



## DHB-102

DHB-102, Digital indicator

Code: M22021. DESCATALOGADO

- > N° relays: 1
- > Measure: imp., Hz.
- > Paramètre: Impulses, frequency, circular speed, periods, worktime, encoder position
- > Mounting: Pannel

### Description

Panel mounted digital devices designed to display on-screen the value of a electrical variable measured or proportional value of a process signal, depending on the model. Essential for regulation purposes, programming the analogue output available in some models, and for control purposes, if the relay outputs are used as alarms.

DHB units are fully programmable and the following can be programmed: scale, transformation ratios, alarm setpoints to activate relays, communications, colour of the numbers displayed on screen, etc. Depending on the model, you can measure the electrical parameters of a single-phase installation such as voltage, current, frequency, power,  $\cos \varphi$ , etc., the direct voltage or current of an installation, impulses, frequency, circular speed, periods, time, temperature and also other voltage and current process variables. AC models calculate the true root mean square measure (TRMS).

The models include the following common features:

- IP 65 front panel
- High measurement accuracy
- Programmable measurement input
- Delay and latching alarms
- 24 Vdc output for supply external transducers (DHB 1xx and DHB 4xx models)
- Galvanic insulation between external circuits
- Adjustment of non-linear equations with 21 straight points (2 in the DHB 3xx model).
- Change in colour of the display depending on the value shown.
- Maximum and minimum values
- Clock with current time
- Self-configurable decimal point
- Compatible with Power Studio (model with communications)
- Installation on 96 x 48 mm panel

### Application

These digital instruments have multiple applications. Thanks to their very bright 5-digit and 3-colour screen, you can simply view a numerical value and an alarm or prealarm status of a measured variable. Depending on the model selected, displayed on-screen are the electrical parameters of a single-phase installation as a power analyzer (voltage, current, power, frequency, etc.).

Other models allow to visualize the value of an analogue signal, show impulses received through an input, temperature, time, circular speed and many other variables that depends on the device and the configuration. The indicators also let you operate any external element, using the panel unit outputs as alarms depending on the value of a variable or as a transducer of the measured variable to an analogue signal, which is subsequently sent to another unit, such as a PLC.

Apart from displaying the values, units with communications also allow you to send data via the RS-485 communication bus for software or PLC integration.



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### Specifications

#### AC power supply

|                       |                |
|-----------------------|----------------|
| Installation category | CAT III 300V   |
| Consumption           | 1,2...9 VA     |
| Frequency             | 40...400 Hz    |
| Nominal voltage       | 85...253 Vc.a. |

#### DC power supply

|                       |               |
|-----------------------|---------------|
| Installation category | CAT III 300 V |
| Consumption           | 1,2...6 W     |
| Nominal voltage       | 85...253 Vdc  |

#### Mechanical characteristics

|                                  |                               |
|----------------------------------|-------------------------------|
| Size (mm) width x height x depth | 96 x 48 x 93 (mm)             |
| Envelope                         | Self-extinguishing V0 plastic |
| Weight (kg)                      | 0,23                          |

#### Environmental characteristics

|  |                             |
|--|-----------------------------|
| Protection class                         | IP 65 (Front), IP 10 (rear) |
| Relative humidity (without condensation) | 25...95 %                   |
| Storage temperature                      | -33...+70 °C                |
| Operating temperature                    | -25...+55 °C                |

#### Standards

|                                       |  |
|---------------------------------------|--|
| Electrical safety, Maximum height (m) | 2000   |
| Standards                             | UNE EN 61000-6-2, UNE EN 61000-6-4, UNE EN 61010-1 |

#### User interface

|              |                           |
|--------------|---------------------------|
| LED          | 7                         |
| Keyboard     | 4 keys                    |
| Display type | 7 segments (5 digits) LED |

#### Analogue outputs

|                                       |                        |
|---------------------------------------|------------------------|
| Current mode, nominal range           | 0...20 mA or 4...20 mA |
| Current mode: minimum load resistance | $\leq 500\Omega$       |
| Voltage mode, minimum load resistance | $\geq 500\Omega$       |
| Voltage mode: nominal output range    | 0...10 Vdc             |

