



ConditionSensor Interface CSI-C-11

Description

The ConditionSensor Interface CSI-C-11 is an easy-to-use, compact condition monitoring system for fluid-based machine condition monitoring.

Depending on the device configuration, up to two HYDAC HSI SMART (fluid) sensors and four analogue sensors can be connected to the CSI-C-11 via M12 connectors and supplied with voltage. Once the sensor measurement values and signals have been read, they are stored on the integrated data logger, evaluated in terms of their plausibility and monitored to check whether limit values have been exceeded. Limits are set according to the measured variable with the aid of a wizard. If a limit value is exceeded, the CSI-C-11 will automatically send out an alarm via email or via the integrated Ethernet and fieldbus interface (Modbus®). This makes it possible to transfer the measured values to higher-level company networks, condition monitoring systems (CMs), control systems (PLCs) and the HYDAC CMX (cloud).

Special features

- Two input channels for HYDAC HSI SMART sensors (e.g. fluid sensors)
- Four input channels for analogue sensors (optional)
- Sensors and network cables are directly connected via M12x1 connectors
- Sensor readings can be transferred and displayed via wireless local area network (WLAN), Ethernet and Fieldbus (Modbus®)
- The CSI-C-11 stores the measurement data
- A wizard helps to set alarm limits for fluid sensors
- Notifications can be received via e-mail or the network in the event of an alarm
- High protection class with IP 66 – no switch cabinet is required

Technical details

Input data	
HSI interface	HYDAC Sensor Interface (HSI) for the connection of two digital HSI SMART sensors
Analogue interface	Sensor Interface for the connection of four analogue sensors (type can be selected): <ul style="list-style-type: none"> – Current: 4 to 20 mA (ohmic resistance 500 Ω) 0 to 20 mA (ohmic resistance 500 Ω) – Voltage: 0 ... 10 V, 0 ... 5 V, 2 ... 10 V, 1 ... 5 V Measurement inaccuracy < 0,2% full scale (FS)
Output data	
Ethernet (ETH) 10 Base-T / 100 Base-TX	Protocols: <ul style="list-style-type: none"> – HSI TCP/IP (port 49322) – Modbus® TCP (port 502) – HTTP (port 80) – FTP (port 20/21) – SMTP (port 25) – MQTT – REST-API
WLAN (HSI only) 2.4 GHz, IEEE 802.11 b/g/n	– HSI TCP/IP (port 49322)
RS485 (2 wire, half duplex)	– Modbus® RTU
Environmental conditions	
Operating temperature range	-25 to 85 °C
Storage temperature range	-30 to 85 °C
Relative humidity	0 to 70%, non-condensing
CE marked	EN 61000-6-2, EN 61000-6-4
Protection class according to DIN 40050	IP 66
Other data	
Supply voltage	12 to 24 V DC ± 10%
Current consumption (module)	100 mA (plus connected sensors)
Sensor supply	12 to 24 V DC (looped through)
Electrical connection	<ul style="list-style-type: none"> – Supply voltage: male connector, M12, 5-pin – HSI SMART sensor 1 and analogue sensors 1–4: female connector, M12, 8-pin – HSI SMART sensor 2: female connector, M12, 5-pin – LAN: female connector, M12, 4-pin, D-coded (in accordance with IEC61076-2-101) – WLAN antenna: connector, RP SMA socket, female
Housing dimensions	131 x 77,5 x 35,5 mm
Housing	Aluminium housing
Weight	≈ 360 g
Internal measurement data memory	
Size	64 MB
Measurement interval 60 s	> 1300 days (at CS1000 + HLB1400)
Measurement interval 60 min	> 83000 days (at CS1000 + HLB1400)

Model code

CSI - C - 11 - 0 - 0 - 0 / - 000

Product series

CSI = ConditionSensor Interface

Housing

C = metal housing, compact

Signal output (protocol) 1

11 = Ethernet (Modbus® TCP, HSI TCP/IP)
WLAN (HSI TCP/IP)

Signal output (protocol) 2

0 = RS485 (Modbus® RTU)

