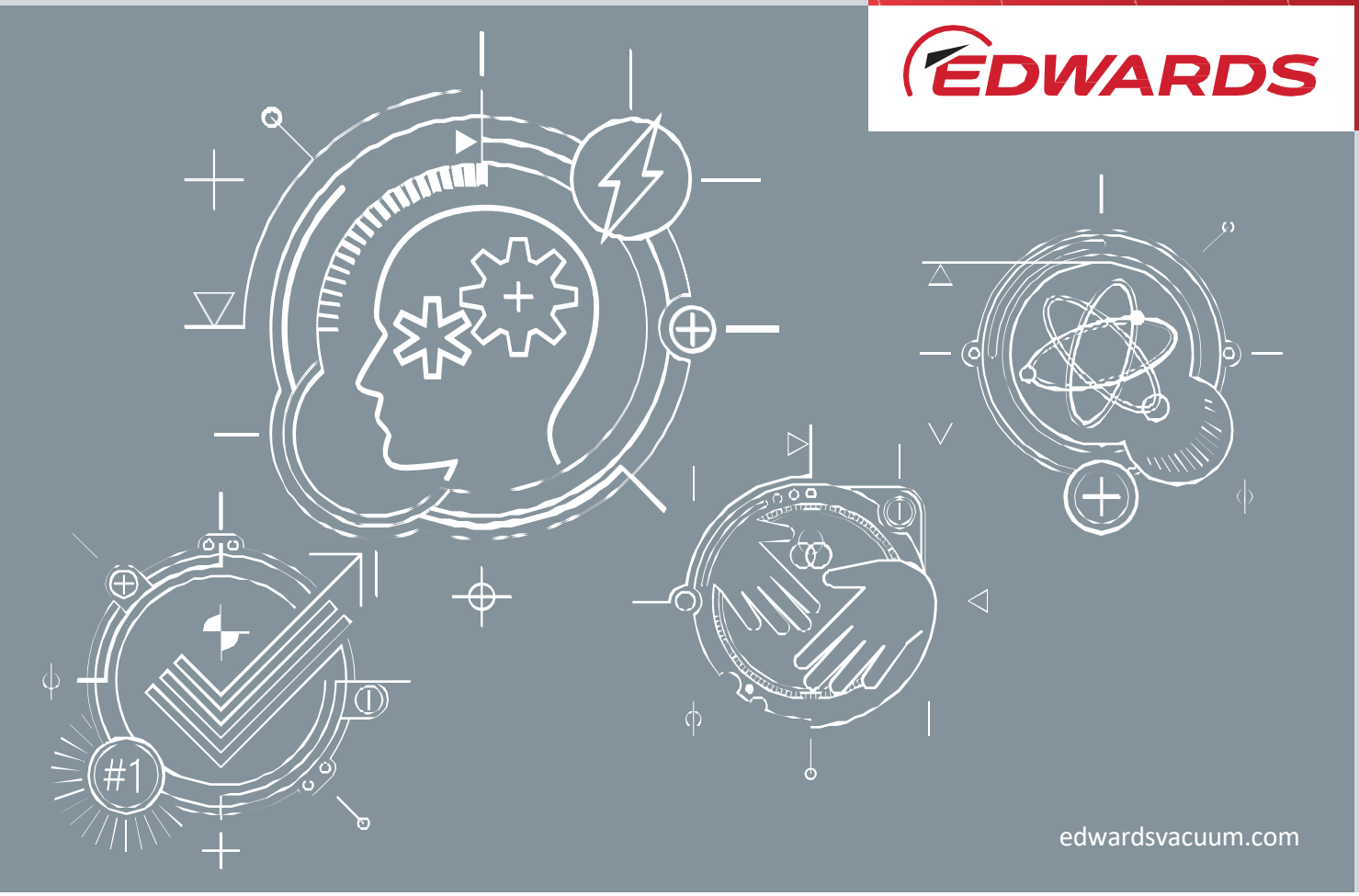

Capacitance Diaphragm Gauge Barocel 7025 (EtherCAT Variant)

INSTRUCTION MANUAL

Official Distributor in Australia

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The content of this manual may change from time to time without notice. We accept no liability for any errors that may appear in this manual nor do we make any expressed or implied warranties regarding the content. As far as practical we have ensured that the products have been designed and constructed to be safe and without risks when properly installed and used in accordance with their operating instructions.

We accept no liability for loss of profit, loss of market or any other indirect or consequential loss whatsoever.

Product warranty and limit of liability are dealt with in our standard terms and conditions of sale or negotiated contract under which this document is supplied.

You must use this product as described in this manual. Read the manual before you install, operate, or maintain the product.

Numbering matrix

Part numbers of standard products are indicated below.

Product	Part number
Barocel 7025 1000 torr 16KF ECAT	W602111155
Barocel 7025 100 torr 16KF ECAT	W602112155
Barocel 7025 10 torr 16KF ECAT	W602113155
Barocel 7025 1 torr 16KF ECAT	W602114155
Barocel 7025 0.1 torr 16KF ECAT	W602115155
Barocel 7025 1000 torr 8VCR ECAT	W602111255
Barocel 7025 100 torr 8VCR ECAT	W602112255
Barocel 7025 10 torr 8VCR ECAT	W602113255
Barocel 7025 1 torr 8VCR ECAT	W602114255
Barocel 7025 0.1 torr 8VCR ECAT	W602115255

Product	Part number
Barocel 7025 1000 torr DN16CF ECAT	W602111355
Barocel 7025 100 torr DN16CF ECAT	W602112355
Barocel 7025 10 torr DN16CF ECAT	W602113355
Barocel 7025 1 torr DN16CF ECAT	W602114355
Barocel 7025 0.1 torr DN16CF ECAT	W602115355

In all communications with us, specify the information given on the product nameplate.

The part number (PN) can be taken from the product nameplate.

If not indicated otherwise in the legends, the illustrations in this document correspond to gauges with DN 16 ISO-KF vacuum connection. They apply to the other gauges by analogy.

Contents

List of Figures

1. Safety and compliance

1.1 Definition of Warnings and Cautions

NOTICE:

For safe operation from the start, read these instructions carefully before you install or commission the equipment and keep them safe for future use.

Read all the safety instructions in this section and the rest of this manual carefully and make sure that you obey these instructions. The equipment must only be operated and maintained by trained personnel in the proper condition and as described in this instruction manual.

