

# DUAL AND SINGLE AXIS DIGITAL INCLINOMETER

$\pm 10^\circ$  UP TO  $\pm 70^\circ$   
Model SDI SERIES

The SDI series of digital inclinometers is a complete angle monitoring and early warning system

## FEATURES

- *Single and dual axis measurements*
- *Measuring ranges up to  $\pm 70^\circ$*
- *0.1° or 0.02° display resolution*
- *Temperature ranges: - 20°C ... + 70°C*
- *Two open collector outputs*
- *Low noise*
- *RS232 serial output*
- *Relative zero*
- *Battery operating or external voltage supply*
- *Integrated ISM wireless communication up to 100 m*
- *Built in temperature sensor*
- *Development software*



## DESCRIPTION

The SDI digital inclinometer provides both single and dual axis inclination sensing. The SDI digital inclinometer is a "SMART" sensor with an embedded micro-controller and A/D converter. The combination of sensing elements and digital electronics yields a system requiring no user calibration. The sensor's resolution and settling time are programmable, allowing the SDI series to be customized for various applications.

The SDI digital inclinometer can also be connected to a PC via RS232 by wire or wireless. A zero-reset function allows the user to take as the zero reference any plane within the measurement range. There are two open collector outputs that can be set to switch anywhere within the measuring range.

A dedicated development software is available for use with PCs. It is a convenient way to use the SDI series in straightforward levelling applications.

## APPLICATIONS

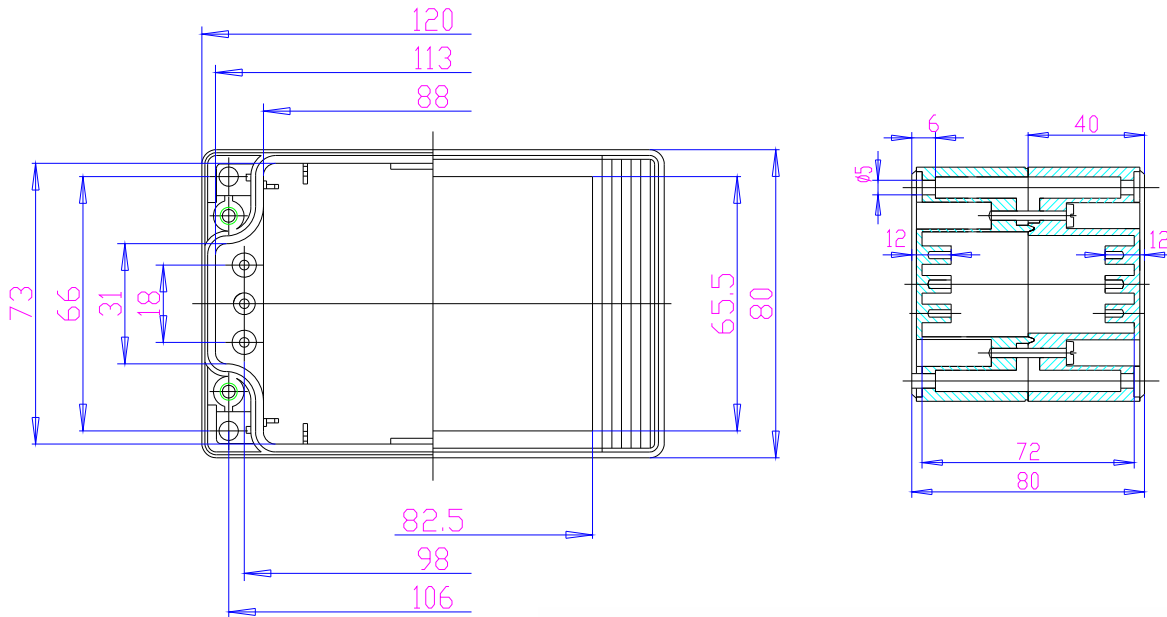
- Platform levelling
- Antenna positioning
- Boom angle indication
- Pitch and roll monitoring
- Geo-mechanical levelling
- Vehicle tilt monitoring
- Mining equipment monitoring
- Paving machines
- Structure monitoring

