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Operating Instructions 0705/01_EU-ml_00805637

bürkert
FLUID CONTROL SYSTEMS

Operating Instructions

Type 8605

Digital Control Electronics for Proportional Valves

Digitale Ansteuerelektronik für Proportionalventile

GB D

THE QUICKSTART

CAUTION!
This quickstart has to be read and understood.
Therefore, read the operating instructions carefully before installing, assembling and commissioning the device.

With these quick-start instructions you will be able to install the device and put it into operation. You will find more detailed information in the operating instructions on the enclosed CD or on the Internet under:
www.buerkert.com → technical data → data sheets → type XXXX

INTENDED USE

The device may only be used in the applications indicated in the chapter *Product Description,* and only in connection with third-party devices or components recommended or permitted by Bürkert. Use in any other way does not constitute an intended use.
Observe the instructions in this operating manual, as well as the conditions of use and permissible data specified in the chapter *Technical Data.* The proper and safe function of the system depends on proper transport, storage and installation, and on careful operation and maintenance. Pay attention to any limitations if the system is to be exported.

FORESEEABLE MISUSE

Wrong choice of valve:
If a wrong valve is selected, mechanical damage can occur, e. g. with Type 2822, if the control frequency is too low.

SYMBOLS

The following symbols are used throughout this manual:

→ indicates a work step which you must carry out.

DANGER!
signifies an immediate impending danger.
If it is not avoided, *death or serious injury* will result.

WARNING!
signifies a potentially dangerous situation.
If it is not avoided, *death or serious injury* may result.

CAUTION!
signifies a potentially dangerous situation.
If it is not avoided,
- *Minor injury or equipment damage* may result.
- The product or its surroundings may be damaged.

NOTE!
describes important additional information, tips and recommendations.

NOTE!
indicates further relevant information.

GENERAL SAFETY PRECAUTIONS

DANGER!
Electric voltage in the system!

Interference with the system will result in an acute risk of injury.

- Always switch off the voltage and secure the device to prevent switching on before starting work!
- Observe the applicable accident prevention and safety regulations for electrical equipment!

DANGER!
High pressure in the system!

Interference with the system will result in an acute risk of injury.

- Switch of the pressure before loosening lines and valve to which the electronics are connected!

WARNING!
Unintentional operation or impermissible damage can lead to dangerous situations including physical injury.

- Take appropriate measures to prevent unintentional actuation or impermissible impairments!

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WARNING!
Dangerous situations may occur during installation and maintenance work.

- Only authorised and qualified personnel may work on the device and only using suitable tools!
- After an interruption in operation, ensure a defined and controlled restarting of the process!

CAUTION!
The general rules of technology apply to the planning and operation of the device!

Failure to observe these rules can result in injury and / or in damage to the device and / or its surroundings.

- Observe the general rules of engineering!

The pressure in the system may drop during switching.

Risk of injury.

- Avoid pressure drops!
- Design the pressure supply system with as large a volume as possible, even with upline devices such as e. g. pressure regulators, air conditioners, shut-off valves, etc.

CAUTION!
Electrostatically sensitive components / modules

The system contains electronic components that react sensitively to electrostatic discharge (ESD). Touching by electrostatically charged persons or objects can endanger these components. In the worst case they may be immediately destroyed or fail after commissioning.

- Observe the requirements of EN 100 015 - 1 in order to avoid or minimise the risk of damage caused by sudden electrostatic discharges!
- Do not touch electronic components as long as the supply voltage is switched on!

NOTE!
The device was developed following recognized safety engineering regulations and corresponds to the highest technical standards. However, potential dangers may still exist.

- Only operate the device in a state of perfect working or in observation of the operating instructions.
- Failure to observe these warnings, including unauthorised modifications and / or alterations to the device, releases us from all liability and nullifies the guarantees applicable to the devices and accessories!

Scope of delivery

Immediately upon receipt of the delivery, ensure that there is no damage to its contents and that the nature and scope of the delivery corresponds to the delivery note and the packing list. Please inform us immediately of any discrepancies.

Germany

Contact address:

Bürkert Fluid Control Systems
Sales Centre
Chr.-Bürkert-Str. 13-17
D-74653 Ingelfingen
Tel. : 07940 - 10 111
Fax: 07940 - 10 448
E-mail: info@de.buerkert.com

International

For contact addresses, please see the last pages of these operating instructions.

Also on the Internet at:

www.buerkert.com → Bürkert → Company → Locations

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WARRANTY CONDITIONS

This document contains no warranty statements. Please refer to our general terms and conditions. The warranty shall be valid only if the proportional valve is used in compliance with the specified conditions of use.

