

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

WIKA data sheet AC 80.10



For further approvals, see
page 5



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
- Display range -9,999 99,999 / bar graph
- Display for unit and various status messages
- Ex version possible (intrinsically safe, flameproof enclosure)
- HART®: Secondary master function and multidrop capability (model DIH52)



Field indicator, models DIH50, DIH52

Description

The DIH series field indicators 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 display range and the units are automatically adopted dependent on the settings of the connected HART® transmitter.

Common units for temperature and pressure are already saved ex-works. An additional "user unit" is freely programmable.

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

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

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

The models DIH5x-B, DIH5x-Z display modules are also available separately for installation into other suitable cases.

The field indicators consist of a field case made of aluminium or stainless steel with a built-in display module.

Specifications

Overview of versions	
DIH50	Indication, HART® slave
DIH52	Indication and parameterisation, HART® master

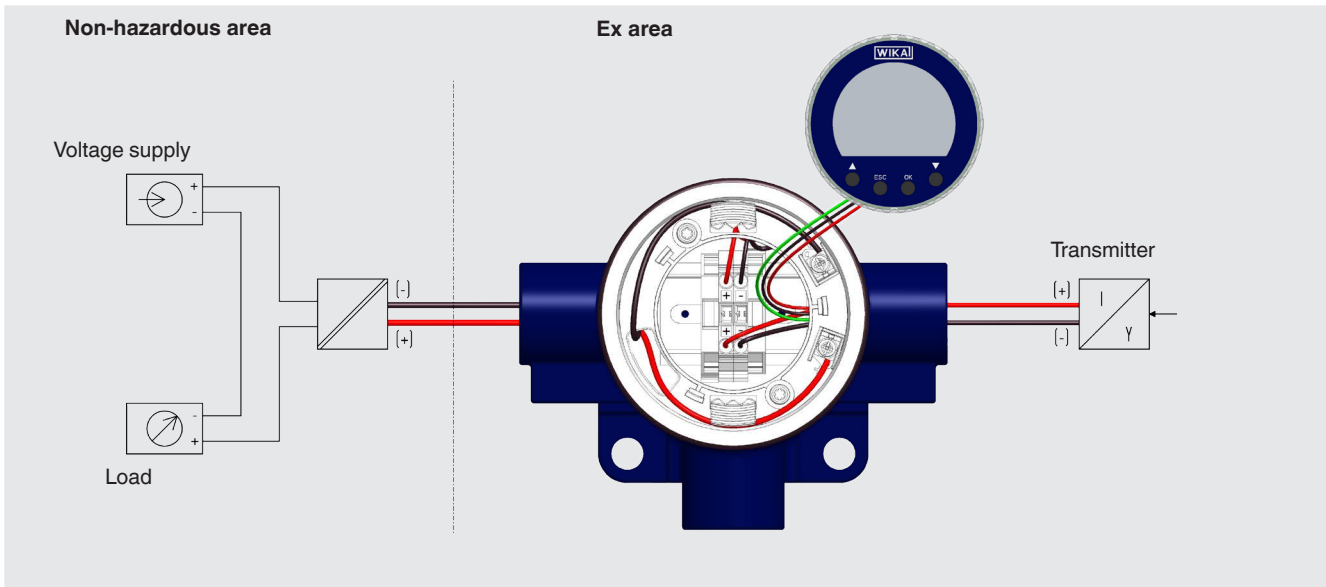
Basic information	
Display principle	LCD, rotatable in 10° steps
Measured value of display	7-segment LCD, 5-digit, character size 9 mm [0.35 in]
Bar graph	20-segment LCD
Info line	14-segment LCD, 6-digit, character size 5.5 mm [0.22 in]
Status displays	♥ : HART® mode (signalling of HART® parameter adoption)
	🔑 : Unit lock
	⚠ : Warnings or error messages

Scale range	
Accuracy	
Model DIH50	±0.1 % of measuring span
Model DIH52	±0.05 % of measuring span
Temperature coefficient	±0.1 % of measuring span / 10 K
Digital display	
Display range	-9,999 ... 99,999

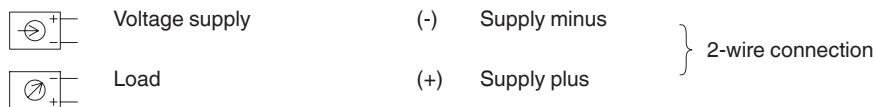
Input signal	
Measuring rate	4/s
Input signal	4 ... 20 mA
Output signal	Analogue current signal is looped in directly
Permissible current carrying capacity	100 mA
Voltage drop	< DC 3 V (< DC 2 V at 20 mA); supply via current loop

