Field display for current loops with HART® communication
Models DIH50, DIH52, DIH62

Applications
- Process engineering
- Plant construction
- General industrial applications
- Oil and gas industry

Special features
- Automatic measuring range configuration via HART® communication between HART® master and transmitter
- Indication range -9999 .... 99999 / bar graph
- Display for units and various status messages
- Ex versions
  - Model DIHxx-B: intrinsically safe
  - Model DIH5x-F: flameproof enclosure
- HART®: Secondary master function and multidrop capability (models DIH52, DIH62)

Description
The DIH series field displays are 4 ... 20 mA current loop indicators which can, in addition, offer a superimposed HART® communication between the connected transmitter and the control room. Thus the indication range and units are automatically adopted dependent on the settings of the connected HART® transmitter.

Common units for temperature and pressure are factory-set. An additional "user unit" is freely programmable.

With this field display it is possible to display range alarms as well as MIN and MAX values. Error-current signals from the connected transmitters are also detected and displayed. The display can be used in conjunction with any 4 ... 20 mA transmitter.

The field displays are powered directly from the 4 ... 20 mA current loop, with a resultant voltage drop of less than 3 V.

The field displays can be mounted directly onto a wall. An optional pipe mounting kit is available for fitting to pipes with a diameter of 1 ... 2".

The model DIHxx-B, DIHxx-Z basic modules are also available separately for mounting into other suitable enclosures.

The model DIH5x field displays consist of an aluminium field case with a built-in basic module.

The model DIH62 digital displays are available with various case materials, such as plastic, stainless steel and aluminium.
## Specifications

<table>
<thead>
<tr>
<th>Display</th>
<th>Model DIH50</th>
<th>Models DIH52, DIH62</th>
</tr>
</thead>
<tbody>
<tr>
<td>■ Principle</td>
<td>LCD, rotatable in 10° steps</td>
<td></td>
</tr>
<tr>
<td>■ Measured value</td>
<td>7-segment LCD, 5-digits, character size 9 mm</td>
<td></td>
</tr>
<tr>
<td>■ Bar graph</td>
<td>20-segment LCD</td>
<td></td>
</tr>
<tr>
<td>■ Information line</td>
<td>14-segment LCD, 6-digit, character size 5.5 mm</td>
<td></td>
</tr>
<tr>
<td>■ Status indicators</td>
<td>♥ : HART® mode (signalling of HART® parameter adoption)</td>
<td></td>
</tr>
<tr>
<td>■ Indication range</td>
<td>-9999 ... 99999</td>
<td></td>
</tr>
<tr>
<td>Measuring rate</td>
<td>4/s</td>
<td></td>
</tr>
<tr>
<td>Accuracy</td>
<td>±0.1 % of the measuring span</td>
<td>±0.05 % of the measuring span</td>
</tr>
<tr>
<td>Temperature coefficient</td>
<td>±0.1 % of the measuring span / 10 K</td>
<td></td>
</tr>
<tr>
<td>Input signal</td>
<td>4 ... 20 mA</td>
<td></td>
</tr>
<tr>
<td>Output signal</td>
<td>analogue current signal is connected through directly</td>
<td></td>
</tr>
<tr>
<td>Permissible current load</td>
<td>100 mA</td>
<td></td>
</tr>
<tr>
<td>Voltage drop</td>
<td>&lt; DC 3 V (&lt; DC 2 V at 20 mA); supply via current loop</td>
<td></td>
</tr>
<tr>
<td>HART® functionality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>■ Access control</td>
<td>-</td>
<td>Secondary master</td>
</tr>
<tr>
<td>■ Automatically set parameters</td>
<td>Unit, measuring range</td>
<td></td>
</tr>
<tr>
<td>■ Available commands</td>
<td>-</td>
<td>Unit, measuring range start/end, format, zero point, span, damping, polling address</td>
</tr>
<tr>
<td>■ Identified commands</td>
<td>Generic mode: 1, 15, 35, 44</td>
<td>Generic mode: 0, 1, 6, 15, 34, 35, 36, 37, 44</td>
</tr>
<tr>
<td>■ Multidrop</td>
<td>not supported</td>
<td>Measured values are automatically taken from the HART® digital data and displayed</td>
</tr>
<tr>
<td>Electrical connection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>■ Signal input</td>
<td>Model DIH5x-B, DIHxx-Z: flying leads, 0.5 mm² (basic module)</td>
<td>Models DIHxx-I, DIHxx-F, DIHxx-S: internal spring-clip terminals, connection cross section max. 2.5 mm² (field display)</td>
</tr>
<tr>
<td>■ Signal output</td>
<td>captive screw terminals, connection cross section max. 2.5 mm²</td>
<td></td>
</tr>
<tr>
<td>Permissible</td>
<td></td>
<td></td>
</tr>
<tr>
<td>■ Ambient temperature</td>
<td>-20 ... +85 °C</td>
<td>-20 ... +70 °C</td>
</tr>
<tr>
<td>■ Storage temperature</td>
<td>-40 ... +85 °C</td>
<td></td>
</tr>
<tr>
<td>■ Humidity</td>
<td>35 ... 85 % r. h. (non-condensing)</td>
<td></td>
</tr>
<tr>
<td>■ Vibration resistance</td>
<td>3 g, per DIN EN 60068-2-6</td>
<td></td>
</tr>
<tr>
<td>■ Shock resistance</td>
<td>30 g, per DIN EN 60068-2-27</td>
<td></td>
</tr>
<tr>
<td>CE conformity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>■ EMC directive</td>
<td>2004/108/EC, EN 61326 Emission (Group 1, Class B) and Immunity (industrial locations)</td>
<td></td>
</tr>
</tbody>
</table>

