

JUMO dTRANS O2 01 Two-wire Transmitter for dissolved oxygen (DO)

with optional terminal box or operating unit

Type 202610

Brief description

The JUMO dTRANS O2 01 two-wire transmitter is used for the measurement of dissolved oxygen in aqueous solutions. It provides an electrically isolated 4 to 20 mA output signal corresponding to the oxygen content. The instrument can be configured through a setup program or from a terminal box/operating unit (available as an option). The temperature of the medium can be acquired through a Pt1000 in the two-wire transmitter and further processed (from the standard version and above, also as 4 to 20 mA two-wire signal).

The measurement is made with an electrochemical, membrane-covered sensor. The microprocessor circuit incorporated in the two-wire transmitter takes account of the temperature, atmospheric pressure and salinity (salt content) factors.

The sensor is of modular design and is easy to maintain and replace.

Typical areas of application

- Municipal and industrial sewage-treatment plants
- Drinking water monitoring
- Prevention of water pollution
- Fish farming (fresh and salt water)
- Processing plants

Versions and delivery package

Basic version

- Two-wire transmitter
JUMO dTRANS O2 01
- 8 m attached cable
- Terminal box (IP65) with button for calibration

The basic version is designed for direct connection to a PLC or a recording instrument. The calibration function can be initiated locally. The transmitter can be configured through the setup program (available as an option).

The supply to the two-wire transmitter is provided by a separate power supply (optional), e.g. JUMO TN-22, see Data Sheet 707500.

The JUMO dTRANS Az 01 (Data Sheet 202550), with bezel size 96 mm × 48 mm, is a suitable indicator/controller for the basic version. This instrument is recommended where there is no requirement for a direct connection to a PLC or recording instrument.

The JUMO dTRANS Az 01 can also provide the supply required for the two-wire transmitter.

Standard version

As for the basic version, but with an operating unit (instead of the terminal box) that has a display and additional operating keys. The supply for the two-wire transmitter and the operating section is provided by an (optional) separate power supply, e.g. JUMO TN-22, see Data Sheet 707500. An additional power supply (e.g. JUMO TN-22) is required for the optional two-wire transmitter for temperature. The instrument is operated from the membrane keypad. Operator guidance in plain text ensures that operation is easy to understand. The dTRANS O2 01 is configured via the operating unit.

Maximum version

As for the standard version. In addition, the operating unit has its own power supply for the oxygen and temperature two-wire transmitters, a signal output (4 to 20 mA) for temperature, and two freely programmable relays for alarm functions and limit control. This version features a backlit display.

Key features

- Measurement of dissolved oxygen (DO) in aqueous solutions



Two-wire transmitter
JUMO dTRANS O2 01



Optional operating unit

- Safe single-point calibration
- Two-wire transmitter (with basic and standard versions)
- Electrical isolation of measurement signal (DO) and output signal (mA)
- Problem-free linking to an existing installation (e.g. PLC)
- The full (maximum) version provides a stand-alone solution
- Compensation of temperature, atmospheric pressure and salinity
- Further processing of the temperature of the medium possible (separate Pt1000 and two-wire transmitter)
- Setup program provides convenient transmitter configuration/documentation
- Simpler, safer servicing by replacing modules
- Backlit display, i.e. easy to read even in darkness (for the maximum version)
- Comprehensive range of accessories

Technical data

General

Supply

Basic version Type 202610/80 and standard version Type 202610/81
DC 19 to 31 V; nominal DC 24 V
Maximum version Type 202610/82
AC 110 to 240 V +10/-15 %, 48 to 63 Hz
or AC/DC 20 to 30 V, 48 to 63 Hz
Power drawn: approx. 8 VA

Permissible ambient temperature
-5 to +50 °C

Cable length between oxygen transmitter and indicator/operating unit
8 m

Electrical connection
Pluggable screw terminals

Lightning protection
Coarse and fine protection

Electromagnetic compatibility (EMC)
To EN 61326

Oxygen transmitter

Range
0 to 2 to 0 to 50 mg/l (freely programmable)

Measurement units
mg/l or % saturation

Accuracy
±1 % of end of range (20 mg/l)

Temperature compensation
0 to +50 °C

Atmospheric pressure compensation
Direct via atmospheric pressure:
500 to 1500 hPa (mbar) or
indirect via height a.m.s.l.: 0 to 3000 m

Salinity (salt content compensation)

0 to 40 g/kg

Output signal
4 to 20 mA, freely scalable within the range

Response time (at 25 °C)
 $t_{90} < 180$ sec

Minimum inflow
5 cm/sec

Safe pressure
6 bar max. at 20 °C
Pressure variations will affect the output signal !

Protection
IP68 to EN 60529

Housing material
Shaft: stainless steel 1.4305
Sensor head and protective basket: PVC

Weight
Approx. 700 g

Terminal box and operating unit

Protection
IP65 to EN 60529

Housing material
PC

Weight
approx. 2 kg

Burden
Basic version Type 202610/80
Output dissolved oxygen:

$$\leq \frac{U_B - 10 \text{ V}}{0.02 \text{ A}}$$

Standard version Type 202610/81:

Output dissolved oxygen/temperature

$$\leq \frac{U_B - 17 \text{ V}}{0.02 \text{ A}}$$

Maximum version Type 202610/82
Output dissolved oxygen/temperature:
≤ 350 Ω

Display resolution
0.01 mg/l and 0.1 %; 0.1 °C

Temperature measurement

Range
0 to 50 °C (fixed)

