HMG 500 Series
Hand Held Diagnostic Tool

Applications

Description

The HMG 500 is a hand-held diagnostic tool for simple measuring tasks on hydraulic and pneumatic systems. Typical applications are in analysis, maintenance and service.

The HMG 500 has two analog input channels and can record the signals from HYDAC HSI sensors which are connected to it. HSI sensors *(HYDAC Sensor Interface)* are HYDAC sensors for pressure, temperature, and flow rate with automatic sensor recognition.

The HMG 500 automatically reads the measuring range and unit from each sensor that is connected. Manual adjustments of the measuring range settings are no longer required.

The measured values, actual, minimum and maximum, are recorded from the sensors. Depending on the requirement and setting, the following are displayed: the actual measured values *(channel A, B)*, the minimum or the maximum values *(channel A, B)*. The min/max values can be reset at any time at the touch of a button.

Furthermore the HMG 500 is capable of measuring and displaying the differential between the values on channel A and B *(channel A - B)*.

HMG 500 Kit #1: Part #00909470

Includes:

- HMG 500-000
- HDA 4748-H-0600-000
- ZBE 30-02 *(cable M12x1 for HMG)* 6'
- Gauge Adapter G1/4 female to Testpoint 16x2
- Case for HMG 500

HMG 500 Kit #2: Part #00909471

Includes:

- HMG 500-000
- 2 pcs. HDA 4748-H-0600-000
- 2 pcs. ZBE 30-02 *(cable M12x1 for HMG)* 6'
- 2 pcs. Gauge Adapter G1/4 female to Testpoint 16x2
- Case for HMG 500

Technical Specifications

Sensor inputs:
The HMG 500 has two analog inputs on 2 input connections *(channels A and B)* for connecting HSI sensors with automatic sensor recognition *(pressure, temperature and flow rate transmitters)*.

Channel A and B:

- Automatic sensor recognition for HSI sensors *(pressure, temperature and flow rate transmitters)* and setting of measuring range and unit of measurement
- Measured value differential for channel A - B

Measurement accuracy of the input channels:

- ≤±0.1% of the measuring range

Measurement rate:

- 0.1 ms

Measurement & Display:

- Actual measured value
- Min/max values
- Measured value differential
- Change of the unit of measurement

Operating time using 9V battery (2 sensors):

- approx. 10 hours.

General Specifications

Items supplied:

- HMG 500
- Manual D/E/F
- 9 V battery

Dimensions: 3.94 x 6.69 x 1.57 in.

Weight: 0.90 lbs.

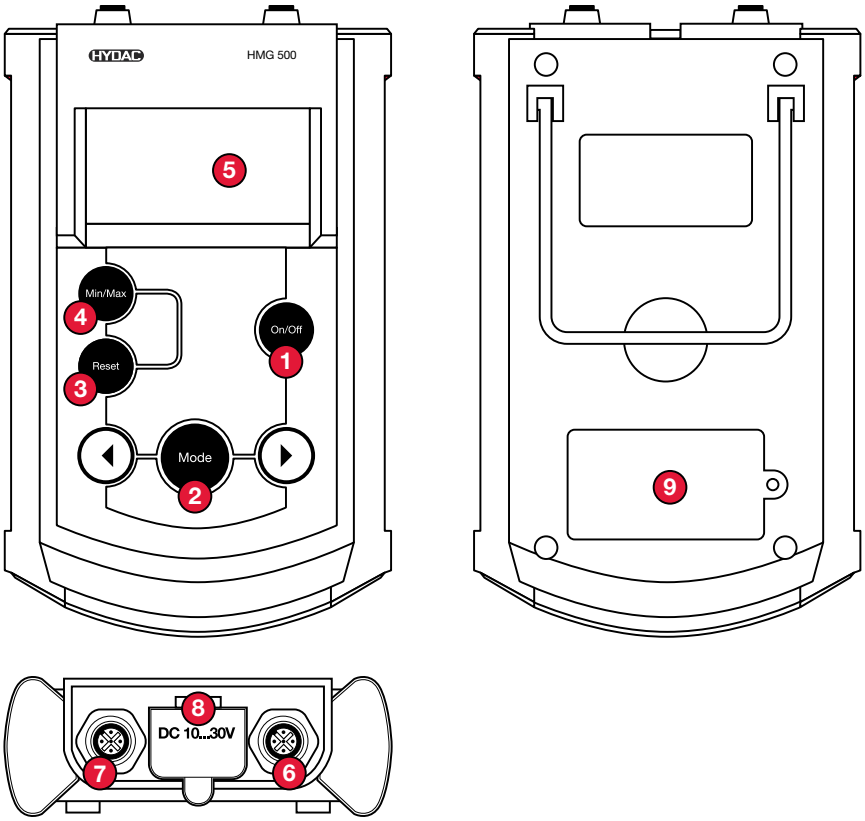
Operating/Operating Conditions
Operating temperature: 41° to 140°F (5° to 60°C)
Storage temperature: -40° to 158°F (-40° to 70°C)
Rel. humidity: 0 to 70 %

Power Supply
A standard 9 V battery is required for operation. It is also possible to operate the unit using the AC mains adaptor plug listed under Accessories.