## Field case

<table>
<thead>
<tr>
<th>Models DIH50, DIH52</th>
<th>Model DIH62</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material</td>
<td>Aluminium, stainless steel; Window from polycarbonate</td>
</tr>
<tr>
<td>Colour</td>
<td>Aluminium: Night blue, RAL 5022</td>
</tr>
<tr>
<td></td>
<td>Stainless steel: Silver</td>
</tr>
<tr>
<td>Cable glands</td>
<td>3 x M20 x 1.5 or 3 x ½ NPT</td>
</tr>
<tr>
<td>Ingress protection</td>
<td>IP 66</td>
</tr>
<tr>
<td>Weight</td>
<td>Aluminium: approx. 1.5 kg</td>
</tr>
<tr>
<td></td>
<td>Stainless steel: approx. 3.7 kg</td>
</tr>
<tr>
<td>Dimensions</td>
<td>see drawing</td>
</tr>
</tbody>
</table>

## Basic module, HART® loop module

<table>
<thead>
<tr>
<th>Models DIHxx-B, DIHxx-Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material</td>
</tr>
<tr>
<td>Ingress protection</td>
</tr>
<tr>
<td>Weight</td>
</tr>
<tr>
<td>Dimensions</td>
</tr>
<tr>
<td>Model</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>DIH50-S, DIH52-S, DIH62-S (field display)</td>
</tr>
<tr>
<td>DIH50-Z, DIH52-Z, DIH62-Z (HART® loop module)</td>
</tr>
</tbody>
</table>
| DIH50-B (HART® loop module) | II 1G Ex ia IIC T4/T5/T6 Ga  
BVS 10 ATEX E 016 X  
IECEx BVS 10.0037X | -40 ... +85 °C at T4  
-40 ... +75 °C at T5  
-40 ... +55 °C at T6 | $U_i < 29 \text{ V}$  
$I_i < 100 \text{ mA}$  
$P_i < 660 \text{ mW}$  
$C_i = 12 \text{ nF}$  
$L_i = 2.2 \mu\text{H}$ | 14.5 ... 29 V |
| DIH50-B (HART® loop module) | II (1) 2G Ex ia IIC T4/T5/T6 (Ga) Gb  
BVS 10 ATEX E 016 X  
IECEx BVS 10.0037X | -40 ... +85 °C at T4  
-40 ... +75 °C at T5  
-40 ... +55 °C at T6 | $U_i < 29 \text{ V}$  
$I_i < 100 \text{ mA}$  
$P_i < 660 \text{ mW}$  
$C_i = 12 \text{ nF}$  
$L_i = 2.2 \mu\text{H}$ | 14.5 ... 29 V |
| DIH50-B (HART® loop module) | II 1D Ex ia IIIc T120 °C Da  
BVS 10 ATEX E 016 X  
IECEx BVS 10.0037X | -40 ... +40 °C ($P_i = 660 \text{ mW}$)  
-40 ... +70 °C ($P_i = 630 \text{ mW}$) | $U_i < 29 \text{ V}$  
