



GRYF

Manufacturer of Measuring Instruments

Instruction and Maintenance Manual

GRYF OXY F 0001/5/2 B HART

Contact

GRYF HB, spol. s r.o.

Cechova 314

Havlickuv Brod

580 01

tel.: +420 569 426 627

fax: +420 569 426 627

Czech Republic

www.gryf.eu





GRYF

Manufacturer of Measuring Instruments

Technical parameters	
Supply voltage	24 V/dc \pm 10%
Supply current	60 mA
Supply current of HART comm.	8-35 V/dc
Output signal	4 \div 20 mA
Oxygen concentration range	0.001 \div 5.000 %
Sensitivity (resolution)	0.002 %
Lowest measurable concentration	0.002 %
Resolution of current output	0.002 % (output 0 \div 5 %)
Accuracy	\pm 1 % from value, \pm 0.001
Signal stabilization	30 s (READY signal)
Signal READY	24 V, max. 100mA
Measured gas flow	0.2 \div 0.3 l / min
Inlet pressure	1 bar \pm 0.1bar
Operating temperature	0 °C \div 50 °C [32 °F \div 122 °F]
Dimensions	167 x 130 x 65 mm
Sensor Lifetime	24 months at concentrations <5%

Description

This analyzer is designed to detect oxygen concentration levels in gas and is also designed to be incorporated into gas concentrators. This device is to be installed in a control cabinet. For this reason, the analyzer does not have a separate box, only a front panel on which buttons, switches and lights are located. The output measurement is current loop 4-20mA with HART communication protocol v. 5. The current loop has independent power supply and is galvanically separated from other instrument parts. The measured gas is fed through a tube into the measuring chamber with the sensor (the sensor and chamber are included). The inlet pressure is about 1 bar, the measuring chamber pressure is comparable to the atmospheric pressure and measured gas is then discharged into the atmosphere. The gas flow is about 0.3l/min.

Sensor is not suitable for measurements with mixtures containing H₂S, CH₃SH, NH₃, SO₂, F₂, O₃, high concentrations of CO₂ (ambient concentrations are O. K.) and other strong oxidation or aggressive gases.



GRYF
Manufacturer of
Measuring Instruments

GRYF HB spol. s r.o.
Čechova 314

580 01 Havlíčkův Brod
Česká republika

IČ: 25280147
DIČ: CZ25280147

Tel./Fax: +420 569 425 024
www.gryf.eu



GRYF

Manufacturer of Measuring Instruments

Function

This analyzer is to be installed in a vertical position, see picture.

After turning on the power supply, the power supply indicator light (ON) will start flashing at 0.5 sec. intervals. This indicates the initiation of the sensor which lasts 5 seconds. The light will then stay lit and will turn off each time the oxygen concentration level is being measured, about 3x per second. The instrument is capable of performing precise measurements in about 30 seconds after being turned on.

The READY signal indicates measuring readiness. When the device is ready for measuring and the output current is valid, the READY signal value will be 24V.

Controls:

ON	operation signal
ERR1	failure
ERR2	signal is 0, value is less than 0.2 ppm (for example sensor could be unplugged)
CALIBRATION	calibration process signalization

Buttons:

DOWN	change of calibration constant
UP	change of calibration constant
START	calibration initiation and confirmation

Rotary switches:

RANGE	change of the measuring range, test codes
TYPE	calibration type setting



GRYF
Manufacturer of
Measuring Instruments

GRYF HB spol. s r.o.
Čechova 314

580 01 Havlíčkův Brod
Česká republika

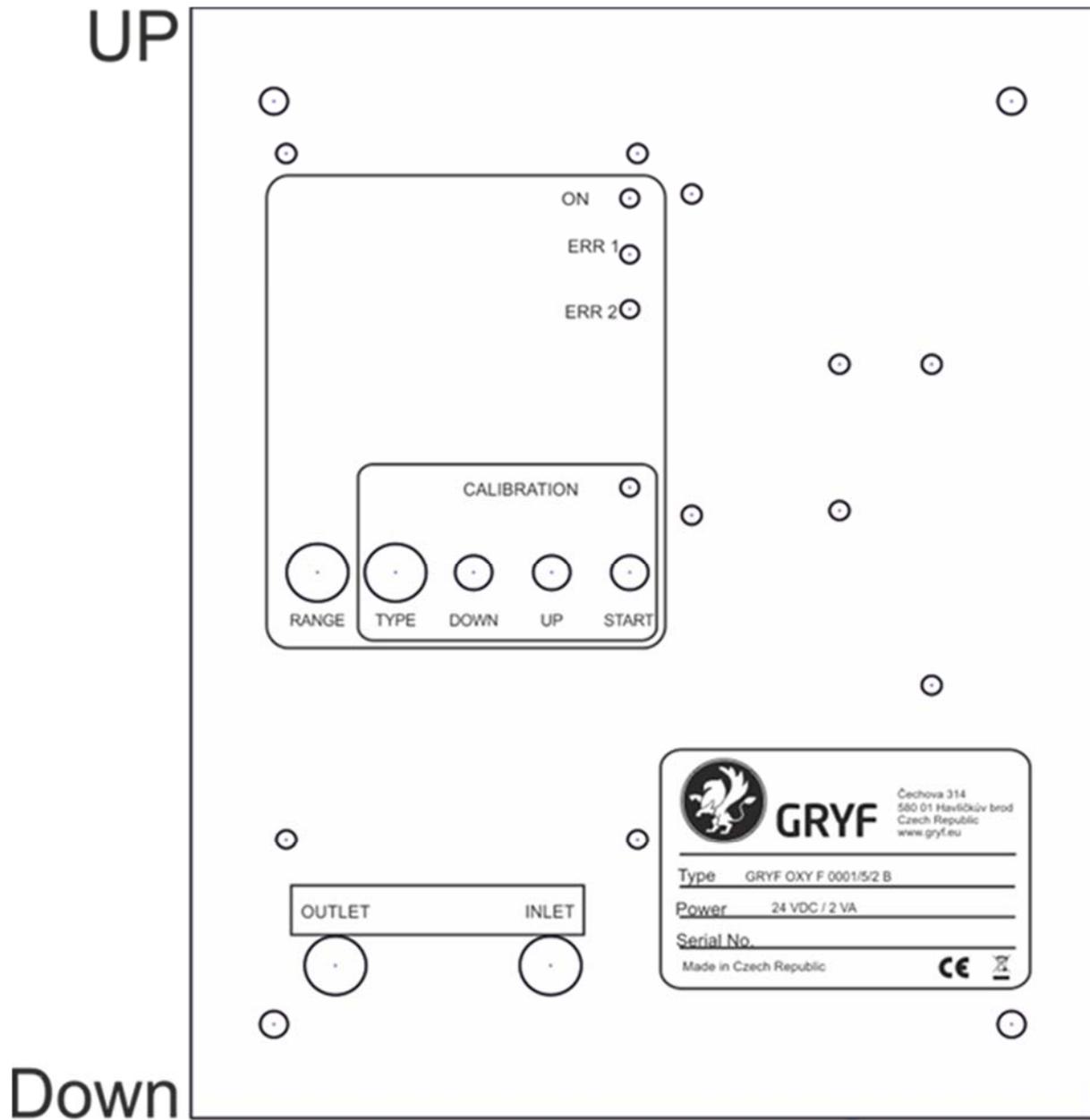
IČ: 25280147
DIČ: CZ25280147

Tel./Fax: +420 569 425 024
www.gryf.eu



GRYF

Manufacturer of Measuring Instruments



GRYF
Manufacturer of
Measuring Instruments

GRYF HB spol. s r.o.
Čechova 314

580 01 Havlíčkův Brod
Česká republika

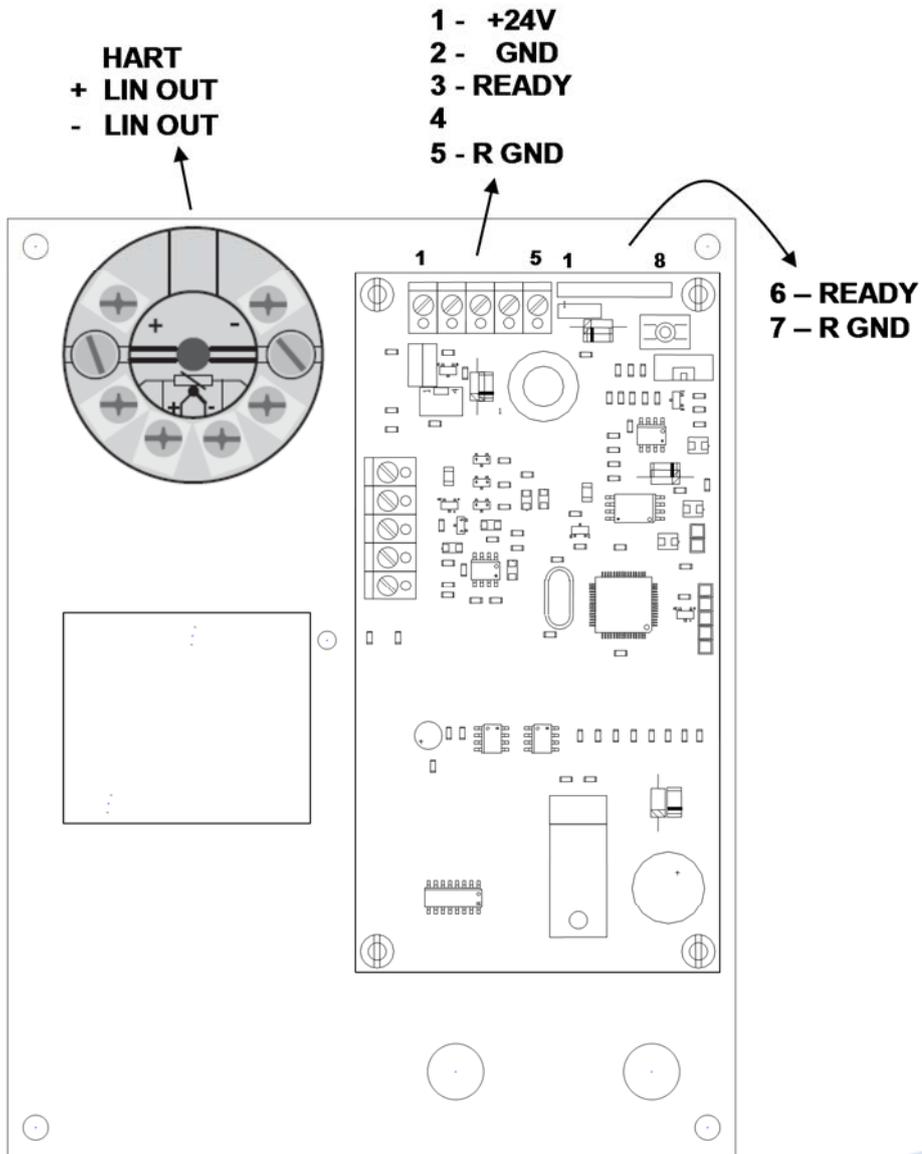
IČ: 25280147
DIČ: CZ25280147

Tel./Fax: +420 569 425 024
www.gryf.eu



GRYF

Manufacturer of Measuring Instruments



GRYF
Manufacturer of
Measuring Instruments

GRYF HB spol. s r.o.
Čechova 314

580 01 Havlíčkův Brod
Česká republika

IČ: 25280147
DIČ: CZ25280147

Tel./Fax: +420 569 425 024
www.gryf.eu



GRYF

Manufacturer of Measuring Instruments

Measurement

Use the basic 0-5% range (position 3) to measure oxygen concentration. Other measurement ranges are to be used only for maintenance purposes (position 1, 2, 4, 9). These ranges are not supported by HART communication. This service range is not designed for continuous use. Setting the measurement range and output current line is performed using the RANGE rotary switch located on the front panel. This corresponds to the output current signal of 4-20 mA.

Description of the RANGE rotary switch codes:

Position	Measuring range	Output Range
1	0 - 1000 ppm, for service	1000 ppm...20mA
2	0 - 1000 ppm, for service	100 ppm...20mA
3	0 - 5%	5%...20mA
4	0 - 5%, for service	2%...20mA
9	0 - 25 %, for service	25 %...20mA

Test codes:

Position	Output Value
0	4mA
5	7,2mA
6	12mA
7	16,8mA
8	20mA

Calibration