Obey local and state requirements and regulations. If you have any questions about safety, operation or maintenance of the device, please contact our nearest subsidiary.

Important safety information is highlighted as warning and caution instructions. Obey these instructions.

WARNING:

If you do not obey a warning, there is a risk of injury or death. Different symbols are used according to the type of hazard.

CAUTION:

If you do not obey a caution, there is a risk of minor injury, damage to equipment, related equipment or process.

NOTICE:

Information about properties or instructions for an action which, if ignored, will cause damage to the pump or the system.

We reserve the right to change the design and the stated data. The illustrations are not binding.

Keep the instructions for future use.

1.2 Trained personnel

"Trained personnel" for the operation of this equipment are

- skilled workers with knowledge in the fields of mechanics, electrical engineering, pollution abatement and vacuum technology and
- personnel specially trained for the operation of vacuum pumps.

1.3 Safety symbols

The safety symbols on the products show the areas where care and attention is necessary.

The safety symbols that follow are used on the product or in the product documentation.

	Warning/Caution An appropriate safety instruction must be followed or caution to a potential hazard exists.
	Warning - Overpressure Risk of increased pressure beyond permissible limit.
	Warning - Protective earth (ground) Earth point for electrical equipment.

2. Important safety information

- Adhere to the applicable regulations and take the necessary precautions for the process media used.

  Consider possible reactions with the product materials.
- Before you start the work, find out whether any vacuum components are contaminated. Adhere to the relevant regulations and take the necessary precautions when handling contaminated parts.
- Communicate the safety instructions to all other users.

3. Description

The capacitance diaphragm gauges of the BAROCEL 7025 series are intended for absolute pressure measurement of gases in their respective pressure ranges. They are clean room compliant and double protected against contamination.

3.1 Functional principle

A ceramic diaphragm is deflected by pressure. The deflection is measured capacitively and converted into an analogue linear output signal by digital electronics.

The output signal is independent of the gas type.

3.2 Supplied equipment

Table 1 Scope of delivery

Item	Quantity
Gauge in clean room packaging	01
Pin for adjusting settings via buttons	01
Calibration test report	01
Operating manual (English)	01

4. Technical data

Table 2 General technical data

Parameter	Value
Accuracy*	
≥ 1 Torr/mbar (F.S.)	0.20% of reading
0.1 Torr/mbar (F.S.)	0.50% of reading
Temperature effect on zero	
≥ 10 Torr/mbar (F.S.)	0.0050% F.S./°C
1 Torr/mbar (F.S.)	0.015% F.S./°C
0.1 Torr/mbar (F.S.)	0.020% F.S./°C
Temperature effect on span	
≥ 1 Torr/mbar (F.S.)	0.01% of reading/°C
0.1 Torr/mbar (F.S.)	0.03% of reading/°C
Resolution	0.003% F.S.
Gas type dependence	none
Output signal analogue (measuring signal)	
Voltage range	–5 to +10.24 V (limited to +10.24 V)
Measuring range	0 to +10 V
Relationship voltage-pressure	linear
Output impedance	0 Ω (short-circuit-proof)
Loaded impedance	> 10 kΩ
Response time†	
≥ 0.25 Torr/mbar (F.S.)	30 ms
0.1 Torr/mbar (F.S.)	130 ms

** Non-linearity, hysteresis, repeatability in the calibrated range at 25 °C ambient operating temperature without temperature effects after operation of 2 hours.*

† Increase 10 to 90% F.S.R.

Parameter	Value
Gauge identification	Resistance 13.2 kΩ referenced to supply common (voltage at pin 10 ≤ 5 V)
Remote zero adjust	digital input for zero adjustment with external switching contact
External switching contact	30 V d.c. / < 5 mA d.c.
Pulse	>1 s … < 5 s
Switching functions	SP1, SP2
Setting range	0 to +10 V
Hysteresis	1% F.S.

Parameter	Value
Relay contact	30 V d.c. / ≤ 0.5 A d.c. floating (NO)
closed	at low pressure (LED is lit)
open	at high pressure (LED is off)
Switching time	≤ 50 ms
Status relay	
Relay contact	30 V d.c. / ≤ 0.5 A d.c. connected to supply common (pin 5)
closed	measurement mode warning
open	no supply voltage error
RS232C interface*	
Transmission rate	9600 baud
Data format	binary 8 data bits one stop bit no parity bit no handshake Also, refer to *Power connection* on page 17
Diagnostic port	Jack connector, 2.5 mm, 3-pin
EtherCAT interface†	
Specification, data format, communication protocol	
3CB5-xxx-23Gx	refer to the respective manual.
data rate	100 Mbps
Note address	explicit device identification
Physical layer	100Base-Tx (IEEE 802.3)
EtherCAT connector	2 × RJ45, 8 pin, socket input and output
Cable	8 pin, shielded, Ethernet patch cable (CAT5e quality or higher)
Cable length	≤ 100 m

** For further information on the RS232C interface contact us for the appropriate guidance manual.*

† For further information on the EtherCAT interface refer the associated manual.

Parameter	Value
Internal volume of the gauge	≤ 4.2 cm^3
Weight of the gauge	< 650 g
Relative humidity	≤ 80% at temperatures ≤ +31 °C decreasing to 50% at +40 °C
Use	indoors only, altitude up to 2000 m
Degree of protection	IP 40

4.1 Electrical supply

WARNING: GAUGE CONNECTIONS

Risk of damage to equipment. The gauge may only be connected to power supplies, instruments or control devices that conform to the requirements of a grounded Protective Extra-Low Voltage (PELV) and Limited Power Source (LPS), Class 2. The connection to the gauge has to be fused.

Table 3 Electrical supply

Parameter	Value
Supply voltage at the gauge	Class 2 / LPS +14 … +30 V d.c. or ±15 V (±5%)
Ripple	≤ 1 V_{pp}
Current consumption	< 500 mA (maximum starting current)
Power consumption (depending on the supply voltage)	≤ 3 W
Fuse required	1 AT (slow), automatic reset (Polyfuse)
Electrical connection	D-sub 15-pin, male
Sensor cable	15-pin plus shielding
Cable length†	
Supply voltage 15 V	≤ 4 m (0.14 mm²/conductor) ≤ 7 m (0.25 mm²/conductor)
Supply voltage 24 V	≤ 20 m (0.14 mm²/conductor) ≤ 35 m (0.25 mm²/conductor)
Supply voltage 30 V	≤ 40 m (0.14 mm²/conductor) ≤ 70 m (0.25 mm²/conductor)

The gauge is protected against reverse polarity of the supply voltage and overload.