CE mark
EN 610000-6-1 / 2 / 3 / 4

Special Features

Adjustment function for mechanical pressure switches



Display Panel & Connections

1. **On/Off button**
2. **Mode**
   Adjusting the menus
3. **Reset**
   Resetting the min/max values
4. **Min/Max**
   Display of the minimum and maximum values
5. **Display**
6. **Sensor Input Connector** (Channel A)
7. **Sensor Input Connector** (Channel B)
8. **Protective Cover**
   Connection for AC adaptor
9. **Battery Compartment**

Diagnostic Unit

Model Code	Description	Part No.
HMG 500-000-E	Includes: • HMG 500-000-E with Manual • 9V Battery	00909101

Pressure Transducer with HSI

(HYDAC Sensor Interface)

Model Code	Description	Part No.
HDA 4748-H-0009-000	-14.5 to 130.5 psi (-1 to 9 bar)	00909429
HDA 4748-H-0016-000	0 to 230 psi (0 to 16 bar)	00909425
HDA 4748-H-0060-000	0 to 870 psi (0 to 60 bar)	00909554
HDA 4748-H-0100-000	0 to 1450 psi (0 to 100 bar)	00909426
HDA 4748-H-0250-000	0 to 3625 psi (0 to 250 bar)	00909337
HDA 4748-H-0400-000	0 to 5800 psi (0 to 400 bar)	00909427
HDA 4748-H-0600-000	0 to 8700 psi (0 to 600 bar)	00909428
HDA 4778-H-0135-000	-14.5 to 135.5 psi (-1 to 9.34 bar)	00920755
HDA 4778-H-0150-000	0 to 150 psi (0 to 10 bar)	00920663
HDA 4778-H-1500-000	0 to 1500 psi (0 to 103 bar)	00920757
HDA 4778-H-3000-000	0 to 3000 psi (0 to 207 bar)	00920756
HDA 4778-H-6000-000	0 to 6000 psi (0 to 144 bar)	00920664
HDA 4778-H-9000-000	0 to 9000 psi (0 to 621 bar)	00920665

Temperature Transducer with HSI

(HYDAC Sensor Interface)

Model Code	Description	Part No.
ETS 4548-H-000	-13° to 212°F (-25° to 100°C)	00909298
ETS 4578-H-000	-13° to 212°F (-25° to 100°C)	00920662

Flow Sensor with HSI *(HYDAC Sensor Interface)*

Model Code	Description - g/min (l/min)	Part No.
Aluminum		
EVS 3108-H-0020-000	0.26 to 5.28 (1.2 to 20)	00909405
EVS 3108-H-0060-000	1.59 to 15.9 (6 to 60)	00909293
EVS 3108-H-0300-000	3.96 to 79.3 (15 to 300)	00909404
EVS 3108-H-0600-000	10.6 to 159 (40 to 600)	00909403
Stainless Steel		
EVS 3118-H-0020-000	0.26 to 5.28 (1.2 to 20)	00909409
EVS 3118-H-0060-000	1.59 to 15.9 (6 to 60)	00909406
EVS 3118-H-0300-000	3.96 to 79.3 (15 to 300)	00909408
EVS 3118-H-0600-000	10.6 to 159 (40 to 600)	00909407

Accessories

Model Code	Description	Part No.
ZBE 30-02	cable for M12x1 - 6'	06040851
ZBE 30-05	cable for M12x1 - 15'	06040852
Plastic Case	for HMG 500 and accessories	06043006
Power Supply	DC Charging unit for HMG 500	02702416

HDA 4700-H Series

Pressure Transducer with HSI Sensor Recognition

Applications

Description

The pressure transmitter HDA 4748-H with HSI sensor recognition has been specially developed for use in conjunction with HYDAC measuring instruments HMG 500, HMG 510, HMG 3000 and CMU 1000.

For data transmission, the HDA 4748-H has an HSI interface *(HYDAC Sensor Interface)*.

The HSI sensors are automatically recognized via the HSI interface by the above-mentioned HYDAC measuring instruments and all the necessary basic settings are taken from each sensor.

