

# Signal conditioning modules

## OD series

The **OD** series of conditioning units is used to interface with Solartron's sensors to provide different functionality to suit different applications.

The **OD2** is a two wire 4-20mA signal conditioner. It is designed for long distance signal transmission due to low noise susceptibility. A cable break results in no current flow indicating a fault.

The **OD4** (**OD5** is a mains powered equivalent) is a signal conditioning unit powered from a single 10-30VDC supply. The outputs are fully adjustable allowing a range of voltage and current outputs to be selected.



## DRC DIN rail module

The **DRC** is a DIN rail mounted version of the OD4 (see above).



## BICM in line module

The **BICM** provides a simple low cost in line conditioning unit. This is designed for use where the sensor is in a harsh environment as the BICM can be connected up to 10m from the sensor. An IP67 variant of the BICM is also available.



## ATM TTL converter

TTL RS 232 Differential Quadrature is one of the most commonly used methods of communication between Linear Displacement Sensors and Control or Data Acquisition Systems. Its simplicity of Interfacing with programmable systems also makes Solartron's ATM one of the most cost effective.

| Module                                   | OD2   | OD4                                       | OD5        | DRC        | BICM                               |       |
|--|---|---|------------|------------|------------------------------------|-------|
| <b>Power Requirement</b>                 |   |   |            |            |                                    |       |
| Input Voltage                            | 13-42 VDC   | 10-30VDC                                  | 90-264VAC  | 10-30VDC   | ±15VDC                             | 24VDC |
| Input Current (mA)                       | <30   | 140-50                                    | 250-100    | 160-70     | ±12                                | 24    |
| Frequency (Hz)                           |   | -   | 47-63      |            | -                                  |       |
| <b>Sensor Excitation</b>                 |   |   |            |            |                                    |       |
| Primary voltage (Vrms)                   | 0-9   |   | 3          |            | 1.2 - 21                           |       |
| Primary frequency (kHz)                  | 5 or 13   | 2.5 or 5                                  | -          | 5,10 or 13 | 5                                  |       |
| <b>Signal Input</b>                      |   |   |            |            |                                    |       |
| Input Range                              | 30-530mV/V <sup>1</sup>                                 | 55 to 5000mV LVDT full range              |            | up to 3.5  |                                    |       |
| Input Load (kΩ)                          | 2   | 2, 10, 100                                |            | 2, 100     | 100                                |       |
| Options                                  | -   | Forward and reverse polarity, half bridge |            | see note 2 | -                                  |       |
| <b>Signal Output</b>                     |   |   |            |            |                                    |       |
| Voltage Output                           | -   | Up to ±10                                 |            |            |                                    |       |
| Current Output                           | 4-20  | Up to ±20 into 150Ω load                  |            |            |                                    |       |
| Output Ripple                            | <38μA rms   | <1 mV rms                                 | -          | <14        |                                    |       |
| Output Offset                            | Up to 100% on maximum gain (coarse and fine adjustment) |   |            |            |                                    |       |
| Temperature Coefficient Gain (%FSO/°C)   | <0.01   |   |            | <0.03      |                                    |       |
| Temperature Coefficient Offset (%FSO/°C) | <0.01   |   |            | <0.02      |                                    |       |
| Warm Up (minutes)                        | 15 minutes  |   |            |            |                                    |       |
| Linearity (%FSO)                         | <0.02   |   |            | <0.1       |                                    |       |
| Bandwidth (-3dB) (Hz)                    | 25  | 500Hz, 1kHz                               |            | 250        |                                    |       |
| <b>Environmental</b>                     |   |   |            |            |                                    |       |
| Storage Temperature                      | -40 to +80  | -20 to +80                                |            | -          |                                    |       |
| Operating Temperature                    | 0 to +60  |   |            | -          |                                    |       |
| IP rating                                | 65  | 40  | None       | IP40/67    | IP40                               |       |
| <b>Mechanical</b>                        |   |   |            |            |                                    |       |
| Sensor connections                       | Terminals   | DIN connector                             | -          | Terminals  | Solder tag or factory fit for IP67 |       |
| Power connections                        | Terminals   | -   | IEC320 C14 | -          | -                                  |       |
| Weight                                   |   |   |            |            |                                    |       |
| Material                                 | ABS   | Painted Aluminium Box                     |            | Plastic    | Plastic or Stainless Steel IP67    |       |
| Mounting                                 | Holes   | -   |            | DIN rail   | -                                  |       |

| Module                             | ATM TTL converter                                |
|------------------------------------|--|
| <b>Measurement</b>                 |  |
| Sensor types                       | All Solartron Displacement Sensors               |
| Accuracy (%FSO)                    | <0.25  |
| Resolution (x4 interpolation)      | 0.1  |
| Repeatability                      | sensor dependent                                 |
| <b>Electrical</b>                  |  |
| Power                              | +5 ±0.25 VDC @ 100 mA                            |
| Output Signal                      | A and B, /A and /B TTL square waves RS422 levels |
| Output frequency (kHz)             | 50, 100, 125, 250, & 500 (factory selectable)    |
| Bandwidth                          | 100 Hz   |
| <b>Environmental (electronics)</b> |  |
| Sealing                            | IP43   |
| Operating temperature (°C)         | 0 to +60   |
| Storage temperature (°C)           | -20 to +70                                       |