Communication	Model DIH50	Model DIH52
HART®		
Output signal	4 ... 20 mA with HART® Load ≥ 250 Ω	
Communications protocol	HART®	
Access control	-	Secondary master
Automatically set parameters	Unit, measuring range	
Available commands	-	Unit, measuring range start/end, format, zero point, span, damping, polling address
Identified commands	Generic mode: 1, 15, 35, 44	Generic mode: 0, 1, 6, 15, 34, 35, 36, 37, 44
Multidrop	Not supported	Measured values are automatically taken from the HART® digital data and displayed

Electrical connection	
Signal input	Model DIHxx-B, DIHxx-Z: flying leads 0.5 mm ² (display module) Model DIHxx-I, DIHxx-F, DIHxx-S: internal spring-clip terminals, connection cross-section max. 2.5 mm ² (field indicator)
Signal output	Captive screw terminals, connection cross-section max. 2.5 mm ²



Legend:



Field case		
Material		
Case	Aluminium	Night blue, RAL 5022
	Stainless steel	Silver
Window	Polycarbonate	
Cable bushings	■ 3 x M20 x 1.5 ■ 3 x ½ NPT	
Ingress protection per DIN EN IEC 60529	IP66	
Weight	Aluminium	Approx. 1.5 kg
	Stainless steel	Approx. 3.7 kg
Dimensions	See „Dimensions in mm [in]“	

Display module, HART® loop module	Models DIH5x-B, DIH5x-Z
Material	Polycarbonate
Ingress protection	IP20
Weight	Approx. 80 g
Dimensions	See „Dimensions in mm [in]“

Operating conditions	
Ambient temperature range	-60 ¹⁾ / -50 ¹⁾ / -40 ... + 85 °C [-76 / -58 / -40 ... + 185 °F]
Temperature of use	-20 ²⁾ ... +70 °C [-4 ... +158 °F]
Storage temperature range	-40 ... +85 °C [-40 ... +185 °F]
Humidity	93 % relative humidity ±3 %
Condensation	Non-condensing
Climate class	Cx (-20 ... + 85 °C [-4 ... + 185 °F], 35 ... 85 % relative humidity)
Vibration resistance	3g, per DIN EN 60068-2-6
Shock resistance	30g, per DIN EN 60068-2-27
Electromagnetic compatibility	EN 61326 emission (group 1, class B) and immunity (industrial environment)

1) Special version on request (only available with specific approvals)

2) If the ambient temperature has been < -20 °C [-4 °F], there may be a delay in the display function resuming, especially when the loop current is low.

Approvals

Logo	Description	Region
	EU declaration of conformity	European Union
	EMC Directive	
	EN 61326 emission (group 1, class B) and immunity (industrial environment)	
	RoHS directive	

Optional approvals

Logo	Description	Region
	EU declaration of conformity	European Union
	ATEX directive Hazardous areas	
	IECEx Hazardous areas	International
	FM Hazardous areas	USA
	CSA	USA and Canada
	Hazardous areas	
	EAC	Eurasian Economic Community
	EMC Directive	
	Hazardous areas	
	Ex Ukraine	Ukraine
	Mining industry	
	Hazardous areas	
	INMETRO	Brazil
	Metrology, measurement technology	
	Hazardous areas	
-	PESO Hazardous areas	India
	PAC Kazakhstan Metrology, measurement technology	Kazakhstan
-	PAC Ukraine Metrology, measurement technology	Ukraine