† For longer cables, larger conductor cross-sections are required ($R_{cable} \leq 1.0\ \Omega$).

For the grounding concept, refer to Power connection on page 17.

4.2 Materials exposed to the vacuum

Table 4 Materials exposed to the vacuum

Part	Material
Flange, tube	Stainless steel AISI 316L
Sensor and diaphragm	Ceramics (Al_2O_3 ≥ 99.5%)

4.3 Pressure and temperature

Table 5 Pressure

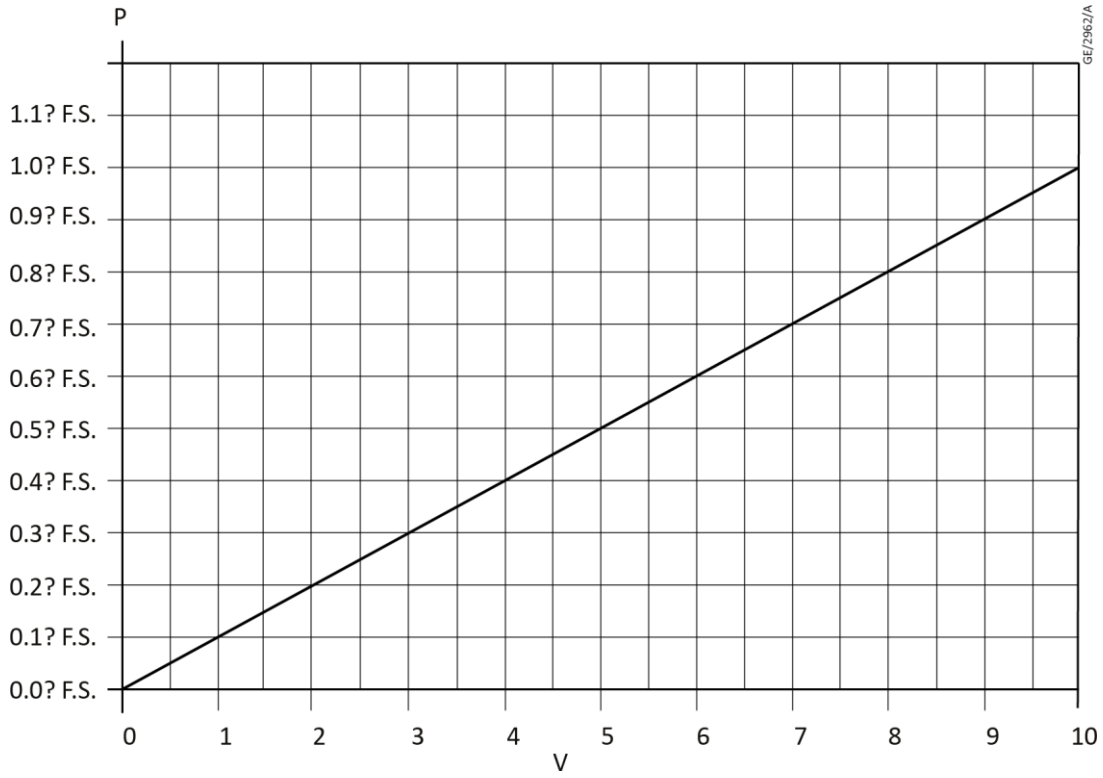
Parameter	Value (bar)	Value (kPa)
Admissible pressure (absolute)		
≥200 Torr/mbar (F.S.)	4	400
1 to 100 Torr/mbar (F.S.)	2.6	260
0.1 Torr/mbar (F.S.)	1.3	130
Bursting pressure (absolute)	6	600

Table 6 Temperature

Parameter	Value
Admissible temperatures	
Storage	-40 °C to +65 °C
Operation	+5 °C to +50 °C
Bakeout (not in operation)	≤ 110 °C at the flange

4.4 Analogue measurement signal vs. pressure

Figure 1 Analogue measurement signal vs. pressure



$p = (U_{out} / 10\ V) \times p\ (F.S.)$

Example:
Gauge with 10 Torr F.S.

Measurement signal $U_{out} = 6\ V$

$p = (6\ V / 10\ V) \times 10\ Torr$

$p = 0.6 \times 10\ Torr = 6\ Torr$

Table 7 Conversion of Torr to Pascal

	Torr	mbar*	Pa*
c	1	1013.25 / 760 = 1.332	101325 / 760 = 133.3224

**Source: NPL (National Physical Laboratory)*
Guide to the Measurement of Pressure and Vacuum, ISBN 0904457x / 1998

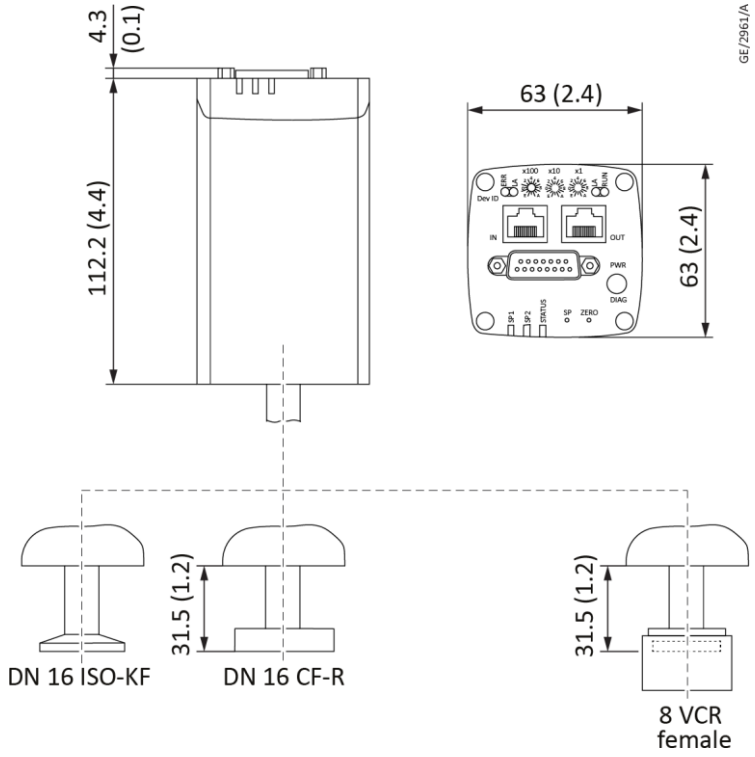
5. Installation

WARNING: FRAGILE COMPONENTS

Risk of injury or damage to equipment. The ceramic sensor can get damaged by impacts. Do not drop the product and prevent the gauge from shocks and impacts.