## TECHNICAL DATA

<b>INPUT PARAMETERS</b>	
<b>Measuring ranges</b>	$\pm 10^\circ, \pm 30^\circ, \pm 70^\circ$
<b>Measurement axes</b>	Single or dual
<b>Power supply</b>	External 8...24 Vdc Non-regulated Internal battery 9 Vdc Alkaline
<b>Current consumption</b>	Display version 60 mA typ Without display 25 mA typ
<b>OUTPUT PARAMETERS</b>	
<b>Non-linearity</b>	0.5 % FSO typ.
<b>Null repeatability</b>	$< 0.05^\circ$
<b>Power supply</b>	Default setting 0.5 s Option from 0.02 s up to 2 s
<b>Transverse sensitivity</b>	$< 1\% \text{ FSO @ max tilt}$
<b>Sensor temperature drift sensitivity</b>	$< 0.01\% / ^\circ\text{C}$
<b>Sensor temperature zero drift</b>	$< 0.01\% / ^\circ\text{C}$
<b>Output units</b>	Standard Degrees Option mm/m, percentage
<b>Operating temperature</b>	$-20^\circ\text{C} \dots +70^\circ\text{C}$
<b>RS232 OUTPUT - wired</b>	
<b>Baud rate</b>	9600
<b>Data Bits</b>	8
<b>Parity</b>	None
<b>Stop Bits</b>	1

<b>RS232 OUTPUT - wireless</b>							
<b>Frequency</b>	ISM - Industrial Scientific Medical 433 MHz 866 MHz						
<b>Baud Rate</b>	2400						
<b>Data Bits</b>	8						
<b>Parity</b>	None						
<b>Stop Bits</b>	1						
<b>DISPLAY PARAMETERS</b>							
<b>LCD Display</b>	Dual line display						
<b>Display resolution</b>	0.02 up to 10° 0.1° from 10° to full scale						
<b>Min/max reading</b>	Stored in EEPROM						
<b>Relative zero</b>	Stored in EEPROM						
<b>Stop Bits</b>	1						
<b>OPEN COLLECTOR OUTPUTS (Optional)</b>							
<b>Open collector outputs</b>	Up to 2 programmable						
<b>Open collector output current</b>	Up to 1 A each						
<b>Switch trip angle</b>	anywhere						
<b>ANALOG VOLTAGE OUTPUT (Optional)</b>							
<b>Analogue Voltage Output</b>	2.5 ± 2 Vdc						
<b>Voltage resolution</b>	<table border="0"> <tr> <td>10°</td> <td>0.02°</td> </tr> <tr> <td>30°</td> <td>0.04°</td> </tr> <tr> <td>70°</td> <td>0.05°</td> </tr> </table>	10°	0.02°	30°	0.04°	70°	0.05°
10°	0.02°						
30°	0.04°						
70°	0.05°						
<b>MECHANICAL CHARACTERISTICS</b>							
<b>Housing</b>	ABS						
<b>Outline dimensions</b>	120 x 80 x 80						
<b>Mounting hole</b>	4 holes dia. 5 mm						
<b>Colour</b>	RAL 7035 - Grey						
<b>Weight</b>	300 g						
<b>Electrical connection</b>	15 pin DIN (Refer to drawing)						

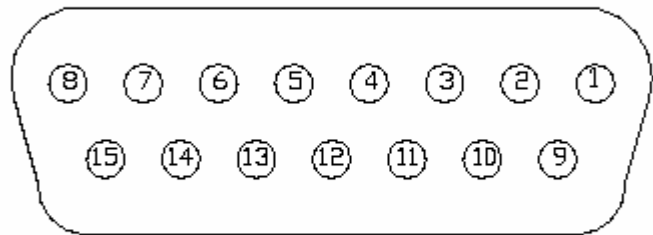
## Mechanical Dimensions



## Wiring diagram:

- 1 - RX
- 2- TX
- 3- GND digital
- 4- GND Analog
- 5- Vin
- 6- Analogue OUTX
- 7- Analogue OUTY
- 8- OPENCOLLECTOR 1
- 9- OPENCOLLECTOR 1
- 10- N.C.
- 11- N.C.
- 12 - N.C.
- 13 - N.C
- 14 - N.C.
- 15 - N.C.