Model overview of approvals				
Model	Approvals	Ambient/Storage temperature (in accordance with the relevant temperature classes)	Safety-related maximum values for current loop ($\pm$ connections)	Auxiliary power UB (DC)
DIH50-S, DIH52-S (field indicator)	Without	-20 ... +85 °C	-	14.5 ... 42 V
DIH50-Z, DIH52-Z (HART® loop module)	Without	-20 ... +85 °C	-	14.5 ... 42 V
DIH50-B (HART® loop module)	FM (FM19US0033X) Class I, Division 1, Groups A, B, C, D (IS/I/1/ABCD/T* + IS/I/0AEx ia/IIC/T*) Class I, Division 2, Groups A, B, C, D NI/I/2/ABCD/T* + NI/I/2/IIC/T*	-40 ... +85 °C at T4 -40 ... +70 °C at T5 -40 ... +55 °C at T6	$U_i = 29 \text{ V}$ $I_i = 100 \text{ mA}$ $P_i = 680 \text{ mW}$ $C_i = 13.2 \text{ nF}$ $L_i = 1.2 \text{ }\mu\text{H}$	14.5 ... 29 V
DIH50-B (HART® loop module)	EAC EAES KZ 7100841.01.01.03036 0 Ex ia IIC T6 ... T4 Ga X Ex ia IIIC T80°C ... T135°C Da X 1 Ex ia IIC T6 ... T4 Gb X Ex ia IIIC T80°C ... T135°C Db X 1 Ex ia [ia Ga] IIC T6 ... T4 Gb X Ex ia [ia Da] IIIC T80°C ... T135°C Db X 1 Ex ib IIC T6 ... T4 Gb X Ex ib IIIC T80°C ... T135°C Db X	-60 ¹⁾ / -40 ... +85 °C at T4 -60 ¹⁾ / -40 ... +75 °C at T5 -60 ¹⁾ / -40 ... +55 °C at T6	$U_i = 29 \text{ V}$ ($V_{\max} < 29 \text{ V}$) $I_i = 100 \text{ mA}$ ($I_{\max} < 100 \text{ mA}$) $P_i = 660 \text{ mW}$ ($P_{\max} < 660 \text{ mW}$) $C_i = 12 \text{ nF}$ $L_i = 2.2 \text{ }\mu\text{H}$	14.5 ... 29 V
DIH50-F, DIH52-F (field indicator)	Flameproof enclosure BVS 10 ATEX E 158 IECEx BVS 10.0103 II 2G Ex db IIC T4/T5/T6 Gb Ex db IIC T4/T5/T6 Gb	-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-F, DIH52-F (field indicator)	Flameproof enclosure EAES KZ 7100841.01.01.03036 1 Ex d IIC T6 ... T4 Gb X	-60 ¹⁾ / -40 ... +85 °C at T4 -60 ¹⁾ / -40 ... +70 °C at T5 -60 ¹⁾ / -40 ... +60 °C at T6	$U_M = 30 \text{ V}$ $P_M = 2 \text{ W}$	14.5 ... 30 V
DIH50-I, DIH52-I (field indicator)	Intrinsically safe equipment ²⁾ BVS 16 ATEX E 112 X IECEx BVS 16.0075X II 2D Ex ia IIIC T135 °C Db II 2G Ex ia IIC T4/T5/T6 Gb II 2D Ex ib IIIC T135 °C Db	-40 ... +85 °C at T4 -40 ... +70 °C at T5 -40 ... +55 °C at T6 -40 ... +40 °C ($P_i = 680 \text{ mW}$) -40 ... +70 °C ($P_i = 650 \text{ mW}$)	$U_i \leq 29 \text{ V}$ $I_i \leq 100 \text{ mA}$ $P_i \leq 680 \text{ mW}$ $C_i = 13.2 \text{ nF}$ $L_i = 1.2 \text{ }\mu\text{H}$	14.5 ... 29 V
DIH50-I, DIH52-I (field indicator)	Intrinsically safe equipment ²⁾ EAES KZ 7100841.01.01.03036 0 Ex ia IIC T6 ... T4 Ga X Ex ia IIIC T80°C ... T135°C Da X 1 Ex ia IIC T6 ... T4 Gb X Ex ia IIIC T80°C ... T135°C Db X 1 Ex ia [ia Ga] IIC T6 ... T4 Gb X Ex ia [ia Da] IIIC T80°C ... T135°C Db X 1 Ex ib IIC T6 ... T4 Gb X Ex ib IIIC T80°C ... T135°C Db X	-60 ¹⁾ / -40 ... +85 °C at T4 -60 ¹⁾ / -40 ... +70 °C at T5 -60 ¹⁾ / -40 ... +55 °C at T6 -60 ¹⁾ / -40 ... +40 °C ($P_i = 680 \text{ mW}$) -60 ¹⁾ / -40 ... +70 °C ($P_i = 650 \text{ mW}$)	$U_i \leq 29 \text{ V}$ $I_i \leq 100 \text{ mA}$ $P_i \leq 680 \text{ mW}$ $C_i = 13.2 \text{ nF}$ $L_i = 1.2 \text{ }\mu\text{H}$	14.5 ... 29 V

1) Special version on request (only available with specific approvals)

2) The installation conditions for the display modules must be considered for the final application.

Output circuit DIH50-B, DIH52-B, DIH50-I, DIH52-I	
U_o	DC 29.8 V
I_o	109.2 mA
P_o	680 mW

Manufacturer’s declaration

Logo	Description
-	China RoHS directive

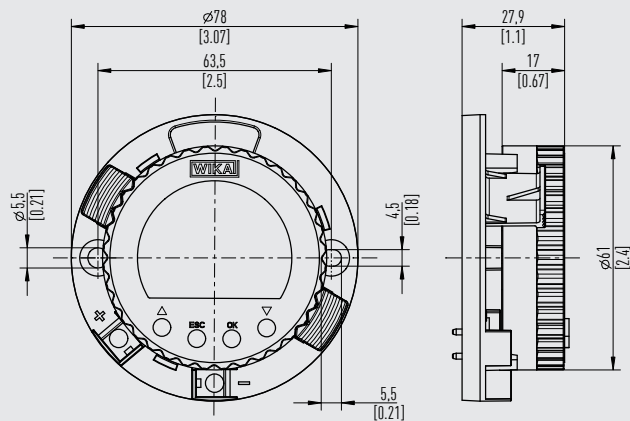
Certificates

Description	
Certificates	■ 2.2 test report per EN 10204 (e.g. state-of-the-art manufacturing, material proof, indication accuracy) ■ 3.1 inspection certificate per EN 10204 (e.g. material proof for wetted metal parts, indication accuracy, calibration certificate)