5.1 Dimension drawing

Figure 2 Dimension drawing



5.2 Vacuum connection

WARNING: OVERPRESSURE

Risk of injury and damage to equipment.
Overpressure in the vacuum system if pressure is more than 1 bar.
There is a risk of injury caused by released parts and escaping process gases. Escaping process gases can result if clamps are opened while the vacuum system is pressurised. Do not open any clamps while the vacuum system is pressurised. Use the clamps which are suited to overpressure.

WARNING: OVERPRESSURE

Risk of injury and damage to equipment.
Overpressure in the vacuum system if pressure is more than 2.5 bar.
The KF flange connections with the elastomer seals (for example, O-rings) cannot withstand the pressure more than 2.5 bar in the vacuum system. The process media can leak and can cause injury. Use O-rings provided with an outer centring ring.

WARNING: PROTECTIVE GROUND

Risk of injury and damage to equipment. Products that are not correctly connected to ground can be extremely hazardous in the event of a fault.
Electrically connect the gauge to the grounded vacuum chamber. This connection must conform to the requirements of a protective connection according to EN 61010:
- CF and VCR flanges fulfil this requirement.
- for gauges with a KF flange, use a conductive metallic clamping ring.

CAUTION: VACUUM COMPONENT

Risk of damage to equipment. Dirt and damages impair the function of the vacuum component. When handling vacuum components, take appropriate measures to ensure cleanliness and prevent damages.

CAUTION: DIRT SENSITIVE AREA

Risk of damage to equipment. Touching the product or parts thereof with bare hands increases the desorption rate. Always wear clean, lint-free gloves and use clean tools when working in this area.

1. Mount the gauge so that no vibrations occur. The gauge may be mounted in any orientation. To prevent condensates and particles from getting into the measuring chamber preferably choose a horizontal to upright position and possibly use a seal with a centring ring and filter.
2. For adjustment to be possible after the gauge has been installed, be sure to install it in such a way that the buttons can be accessed with a pin.
3. Remove the protective lid.
4. Connect the gauge to the vacuum system, make sure to wear gloves. Keep flange faces clear of any contaminants.
5. Store the protective lid.

5.3 Power connection

WARNING: GAUGE CONNECTIONS

Risk of damage to equipment. The gauge may only be connected to power supplies, instruments or control devices that conform to the requirements of a grounded Protective Extra-Low Voltage (PELV) and Limited Power Source (LPS), Class 2. The connection to the gauge has to be fused.

Make sure the vacuum connection is properly made.

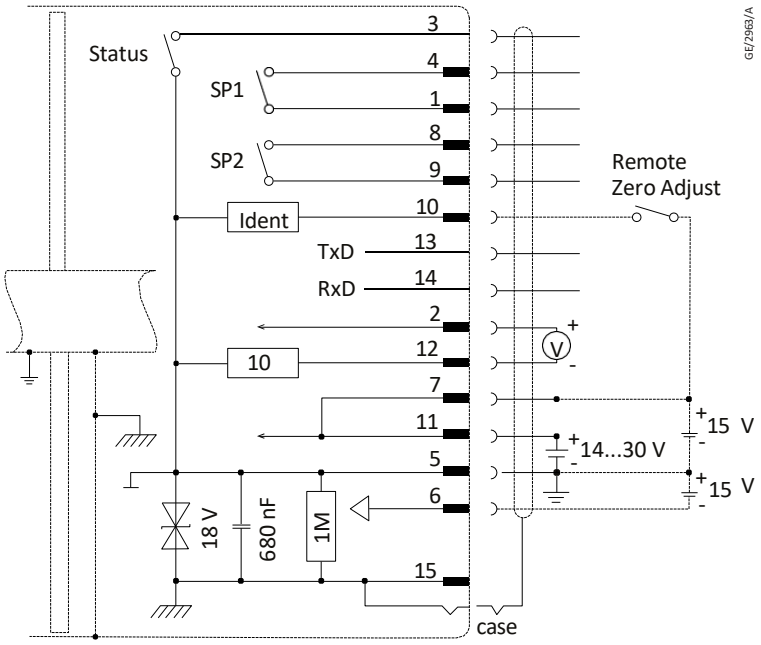
Ground loops, differences of potential or EMC problems may affect the measurement signal. For optimum signal quality, obey the instructions that follow:

- Use an overall metal-braided shielded cable. The connector must have a metal case.
- Connect the cable shield to the ground at one side via the connector case. Make sure that the connector case has direct contact with the cable's shield on its whole circumference. Do not connect the other side of the shield.
- Connect the supply common with the protective ground directly at the power.
- Use differential measurement input (signal common and supply common conducted separately).
- The potential difference between the supply common and housing must be less than or equal to 18 V for overvoltage protection.

5.3.1 D-sub, 15 pin connector

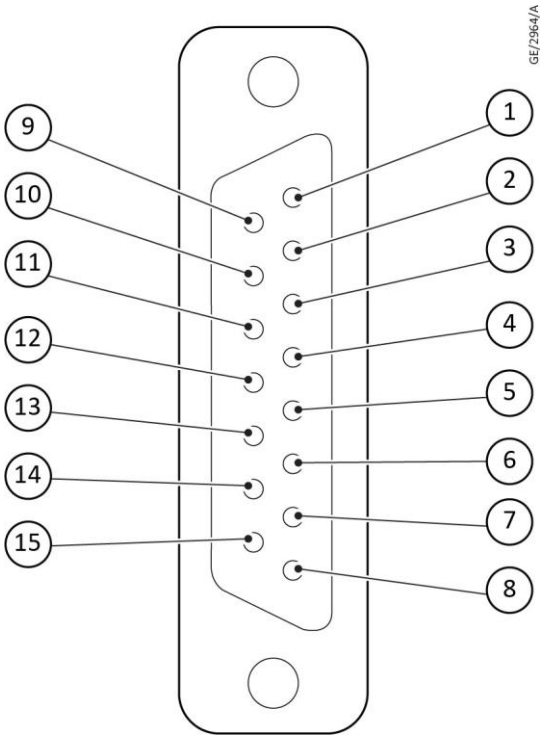
If the sensor cable is not available, make one according to the *Figure: D-sub, 15 pin connector*. Connect the sensor cable (cable length and conductor cross-sections refer to *Table: Electrical supply*).