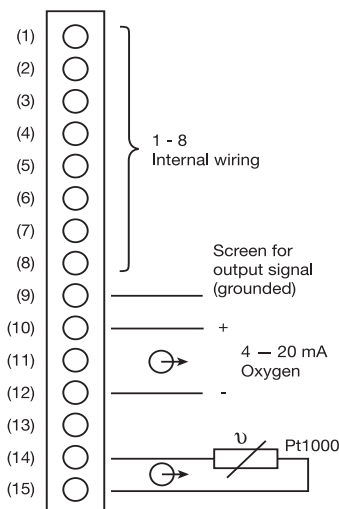
Accuracy
Basic version
Type 202610/80-500-2000-08-28
Sensor: Pt1000, Class B
Display: n/a

Output signal: n/a
Standard version
Type 202610/81-500-2000-08-28
Sensor: Pt1000, Class B
Display: 0.25 % of range

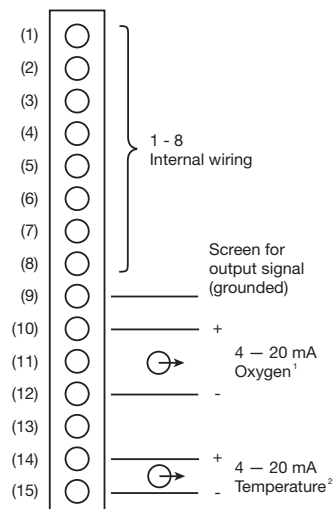
Output signal: n/a
Standard version
Type 202610/81-405-2000-08-28
Display: 0.25 % of range
Output signal: 1 % of range

Maximum version
Type 202610/82-006-2000-08-23
Display: 0.25 % of range
Output signal: 1 % of range

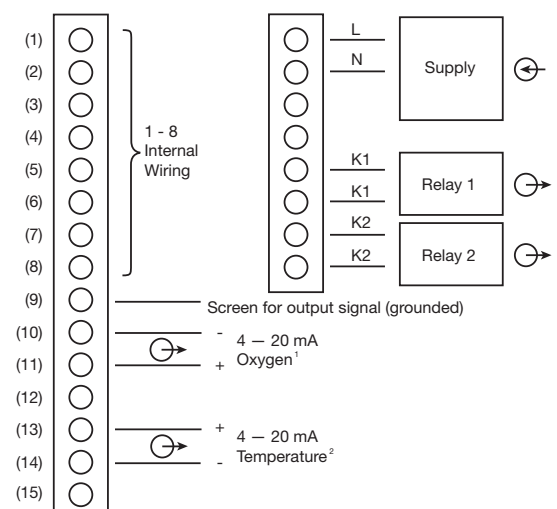
Electrical connection



Type 202610/80-500-2000-08-28
Type 202610/81-500-2000-08-28



Type 202610/81-405-2000-08-28



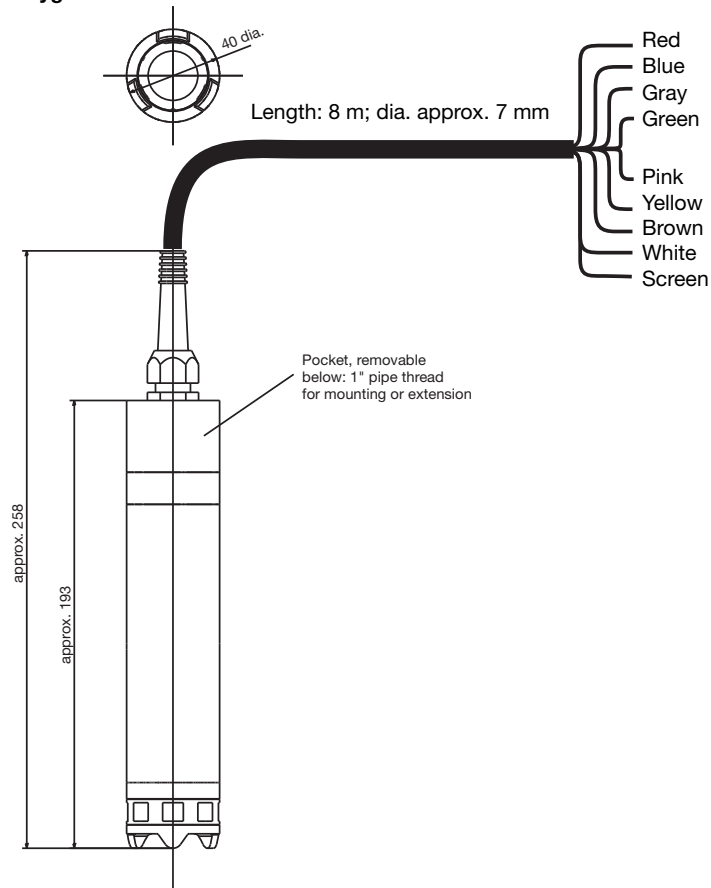
Type 202610/82-006-2000-08-23
Type 202610/82-006-2000-08-25

¹ Freely scalable

² Fixed setting: 10 to 50 °C corresponding to 4 to 20 mA

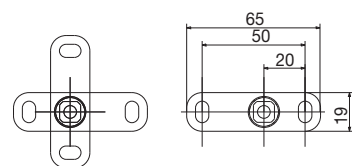
Dimensions

Oxygen transmitter

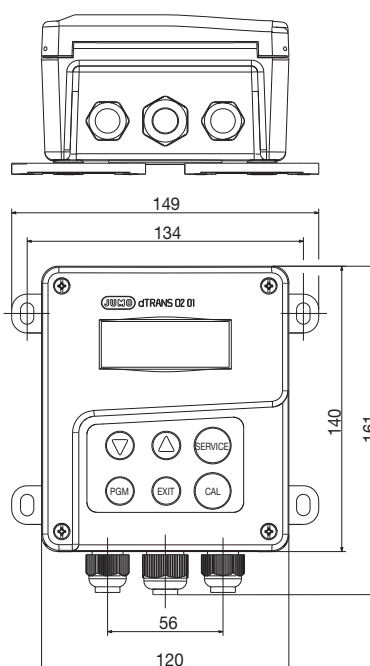


Color	Terminal in box	Signal
Pink	1	RXD
Green	2	GND
Yellow	3	TXD
White	4	b Pt1000
Brown	5	a Pt1000
Red	6	+e/-I
Blue	7	-e/+I
Screen	8	
Gray	11	CAL/NC

