# Six Input Digital Multiplexer IOD6
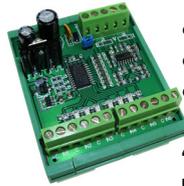
## Description

The Digital Input Expander allows 6 volt free inputs to be monitored by a single analogue input channel. The resultant analogue value can be decoded by the A to D function module in an BMS controller to produce internal digital status bits for alarm monitoring or other status input applications.

## Features

- Expand capacity of existing ddc for cost effective installation.
- Visual indication of LED inputs for easy commissioning
- Application includes lighting controls and monitoring status of equipments

"Designed and manufactured exclusively for E. C. Products Limited by Dura Controls UK Limited"

## Technical Specification

**Supply voltage:** 24Vdc or Vac ± 15%

**Supply current:** 50mA max (I mode)
30mA max (V mode)

**Input Channels:** 6 volt free contact switch 24Vdc

**Input Threshold:** Upper 17.5V max (ON) level
Lower 7.5V min (OFF) level

**Distance:** Max. distance of IOD6 from controller 25m (V mode) 1000m (I mode)

**Output:** Mode selectable by link header current/voltage (I/V)

**I:** 0 to 20mA, max. resistance of load 250Ω

**V:** 0 to 10Vdc, max. current 1mA

**LED:** Single LED per input channel, LED on indicates contact closed

**Ambient limits:** Storage: –10°C (14°F) to +70°C (158°F
Operating: –10°C (14°F) to +50°C(122 °F)
Humidity: 0 to 90%RH non-condensing

## Order Codes

IOD6            Six Input Digital Multiplexer

## Scaling and Testing

The module has six independent inputs giving a total number of 64 different output values. The output value is calculated based on binary encoding method as shown in the table below. Each input status has an output value associated with it. The module output value is the sum of all these output values.

|         | In1   | In2   | In3   | In4  | In5 | In6 |
|---------|-------|-------|-------|------|-----|-----|
| 0-10Vdc | 0.156 | 0.313 | 0.625 | 1.25 | 2.5 | 5   |
| 0-20mA  | 0.25  | 0.5   | 1     | 2    | 4   | 8   |

For 4-20mA outputs, it is necessary to add 4mA to the total value.

### Examples:

**Voltage Mode:**
Inputs 1, 2 and 6 are ON. => 0.156 + 0.313 + 5 = 5.469Vdc
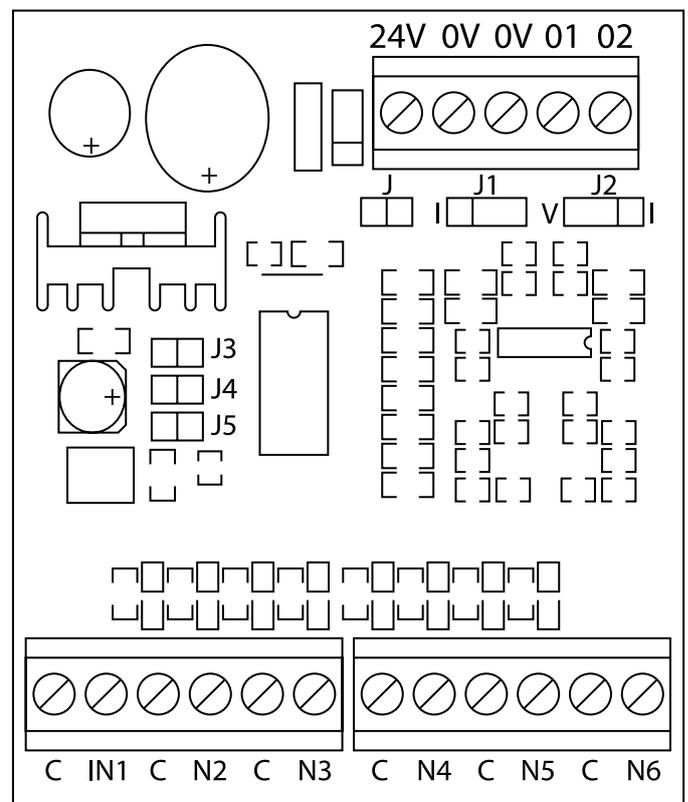
**0-20mA:**
Inputs 1, 2 and 6 are ON => 0.25 + 0.5 + 8 = 8.75mA

**4-20mA:**
Inputs 1, 2 and 6 are ON => 4mA + (0.25 + 0.5 + 8) = 12.75mA

## Installation

1. Disconnect all mains in the controllers and plants before any connections.
2. Mount IOD6 in a protective case close to the BMS controller.
3. Set jumper J - ON = 0...20mA OFF = 4...20mA if using current mode.
4. Voltage and Current outputs run simultaneously. Connect output O1 = Voltage, output O2 = Current
5. Configure BMS controller's analogue inputs to match IOD6 output as in table 1.
6. Connect IOD6 outputs to BMS analogue input and power up to IOD6 connection.
7. Connect IOD6 inputs to plant (cautious: ensure plant and controller are power off).
8. Switch on plant and controller to test connection.

## Connections



O1(V out) O2(I out)
J=ON(0-20mA); J=OFF(4-20mA)