Figure 3 D-sub, 15 pin connector



Case - Connector case

Figure 4 D-sub, 15 pin female soldering side



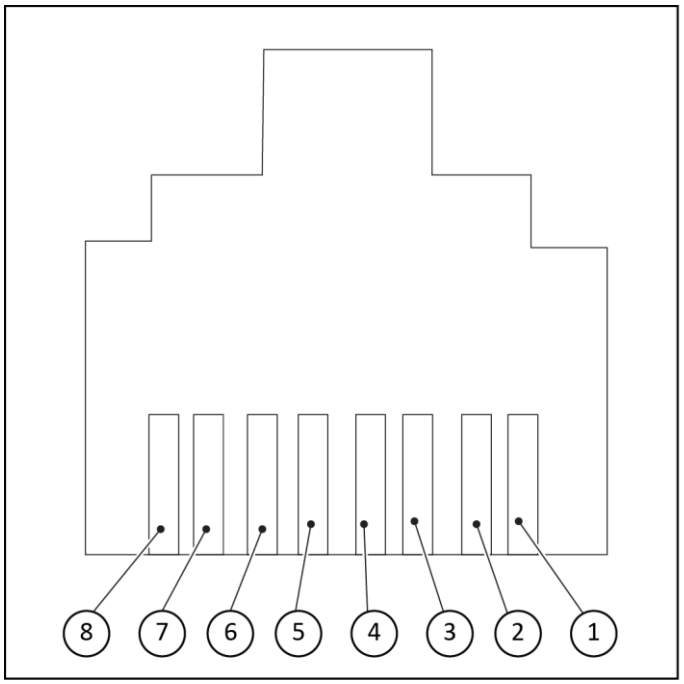
Pin	Parameter
1, 4	Relay SP1, closing contact
2	Signal output (measurement signal) or thresholds SP1/2
3	Status
5	Supply common
6	Supply (-15 V)
7, 11	Supply (+14 to +30 V or +15 V)
8, 9	Relay SP2, closing contact
10	Gauge identification or remote zero adjust
12	Signal common
13	RS232, TxD
14	RS232, RxD
15	Housing (chassis ground)

5.3.2 EtherCAT connector

EtherCAT is a communications interface. It is powered through a sensor cable.

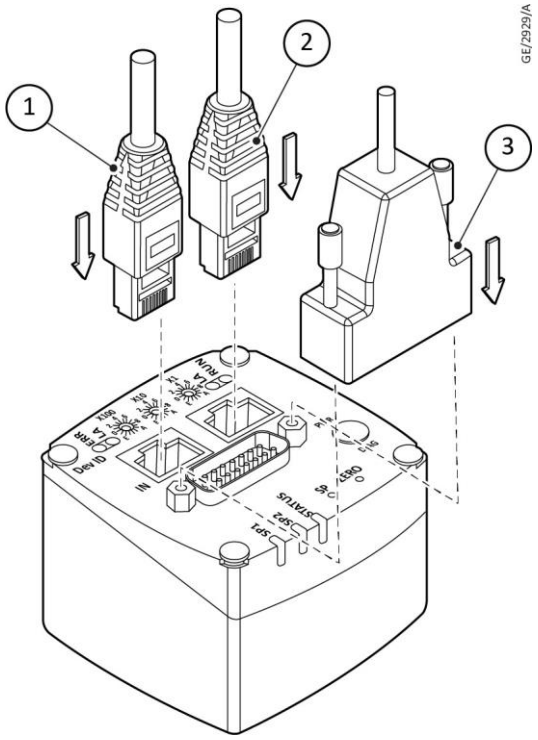
If EtherCAT cables are not available, make them according to the *Figure: FCC68, 8-pin, soldering side* and *Figure: EtherCAT connector*. Connect the EtherCAT cables.

Figure 5 FCC68, 8-pin, soldering side



Pin	Parameter	
1	TD+	Transmission data +
2	TD-	Transmission data -
3	RD+	Receive data +
6	RD-	Receive data -
4, 5, 7, 8	--	not connected

Figure 6 EtherCAT connector



1. *FCC68 cable <IN> port*
2. *FCC68 cable <OUT> port*
3. *Sensor cable*

6. Operation

Put the gauge into operation.

Warm-up time:

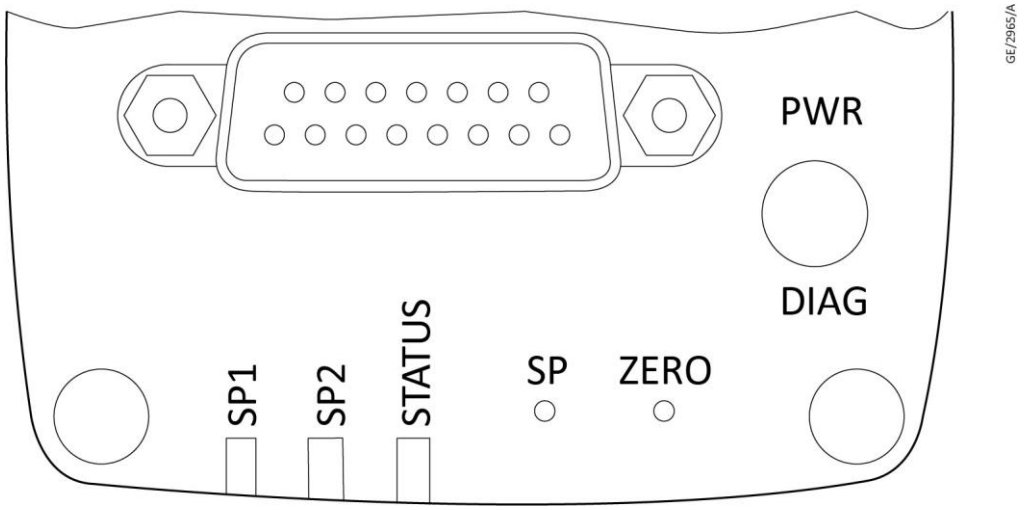
- for general purpose reading (within specifications): more than ¼ hour
- for zero adjustment and precision measurement: more than 2 hours

If the gauge is used for the fast downstream pressure control, we recommend setting its signal filter to "fast".

