

MSK-14

DATASHEET

PRODUCT INFORMATION

DESCRIPTION

HDS-140 is a multi purpose easy to integrate display solution and control unit for building automation. It can be integrated with wired communication using Modbus RTU and/or wireless communication using Thread.

The unit can be used as a stand alone display or as an active device where values are both set and modified. The integrated rotatory ring can be used to either increase or decrease values like temperature, flow rates etc.

In Modbus RTU mode the device can either be used as a normal end device where values are written to the unit, or as a preprogrammed device listening to other communication on the bus allow zero configuration and/or communication cycles.

Displayed values can be shown with user programmable colors and with descriptions and units for better end user simplicity.

TYPE SUMMERY

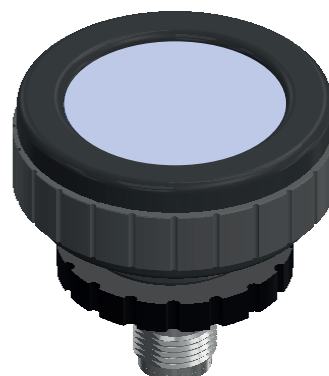
Type (ASN)	Ordering number	Interface	Connectivity
MSK-14			

ACCESSORIES

Type (ASN)	Ordering number	Description
M12A-50		M12 cable 50 cm, A keying
M12A-100		M12 cable 100 cm, A keying
M12A-200		M12 cable 200 cm, A keying

INTEGRATION

The device is by default shipped with both Modbus RTU and Thread connectivity. Both interfaces can be used at the same time. All configurations are done over the Modbus RTU connection.



TECHNICAL DATA

Electrical interface	
Power supply	SELV
Supply voltage	12-35 VDC
Current consumption	10 mA
Power consumption	< 0.25 VA
Functional data	
Current loop	10 mA @ Idle
Color	
Default	Dark gray
OEM Variants	Any color
Protection class	
IEC 60 529	
Connections	
Electrical connections	
- 5 Pin M12 connector with A-keying	
Environmental conditions	
Permissible ambient temperature	-40 .. 85 °C (non-condensing) < 90% R.H. (without condensation)
- Operation	
- Transport/storage	
Permissible ambient humidity	
Directives, standards	
conformity as per	2019/1326/EU EN 61 326-1 EN 61 326-2-3
EMC guidelines	
- Immunity	
- Emissions	
Weight	
Product including package	< 100 g
Size	
Enclosure (W x L x H)	47 x 47 x 47 mm
Total (W x L x H)	60 x 60 x 100 mm
Made in Sweden	

DISPLAY

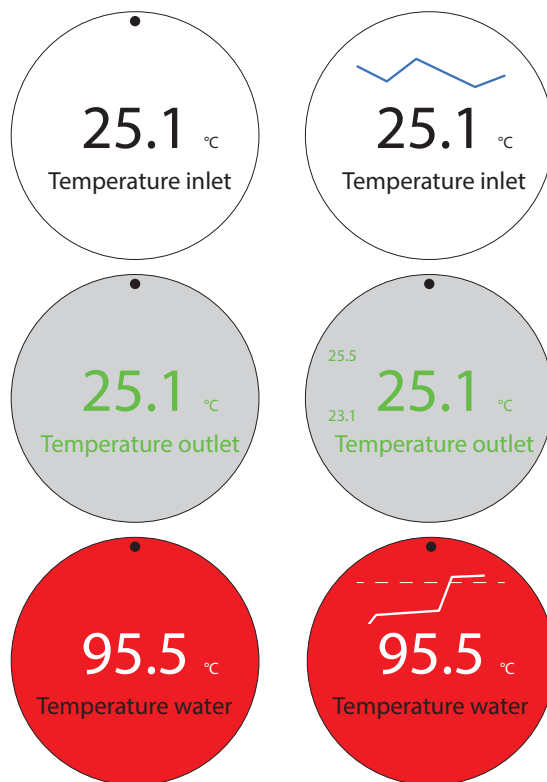
The device includes a 240 x 240 pixel full graphical display color display showing current measurement values.

The display by default show values with unit and description.

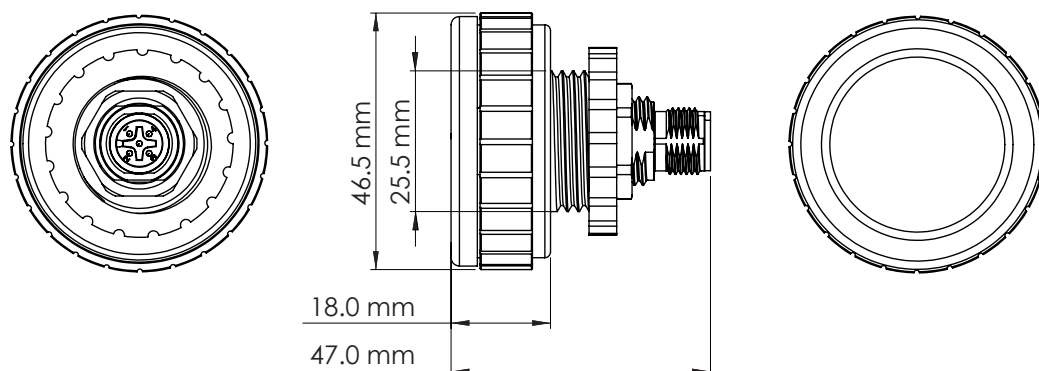
It is also possible to add graphs, min and max values and alarm levels to add visual effects.