Information on the Internet

Operating instructions and data sheets on the proportional valves are available on the Internet at:

www.buerkert.com → technical data → data sheets → type XXXX

PRODUCT DESCRIPTION

The Digital Control Electronics for Proportional Valves, Type 8605 (hereinafter referred to as *Control Electronics, Type 8605*) Controls all Bürkert proportional valves with a max. current in the range from 40 to 2000 mA.

It transforms an external standard signal into a pulse-width modulated voltage signal (PWM) that is supplied to the solenoid coil of the proportional valve.

A given value of the average coil current is thereby assigned to each value of the input signal. The proportional opening of the valve can be set via the coil current.

Field of Application

The Control Electronics, Type 8605, is designed for continuous operation in industrial environments, in particular in the fields of open-loop and closed-loop control engineering.

Technical data

Name	Value
Power supply	12 ... 24 V DC ±10 % Residual ripple < 5 %
Power consumption (without valve)	ca. 1 W
Output current (to the valve)	max. 2 A
Operating temperature	-10 ... 60 °C / 14 ... 140 °F
Interference resistance	to EN50082-2
Emission	to EN50081-2
Current range, depending on the version for valves	40 ... 220 mA, 200 ... 1000 mA, 500 ... 2000 mA
Standard signal input	
Voltage (0...5, 0...10 V)	input impedance >20 kΩ
Current (0...20, 4...20 mA)	input impedance <200 Ω
Housing	**DIN rail version**
▪ Degree of protection	IP40 (DIN EN 60529)
▪ Materials	polyamide / PBT
▪ Dimensions	LxWxH: 97x27x57 mm

Name	Value
Housing	**Cable head version**
▪ Degree of protection	IP65 (DIN EN 60529)
▪ Materials	polyamide / PC
▪ Dimensions	LxWxH: 70x32x42.5 mm

FORMS OF THE DEVICE

Type 8605 KK (Cable head version)

Plug-in version on valves with connector pattern A (e. g. types 2832, 2833, 2834, 2835, 2836,6022,6023,6024, 6223).

The operating unit can be removed after the setting process. During operation of the Control Electronics 8605 in cable head version without operating unit, the operating status is indicated by two LEDs.

Device variants

Variant 1 for valves with a max. current from 200 to 1000 mA

Variant 2 for valves with a max. current from 500 to 2000 mA

Type 8605 HS (DIN rail version)

Separate electronics in housing for DIN rail mounting to DIN EN 50022. This form is suitable for all proportional valves in the indicated current range.

The operating unit cannot be removed.

Device variants

Variant 1 for valves with a max. current from 40 to 220 mA

Variant 2 for valves with a max. current from 200 to 1000 mA

Variant 3 for valves with a max. current from 500 to 2000 mA

INSTALLATION

DANGER!
Electrical voltage in the system!

Interference with the system will result in an acute risk of injury.

- Always switch off the voltage and secure the device to prevent switching on before starting work!
- Observe the applicable accident prevention and safety regulations for electrical equipment!

High pressure in the system!

Interference with the system will result in an acute risk of injury.

- Switch off the pressure before loosening lines and valve to which the electronics are connected!

WARNING!
Dangerous situations may occur during installation and maintenance work.

- Only authorised and qualified personnel may work on the device and only using suitable tools!
- After an interruption in operation, ensure a defined and controlled restarting of the process!

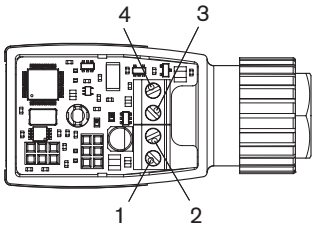
CAUTION!
Risk of short circuit or escape of medium.
- Ensure that the seals are seated correctly!
- Screw plug-in version Type 8605 KK and valve together carefully!

ELECTRICAL CONNECTIONS

Type 8605 KK (Cable head version)

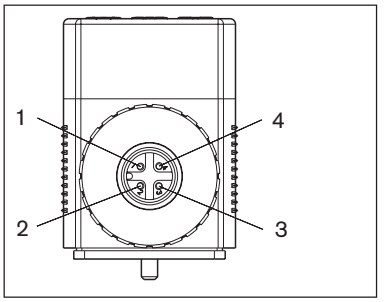
The electrical connection of the Controller Type 8605 KK is made via a 4-pin terminal strip inside the device.