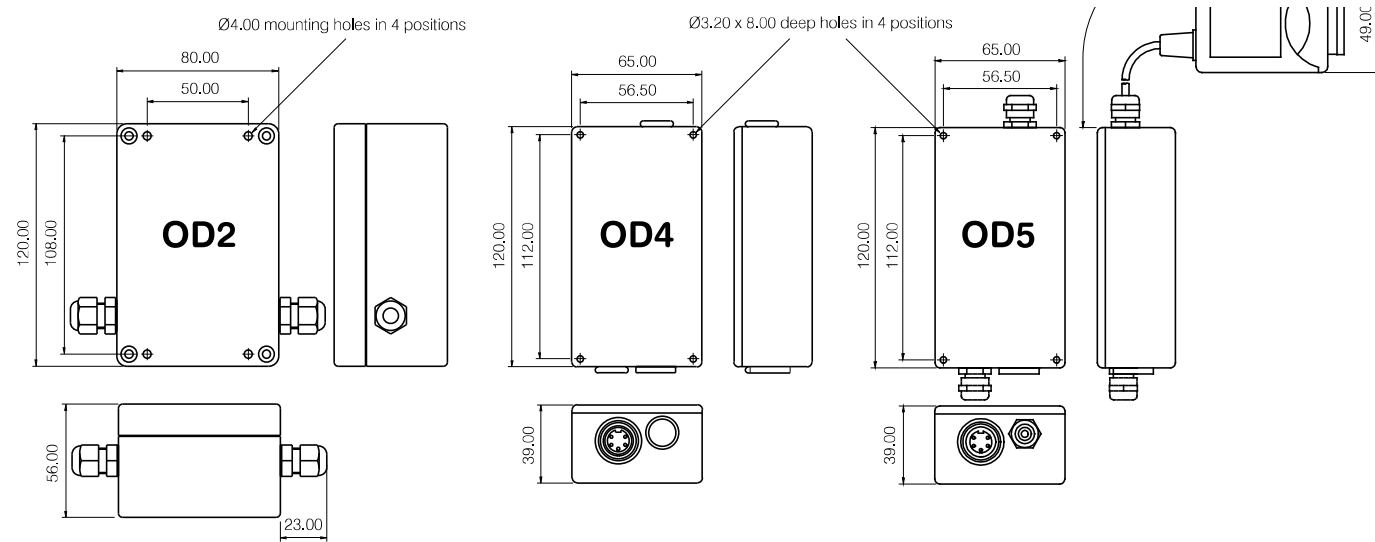
Note 1: For sensors with sensitivity > 250mV/V, an adjustable attenuator is required- contact sales  
 Note 2: Sensor is connected via external screw terminal user can therefore configure options  
 Note 3: For higher environmental levels (and other custom options) contact sales office

**Also see...**  
[Dimensions and drawings](#) [Page 40](#)

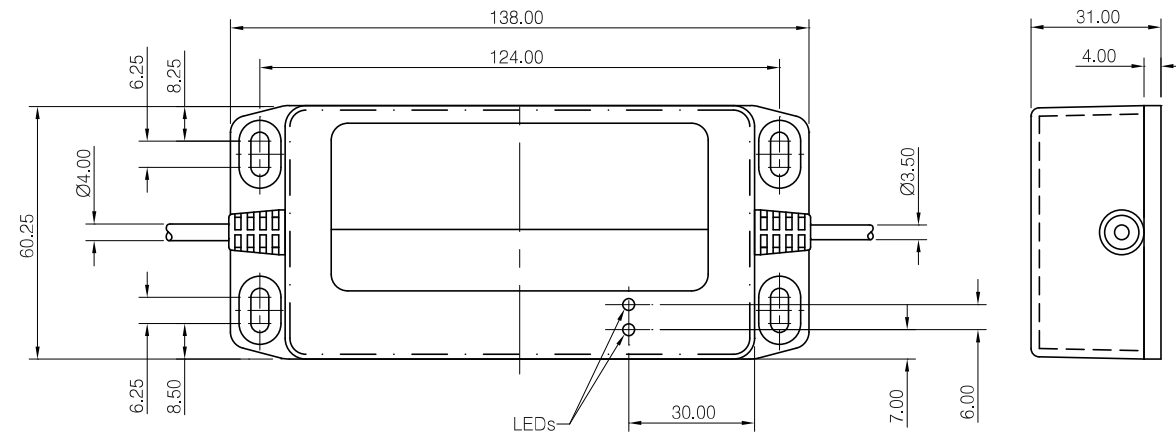
Refer to product manual 502724 for details of operation – contact sales office/web site