The filter can be set through the RS232C interface or EtherCAT.

6.1 Status indication

Figure 7 Status indication



LED	LED status	Meaning
<STATUS>	off	No supply voltage
	lit solid green	Measurement mode
	blinking green (short blinks)	Warning, over/under range
	lit solid red	Error
<SP1>	lit green green	p ≤ setpoint 1
	blinking green	waiting for setpoint 1 input
	off	p > setpoint 1
<SP2>	lit solid green	p ≤ setpoint 2
	blinking green	Waiting for setpoint 2 input
	off	p > setpoint 2

For more information on EtherCAT LEDs, refer to the EtherCAT manual (publication number - W60990880)

6.2 Zeroing the gauge

The gauge is factory calibrated while standing upright (refer to Calibration test report).

We recommend you to adjust a zero when the gauge is operated for the first time.

Due to long time operation or contamination, a zero drift could occur and zero adjustment may become necessary.

For adjusting the zero, operate the gauge under the same constant ambient conditions and in the same mounting orientation as normally.

The output signal (measuring signal) depends on the mounting orientation. The signal difference between the vertical and horizontal mounting orientation is:

Full Scale	ΔU / 90°
1000 Torr/mbar	≈2 mV
100 Torr/mbar	≈10 mV
10 Torr/mbar	≈50 mV
1 Torr/mbar	≈300 mV
0.1 Torr/mbar	≈1.8 V

If the gauge is operated through a controller, the zero of the whole measuring system is adjusted on the controller.

1. Adjust the zero of the gauge.
2. Adjust the zero of the controller.

6.3 Zero adjustment

The zero can be adjusted through:

- the <ZERO> button on the gauge
- the EtherCAT interface
- the digital input "Remote Zero": Apply the supply voltage to pin 10, pulse (refer to *Figure: D-sub, 15 pin female soldering side*)
- the RS232C interface

While the gauge is under atmospheric pressure, the zeroing function is locked to prevent operating errors.

The procedure to adjust the zero is as follows:

1. Evacuate the gauge to pressure according to the *Table: Recommended final pressure for zero adjustment*.

   If the final pressure is too high for zero adjustment (more than 25% of the F.S.), the zero cannot be reached and the <STATUS> LED blinks green. In this case, activate the factory setting and adjust the zero again (refer to *Activate the factory setting (factory reset)* on page 27).
2. Operate the gauge for at least 2 hours under constant ambient conditions (until the signal is stable).
3. Briefly press the <ZERO> button with a pin (maximum diameter - 1.1 mm) (refer to *Figure: ZERO button*). The zero adjustment runs automatically. The <STATUS> LED

blinks until the adjustment (for duration less than or equal to 8 seconds) is completed.

After zero adjustment, the gauge automatically returns to the measurement mode.

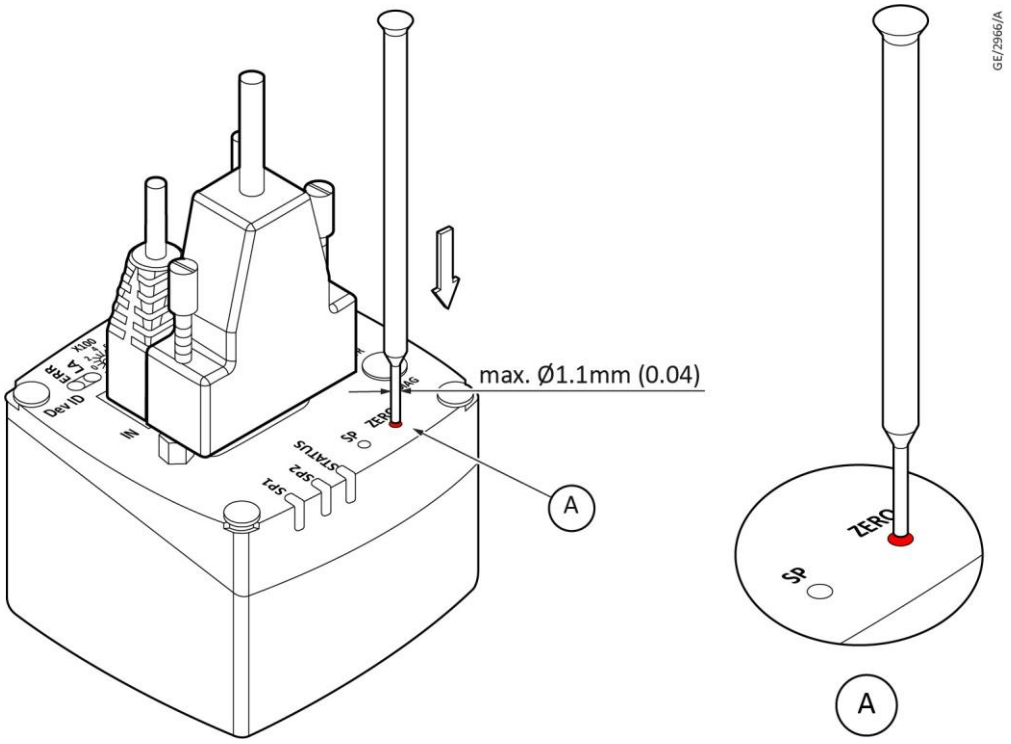
The <STATUS> LED blinks green if:

- the signal output is negative (less than -20 mV) when the final pressure is reached
- the zero adjustment has failed.

Table 8 Recommended final pressure for zero adjustment

F.S.	Recommended final pressure for zero adjustment		
1000 Torr	< 5×10^{-2} Torr	< 7×100 hPa	< 7×10^{-2} mbar
100 Torr	< 5×10^{-3} Torr	< 7×10^{-1} hPa	< 7×10^{-3} mbar
10 Torr	< 5×10^{-4} Torr	< 7×10^{-2} hPa	< 7×10^{-4} mbar
1 Torr	< 5×10^{-5} Torr	< 7×10^{-3} hPa	< 7×10^{-5} mbar
0.1 Torr	< 5×10^{-6} Torr	< 7×10^{-4} hPa	< 7×10^{-6} mbar

Figure 8 ZERO button



6.4 ZERO adjustment with a ramp function

The ramp function is used to adjust the zero at a known reference pressure within the measurement range of the gauge.

