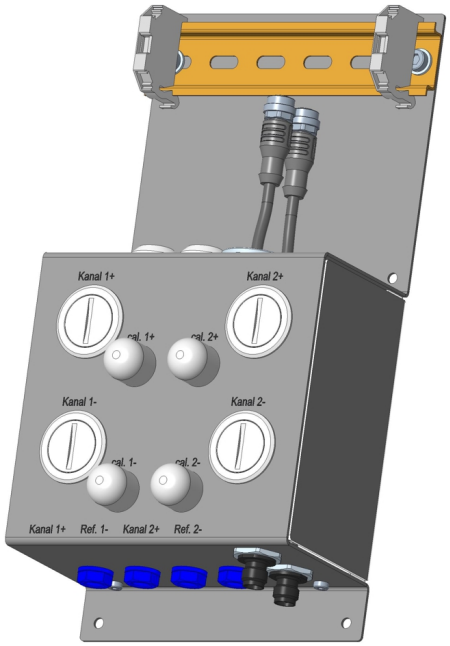
developing solutions

FISCHER
MESS- UND REGELTECHNIK



Operating manual

DK90

Calibration unit for differential pressure

09015407 • BA_EN_DK90 • Rev. ST4-B • 11/23

Table of contents

1 Safety instructions

1.1 General

This operating manual contains basic instructions for the installation, operation and maintenance of the device that must be followed without fail. It must be read by the installer, the operator and the responsible specialist personnel before installing and commissioning the device.

This operating manual is an integral part of the product and therefore needs to be kept close to the instrument in a place that is accessible at all times to the responsible personnel.

The following sections, in particular instructions about the assembly, commissioning and maintenance, contain important information, non-observance of which could pose a threat to humans, animals, the environment and property.

The instrument described in these operating instructions is designed and manufactured in line with the state of the art and good engineering practice.

1.2 Personnel Qualification

The instrument may only be installed and commissioned by specialized personnel familiar with the installation, commissioning and operation of this product.

Specialized personnel are persons who can assess the work they have been assigned and recognize potential dangers by virtue of their specialized training, their skills and experience and their knowledge of the pertinent standards.

1.3 Risks due to Non-Observance of Safety Instructions

Non-observance of these safety instructions, the intended use of the device or the limit values given in the technical specifications can be hazardous or cause harm to persons, the environment or the plant itself.

The supplier of the equipment will not be liable for damage claims if this should happen.

1.4 Safety Instructions for the Operating Company and the Operator

The safety instructions governing correct operation of the instrument must be observed. The operating company must make them available to the installation, maintenance, inspection and operating personnel.

Dangers arising from electrical components, energy discharged by the medium, escaping medium and incorrect installation of the device must be eliminated. See the information in the applicable national and international regulations.

Please observe the information about certification and approvals in the Technical Data section.

1.5 Unauthorised Modification

Modifications of or other technical alterations to the instrument by the customer are not permitted. This also applies to replacement parts. Only the manufacturer is authorised to make any modifications or changes.

1.6 Inadmissible Modes of Operation

The operational safety of this instrument can only be guaranteed if it is used as intended. The instrument model must be suitable for the medium used in the system. The limit values given in the technical data may not be exceeded.

The manufacturer is not liable for damage resulting from improper or incorrect use.

1.7 Safe working practices for maintenance and installation work

The safety instructions given in this operating manual, any nationally applicable regulations on accident prevention and any of the operating company's internal work, operating and safety guidelines must be observed.

The operating company is responsible for ensuring that all required maintenance, inspection and installation work is carried out by qualified specialized personnel.

1.8 Other applicable documents

The DK90 is a calibration unit for differential pressure gauges. These operating instructions only describe the switch-over of the pressure lines. To ensure safe operation, please also observe the operating instructions of the connected gauge.

2 Product and functional description

2.1 Intended use

The DK90 can be used to calibrate DE90 differential pressure transmitters. It can also be used to calibrate other differential pressure transmitters, provided that they have the same process connections.

2.2 Function diagram

The 1-channel version is shown. In the 2-channel version, the second channel has an identical setup.