Like all pressure transmitters of the HDA 4700 series, the HDA 4748-H also has a very accurate and robust sensor cell with a thin-film strain gauge on a stainless steel membrane. It features excellent technical specifications and is very compact.

Special Features

- Automatic recognition by and voltage supply from HYDAC measuring instruments HMG 500, HMG 510, HMG 3000 or CMU 1000
- Automatic transfer of measuring range, measured value and measurement unit
- Accuracy ≤ ±0.25 % BFSL
- Highly robust sensor cell
- Very small temperature error
- Excellent EMC characteristics
- Excellent long term stability
- Very compact design

Approvals

CE mark is a mandatory conformity mark on many products placed on the single market in the European Economic Area

Technical Details

Sensor Specifications	
Measuring ranges -bar *(psi upon request)*	-1 to 9, 16, 60, 100, 250, 400, 600
Overload pressure -bar *(psi upon request)*	20, 32, 120, 200, 500, 800, 900
Burst pressure -bar *(psi upon request)*	100, 200, 300, 500, 1000, 2000, 2000
Mechanical connection	G1/4A DIN 3852 male *(standard for bar ranges only)* SAE 6 9/16-18 UNF 2A *(psi ranges only)* other connections upon request
Tightening torque	15 lb-ft (20 Nm)
Parts in contact with media	Stainless Steel, FPM Seal
Accuracy (B.F.S.L.) including linearity, hysteresis, and repeatability	≤ ±0.25% BFSL
Temperature compensation zero point	≤ ±0.0045% FS / °F typ ≤ ±0.0085% FS / °F max
Temperature compensation over range	≤ ±0.0045% FS / °F typ ≤ ±0.0085% FS / °F max
Rise time	≤ 0.5 ms
Long-term drift	≤ ± 0.1% FS typ. / year
Life expectancy	10 million load cycles (0 to 100% FS)
Weight	Approximately 150 g
Output signal	HSI
Environmental Condition	
Compensated temperature range	-13° to 185°F (-25° to 85°C)
Operating temperature range	-40° to 185°F (-40° to 85°C)
Storage temperature range	-40° to 212°F (-40° to 100°C)
Media temperature range	-40° to 212°F (-40° to 100°C)
CE mark	EN 61000-6-1 / 2 / 3 / 4
Vibration resistance to DIN EN 60068-2-6 at 10 to 500 Hz	≤ 20g
Environmental protection	IP 67
Electrical Specifications	
Supply voltage	from HMGs 3000, 510 or 500
Reverse polarity protection of the supply voltage, excess voltage, override and short circuit protection	Standard
Electrical connection	ZBE 30-02 sensor cable M12x1 (2m) ZBE 30-05 sensor cable M12x1 (5m)

Model Code

HDA 4 7 X 8 - H - XXXX - 000 (PSI)

Accuracy
7 = High Pressure Thin-film 0.25% BFSL accuracy

Mechanical Connection
4 = G1/4A DIN 3852 male *(bar ranges only)*
7 = SAE 6 9/6-18 UNF 2A *(psi ranges only)*

Electrical Connection
8 = M12x1 plug, 5 pole *(connector not included)*

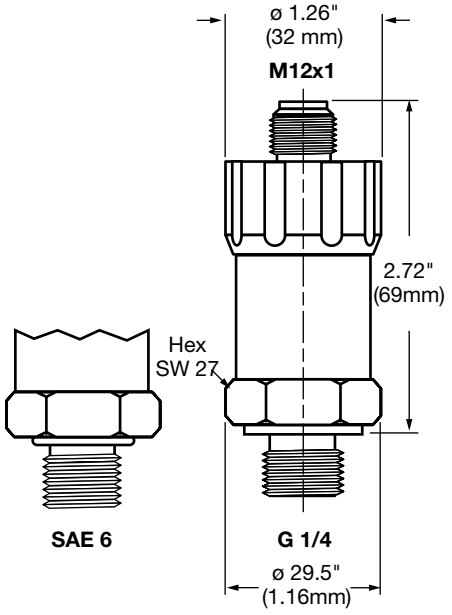
Signal Technology
H = Sensor Identification HSI

Pressure Range
For HDA 4748 only *(G1/4A DIN 3852)*
0009 (-1 to 9 bar), 006, 016, 060, 100, 250, 400, 600 bar
(psi ranges upon request)

Modification Number
000 Standard

(psi)
psi version *(Leave blank for bar version)*

Dimensions



ETS 4548-H Series
HYDAC Self Identification

Applications

Description

The electronic pressure transmitter ETS 4548-H with HSI sensor recognition has been specially developed for use in conjunction with HYDAC measuring instruments HMG 500, HMG 510, HMG 3000 and CMU 1000.