Terminal box or operating unit

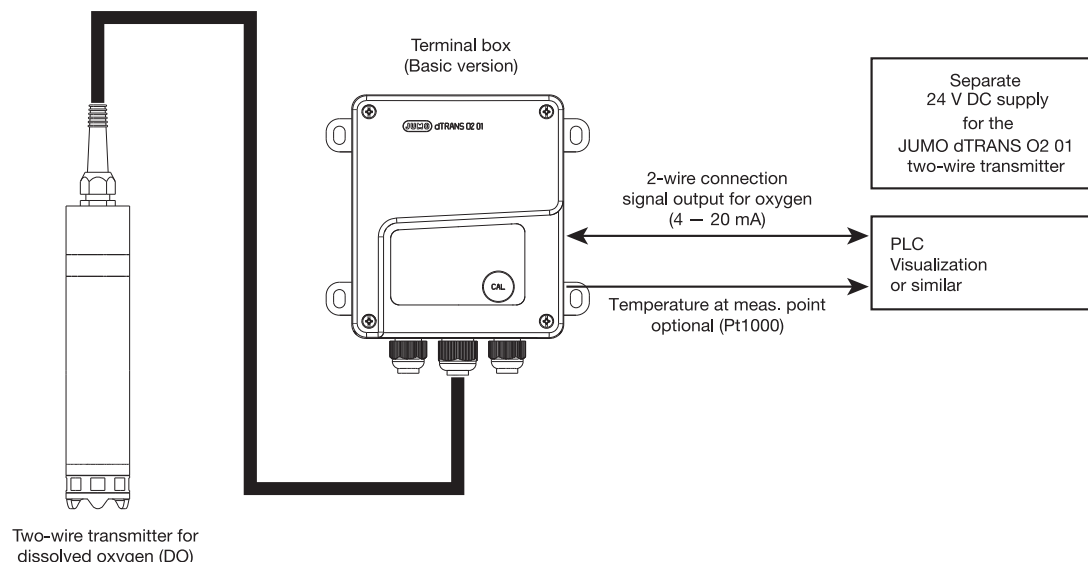


The fixing brackets can be mounted in 2 positions. For wall mounting, laterally or above/below the terminal box or operating unit.