Cable diameter	6 ... 8 mm
Cable cross-section	max. 0.75 mm²
Cable connections	Cable gland or plug-in connector M12, 4-pin



Legend
1 12 ... 24 V DC
2 GND
3 Standard signal (-)
4 Standard signal (+)

Illustration: Terminal strip connection



Legend
1 12 ... 24 V DC
2 GND
3 Standard signal (-)
4 Standard signal (+)

Illustration: Plug connector connection

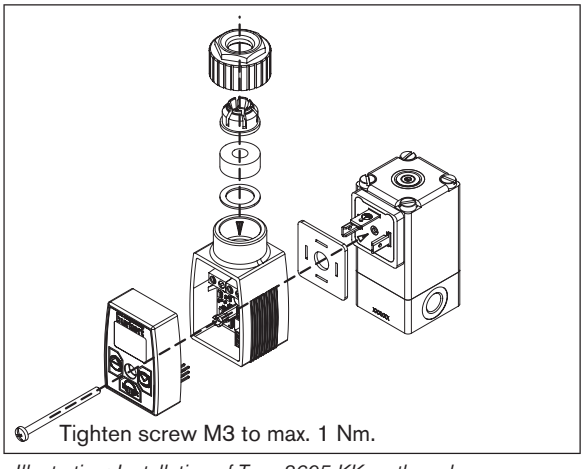
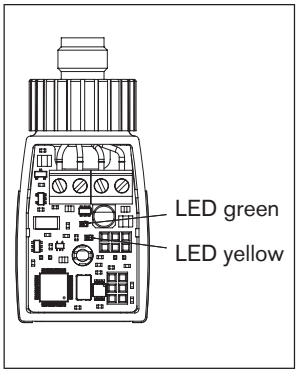


Illustration: Installation of Type 8605 KK on the valve

NOTE!
Do not tighten the screw M3 too tightly, as otherwise the housing will be deformed and proper operation of the keys will no longer be possible.

LEDs during operation without operating unit

During operation of the Control Electronics Type 8605 KK without operating unit, the operating status is indicated by two LEDs.



Legend
1 green: Device in operation
2 yellow: Current through valve

Illustration 6-2: LEDs on versions without operating unit

Type 8605 HS (DIN rail version)

The electrical connection of Type 8605 HS is made via terminal strips.

Terminal strip		Cable cross-section
▪ 2-pin	for valve	max. 1.5 mm²
▪ 3-pin	for RS232 or RS485 interface	max. 0.5 mm²
▪ 4-pin	for voltage supply and standard signal	max. 1.5 mm²

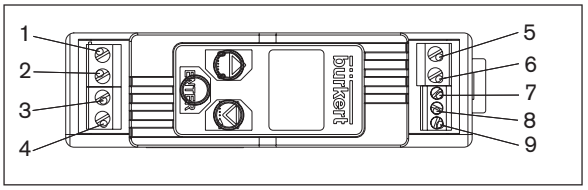


Illustration: Terminal strip connection

Legend to figure 8-4

1 12 ... 24 V DC
2 GND
3 Standard signal (-)
4 Standard signal (+)
5 valve
6 valve
7 RS485-B/TxD
8 RS485-A/RxD
9 GND

SERVICE

When used in accordance with the instructions given in this operating manual, the Control Electronics Type 8605 is maintenance-free.

MAINTENANCE / CLEANING

Use the normal cleaning agents to clean the Control Electronics, Type 8605. Use no alkaline cleansing agents, as these have a damaging effect on the materials used.

PACKAGING, TRANSPORT

CAUTION!
Transport damage!

Inadequately protected devices may be damaged during transport.

- Transport the device in a protective packaging to avoid moisture and dirt. Avoid exposure to excessively high or low temperatures that could lead to the permissible storage temperatures being exceeded.

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STORAGE

CAUTION!
Damage!

Incorrect storage can cause damage to the device.

- Store the device in a dry and dust-free location!
- Storage temperature -40 … +55 °C.

DECOMMISSIONING

Switch off the Control Electronics Type 8605 as follows:

→ Depressurise the system.
→ Switch off the power supply.
→ Remove the Control Electronics.
→ Store the Control Electronics in the original packaging.

RESTARTING

Switch on the Control Electronics Type 8605 again as follows:

→ Unpack the Control Electronics and allow it to reach room temperature before switching on again.
→ Then proceed as described in chapter *Installation*.

DISPOSAL

Dispose of the device and the packaging in an environmentally safe manner.
Observe the national regulations and directives on waste disposal.

CAUTION!
Environmental damage due to device components contaminated with media!

Incorrect storage can cause damage to the device.

- Observe the relevant waste disposal and environmental protection regulations.