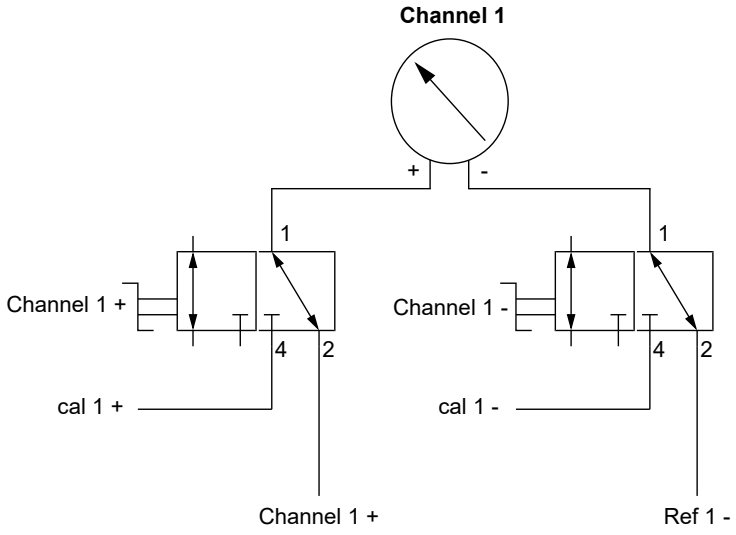


Fig. 1: Function diagram

2.3 Design and mode of operation

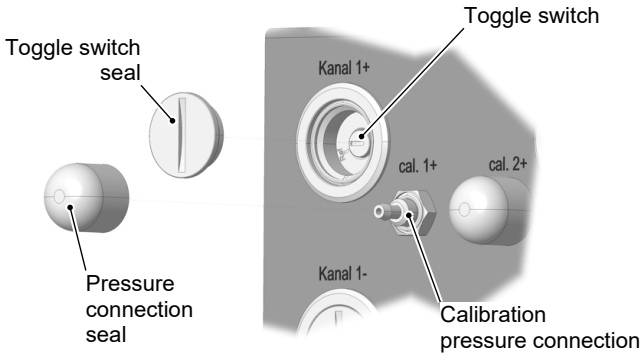


Fig. 2: Design

The DK90 can be used to switch-over the pressure lines of the connected differential pressure gauge to the associated calibration connection without mechanically releasing the pressure line.

Materials

Medium touches	Lexan 940 PC, POM, PP, NBR, EPDM, aluminium, nickel-plated brass
Surroundings	Aluminium, white chromated steel, stainless steel, Lexan 940 PC, PA66, PUR, POM, PP, polychloroprene rubber, EPDM, NBR silicone, epoxy resin, polyester

2.4 Process connection

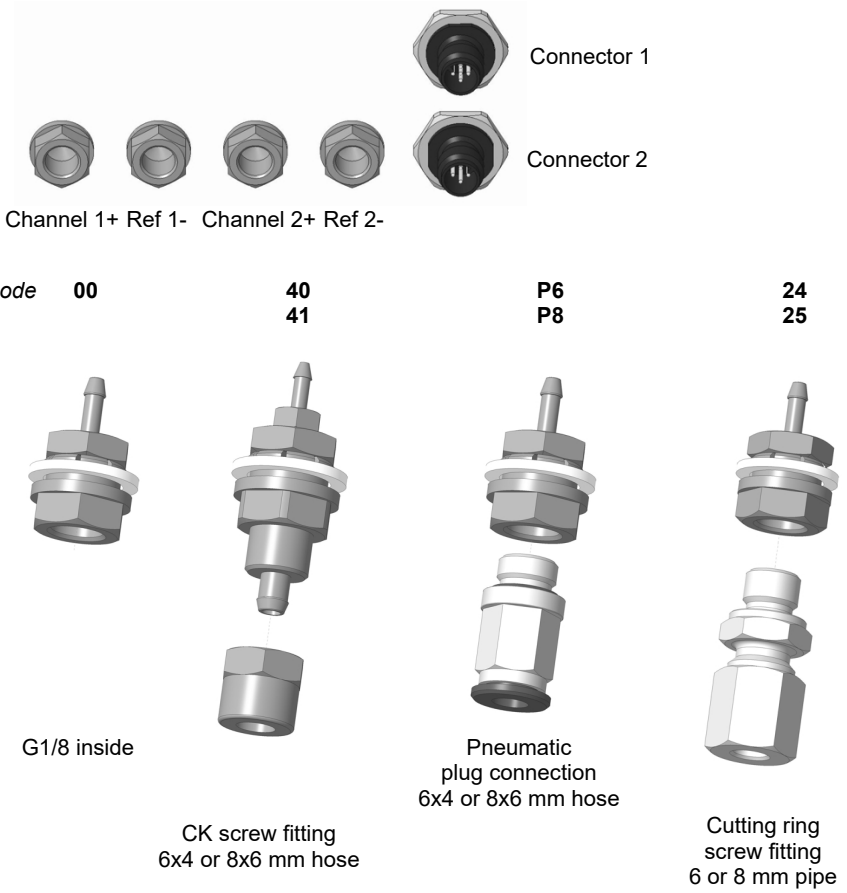


Fig. 3: Process connection (options)

2.5 Calibration connection

The connecting piece is suitable for connecting 6x4 mm hoses.

