

## IMH1U – 3-digit digital indicator for top hat rail mounting

**Multifunctional measuring input:** Direct voltage, direct current, Pt100(0), Thermocouple, Frequency, Rotational speed, Counter

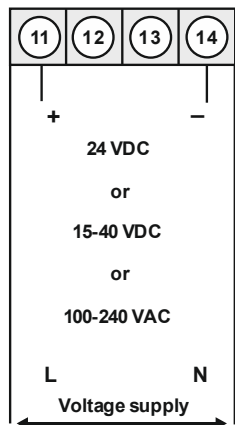
- red display of -199...999 Digits
- digit height approx. 7mm
- min/max value recording
- 9 adjustable supporting points
- display flashing at threshold value exceedance / threshold value undercut
- Tara function
- programming interlock via access code
- pluggable screw-terminal
- optional: analog output 0-10 VDC, 0/4-20 mA switchable
- optional: interfaces RS232 / RS485 / Bluetooth
- optional: sensor supply incl. digital input
- optional: 2 relay outputs / 2 PhotoMos-outputs / 2 relay outputs & 2 PhotoMos-outputs
- optional: Bluetooth interface
- optional: data logger
- accessories: PC-based configuration kit PM-TOOL with CD & USB adapter



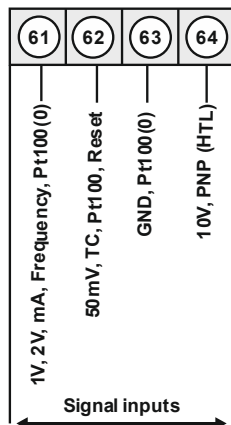
**ORDER NUMBER**  
 (without options)

### • Multifunction measuring input

**Terminal 1**



**Terminal 6**



Supply 24 VDC galv. isolated

Supply 100-240 VAC/DC ±10%

Supply 15-40 VDC / 20-30 VAC

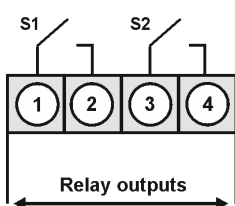
**IMH-1UR3A.000X.760A**

**IMH-1UR3A.000X.S60A**

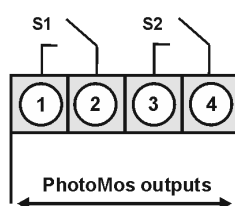
**IMH-1UR3A.000X.W60A**

### Options

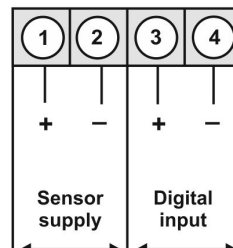
**Terminal 2**



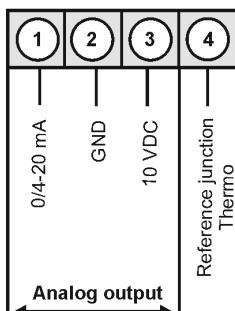
**Terminal 3**



**Terminal 5**

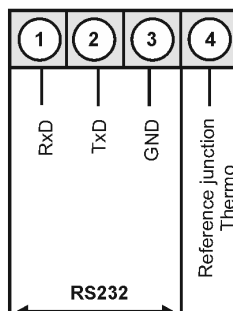


**Terminal 4**

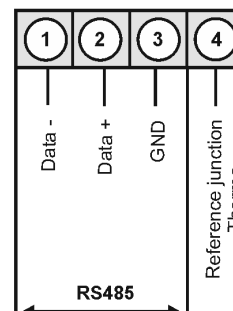


alternative to analog output

**Terminal 4**



or



## • Order key for options

|    |    |   |   |   |   |    |   |   |   |    |   |   |   |   |
|----|----|---|---|---|---|----|---|---|---|----|---|---|---|---|
| IM | H- | 1 | U | R | 3 | A. | 0 | 0 | 0 | X. | 7 | 6 | 0 | A |
| IM | H- | 1 | U | R | 3 | A. | 0 | 0 | 0 | X. | S | 7 | 0 | A |
| IM | H- | 1 | U | R | 3 | A. | 0 | 0 | 0 | X. | W | 7 | 0 | A |