## INTERFACE CONNECTOR



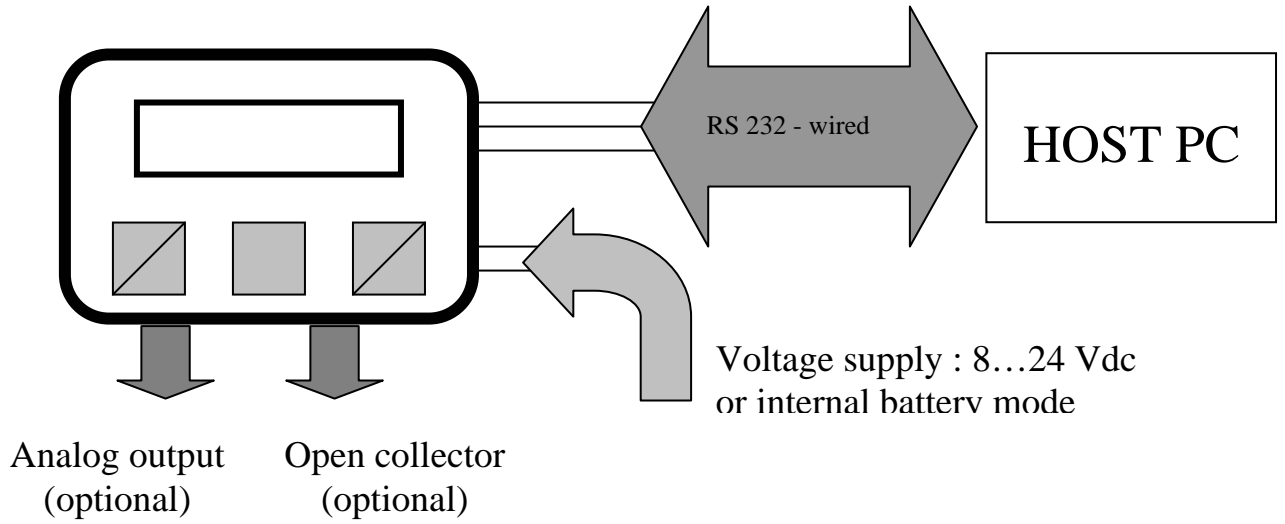
AMP 7457B2-4 D-SUB FEMALE  
 MATES WITH  
 AMP 7479DB-2 MALE