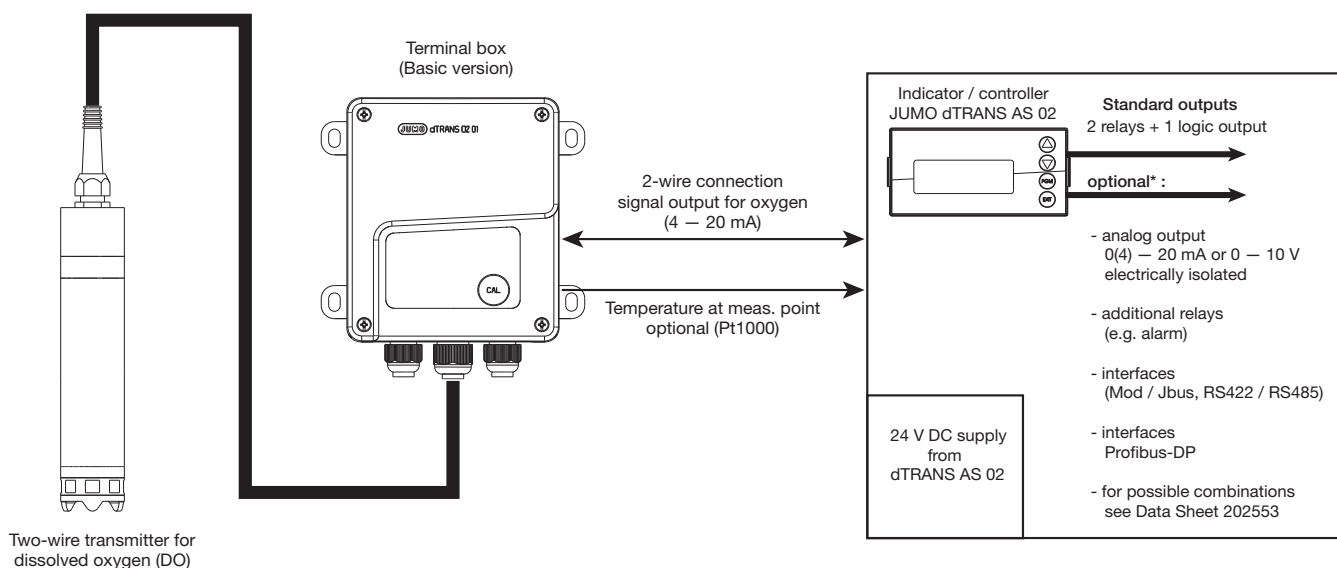


Connection examples

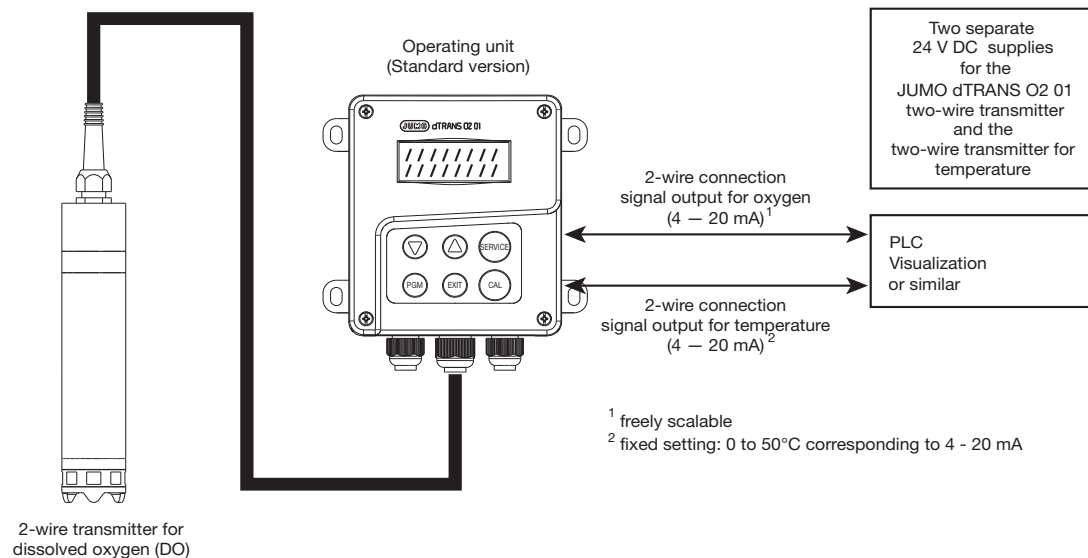
Basic version 202610/80-500-2000-08-28 with terminal box



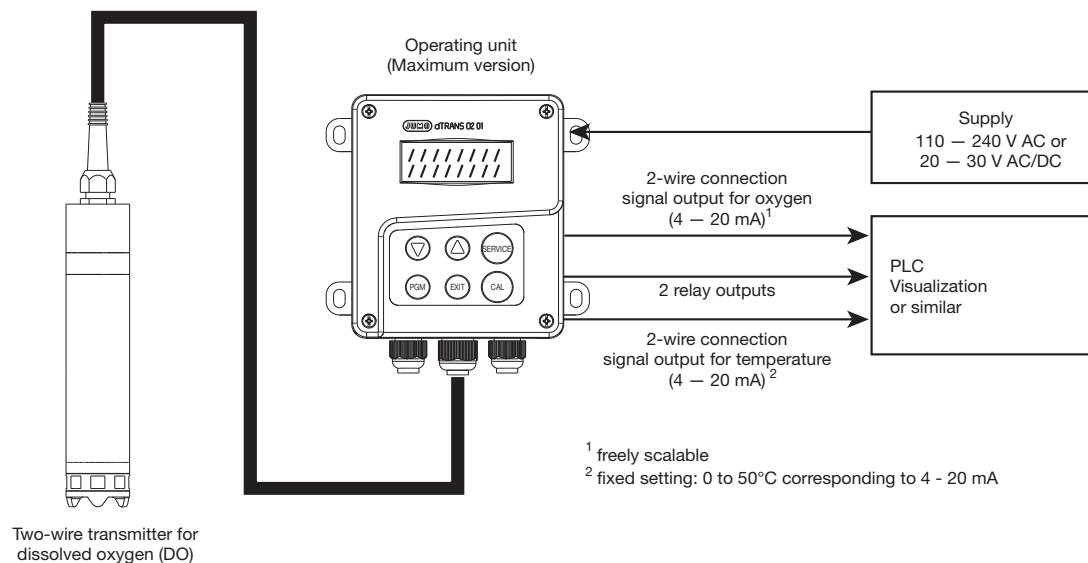
Basic version 202610/80-500-2000-08-28 with terminal box and JUMO dTRANS Az 01



Standard version 202610/81-405-2000-08-28 with operating unit



Maximum version 202610/82-006-2000-08-23 with operating unit



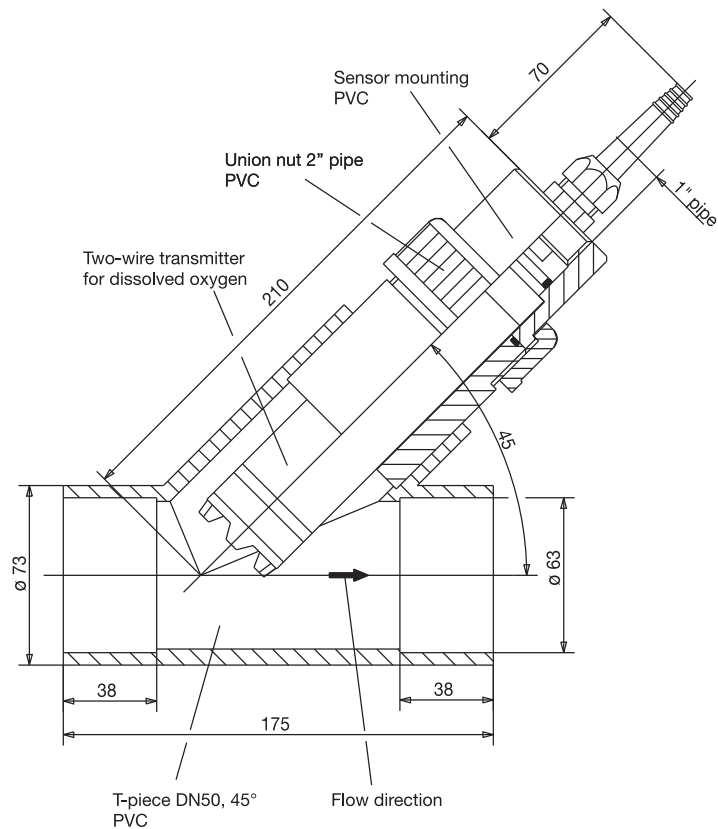
Accessories

Flow-through fittings

The dTRANS O2 01 oxygen transmitter can be mounted in flow-through fittings. The fittings are installed directly in the pipeline conveying the medium, or in the bypass. The special construction of the fitting ensures a correct flow into the sensors, and therefore avoids measurement errors.