## Signal conditioning modules dimensions (mm)

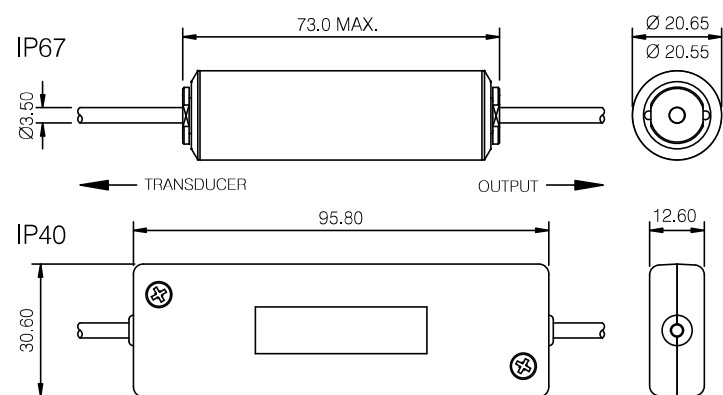
### OD series



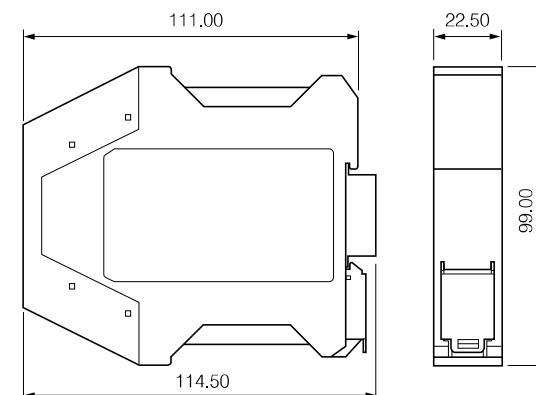
### ATM TTL converter



### BICM in line module

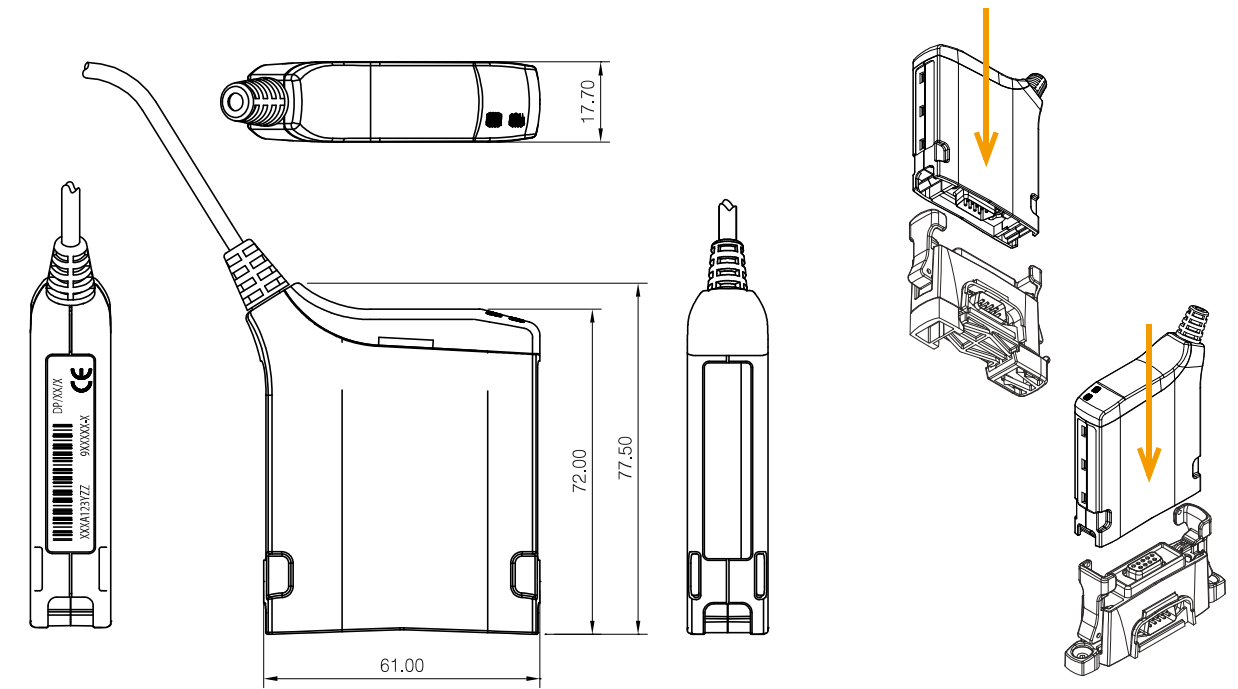


### DRC DIN rail module

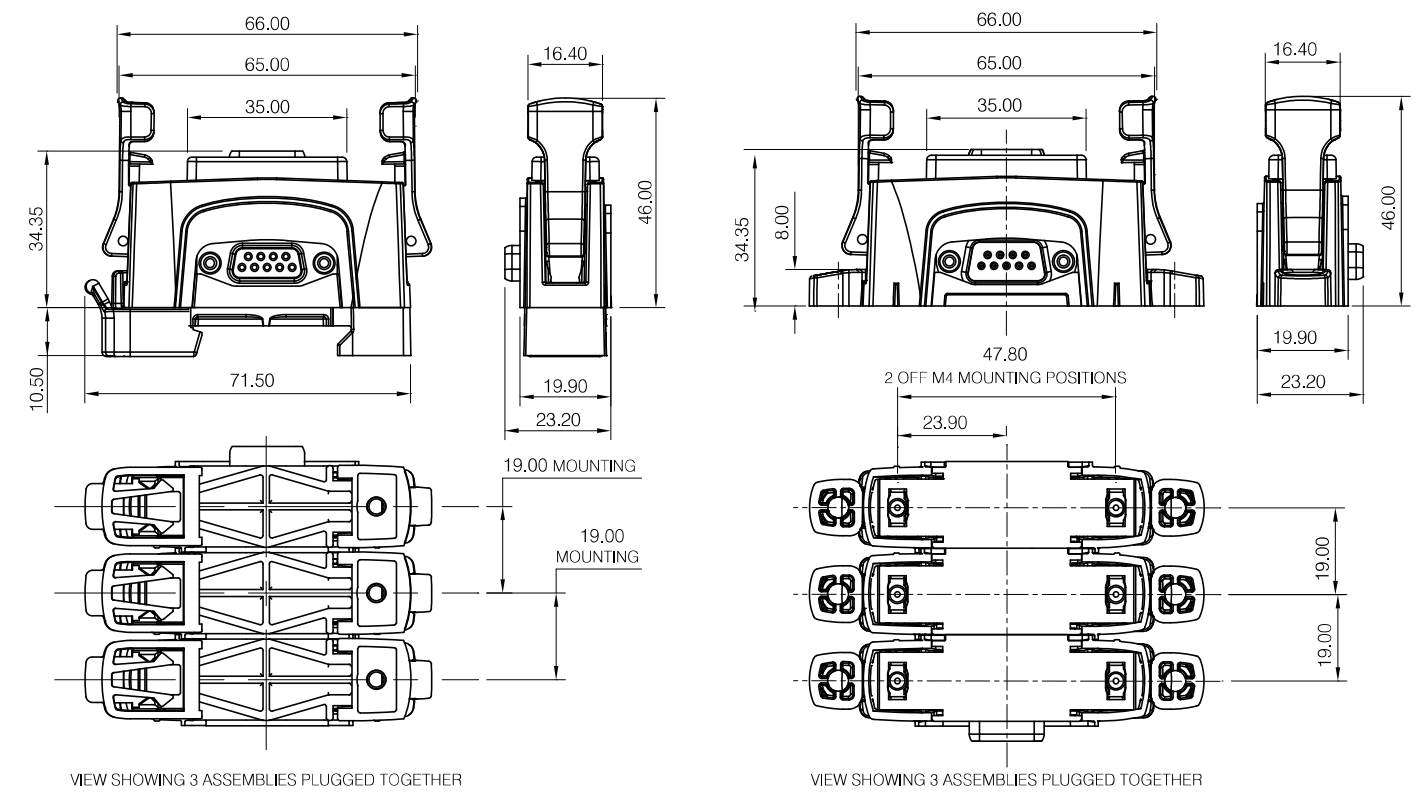


## Orbit® interface components dimensions (mm)

### PIE (Probe Interface Electronics)



### T-CON Orbit network connector



VIEW SHOWING 3 ASSEMBLIES PLUGGED TOGETHER

T-CON with 32 mm DIN raise connector

VIEW SHOWING 3 ASSEMBLIES PLUGGED TOGETHER

T-CON with mounting feet option