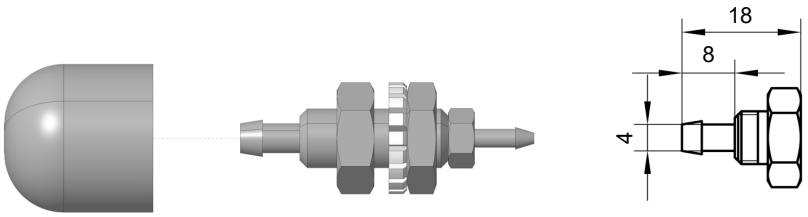


Fig. 4: Calibration connection

2.6 Electrical connections

The DK90 can be delivered with the following permanently installed connection cables, depending on the model:

No. of pins	**Model** (code)	**Usage**
4 pin	1K	Sw. output
5 pin	1K, 2K	Power cable
5 pin, shielded	1M, 2M	Modbus
8 pin	2K	Sw. output

All cables are connected 1:1, as shown in the example.

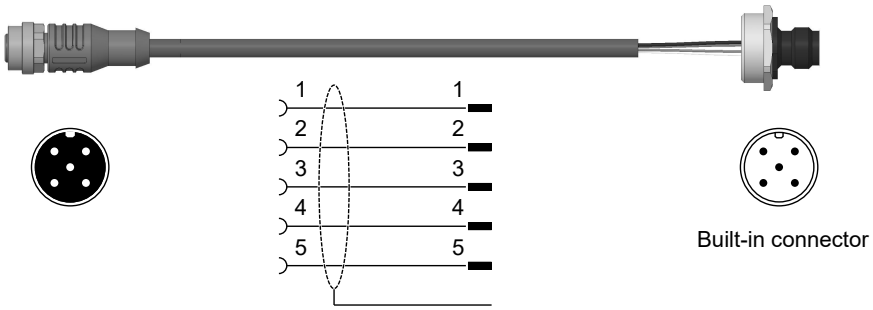


Fig. 5: Example: 5 pin cable (shielded)

2.7 Operation

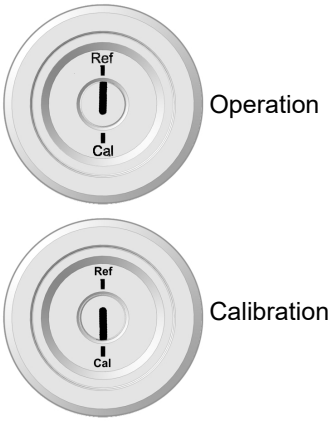
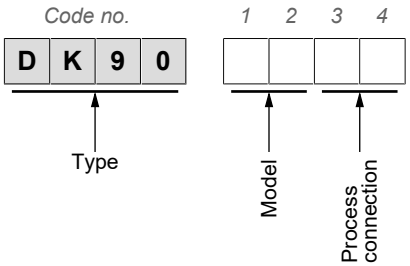


Fig. 6: Toggle switch

The aim of the calibration is to generate a report, the calibration certificate. Actions beyond logging are not performed.

- Remove the seals of the pressure toggle switches using a coin. The seals of the calibration connections can simply be removed by hand.
- To calibrate a channel, two standard pressures are connected to the calibration connections.
- Use a suitable screwdriver to set the pressure toggle switch to the ‘Cal’ position.
- Calibration can now take place.
- After calibration, return the pressure toggle switch to the operating position (Ref).
- Fit the seals.

2.8 Order codes



[1.2]	Model	
1K	1-channel	Analogue
1M	1-channel	Modbus RTU
2K	2-channel	Analogue
2M	2-channel	Modbus RTU

[3.4]	Process connection	
00	G1/8 inside	Aluminium
40	CK screw fitting for 6x4 mm hose	Aluminium
41	CK screw fitting for 8x6 mm hose	Aluminium
P6	Pneumatic plug connection for 6x4 mm hose	Nickel-plated brass
P8	Pneumatic plug connection for 8x6 mm hose	Nickel-plated brass
24	Cutting ring connection for 6 mm pipe	Stainless steel
25	Cutting ring connection for 8 mm pipe	Stainless steel

FISCHER Mess- und Regeltechnik GmbH
Bielefelder Str. 37a
D-32107 Bad Salzuflen

Tel. +49 5222 974-0
Fax +49 5222 7170
www.fischermesstechnik.de
info@fischermesstechnik.de