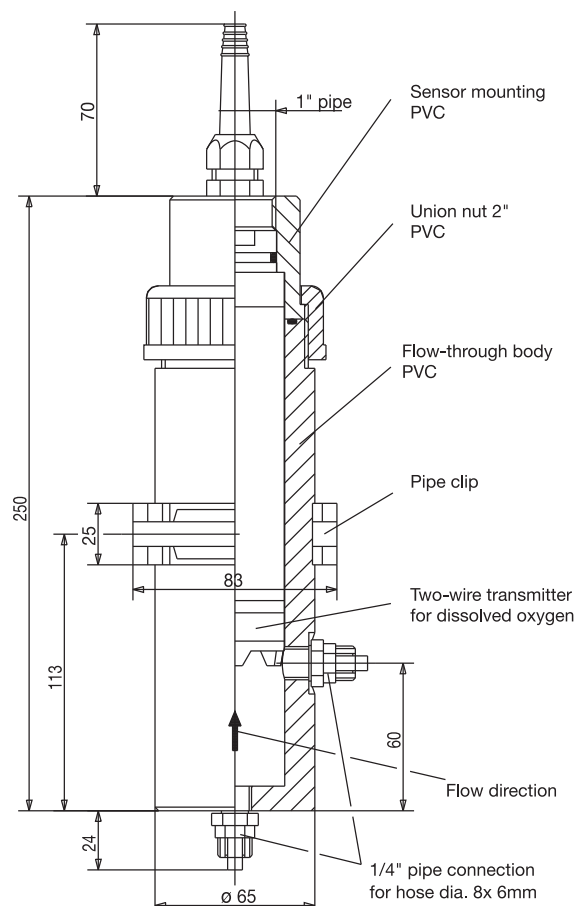
The following points should be noted when planning the pipework layout:

- The fitting must be readily accessible, to allow regular maintenance and cleaning of the transmitter or the fitting itself.
- Bypass measurements are recommended. Shut-off valves should be provided so that the transmitter can be removed.
- Where systems are subject to temperature or pressure stresses, the fitting and transmitter must meet the requirements.
- The suitability of the materials of the fitting and the transmitter (e.g. chemical compatibility) must be checked by the system designer.



Flow-through fitting, angled seat	
Material	PVC
Permissible temperature	+5 to +50 °C
Safe pressure	Up to 1 bar
Connection	Solvent weld sockets
Process connection	T-piece DN50, 45°
Part no.	00398137

Flow-through fitting, hose connection	
Material	Housing PVC pipe clip PP
Permissible temperature	+5 to +50 °C
Safe pressure	Up to 1 bar
Connection	Solvent weld sockets
Process connection	1/4" pipe (for hose 8 mm x 6 mm dia.)
Part no.	00398142



Immersion fittings

The dTRANS O2 01 oxygen transmitter can be mounted in immersion fittings. The fittings are installed in open containers or sluices using the pipe clips supplied. Different immersion depths are facilitated by various immersion lengths.

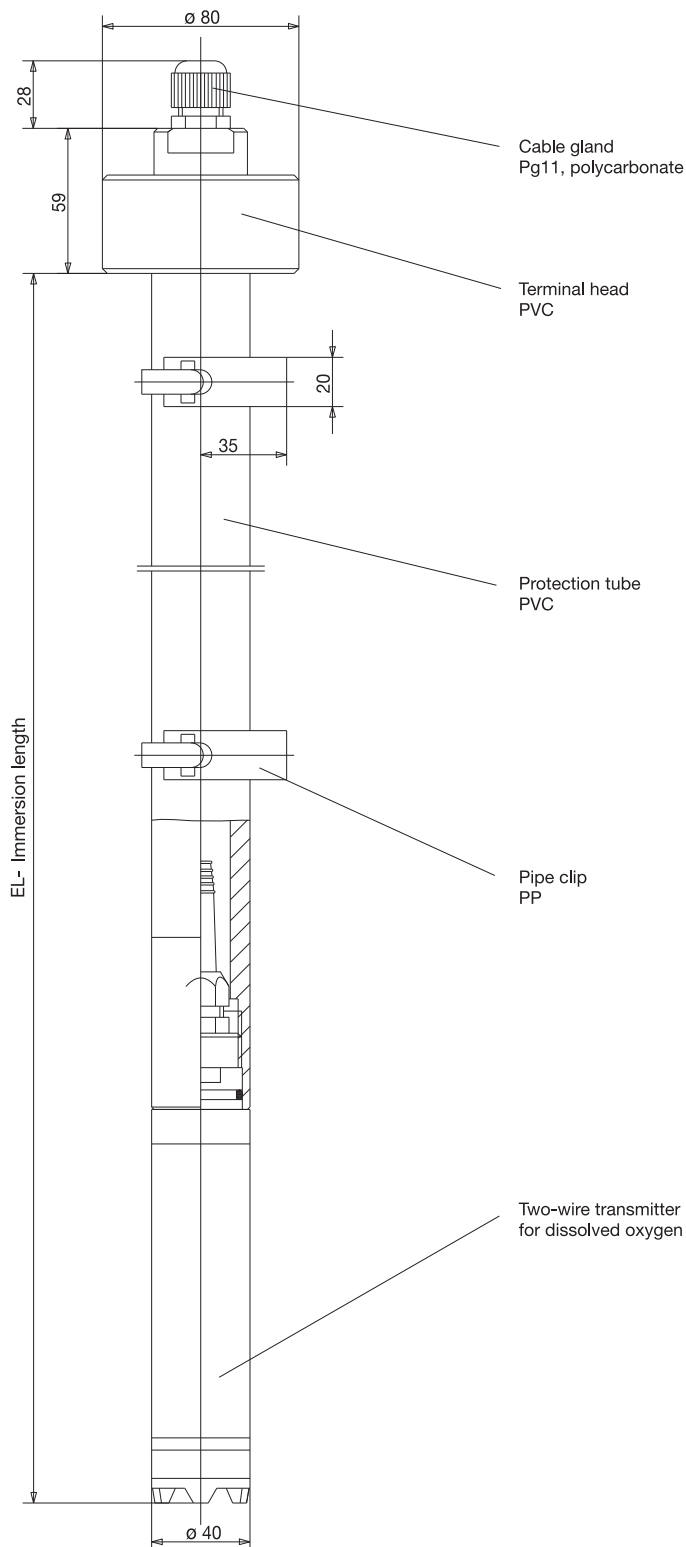
The following points should be noted at the design stage:

- The fitting must be readily accessible, to allow regular maintenance and cleaning of the transmitter or the fitting itself.
- The suitability of the materials of the fitting and the transmitter (e.g. chemical compatibility) must be checked by the system designer.

Immersion fitting	
Material	Immersion tube PVC pipe clip PP
Permissible temperature	+5 to +50 °C
Safe pressure	Up to 1 bar
Cable gland	Pg11
Protection	IP65 EN 60529

Immersion length	500 mm
Part no.	00398131

Immersion length	1500 mm
Part no.	00398135



Suspension fittings

The dTRANS O2 01 oxygen transmitter can be mounted in suspension fittings. The fittings are used primarily for measurement in open vessels. The fitting can be positioned far from the edge of the vessel, suspended from a chain by the shackle, for example. Different immersion depths are facilitated by various immersion tube lengths.

The following points should be noted at the design stage:

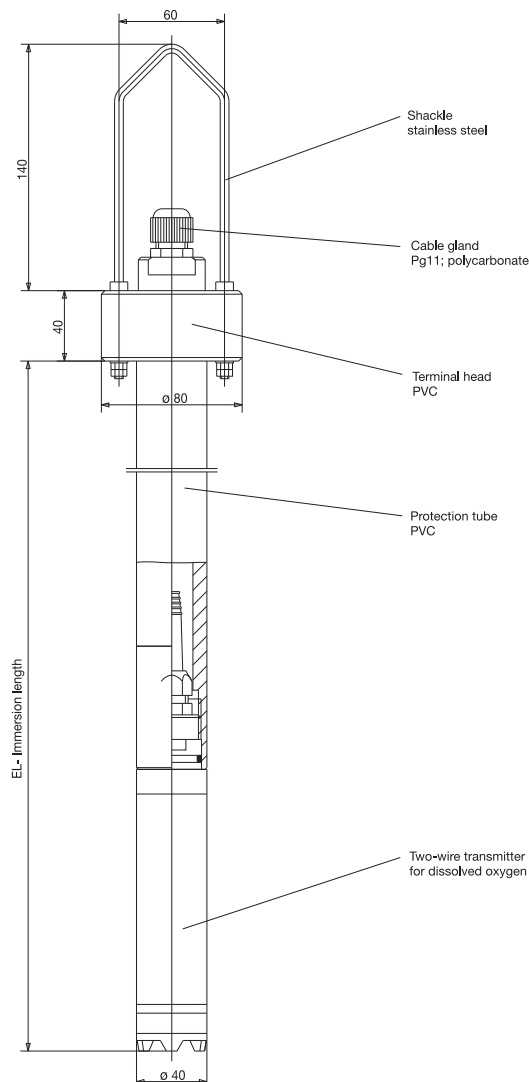
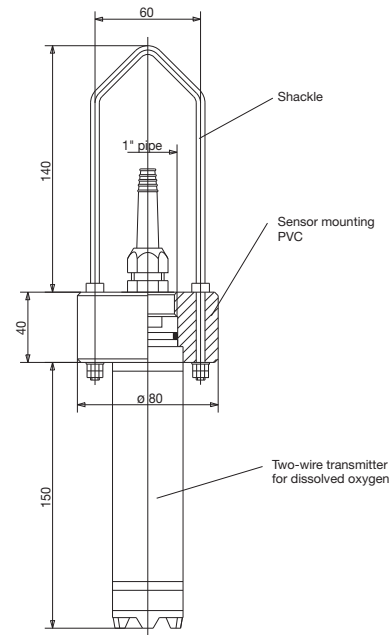
- The fitting must be readily accessible, to allow regular maintenance and cleaning of the transmitter or the fitting itself.
- The fitting (and with it the transmitter) must not strike the side of the vessel as a result of pendular movements.
- The suitability of the materials of the fitting and the transmitter (e.g. chemical compatibility) must be checked by the system designer.