Calibration can be performed on pre-selected oxygen concentrations. Calibration type is selected by the (TYPE) rotary switch located on the front panel. The selected calibration gas must then be passed into the inlet of the meter. Calibration is started by pressing the START button. After pressing the button, the CALIBRATION indicator light will light up green. After the signal has stabilized, the result can be confirmed by pressing START. After pressing START, the CALIBRATION light will flash green to confirm.

Should the CALIBRATION light start flashing red, the calibration has been performed incorrectly. The calibration constants are out of range. This can be due to attendant error or sensor failure.

Editing of calibration values using the appropriate buttons (positions 6 and 7) can be done by following these steps.

The small changes are made by single pressing DOWN and UP buttons. Faster changes can be achieved by pressing and holding the buttons DOWN or UP for several seconds.



GRYF
Manufacturer of
Measuring Instruments

GRYF HB spol. s r.o.
Čechova 314

580 01 Havlíčkův Brod
Česká republika

IČ: 25280147
DIČ: CZ25280147

Tel./Fax: +420 569 425 024
www.gryf.eu



GRYF

Manufacturer of Measuring Instruments

Description of the rotary switch codes TYPE:

Position	
0	Calibration ban
1	designated for service (20.9%)
2	concentration 1% -slope, only for range 5%
3	concentration 0.5% -slope, only for range 5%
4	designated for service (100 ppm)
5	designated for service (10 ppm)
6	edit slope with buttons Down, Up
7	edit zero with buttons Down, Up
8	digital filter ban

Analyzer installation:

This analyzer is not equipped with IP coverage and is therefore designed to be installed in a cabinet or case. This analyzer is also recommended to be installed in a vertical position, hose connection on the bottom, terminal plate for power input facing upward. Use the four holes in each corner to install the analyzer to a board or cabinet. Diameter of the holes is 4.3mm.

