting dip-switch 1 pin 2 ON. IND-CBR scheme contains all indications useful for connections.

## COMMUNICATION FAULT SIGNALLING

Enabling this function, peripheral signals on output 8 communication fault. To use this function it's necessary to set dip-switch 1 pin 1 ON and program output 8 with positive security. Whenever communication with the control panel is interrupted, the relay of output 8 will be disabled. This function is used to drive radio-links and alarm signalling with maximum security.

## TECHNICAL DATA

| | | |
|---|---|---|
| Voltage range | 9÷15 | Vdc |
| Standby current | 75 | mA |
| Maximum output current | 500 | mA |
| Operating temperature | -10 ÷ +40 | °C |
| Humidity (**without condensate**) | 75% | - |
| Dimensions | 100x72 | mm |




| SIGNALLING | |
|---|---|
| **L1** | **Power supply** |
| Green or Red | 12V presence |
| Off | 12V fault |
| **L2** | **Data network test** |
| Fixed red | Communication with the control panel missing |
| Fast blink Red | Peripheral doesn't have binding |
| Slow blink Green | Peripheral has binding and is communicating correctly with the control panel |
| Alternate blink Red/Green/ Yellow | Address has been changed after binding. Set the correct address or delete binding and repeat the commissioning procedure. |
| **L3** | **Microprocessor Test** |
| Red | Microprocessor stop |
| Green | Microprocessor works correctly |
| **L4** | **SERVICE** |
| | Enabled when SERVICE key is pressed |

| CONNECTIONS | | |
|---|---|---|
| **JP1** | | **Power** |
| | **1** | **Do not use** |
| | **2** | negative |
| | **3** | positive + 12V |
| **JP2** | | **Data network** |
| | **1** | Network – WHITE RS- 485 |
| | **2** | **Do not use** |
| | **3** | Network - GREEN RS-485 |
| **JP3** | | **Outputs 1/8 terminal block** |
| | **1-8** | Output 1….Output 8 |
| **JP4** | | **Battery connection** |
| | **1** | Battery positive |
| | **2** | Battery negative |
| | **3** | Power supply test |
| **JP5** | | **inputs 1/8** |
| | | Used for MORS-0 connection |
| **JP6** | | **Inputs terminal board 1/8** |
| | **1-8** | Output 1…. Output 8 |
| **JP12** | | **Output 1/8** |
| | | Used to connect relay modules |
| **LON line** | | |
| **S1A** | **S1B** | Lon module – FTT10A, 485IG, 485 |

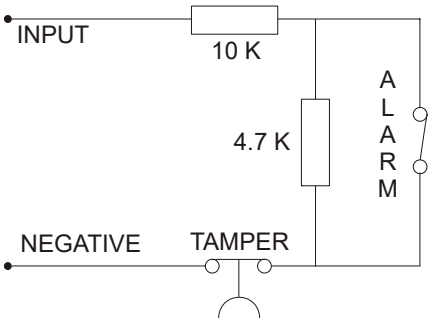
| SETTINGS | | |
|---|---|---|
| **P0** | | **Data network termination configuration** |
| **FTT** | **NC** | No resistance |
| | **1,2** | Free configuration |
| | **2,3** | Bus configuration |
| **485** | **NC** | Termination disabled |
| **485IG** | **1,2** | Termination enabled, terminal is positioned at one end of 485 bus |
| **DIP 1** | | **Special settings** |
| | **1** | Outputs 8 signals missing communication with the control panel (set positive security on output 8) |
| | **2** | Battery test |
| | **3** | Dip 9 peripheral address |
| | **4** | Dip 10 peripheral address |
| **DIP 2** | | **Peripheral address** |
| | **…** | See peripheral address table |
| **DIP 3** | | **1/8 inputs balance** |
| | **ON** | Removes 10KOhm resistance on input 1 … 8 |

| BUTTONS | |
|---|---|
| **SW1** | **SERVICE button** |
| | Press to put the device online |

### ***Double balance Normally Closed (N.C.) inputs***

This setting provides the maximum protection. Each input provides reports for: STANDBY, ALARM, CUT, SHORT-CIRCUIT. Signallings are provided according to the resistance value between the input and the negative.

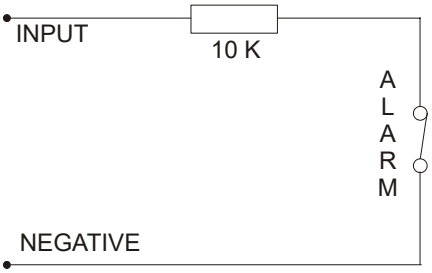
| **STATE** | **VALUE** |
|---|---|
| STANDBY | from 6,8 to 12 KOhm |
| ALARM | from 12 to 22 KOhm |
| CUT | more than 22 KOhm |
| SHORT CIRCUIT | less than 6,8 KOhm |




### ***Single/Double balance Normally Closed (N.C.) inputs***

Each input provides reports for: STANDBY, ALARM, CUT, SHORT-CIRCUIT. Signallings are provided according to the resistance value between the input and the negative.