It also permits to adjust an offset of the characteristic curve to:

- compensate for the offset of the measuring system or
- obtain a slightly positive zero for a 0 to 10 V AD converter.

The offset must not exceed 2% of the F.S. (+200 mV). At a higher positive offset, the upper limit of the measurement range is exceeded.

Zero adjustment using the ramp function can be done through:

- the <ZERO> button on the gauge
- the EtherCAT interface
- the RS232C interface.

For the recommended procedure to adjust the offset of a measuring system, refer to *Zeroing the gauge* on page 23.

The procedure to adjust zero with a ramp function is as follows:

1. Operate the gauge for at least 2 hours under constant ambient conditions (until the signal is stable).
2. Push the <ZERO> button with a pin (maximum diameter - 1.1 mm) and keep it pressed (refer to *Figure: ZERO button*). The <STATUS> LED starts blinking. After 5 seconds, the zero adjustment value, starting at the current output value, keeps continually changing (ramp) until the button is released or until the setting limit (maximum 25% F.S.) is reached. The corresponding output signal is delayed by about 1 second.
3. Push the <ZERO> button again:
   - Fine adjustment within 0 to 3 seconds:

     The zero adjustment value changes by one unit (push <ZERO> button in intervals of 1 second).
   - Change of direction within 3 to 5 second:

     The zero adjustment changes its direction (the blinking frequency of the <STATUS> LED changes briefly).

If the <ZERO> button is released for more than 5 seconds, the gauge returns to the measurement mode.

The <STATUS> LED blinks green if the signal output is negative (less than -20 mV).

6.5 Switching functions

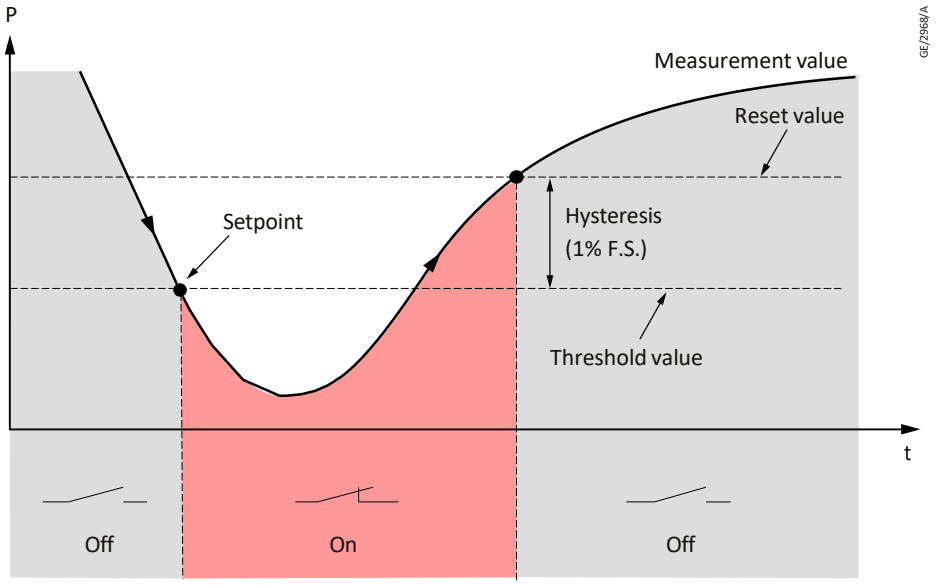
The two switching functions can be set to any pressure within the measurement range of the gauge (refer to *Analogue measurement signal vs. pressure* on page 15).

The current setpoint setting:

- is output at the D-sub connector instead of the measurement signal (refer to *D-sub, 15 pin connector* on page 18) and can be measured with a voltmeter after the <SP> button is pressed, or
- can be read/written through EtherCAT and the RS232C interface.

If the pressure is lower than the setpoint, the corresponding LED (<SP1> or <SP2>) is lit solid and the corresponding relay (refer to *D-sub, 15 pin connector* on page 18) is energised.

Figure 9 Switching functions



6.5.1 Adjust the setpoints

WARNING: MALFUNCTION

Risk of damage to equipment. If processes are controlled through the signal output, by pushing the <SP> button, the measurement signal is suppressed and the corresponding threshold value is output instead. This can cause malfunctions. Push the <SP> button only if you are sure that no malfunction will cause.

The setpoints can be adjusted through:

- the buttons on the gauge
- the EtherCAT interface
- the RS232C interface.

Adjust setpoint <1>

1. Push the <SP> button with a pin (maximum diameter - 1.1 mm). The gauge changes to the switching function mode and outputs the current threshold value at the measurement value output for about 10 seconds (LED <1> blinks).
2. For changing the threshold value, push the <ZERO> button and keep it pressed (refer to *Figure: ZERO button*). The threshold keeps changing from the current

value (ramp) until the button is released or until the limit of the setting range is reached.

3. Push the <ZERO> button again:
   - Fine adjustment within 0 to 3 seconds:

     The zero adjustment value changes by one unit.
   - Change of direction within 3 to 5 seconds:

     The zero adjustment changes its direction (the blinking frequency of the <STATUS> LED changes briefly

Note:

If the <ZERO> button is released for more than 5 s, the gauge returns the measurement mode.

The upper threshold is automatically set 1% F.S. above the lower one (hysteresis).

Adjust setpoint <2>

Push the <SP> button twice (the LED <2> blinks). The adjustment procedure is the same as for setpoint <1> (refer to *Adjust setpoint <1>* on page 26).

6.6 Activate the factory setting (factory reset)

Note:

Loading of the default parameters is irreversible.

All user-defined parameters (for example, zero, filter) are restored to their default values after you activate the factory setting.

The procedure to load the default parameters is as follows:

1. Put the gauge out of operation.
2. Keep the <ZERO> button pressed for at least 5 seconds while the gauge is being put into operation (Power ON).