($V_{\text{max}} < 29 \text{ V}$)  
$I_i < 100 \text{ mA}$  
($I_{\text{max}} < 100 \text{ mA}$)  
$P_i < 660 \text{ mW}$  
($P_{\text{max}} < 660 \text{ mW}$)  
$C_i = 12 \text{ nF}$  
$L_i = 2.2 \mu\text{H}$ | 14.5 ... 29 V |
| DIH50-B (HART® loop module) | CSA (1946893 (LR 66027)  
FM (3031500)  
Class I, Division 1 + 2, Groups A, B, C, D  
Class I, Division 2, Groups A, B, C, D  
(IS/I/1/ABCD/T* + IS/I/0AEx ia/IIIC/T*)  
(IS/I/1/ABCD/T* + IS/I/0AXEx ia/IIIC/T*) | -40 ... +85 °C at T4  
-40 ... +75 °C at T5  
-40 ... +55 °C at T6 | $U_i < 29 \text{ V}$  
$I_i < 100 \text{ mA}$  
$P_i < 660 \text{ mW}$  
$C_i = 12 \text{ nF}$  
$L_i = 2.2 \mu\text{H}$ | 14.5 ... 29 V |
| DIH50-B (HART® loop module) | II 1G Ex ia IIC T4/T5/T6 Ga  
BVS 10 ATEX E 016 X  
IECEx BVS 10.0037X | -40 ... +85 °C at T4  
-40 ... +75 °C at T5  
-40 ... +55 °C at T6 | $U_i < 29 \text{ V}$  
$I_i < 100 \text{ mA}$  
$P_i < 660 \text{ mW}$  
$C_i = 12 \text{ nF}$  
$L_i = 2.2 \mu\text{H}$ | 14.5 ... 29 V |
| III 2G Ex ia IIC T4/T5/T6 Ga  
BVS 10 ATEX E 016 X  
IECEx BVS 10.0037X | -40 ... +85 °C at T4  
-40 ... +75 °C at T5  
-40 ... +55 °C at T6 | $U_i < 29 \text{ V}$  
$I_i < 100 \text{ mA}$  
$P_i < 660 \text{ mW}$  
$C_i = 12 \text{ nF}$  
$L_i = 2.2 \mu\text{H}$ | 14.5 ... 29 V |
| DIH50-F, DIH52-F (field display) | Flameproof enclosure  
BVS 10 ATEX E 158  
IECEx BVS 10.0103  
Ex db d IIc T6/T5/T4 Gb  
Ex db IIc T6/T5/T4  
Ex d IIc T6/T5/T4  
Ex db IIc T6/T5/T4 | -40 ... +85 °C at T4  
-40 ... +75 °C at T5  
-40 ... +60 °C at T6 | $U_M = 30 \text{ V}$  
$P_M = 2 \text{ W}$ | 14.5 ... 30 V |
| DIH50-I, DIH52-I, DIH62-I (field display) | Intrinsically safe equipment 2)  
BVS 10 ATEX E 016 X  
IECEx BVS 10.0037X Ex ia [ia Ga] | -40 ... +85 °C at T4  
-40 ... +75 °C at T5  
-40 ... +60 °C at T6 | $U_i \leq 29 \text{ V}$  
$I_i \leq 100 \text{ mA}$  
$P_i \leq 680 \text{ mW}$  
$C_i = 12 \text{ nF}$  
$L_i = 2.2 \mu\text{H}$ | 14.5 ... 29 V |