Suspension fitting	
Material	Immersion tube PVC shackle stainless steel
Permissible temperature	+5 to +50 °C
Safe pressure	Up to 1 bar
Cable gland	Pg11
Protection	IP65 EN 60529

Immersion length	150 mm
Part no.	00398148

Immersion length	500 mm
Part no.	00398143

Immersion length	1500 mm
Part no.	00398144



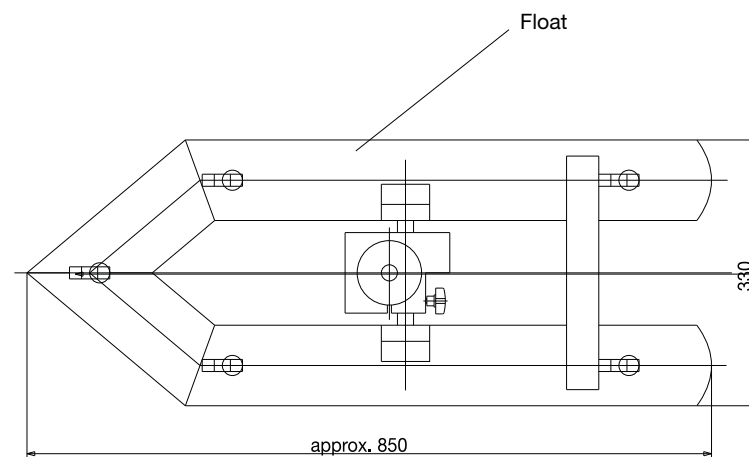
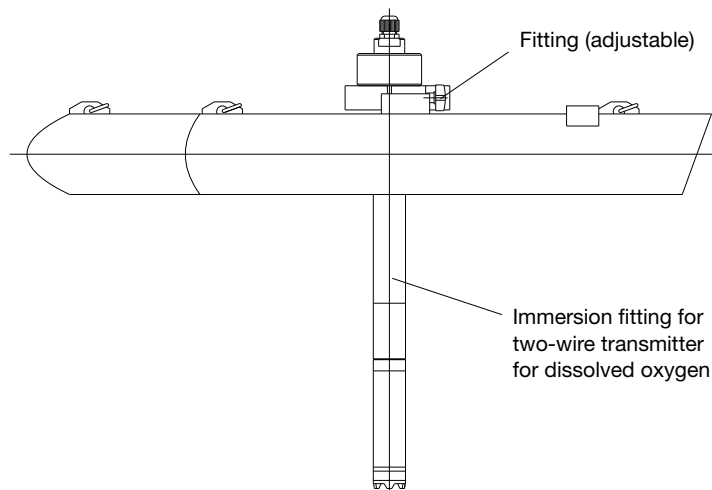
Float fittings

Brief description

Float fittings are used to mount an immersion fitting in which a dTRANS O2 01 oxygen transmitter is installed. The fittings are used primarily for measurement in open vessels or watercourses. Different immersion depths are facilitated by various support tube lengths of the immersion fitting.

The following points should be noted at the design stage:

- The fitting must be readily accessible, to allow regular maintenance and cleaning of the transmitter or the fitting itself.
- Where the depth of water fluctuates, it must be ensured that the fitting (and with it the transmitter) does not strike the base of the vessel or the water-course when the water level is low.
- The suitability of the materials of the fitting and the transmitter (e.g. chemical compatibility) must be checked by the system designer.



Float fitting	
Material	PVC
Permissible temperature	+5 to +50 °C
Fitting mounting	40 mm
Part no.	00397483

Suitable immersion fitting	
Immersion length	500 mm
Sales No.	00398131

Immersion length	1500 mm
Part no.	00398135

Support column with pedestal base, arm, chain and weather protection canopy

Brief description

This accessory is intended for installation at the edge of a vessel. The dTRANS O2 01 oxygen transmitter is installed in a suspension fitting. Different immersion depths and distances from the edge of the vessel are facilitated by the arm and the chain.

The weather protection canopy protects the terminal box or operating unit against the effects of the weather.

The following points should be noted at the design stage:

- The fitting must be readily accessible, to allow regular maintenance and cleaning of the transmitter or the fitting itself.
- The fitting (and with it the transmitter) must not strike the side of the vessel as a result of pendular movements.
- The suitability of the materials of the fitting and the transmitter (e.g. chemical compatibility) must be checked by the system designer.

Support column with pedestal base, arm, chain

Material	
Column	Stainless steel
Pedestal base	Die-cast aluminum
Arm	Stainless steel
Chain	Stainless steel
Universal joint	Die-cast aluminum
Permissible temperature	-5 to +50 °C
Part no.	00398163

Pipe installation kit^a

Material	Stainless steel
Part no.	00398162

^a Using the pipe installation kit, the terminal box or the operating unit can be attached to a pipe (e.g. support column or railing).