For data transmission, the ETS 4548-H has a HSI interface *(HYDAC Sensor Interface)*. The HSI sensors are automatically recognized via the HSI interface by the above-mentioned HYDAC measuring instruments and all the necessary basic settings are taken from each sensor.

Like all temperature transmitters in the ETS 4000 series,the ETS 4548-H features a robust design and excellent EMC characteristics. Based on a silicon semiconductor device and corresponding evaluation electronics, the temperature sensor is designed to measure temperatures in the range -10 to 212°F.

Special Features

- Automatic recognition by and voltage supply from HYDAC measuring instruments HMG 500, HMG 510, HMG 3000 or CMU 1000
- Automatic transfer of measuring range, measured value and measurement units
- Robust design
- Pressure resistant to 8700 psi
- Excellent EMC characteristics
- Standard protection class IP 67

Approvals

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Technical Details

Sensor Specifications	
Measuring range	-13° to 212°F (-25° to 100°C)
Rated pressure - psi	8700
Mechanical connection	G1/4A DIN 3852 male *(standard for °C ranges only)* SAE 6 9/16-18 UNF 2A *(standard for °F ranges only)*
Tightening torque	15 lb-ft (20 Nm)
Parts in contact with media	Stainless Steel, FPM Seal
Accuracy	≤ ±1.5% FS typ.
Rise time to DIN EN 60751	t50= 4s ; t90= 6s
Output signal	HSI *(Automatic Sensor Recognition)*
Weight	Approximately 200 g.
Environmental Condition	
Operating temperature range	-13° to 212°F (-25 to 100°C)
Storage temperature range	-40° to 212°F (-40° to 100°C)
Media temperature range	-40° to 248°F (-40° to 120°C)
CE mark	EN 61000-6-1 / 2 / 3 / 4
Vibration resistance to DIN EN 60068-2-6 at 10 to 500 Hz	≤ 20g
Environmental protection	IP 67 *(When an IP 67 connector is usesd)*
Electrical Specifications	
Supply voltage	from HMGs 3000, 510 or 500
Electrical connection	ZBE 30-02 sensor cable M12x1 (6') ZBE 30-05 sensor cable M12x1 (15')

Model Code

ETS 4 5 4 8 - H - 000

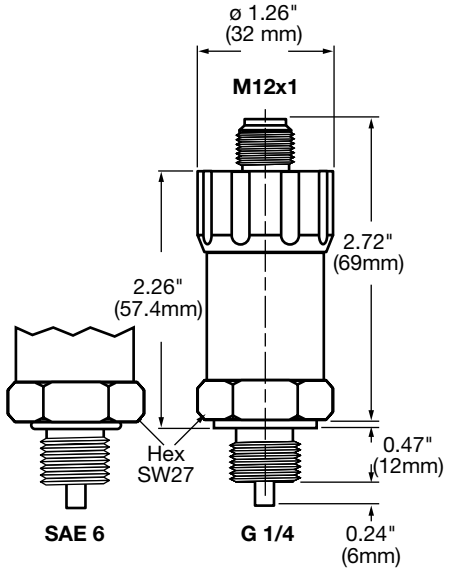
Mechanical Connection
4 = G1/4 A DIN 3852 (male) (°C)
7 = SAE 6, 9/16-18UNF2A male (°F)

Electrical Connection
8 = connector M12X1, 5-pol.

Signal Technology
H = Sensor Identification HSI

Modification Number
000 = standard

Dimensions



EVS 3100-H Series
HYDAC Self Identification

Applications

Description

The flow rate transmitters in the series EVS 3100-H and EVS 3110-H with HSI sensor recognition have been specially developed for use in conjunction with HYDAC measuring instruments HMG 500, HMG 510, HMG 3000 and CMU 1000.

For data transmission, the EVS 31x0-H has an HSI interface *(HYDAC Sensor Interface)*.

The HSI sensors are recognised automatically via the HSI interface by the above-mentioned HYDAC measuring instruments, and all the necessary basic settings are taken from each sensor.

As with all flow rate transmitters in the series EVS 3100 and EVS 3110, the EVS 31x0-H also operates according to the turbine principle. The speed of an impeller turning in the fluid flow is measured and converted into an electronic signal.