6.7 EtherCAT operation

CAUTION: DATA TRANSMISSION ERRORS

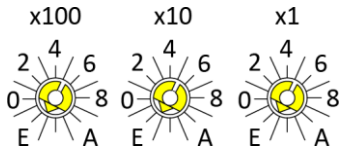
Risk of damage to equipment. Any attempt to simultaneously operate the gauge through the EtherCAT interface and the RS232 interface causes the data transmission errors.

Do not operate the gauge simultaneously through the EtherCAT interface and the RS232 interface.

For operating the gauge via EtherCAT, prior installation of the device-specific ESI file is required on the bus master side. This file can be downloaded from our website *www.edwardsvacuum.com*.

Explicit device address setting (default 00_{hex})

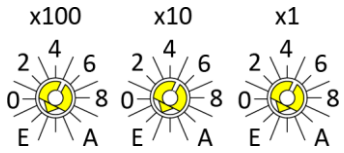
During device initialisation, the device address switches are read by the device firmware. This device address is supported to the master as Explicit device identification.



The explicit device address is set in hexadecimal form (00 … FFF_{hex}) via the <x100>, <x10> and <x1> switches.

Example: Device address = 0xDDD (dec 3549):

0x100 * 0xD (dec 3328) + 0x10 * 0xD (dec 208) + 0x1 * 0xD (dec 13)



Status LED

LEDs on the gauge inform the gauge status and the current EtherCAT status (refer to *Table: General technical data* or refer to EtherCAT manual).

7. Uninstall the gauge

WARNING: FRAGILE COMPONENTS

Risk of injury or damage to equipment. The ceramic sensor may be damaged by impacts. Do not drop the product and prevent shocks and impacts.

WARNING: CONTAMINATED PARTS

Risk of injury and damage to equipment. Contaminated parts can be detrimental to health and the environment. Before beginning to work, find out whether any parts are contaminated. Adhere to the relevant regulations and take the necessary precautions when handling contaminated parts.

CAUTION: VACUUM COMPONENT

Risk of damage to equipment. Dirt and damages impair the function of the vacuum component. When handling vacuum components, take appropriate measures to ensure cleanliness and prevent damages.

CAUTION: DIRT SENSITIVE AREA

Risk of damage to equipment. Touching the product or parts thereof with bare hands increases the desorption rate. Always wear clean, lint-free gloves and use clean tools when working in the dirt sensitive area.

1. Vent the vacuum system.
2. Put the gauge out of operation.
3. Unfasten the lock screws
4. Disconnect the sensor cable and the EtherCAT cables.
5. Remove the gauge from the vacuum system and install the protective lid.

8. Maintenance

Under clean operating conditions, the product requires no maintenance.

We recommend checking the zero at regular intervals (refer to *Zero adjustment* on page 23).

Note:

Gauge failures due to contamination are not covered by the warranty.

9. Disposal

WARNING: CONTAMINATED PARTS

Risk of injury. Contaminated parts can be detrimental to health and environment. Before beginning to work, find out whether any parts are contaminated. Adhere to the relevant regulations and take the necessary precautions when handling contaminated parts.

Products or parts thereof (mechanical and electric components, operating fluids etc.) can be detrimental to the environment. Dispose of such substances in accordance with the relevant local regulations.

10. Service

10.1 Return the equipment or components for service

Before you send your equipment to us for service or for any other reason, you must send us a completed Declaration of Contamination of Vacuum Equipment and Components – Form HS2. The HS2 form tells us if any substances found in the equipment are hazardous, which is important for the safety of our employees and all other people involved in the service of your equipment. The hazard information also lets us select the correct procedures to service your equipment.

We provide instructions for completing the form in the Declaration of Contamination of Vacuum equipment and Components – Procedure HS1.

If you are returning a vacuum pump, note the following:

- If a pump is configured to suit the application, make a record of the configuration before returning the pump. All replacement pumps will be supplied with default factory settings.
- Do not return a pump with accessories fitted. Remove all accessories and retain them for future use.
- The instruction in the returns procedure to drain all fluids does not apply to the lubricant in pump oil reservoirs.

Download the latest documents from *edwardsvacuum.com/HSForms/*, follow the procedure in HS1, fill in the electronic HS2 form, print it, sign it, and return the signed copy to us.

NOTICE:

If we do not receive a completed HS2 form, your equipment cannot be serviced.

P20010230A

CE Declaration of Conformity

Edwards Ltd
Innovation Drive
Burgess Hill
West Sussex
RH15 9TW
UK

The following product

List products here including –

- *Barocel 7025m Series Capacitance Manometer W6011**
- *Barocel 7025 Series Capacitance Manometer W6021**
- *Barocel 7045 Series Capacitance Manometer W6032**
- *Barocel 7100 Series Capacitance Manometer W6033**

Is in conformity with the relevant requirements of European CE legislation:

2014/30/EU	Electromagnetic compatibility (EMC) directive
2011/65/EU	Restriction of certain hazardous substances (RoHS) directive as amended by Delegated Directive (EU) 2015/863

Based on the relevant requirements of harmonised standards:

EN 61010-1:2010	Safety requirements for electrical equipment for measurement, control and laboratory use. General requirements
EN 60529:1991 + A2:2013	Specification for degree of protection provided by enclosures (IP code) – IP code 30
EN 61326-1:2013	Electrical equipment for measurement, control and laboratory use. EMC requirements. General requirements Class B Emissions, Industrial Immunity

This declaration, based on the requirements of the listed Directives and EN ISO/IEC 17050-1, covers all product serial numbers from this date on: 6th June 2019.

Larry Marini – Senior Technical Manager
Eastbourne

Andy Marsh – General Manager
Eastbourne

Additional Legislation and Compliance Information

EU RoHS Directive: Material Exemption Information

This product is compliant with no Annex III or IV Exemptions

EU REACH Regulation Compliance

This product is a complex article which is not designed for intentional substance release. To the best of our knowledge the materials used comply with the requirements of REACH. The product manual provides information and instruction to ensure the safe storage, use, maintenance and disposal of the product including any substance-based requirements.

Article 33 Declaration

This product does not knowingly or intentionally contain Candidate List Substances of Very High Concern above 0.1%ww by article as clarified under the 2015 European Court of Justice ruling in case C-106/14.

ADDITIONAL INFORMATION

材料成分声明

China Material Content Declaration

表示该有害物质在该部件的所有均质材料中的含量低于 GB/T 26572 标准规定的限量要求。
Indicates that the hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in GB/T 26572.