EXAMPLE VIEWS

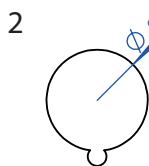
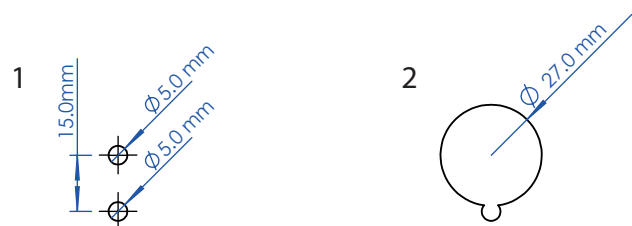
Here are some of the information that can be shown in the display.



DIMENSIONS



MOUNTING INSTRUCTIONS

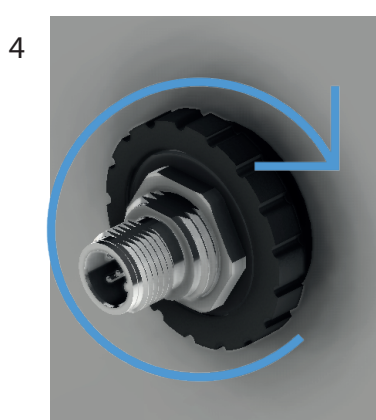
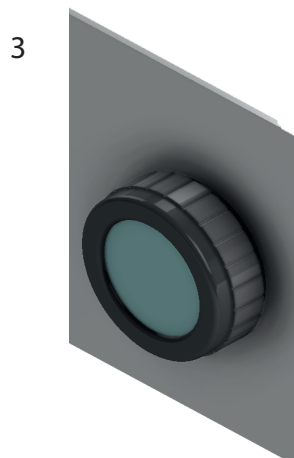


1. Drill two 5 mm holes 15 mm vertically from each other

2. Extend the upper hole to 27 mm with a tap or drill

3. Put the device in the hole from the front

4. Tighten the nut on the backside clock wise with your fingers so it is fixed



HDS-140

MODBUS SPECIFICATION

Holding registers

Addr	Function	Type	RW	Range	Scaling	Unit	Default	
4x0001..02	Device Type	Unsigned 16 bit	R				7045, 01	
4x0003	Device status	Unsigned 16 bit	R	0 = OK			0	
4x0004	Operation mode	Unsigned 16 bit	RW	0 = Direct mode (display only) 1 = Direct mode 10 = Listning mode			0	
4x0005	Change mask	Unsigned 16 bit	R	b0 = Channel 1 b1 = Channel 2 .. b15 = Channel 16			0	
4x0006	Select display channel	Unsigned 16 bit	RW	0 .. 16 0 = Disabled			0	

16 bit value access

Addr	Function	Type	RW	Range	Scaling	Unit	Default	
4x0011	Channel 1 - Value	Config dependent	RW				0	
4x0012	Channel 2 - Value	Config dependent	RW				0	
4x0013	Channel 3 - Value	Config dependent	RW				0	
4x0014	Channel 4 - Value	Config dependent	RW				0	
4x0015	Channel 5 - Value	Config dependent	RW				0	
4x0016	Channel 6 - Value	Config dependent	RW				0	
4x0017	Channel 7- Value	Config dependent	RW				0	
4x0018	Channel 8 - Value	Config dependent	RW				0	
4x0019	Channel 9 - Value	Config dependent	RW				0	
4x0020	Channel 10 - Value	Config dependent	RW				0	
4x0021	Channel 11 - Value	Config dependent	RW				0	
4x0022	Channel 12 - Value	Config dependent	RW				0	
4x0023	Channel 13 - Value	Config dependent	RW				0	
4x0024	Channel 14 - Value	Config dependent	RW				0	
4x0025	Channel 15 - Value	Config dependent	RW				0	
4x0026	Channel 16 - Value	Config dependent	RW				0	

32 bit value access

Addr	Function	Type	RW	Range	Scaling	Unit	Default	
4x0031..32	Channel 1 - Value	Config dependent	RW				0	
4x0033..34	Channel 2 - Value	Config dependent	RW				0	
4x0035..36	Channel 3 - Value	Config dependent	RW				0	
4x0037..38	Channel 4 - Value	Config dependent	RW				0	
4x0039..40	Channel 5 - Value	Config dependent	RW				0	
4x0041..42	Channel 6 - Value	Config dependent	RW				0	
4x0043..44	Channel 7- Value	Config dependent	RW				0	
4x0045..46	Channel 8 - Value	Config dependent	RW				0	
4x0047..48	Channel 9 - Value	Config dependent	RW				0	
4x0049..50	Channel 10 - Value	Config dependent	RW				0	
4x0051..52	Channel 11 - Value	Config dependent	RW				0	
4x0053..54	Channel 12 - Value	Config dependent	RW				0	
4x0055..56	Channel 13 - Value	Config dependent	RW				0	
4x0057..58	Channel 14 - Value	Config dependent	RW				0	
4x0059..60	Channel 15 - Value	Config dependent	RW				0	
4x0061..62	Channel 16 - Value	Config dependent	RW				0	