Connect a 4mm hose with the input gas mixture into the INLET line, located on the right side of the front panel. Output gas is diverted via a 4mm hose. The output hose is connected to the OUTLET line, located on the left side of the front panel. If the cabinet or case is well ventilated, it is not necessary to connect a hose to the OUTLET line.

WARNING!!!

Sensor must be used only for clean, dry gases and gas mixtures. Maximum allowable pressure PS=2 bar. The output absolute pressure cannot exceed 1.2 bar.

Before connecting the hoses, please **remove both** metal plugs.



GRYF

Manufacturer of Measuring Instruments

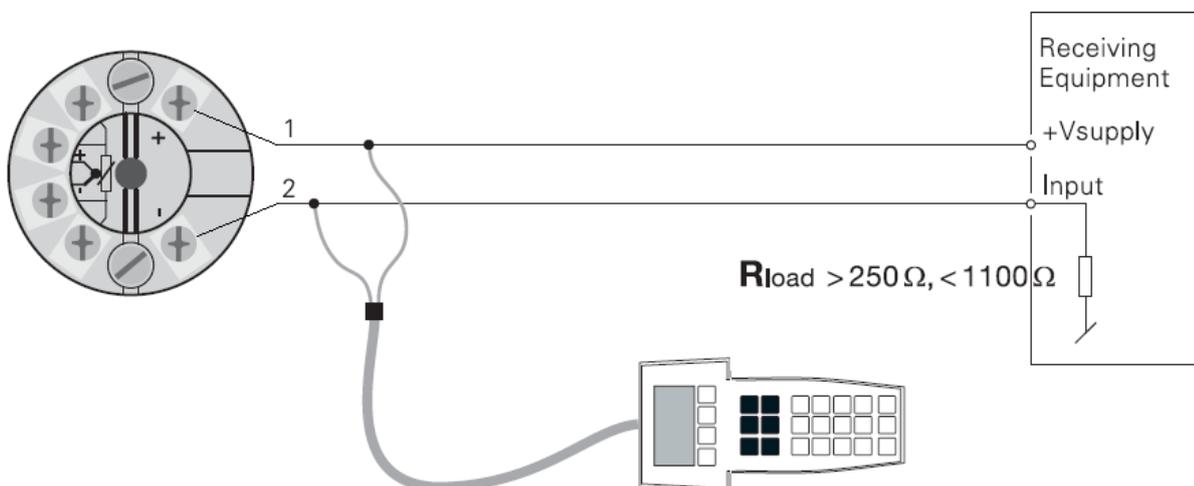
The terminal plate for the input voltage is located in the upper part of the analyzer. While looking at the back of the analyzer, the following clips are numbered (from left):

- 1 - +24V
- 2 - GND
- 3 - READY
- 4 -
- 5 - R GND

The READY signal is jointed, furthermore, they are also accessible on the 8- pin connector with a lock. The pins are also numbered from the left when looking at the back of the analyzer:

- 6 - READY
- 7 - R GND

For connection of the current loop with HART communication is designated the red terminal module in the upper left corner. The HART communication is supported in version 5. It comes integrated with all universal commands. Only primary value is valid, other values (secondary, tertiary, quaternary) are not supported.

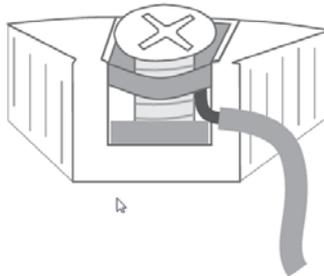




GRYF

Manufacturer of Measuring Instruments

Mounting of sensor wires



Wires must be mounted between the metal plates.

Shipping and storage

To avoid accidental sensor life shortening, it is necessary to prevent ambient air from entering the measuring chamber. Therefore, the analyzer should be stored with metal plugs (seals) in the input and output lines. These plugs (seals) should only be removed before connecting the input and output hoses so that the device is connected to the measured gas as soon as possible.

This analyzer can be stored and transported in any position.



GRYF
Manufacturer of
Measuring Instruments

GRYF HB spol. s r.o.
Čechova 314

580 01 Havlíčkův Brod
Česká republika

IČ: 25280147
DIČ: CZ25280147

Tel./Fax: +420 569 425 024
www.gryf.eu



GRYF

Manufacturer of Measuring Instruments

GRYF HB, spol. s r. o.

Čechova 314
580 01 Havlíčkův Brod
Česká republika

gryf@gryf.eu
Tel./Fax: 00 420 569 425 024

www.gryf.eu