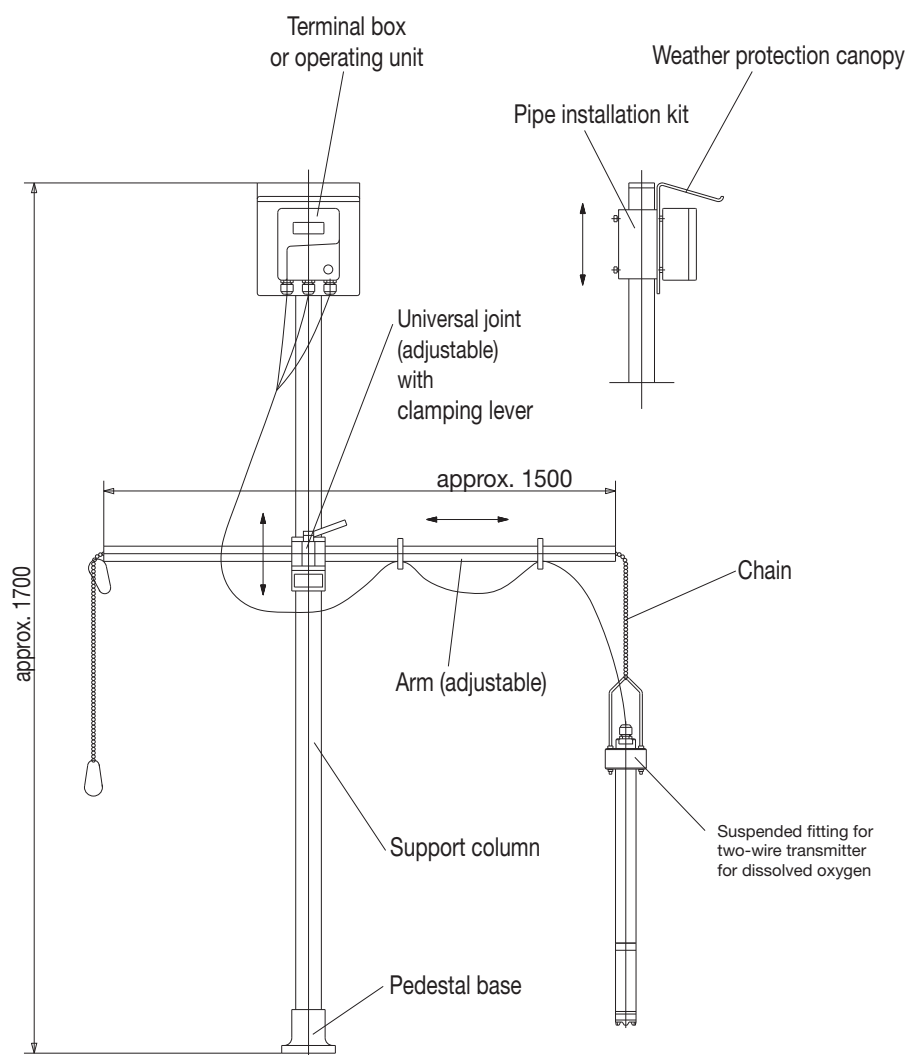
Weather protection canopy^a

Material	Stainless steel
Part no.	00398161

^a The pipe installation kit is required for mounting the weather protection canopy

Suspension fitting

Material	See above
Part no.	00398143 or 00398144



Order details

				(1) Basic type
				202610 Two-wire transmitter for dissolved oxygen (DO)
				(2) Basic type extensions
				80 Basic version
				81 Standard version
				82 Maximum version
				(3) Output (of additional temperature output)
		x		006 4 to 20 mA (internal supply)
	x			405 4 to 20 mA (external supply)
x	x			500 Resistance output Pt1000
				(4) Range for oxygen
x	x	x		2000 0 to 20 mg/l (programmable)
				(5) Cable length
x	x	x		08 8 m
x	x	x		10 10 m
x	x	x		15 15 m
				(6) Supply
		x		23 AC 110 to 240 V +10/-15 %, 48 to 63 Hz
		x		25 AC/DC 20 to 30 V, 48 to 63 Hz
x	x			28 DC 19 to 31 V (external supply, two-wire transmitter)
				(7) Language
	x	x		1 German (standard)
	o	o		2 English
	o	o		3 French
	o	o		4 Spanish

	(1)		(2)		(3)		(4)		(5)		(6)		(7)
Order code		/	..	-		-		-	08	-		-	
Order example	202610	/	81	-	500	-	2000	-	08	-	28	-	1

Note:

The type code is a type designation, not a modular system.

If at all possible, please choose the items listed under "Available ex-stock" or "Not available ex-stock" when ordering.

Any free combination of individual code features must be technically checked by us and released.

Please ask us in case of doubt !

Available ex-stock

Type	Part no.
202610/81-405-2000-08-28-1 (operator language: German)	00391357
202610/82-006-2000-08-23-1 (operator language: German)	00391358

Not available ex-stock

Type	Part no.
202610/80-500-2000-08-28-1 (operator language: German)	00391336
202610/82-006-2000-08-25-1 (operator language: German)	00393328
202610/82-006-2000-08-23-2 (operator language: English)	00406637
202610/81-405-2000-08-28-2 (operator language: English)	00409019
202610/82-006-2000-15-23-2 (operator language: English)	00427326
202610/81-405-2000-08-28-3 (operator language: French)	00439522
202610/82-006-2000-08-23-3 (operator language: French)	00439523
202610/82-006-2000-08-23-4 (operator language: Spanish)	00436038
202610/81-405-2000-08-28-4 (operator language: Spanish)	00437029

Accessories

Description	Part no.
Flow-through fitting, angled seat (PG 202850)	00398137
Flow-through fitting, hose connection (PG 202850)	00398142
Immersion fitting, immersion tube length 500 mm (PG 202850)	00398131
Immersion fitting, immersion tube length 1500 mm (PG 202850)	00398135
Suspension fitting, immersion tube length 150 mm (PG 202850)	00398148
Suspension fitting, immersion tube length 500 mm (PG 202850)	00398143
Suspension fitting, immersion tube length 1500 mm (PG 202850)	00398144
Float fitting (PG 209791)	00397483
Support column with pedestal base, arm and chain (PG 202850)	00398163
Pipe installation kit for terminal box or operating unit ^a (PG 202850)	00398162
Weather protection canopy for terminal box or operating unit ^b (PG 202850)	00398161
Set of replacement sensor modules (2 items + Operating Instructions) (PG 209791)	00393329
Setup program with adapter for dTRANS O2 01 (PG 202599)	00394728
PC interface cable with TTL / RS232 converter (PG 959720)	00301315
PC interface cable including USB/TTL converter and two adapters (USB connecting cable) (PG 959720)	00456352

^a The pipe installation kit can be used to fix the terminal box or the operating unit to a pipe (e.g. support column or railing).

^b The pipe installation kit is necessary for mounting the weather protection canopy.