EUR

|                                 |   |  |                   |
|---------------------------------|---|--|-------------------|
| May be combined to some extend. | 2 | 2 Relay outputs  | 23.30             |
|                                 | 3 | 2 PhotoMos outputs   | 28.60             |
|                                 | 5 | 2 PhotoMos- and 2 relay outputs  | 47.70             |
|                                 | X | Analog output  | 74.10             |
|                                 | 3 | Sensor supply 24VDC/50mA incl. digital input for 24VDC power supply                | 47.70             |
|                                 | 3 | Sensor supply 24VDC/50mA incl. digital input for 10-30VDC, 100-240VAC power supply | 28.60             |
|                                 | 3 | Interface RS232  | 63.50             |
|                                 | 4 | Interface RS485  | 63.50             |
|                                 | C | Bluetooth interface  | } In preparation. |
|                                 | D | Data logger  |                   |

## • Parameterisation software

PC-based configuration software PM-TOOL, for devices without keypad; for a simple adjustment of standard devices, incl. CD & USB adapter. Programming happens via interface.

**PM-TOOL-USB**

**30.70**

## • Technical data

|                |                         |  |
|----------------|-------------------------|--|
| <b>Housing</b> | Dimensions              | W22.5 x H117.2 x D107 mm                                       |
|                | Fixing                  | top hat rail   |
|                | Housing material        | PA6.6, black, UL94V-0  |
|                | Connection              | plug-in terminal; wire cross section up to 1.5 mm <sup>2</sup> |
| <b>Display</b> | Display                 | 3-digit  |
|                | Digit height            | 7 mm   |
|                | Segment colour          | red  |
|                | Range of display        | -199 to 999  |
|                | Switching points        | LED S1, LED S2, LED S3, LED S4                                 |
|                | Overflow                | horizontal bars at the top                                     |
|                | Underflow               | horizontal bars at the bottom                                  |
|                | Display time/Meas. time | 0.1 to 10.0 seconds  |

### Measuring input

| Signal           | Measuring range                       | Measuring span | Resolution    |
|------------------|---------------------------------------|----------------|---------------|
| Voltage          | 0...10 V (R <sub>i</sub> > 100 kOhm)  | 0...12 V       | ≥ 14 bit      |
| Voltage          | 0...2 V (R <sub>i</sub> ≥ 10 kOhm)    | 0...2,2 V      | ≥ 14 bit      |
| Voltage          | 0...1 V (R <sub>i</sub> ≥ 10 kOhm)    | 0...1,1 V      | ≥ 14 bit      |
| Voltage          | 0...50 mV (R <sub>i</sub> ≥ 10 kOhm)  | 0...75 mV      |               |
| Current          | 4...20 mA (R <sub>i</sub> = ~125 Ohm) | 1...22 mA      |               |
| Current          | 0...20 mA (R <sub>i</sub> = ~125 Ohm) | 0...22 mA      |               |
| Pt100-3-wire     | -50...200°C                           | -58...392°F    | 0,1°C / 0,1°F |
| Pt100-3-wire     | -200...850°C                          | -328...1562°F  | 1°C / 1°F     |
| Pt1000-2-wire    | -200...850°C                          | -328...1562°F  | 1°C / 1°F     |
| Thermo K         | -270...1350°C                         | -454...2462°F  | 1°C / 1°F     |
| Thermo S         | -50...1750°C                          | -328...3182°F  | 1°C / 1°F     |
| Thermo N         | -270...1300°C                         | -454...2372°F  | 1°C / 1°F     |
| Thermo J         | -170...950°C                          | -274...1742°F  | 1°C / 1°F     |
| Thermo T         | -270...400°C                          | -454...752°F   | 1°C / 1°F     |
| Thermo R         | -50...1768°C                          | -58...3214°F   | 1°C / 1°F     |
| Thermo B         | 80...1820°C                           | 176...3308°F   | 1°C / 1°F     |
| Thermo E         | -270...1000°C                         | -454...1832°F  | 1°C / 1°F     |
| Thermo L         | -200...900°C                          | -328...1652°F  | 1°C / 1°F     |
| Frequency        | 0...10 kHz                            | 0...10 kHz     | 0.001 Hz /    |
| NPN              | 0...3 kHz                             | 0...3 kHz      | 0.001 Hz /    |
| PNP              | 0...1 kHz                             | 0...1 kHz      | 0.001 Hz      |
| Rotational speed | 0...9999 1/min                        | 0...9999 1/min | 0.001 1/min   |
| Counter          | 0...9999 (prescaler up to 1000)       |                |               |