#### Digital relay outputs

|                 |       |
|-----------------|-------|
| Maximum current | 0,5 A |
|-----------------|-------|



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|                              |  |
|------------------------------|--|
| Maximum open contact voltage | 250 Vac                                  |
| Electrical life              | 1x10 <sup>5</sup> ciclos (250 Vc.a./5 A) |
| Mechanical life              | 1x10 <sup>6</sup> cycles                 |
| Maximum switching capacity   | 1500 W o 1250 VA                         |

### Measurement accuracy

|                       |   |
|-----------------------|---|
| Frequency measurement | 0,01  |
| Pulse number          | ± 1 impulso (IN1/IN2)                           |
| Time period           | <10 s : 0,0001...11 s / >10 s : 0,0001...3600 s |
| Rotation speed        | 0,05...99999 rpm                                |

### Display ranges

|                      |  |
|----------------------|--|
| Run time meter       | 0 ... 99999 h                                      |
| Encoder              | -19999 ... 99999                                   |
| Frequency            | <10 kHz : 0,05...99999 Hz / >10 kHz : 1...99999 Hz |
| Current time         | 00:00 ... 23:59                                    |
| IN1/IN2 pulse meters | -19999...99999                                     |
| Time period          | <10 s (0,0001 ... 11s) / >10 s (0,0001 ... 3600s)  |
| Rotation speed meter | 0,05...99999 rpm                                   |

### Open collector output

|         |                  |
|---------|------------------|
| Type    | NPN              |
| Voltage | 30 Vc.c. / 30 mA |

### External transducer power supply output

|                   |                  |
|-------------------|------------------|
| Voltage / Current | 24 Vc.c. / 30 mA |
|-------------------|------------------|

### Input signal

|         |                |
|---------|----------------|
| Voltage | 5 ... 36 Vc.c. |
|---------|----------------|

### Input types

|                                       |                                  |
|---------------------------------------|----------------------------------|
| Encoder (maximum frequency)           | 10 kHz                           |
| Frequency                             | <10 kHz : 100 kHz / >10kHz: 1MHz |
| Maximum time frequency                | 100 kHz                          |
| Maximum pulse input frequency IN1/IN2 | 10 kHz / 8 kHz                   |
| Maximum rotation speed frequency      | 100 kHz                          |

DHB  
Digital instrument



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| CODE    | TYPE      | N° relays | Measure  | Paramètre  | Communications | Analog output               |
|---------|-----------|-----------|--|--|----------------|-----------------------------|
| M22021. | DHB-102 1 |           | imp., Hz.  | Impulses, frequency, circular speed, periods, worktime, encoder position |                |                             |
| M22022. | DHB-124 3 |           | imp., Hz.  | Impulses, frequency, circular speed, periods, worktime, encoder position | RS-485         | 1 (0/4...20 mA)  1(0...10V) |
| M22023. | DHB-2022  |           | $\pm 100...500$ Vdc $\pm 1/5$ Adc  | Voltmeter or ammeter $\pm 100...500$ Vdc $\pm 1/5$ Adc                   |                |                             |
| M22024. | DHB-224 4 |           | $\pm 100...500$ Vdc $\pm 1/5$ Adc  | Voltmeter or ammeter $\pm 100...500$ Vdc $\pm 1/5$ Adc                   | RS-485         | 1                           |
| M22025. | DHB-3022  |           | $\pm 100/400$ Vac $\pm 1/5$ Aac  | Single-phase analyzer  |                |                             |
| M22026. | DHB-324 4 |           | $\pm 100/400$ Vac $\pm 1/5$ Aac  | Single-phase analyzer  | RS-485         | 1 (0/4...20 mA)  1(0...10V) |
| M22027. | DHB-4022  |           | Pt100/500/1000 Thermocouple<br>J,K,N,E,R,S, $\pm 20$ mA, $\pm 10$ V, 60 mV | Process / Resistance/ Temperature  |                |                             |
| M22028. | DHB-424 4 |           | Pt100/500/1000 Thermocouple<br>J,K,N,E,R,S, $\pm 20$ mA, $\pm 10$ V, 60 mV | Process / Resistance/ Temperature  | RS-485         | 1 (0/4...20 mA)  1(0...10V) |



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### Dimensions