→ For approvals and certificates, see website

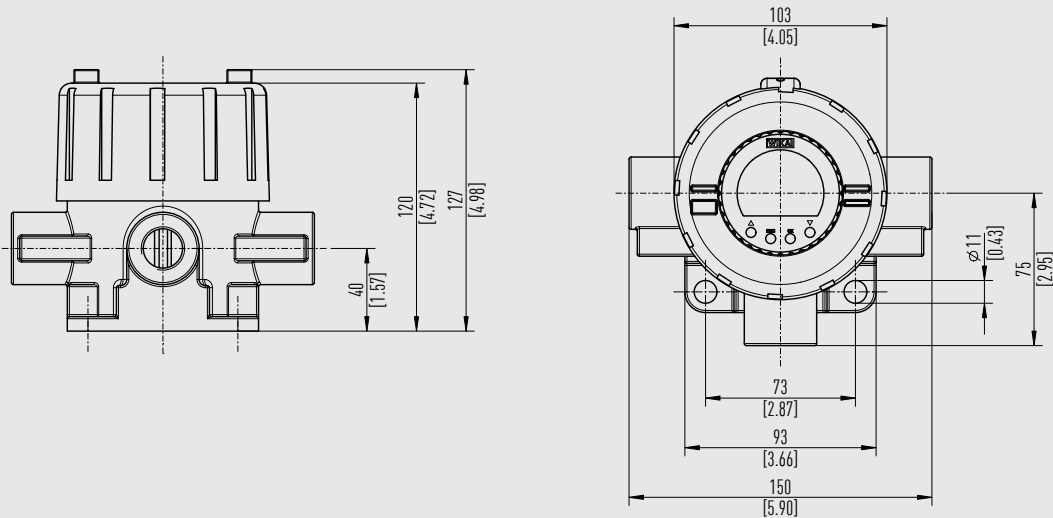
Dimensions in mm [in]

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



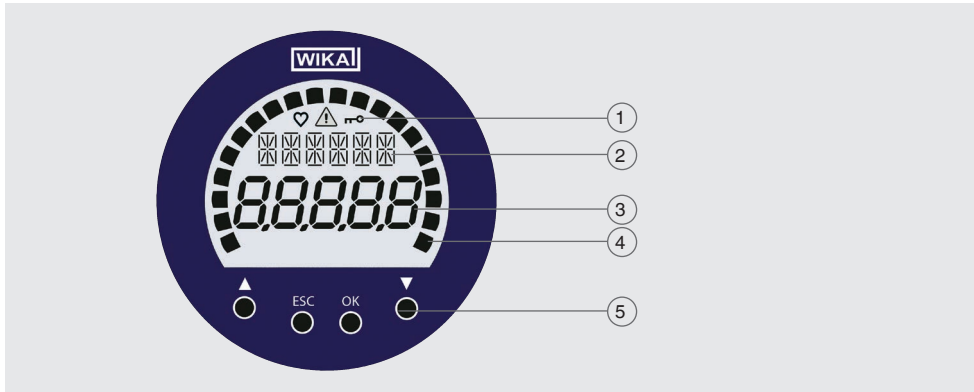
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Field indicator, models DIH50, DIH52
Aluminium / Stainless steel



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User interface



- ① Status information
- ② Unit and info line
- ③ Measured value
- ④ Bar graph
- ⑤ Control keys

Accessories

Model	Description	Order number
Programming unit, model PU-H		
	VIATOR® HART® USB HART® modem for USB interface	11025166
	VIATOR® HART® USB PowerXpress™ HART® modem for USB interface	14133234
	VIATOR® HART® RS-232 HART® modem for RS-232 interface	7957522
	VIATOR® HART® Bluetooth® Ex HART® modem for Bluetooth® interface, Ex	11364254
	Magnetic quick connector, model magWIK Replacement for crocodile clips and HART® terminals Fast, safe and secure electrical connection For all configuration and calibration processes	14026893

HART® is a registered trademark of the FieldComm Group, Inc.
Bluetooth® is a registered trademark of Bluetooth SIG, Inc.

Ordering information

Model / Display module / Explosion protection / Case material / Cable bushings / Threaded connection for cable bushing / Certificates / Options

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