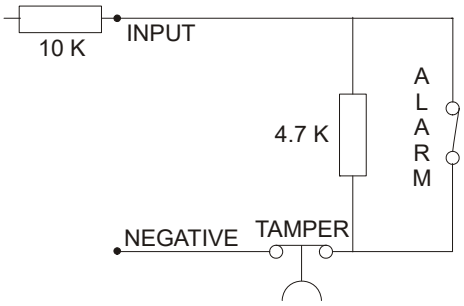
| **STATE** | **VALUE** |
|---|---|
| STANDBY | from 6,8 to 12 KOhm |
| ALARM | more than 10 KOhm |
| SHORT CIRCUIT | less than 6,8 KOhm |




### ***Single/Double balance Normally Closed (N.C.) inputs***

Pre-installed 10K resistance on board (for double balancing, simply add the resistance of 4.7K on the detector) that make the inputs a single balance, providing signalling of: standby, alarm, cut. Signalling is given basing on resistance value seen between input and negative.

| **STATE** | **VALUE** |
|---|---|
| STANDBY | from 6,8 to 12 KOhm |
| ALARM | from 12 to 22 KOhm |
| CUT | more than 22 KOhm |




### ***Normally Open (N.O.) technological inputs***

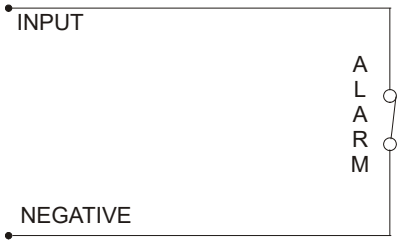
Each input provides reports for: STANDBY and ALARM. Signallings are provided according to the resistance value between the input and the negative.

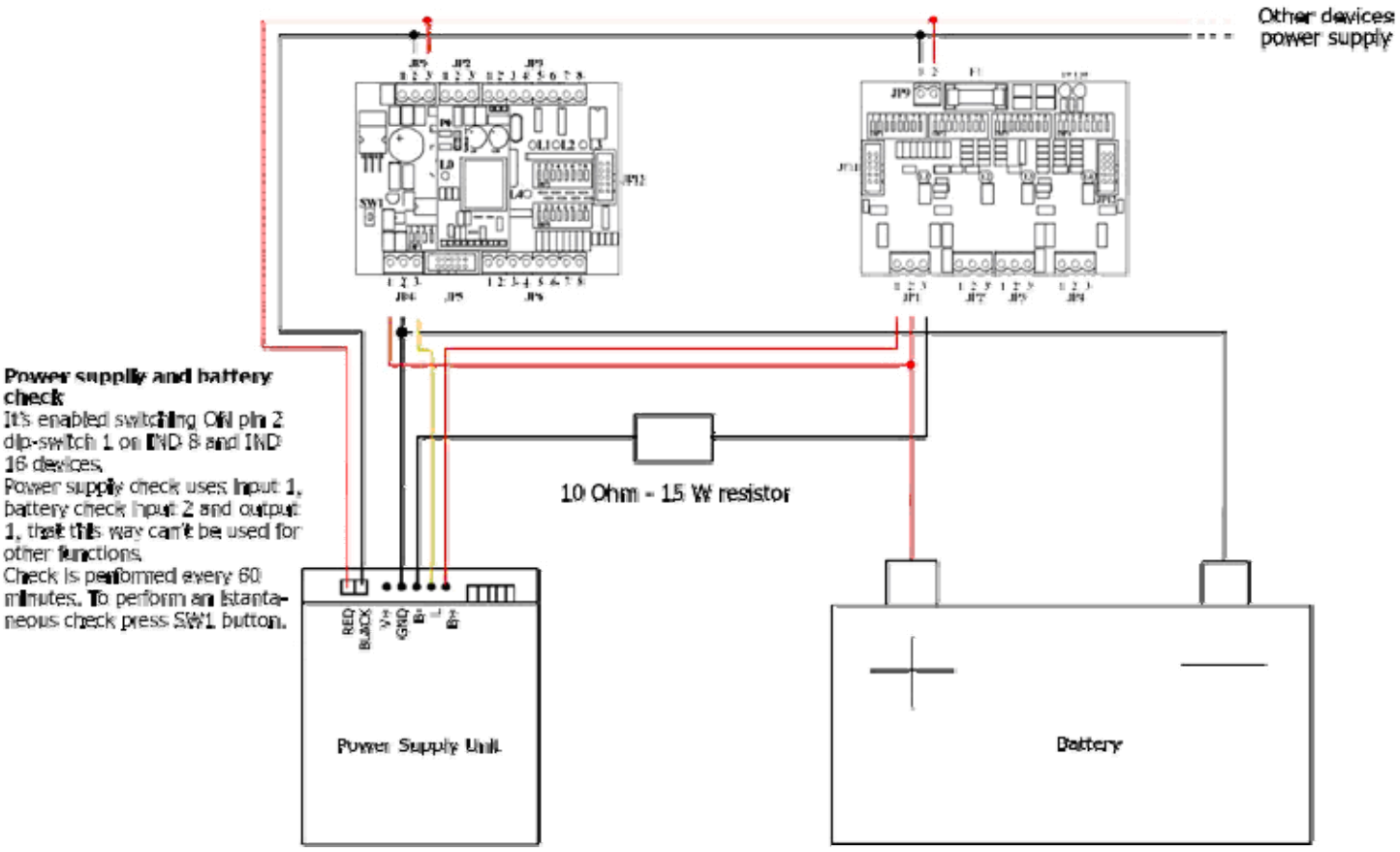
| **STATE** | **VALUE** |
|---|---|
| STANDBY | more than 22 KOhm |
| ALARM | less than 6,8 KOhm |


### ***Normally Closed (N.C.) technological inputs***

Each input provides reports for: STANDBY and ALARM. Signallings are provided according to the resistance value between the input and the negative.

| **STATE** | **VALUE** |
|---|---|
| STANDBY | less than 6,8 KOhm |
| ALARM | more than 22 KOhm |



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