1) Limited display function within ambient temperature range -40 ... -20 °C  
2) The installation conditions for the display must be considered for the final application.
Electrical connection

Models DIH50, DIH52

Legend:
- Power supply
- Consumers
- (−) supply minus
- (+) supply plus
- 2-wire connection
Dimensions in mm

**Field display, models DIH50, DIH52**

Basic module, models DIH50-B, DIH50-Z, DIH52-B, DIH52-Z

Field display, models DIH50, DIH52

Aluminium/stainless steel

Field display, model DIH62

Single chamber housing, plastic

Single chamber housing, aluminium or cast stainless steel

Single chamber housing, deep-drawn stainless steel
User interface

Models DIH50, DIH52

- Status data
- Unit and info line
- Measured value
- Bar graph
- Operating keys

Model DIH62

- Status data
- Unit and info line
- Measured value
- Bar graph
- Operating keys

Accessories

<table>
<thead>
<tr>
<th>Model</th>
<th>Special features</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface mounting bracket for model DIH62</td>
<td>Mounting bracket for wall or pipe mounting, stainless steel</td>
<td>11495210</td>
</tr>
<tr>
<td>Model 010031</td>
<td>HART® modem for USB-interface, specifically designed for use with modern notebooks</td>
<td>11025166</td>
</tr>
<tr>
<td>Model 010001</td>
<td>HART® modem for RS-232 interface</td>
<td>7957522</td>
</tr>
<tr>
<td>Model 010041</td>
<td>HART® modem for Bluetooth interface [EEx ia] IIC</td>
<td>11364254</td>
</tr>
<tr>
<td>FC475HP1EKLUGMT</td>
<td>HART® protocol, Li-Ion battery, power supply AC 90 … 240 V, without EASY UPGRADE, ATEX, FM and CSA (intrinsically safe)</td>
<td>on request</td>
</tr>
<tr>
<td>FC475FP1EKLUGMT</td>
<td>HART® protocol, FOUNDATION™ Fieldbus, Li-Ion-battery, power supply AC 90 … 240 V, with EASY UPGRADE, ATEX, FM and CSA (intrinsically safe)</td>
<td>on request</td>
</tr>
<tr>
<td>MFC4150</td>
<td>HART® protocol, universal power supply, cable set with 250 Ω resistance, with DOF upgrade, with Ex-protection</td>
<td>11405333</td>
</tr>
<tr>
<td>Magnetic quick connector magWIK</td>
<td>Replacement for crocodile clips and HART® terminals, Fast, safe and tight electrical connection, For all configuration and calibration processes</td>
<td>11604328</td>
</tr>
</tbody>
</table>
CE conformity

EMC directive
2004/108/EC, EN 61326 emission (group 1, class B) and interference immunity (industrial application)

ATEX directive
94/9/EG

Approvals

- IECEx, international certification for the Ex area
- FM, ignition protection type „i“ - intrinsic safety, USA
- CSA, ignition protection type „i“ - intrinsic safety, Canada
- GOST-R, import certificate, Russia
- GOST, metrology/measurement technology, Russia

Certificates (option)

- 2.2 test report
- 3.1 inspection certificate
- DKD/DAkkS calibration certificate

Approvals and certificates, see website

Ordering information
Model / Display module / Explosion protection / Housing material / Cable glands / Thread for cable glands / Certificates / Options