**Pulse input**    **TTL** / Low <2 V / High >3 V                      **HTL/PNP** / Low <6 V / High >8 V  
                          **NPN** / Low <0.8 V / High via resistance        **Namur** / Low <1.5 mA / High >2.5 mA

**Reset input**    active <0.8 V

**Measuring error**    Standard                      0.2% of measuring range ± 1 Digit  
                          Pt100 / Pt1000            0.5% of measuring range ± 1 Digit  
                          Thermocouple            0.3% of measuring range ± 1 Digit

|                           |  |   |
|---------------------------|--|---|
| <b>Accuracy</b>           | Reference junction   | ± 1°C   |
|                           | Drift of temperature   | 100 ppm/K   |
|                           | Measuring time   | 0.01...2.0 seconds  |
|                           | Measuring rate   | approx. 1/s with temperature sensor, approx. 100/s with standard signals  |
|                           | Measuring principle  | U/F-conversion  |
|                           | Resolution   | approx. 14 Bit at 1s measuring time   |
| <b>Output</b>             | Sensor supply  | 24 VDC / 50 mA incl. digital input, < 2.4V OFF, > 10V ON, max. 30 VDC / Ri~ 14 kOhm   |
| <b>Switching points</b>   | 2x relay outputs<br>with normally open contact                         | Switching voltage 30 VDC/AC, max. 2 A resistive load<br>operating life < 30 mV/< 10 mA – min. 2,5x10 <sup>6</sup><br>30 VDC / 1 A – minimum 5x 10 <sup>5</sup><br>30 VDC / 2 A – minimum 1x 10 <sup>5</sup> |
|                           | 2 PhotoMos-outputs<br>with normally open contact                       | Switching voltage 30 VDC/AC, max. 0,4 A   |
| <b>Analog output</b>      | 0-10 VDC / load min. 10 kOhm,<br>0/4-20 mA / load max. 500 Ohm, 12 Bit |   |
| <b>Interface</b>          | Modbus with ASCII or RTU protocol                                      |   |
|                           | USB  | 11520 Baud, no parity, 8 data bit, 1 stop bit, flow control (none)  |
|                           | Bluetooth  | 9.600 Baud, no parity, 8 data bit, 1 stop bit, flow control (none)  |
|                           | RS323  | 9.600 Baud, no parity, 8 data bit, 1 stop bit, wire length max. 3 m   |
|                           | RS485  | 9.600 Baud, no parity, 8 data bit, 1 stop bit, wire length max. 1.000 m   |
| <b>Power pack</b>         | Supply   | 24 VDC ± 10% galvanic isolated, ≤ 5 VA<br>100-240 VAC 50/60 Hz DC ± 10%, ≤ 15 VA<br>15-40 VDC galvanic isolated / 20-30 VAC 50/60 Hz, ≤ 10 VA   |
| <b>Memory</b>             | EEPROM   | Data preservation ≥ 100 years at 25°C   |
| <b>Ambient conditions</b> | Working temperature  | -20 to + 50°C   |
|                           | Storing temperature  | -30 to + 70°C   |
|                           | Weathering resistance  | relative humidity 0-85% on years average without dew  |
| <b>EMV</b>                | EN 61326   |   |
| <b>CE-identification</b>  | conformity according to directive 2014/30/EU                           |   |
| <b>Safety regulations</b> | according to low voltage directive 2014/35/EU;<br>EN 61010; EN 60664-1 |   |

**Housing:**