Configuration of display channels

Addr	Function	Type	RW	Range	Scaling	Unit	Default	
4x0151..200	Channel 1 - Configuration	Channel Config	RW					
4x0201..250	Channel 2 - Configuration	Channel Config	RW					
4x0251..300	Channel 3 - Configuration	Channel Config	RW					
4x0301..350	Channel 4 - Configuration	Channel Config	RW					
4x0351..400	Channel 5 - Configuration	Channel Config	RW					
4x0401..450	Channel 6 - Configuration	Channel Config	RW					
4x0451..500	Channel 7 - Configuration	Channel Config	RW					
4x0501..550	Channel 8 - Configuration	Channel Config	RW					
4x0551..600	Channel 9 - Configuration	Channel Config	RW					
4x0601..650	Channel 10 - Configuration	Channel Config	RW					
4x0651..700	Channel 11 - Configuration	Channel Config	RW					
4x0701..750	Channel 12 - Configuration	Channel Config	RW					
4x0751..800	Channel 13 - Configuration	Channel Config	RW					
4x0801..850	Channel 14 - Configuration	Channel Config	RW					
4x0851..900	Channel 15 - Configuration	Channel Config	RW					
4x0901..950	Channel 16 - Configuration	Channel Config	RW					

Object - Channel configuration

Addr	Function	Type	RW	Range	Scaling	Unit	Default	
1	Options		RW	b0 = Channel enabled b1 = Modifiable b10 = alarm level low active b11 = alarm level high active			0	
2	Value type		RW	0 = signed 8 bit 1 = unsigned 8 bit 2 = signed 16 bit 3 = unsigned 16 bit 5 = signed 32 bit 6 = unsigned 32 bit 10 = float			3	
3	Scaling factor		RW	b0..b14 = value b15 = 0 devision = 1 mutiplication			0x8000	
4..5	Min value		RW					
6..7	Max value		RW					
8..9	Alarm level low		RW					
10..11	Alarm level high		RW					
12	Display update interval		RW			s	30	
13	Value color	16 bit RGB value	RW	Format: RGB 565				
14	Background color	16 bit RGB value	RW	Format: RGB 565				
15 .. 35	Name	String	RW				Channel X	
36 .. 46	Unit	String	RW					
47	Modbus RTU Device address			b0..b7 = Device address b8 ..b15 = Access type 1 = Descrete input 2 = Coil 3 = Input register 4 = Holding register				
49	Modbus RTU Register value							

Device information

Addr	Function	Type	RW	Range	Scaling	Unit	Default	
4x0101	Device ID 0	Unsigned 16 bit	R					
4x0102	Device ID 1	Unsigned 16 bit	R					
4x0103	Device ID 2	Unsigned 16 bit	R					
4x0104	Device ID 3	Unsigned 16 bit	R					
4x0105	Device ID 4	Unsigned 16 bit	R					
4x0106	Device ID 5	Unsigned 16 bit	R					
4x0107	Device ID 6	Unsigned 16 bit	R					
4x0108	Device ID 7	Unsigned 16 bit	R					
4x0109	Firmware version	Unsigned 16 bit	R					
4x0110	Hardware version	Unsigned 16 bit	R					
4x0111.12	Serial number	Unsigned 16 bit	R					

Configuration

Addr	Function	Type	RW	Range	Scaling	Unit	Default	
4x1001	Modbus address	Unsigned 16 bit	RW					
4x1002	Reserved							
4x1003	Baud rate	Unsigned 16 bit	RW	4800 9600 19200 33800 57600 115200			19200	
4x1004								
4x1005	Parity	Unsigned 16 bit	RW	0 = None 1 = Odd 2 = Even			2	
4x1006	Stop bits	Unsigned 16 bit	RW	1 = One 2 = Two			1	
4x1007	Save configuration	Unsigned 16 bit	RW	Write to 1 to apply settings				
4x1008	Reserved							
4x1009	Reserved							
4x1010	Reserved							
4x1011	Firmware version	Unsigned 16 bit	R					
4x1012	Hardware version	Unsigned 16 bit	R					
4x1013	Serial number (L)	Unsigned 16 bit	R					
4x1014	Serial number (H)	Unsigned 16 bit	R					

Thread information

Addr	Function	Type	RW	Range	Scaling	Unit	Default	
4x2001	Status	Unsigned 16 bit	R					
4x2002	PAN ID	Unsigned 16 bit	R					
4x2003..10	IPv6	Unsigned 128 bit	R					
4x2011..18	Network ID	Unsigned 128 bit	W					
4x2019..20	Network ID CHECKSUM	Unsigned 16 bit	RW					
4x2021..26	Encryption key	Unsigned 256 bit	W					
4x2027..28	Encryption key CHECKSUM	Unsigned 16 bit	RW					