Special Features

- Fully automatic recognition by and voltage supply from HYDAC measuring instruments HMG 500, HMG 510, HMG 3000 or CMU 1000
- Automatic transfer of measuring range, measured value and measurement unit
- Viscosities of 1 to 100 cSt
- Output signal 4 to 20 mA
- Additional connection of temperature and / or pressure transmitters possible

Approvals

CE mark is a mandatory conformity mark on many products placed on the single market in the European Economic Area

Technical Details

Housing material - EVS 3100 EVS 3110	Aluminum Stainless Steel
Measurement medium - EVS 3100 EVS 3110	Hydraulic oils* Water based fluids*
Supply voltage	from HMG 500/510/3000
CE mark	EN 61000-6-1 / 2 / 3 / 4
Compensated temperature range	-4° to 150°F (-20° to 70°C)
Operating temperature	-4° to 158°F (-20° to 70°C)
Media temperature range	-4° to 194°F (-20° to 90°C)
Storage temperature	-40° to 212°F(-40° to 100°C)
Permissible viscosity range	1 to 100 cSt
Calibrated at - EVS 3100 EVS 3110	30 cSt 5 cSt
Accuracy class	≤ ±2% of the instantaneous value
Measuring ranges / Operating pressure EVS 31XX-A-0020-000 EVS 31XX-A-0060-000 EVS 31XX-A-0300-000 EVS 31XX-A-0600-000	 0.26 to 5.28 gpm / 5800psi 1.59 to 15.9 gpm / 5800 psi 3.96 to 79.3 gpm / 5800 psi 10.6 to 159 gpm / 4567 psi *(5800 psi max for EVS 3110)*
Protection class to DIN 40050	IP 67 *(M12x1, with ZBE 08 molded cable)*
Mechanical connection/ Torque rating EVS 31XX-A-0020-000 EVS 31XX-A-0060-000 EVS 31XX-A-0300-000 EVS 31XX-A-0600-000	 G1/4 female thread / approx. 44 lb-ft (60 Nm) G1/2 female thread / approx. 95 lb-ft (130 Nm) G1 1/4 female thread / approx. 370 lb-ft (500 Nm) G1 1/2 female thread / approx. 440 lb-ft (600 Nm)
Additional connections on housing	2 x G 1/4 female ports for pressure or temperature sensors

*other fluids on request
**other ranges on request

Model Code

EVS 3 1 X 8 - H - XXXX - 000

Housing Material
0 = Aluminum
1 = Stainless Steel

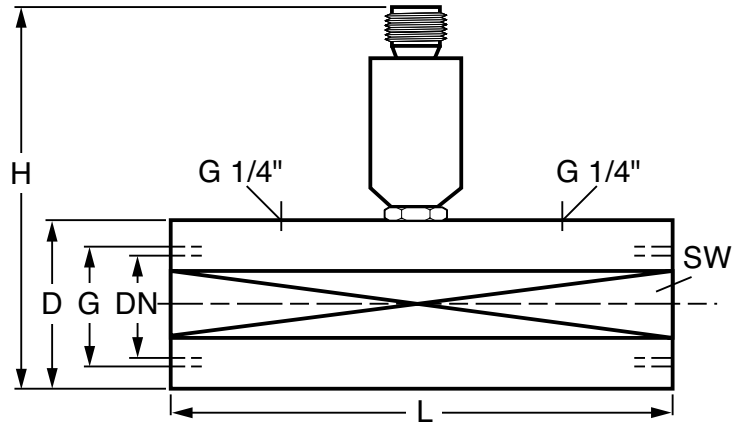
Electrical Connection
8 = M12x1, 5 pole *(connector not supplied)*

Signal
H = HSI (Automatic Sensor Identification)

Measuring Range
0020 = 0.26 to 5.28 gpm
0060 = 1.59 to 15.9 gpm
0300 = 3.96 to 29.3 gpm
0600 = 10.6 to 159 gpm

Modification Number
000 = Standard

Dimensions



Model	Meas. Range gpm (l/min)	Material	L	H	D / SW*	G	DN	Pmax in bar	Tmax
EVS 310X-H-0020	0.26 - 5.28 (1.2 - 20)	AL/SS	117	135	47.0 / 46	G 1/4	7	400	-20 to 90°C
EVS 310X-H-0060	1.59 - 15.9 (6 - 60)	AL/SS	144	135	48.5 / 46	G 1/2	11	400	-20 to 90°C
EVS 310X-H-0300	3.96 - 79.3 (15 - 300)	AL/SS	155	150	63.5 / 60	G 1 1/4	22	400	-20 to 90°C
EVS 310X-H-0600	10.6 - 159 (40 - 600)	AL/SS	181	150	63.5 / 60	G 1 1/2	30	315(A) 400(S)	-20 to 90°C