Signal output (protocol) 3

0 = none

Signal input

0 = 2 x HSI smart
1 = 2 x HSI smart and 4 x analogue

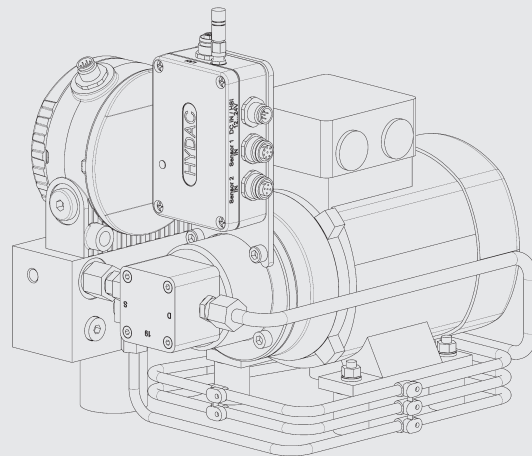
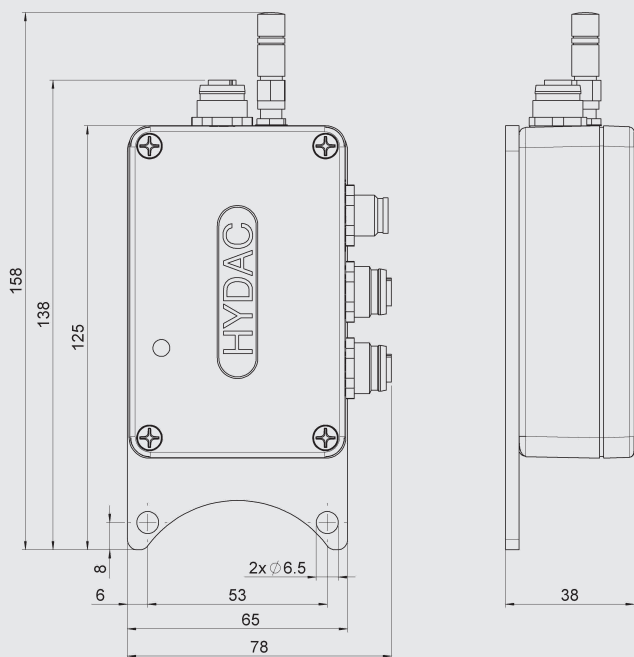
Modification

000 = Standard

Device dimensions

Application example:

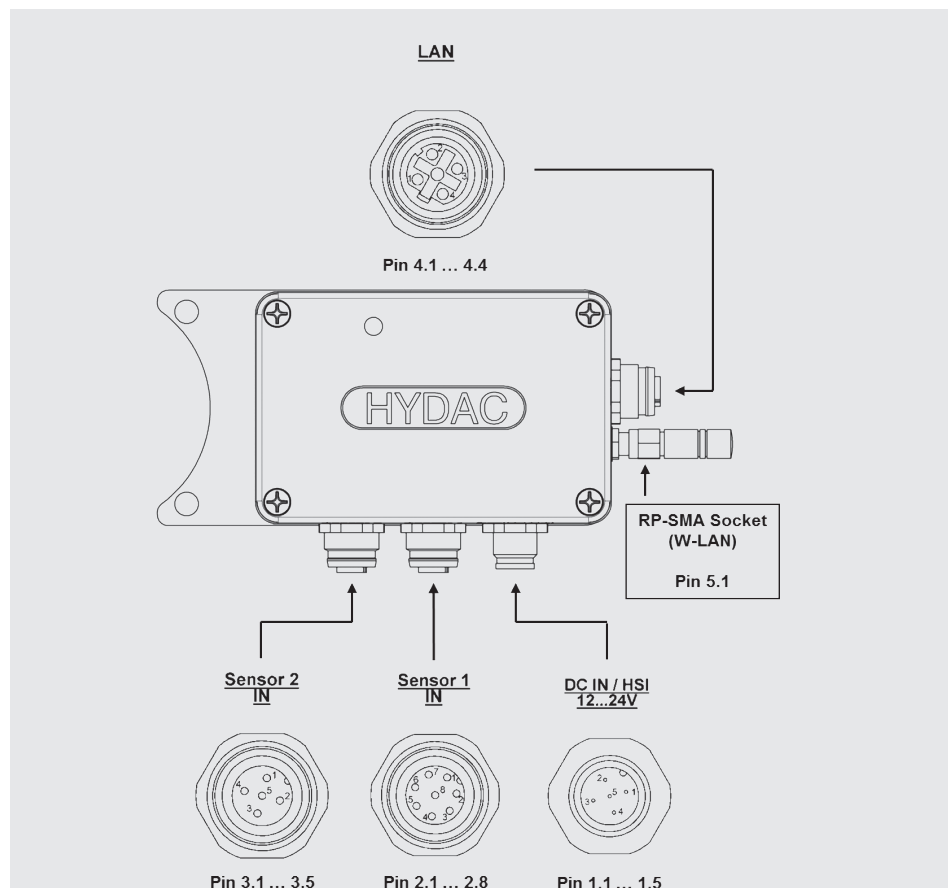
HYDAC ContaminationSensor Module CSM Economy