## MODELS :

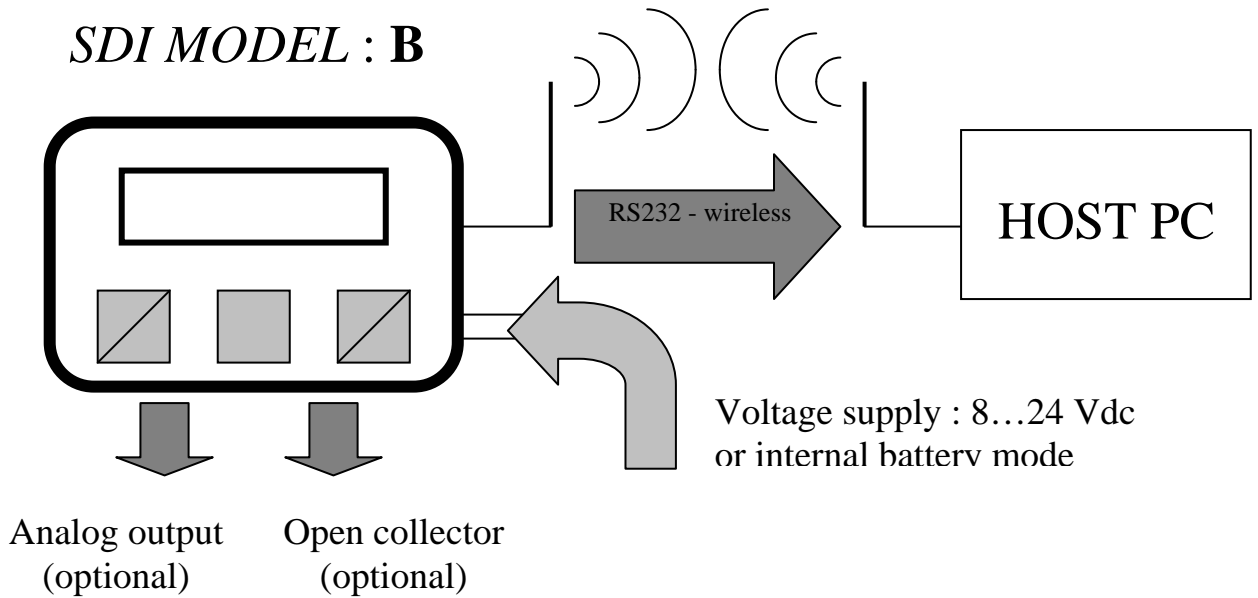
North Europe Office:

Nordic Transducer DK-9560 Hadsund Denmark web: [www.ntt.dk](http://www.ntt.dk) e-mail: [sensor@ntt.dk](mailto:sensor@ntt.dk)

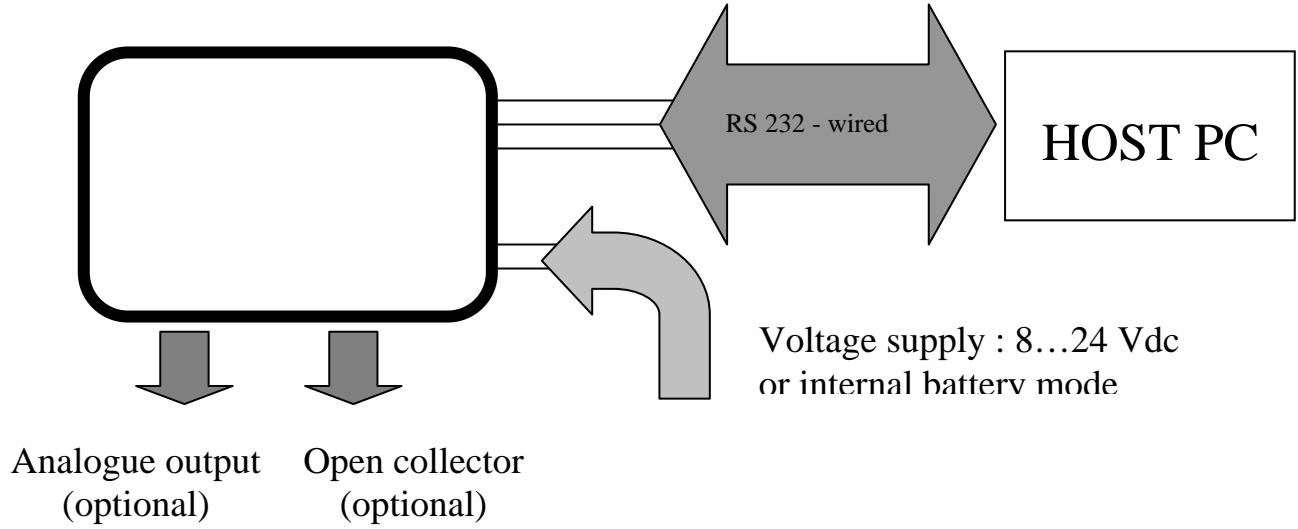
***SDI MODEL : A***



***SDI MODEL : B***



### *SDI MODEL : C*



### *SDI MODEL : D*