All dimensions in mm

Pin connections

Pin	Signal	Description
1.1	V _{in} 12 to 24 V DC	Device (CSI-C-11) Supply voltage +
1.2	RS485 -	Fieldbus (RS485) RS485 port for data transmission -
1.3	GND	Device (CSI-C-11) GND supply voltage
1.4	RS485 +	Fieldbus (RS485) RS485 port for data transmission +
1.5	HSI	Device (CSI-C-11) Parameterisation
2.1	S1 12 to 24 V DC	HSI SMART sensor 1 Supply voltage +
2.2	A1	Analogue sensor 1 Analogue input 1
2.3	S1 GND	HSI SMART sensor 1 GND supply voltage
2.4	A2	Analogue sensor 2 Analogue input 2
2.5	S1 HSI	HSI SMART sensor 1 HSI signal input
2.6	A3	Analogue sensor 3 Analogue input 3
2.7	A4	Analogue sensor 4 Analogue input 4
2.8	A1–A4 GND	Analogue sensor 1–4 GND supply voltage
3.1	S2 12 to 24 V DC	HSI SMART sensor 2 Supply voltage +
3.2	---	---
3.3	S2 GND	HSI SMART sensor 2 GND supply voltage
3.4	---	---
3.5	S2 HSI	HSI SMART sensor 2 HSI signal input
4.1	ETH TX+	Network (LAN) Ethernet port for transmitting data +
4.2	ETH RX+	Network (LAN) Ethernet port for receiving data +
4.3	ETH TX-	Network (LAN) Ethernet port for transmitting data -
4.4	ETH RX-	Network (LAN) Ethernet port for receiving data -
5.1	ANT	Network (WLAN) RP SMA socket, WLAN antenna



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Accessories

Designation	Part No.
Supply voltage	
PS5 power supply unit 100–240 V AC, 50–60 Hz, 1,1 A, IP40; female connector M12, 5-pin	3399939
ZBE47S-05 connection cable, female connector, 5-pin, with cable, length = 5 m	3527626
ZBE48S-05 connection cable, male connector, 5-pin, with cable, length = 8 m	6070712
Connection cable, sensors	
ZBE43-005 connection cable CSI-C-11, male / female 8-pin, length = 0,5 m	4193544
ZBE43-05 Connection cable CSI-C-11, male / female 8-pin, length = 5 m	3281240
ZBE30-005 Connection cable CSI-C-11, male / female 5-pin, length = 0,5 m	4193586
ZBE30-05 Connection cable CSI-C-11, male / female 5-pin, length = 5 m	6040852

Network cable (LAN)

ZBE 45-05 network cable (patch), female connector, 4-pin, D-coded / RJ45 male connector, length = 5 m	3346100
ZBE 45-10 network cable (patch), female connector, 4-pin, D-coded / RJ45 male connector, length = 10 m	3346101

Connection adapter for additional sensors

ZBE CSI 60 sensor connection adapter 4 x analogue mating connector, 8-pin, cable length = 1 m	4420372
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Preferred models

Designation	Part No.
CSI-C-11-0-0-0-000	4066011
CSI-C-11-0-0-1-000	4247534



ZBE CSI 60 connection adapter – connection overview

The ZBE CSI 60 has connections for up to six sensors (4x analogue sensors and 2x HSI SMART sensors) with the following connections.

A1 / A2 – analogue connection, 5-pin

Pin	Designation	Description
1	Signal+	Analogue current signal + (e.g. 4 to 20 mA)
2	n.c.	Not allocated
3	Signal-	Analogue current signal - (e.g. 4 to 20 mA)
4	n.c.	Not allocated
5	n.c.	Not allocated

A3 – analogue connection, 5-pin

Pin	Designation	Description
1	+24V DC	Supply voltage +24 V DC
2	n.c.	Not allocated
3	GND	GND supply voltage
4	Signal	Analogue voltage signal (e.g. 0 to 10 V)
5	n.c.	Not allocated

A4 – analogue connection, 5-pin

Pin	Designation	Description
1	+24V DC	Supply voltage +24 V DC
2	Signal	Analogue voltage signal (e.g. 0 to 10 V)
3	GND	GND supply voltage
4	n.c.	Not allocated
5	n.c.	Not allocated

S1 / S2 – HSI SMART sensor connection, 8-pin

Pin	Designation	Description
1	+24V DC	Supply voltage +24 V DC
2	n.c.	Not allocated
3	GND	GND supply voltage
4	n.c.	Not allocated
5	HSI	HYDAC Sensor Interface
6	n.c.	Not allocated
7	n.c.	Not allocated
8	n.c.	Not allocated

Note

The information in this brochure relates to the operating conditions and applications described.

For applications and/or operating conditions not described please contact the relevant technical department.

Subject to technical modifications.

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