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Assembled Moduteck® system with gas pressure regulator and modulating actuator type MS 60 HLX/xxx



Operation: The Moduteck ® systems can be used to regulate propane-fired heaters. Depending on the capacity multiple heaters can be connected. The control takes place by means of a central computer or a separate controller.

Modulating actuator

Type actuator	24V 0-10V	24V 3p	230V 3p
Nominal voltage	AC/DC 24 V	AC 24 V	AC 230 V
Nominal voltage frequency	50/60 Hz	50/60 Hz	50/60 Hz
Nominal voltage range	AC 19.2...28.8 V / DC 21.6 V	AC 19.2...28.8 V	AC 198...264 V
Power consumption in	1 W	1.5 W	3.5 W
Power consumption for	2.5 VA	1.5 VA	3.5 VA
Connection supply / control	Terminals 4 mm ² (cable Ø 6...8 mm, 4-wire)	Terminals 4 mm ² (cable Ø 6...8 mm, 3-wire)	Terminals 4 mm ² (cable Ø 6...8 mm, 3-wire)
Parallel operation	Yes (note the performance data)	No	No
Actuating force motor	500 N	500 N	500 N
Operating range Y	DC 2...10 V		
Operating range Y variable	DC 0...10 V		
Position feedback U	DC 2...10 V		
Position feedback U note	Max. 1 mA		
Position accuracy	5%	±5%	±5%
Manual override	Temporary and permanent gear disengagement with rotary knob on the housing	temporary and permanent gear disengagement with rotary knob on the housing	temporary and permanent gear disengagement with rotary knob on the housing
Nominal stroke	5.5 mm	5.5 mm	5.5 mm
Running time motor	140 s / 5.5 mm	140 s / 5.5 mm	140 s / 5.5 mm
Duty cycle			75% (= active time 140 s / operating time 187 s)
Sound power level, motor	35 dB(A)	35 dB(A)	35 dB(A)
Position indication	Reversible scale plate	Reversible scale plate	Reversible scale plate
Protection class IEC/EN	III Safety Extra-Low Voltage (SELV)	III Safety Extra-Low Voltage (SELV)	II reinforced insulation
Degree of protection	IEC/EN IP40	IP40	IP40
EMC	CE according to 2014/30/EU	CE according to 2014/30/EU	CE according to 2014/30/EU
Low voltage directive			CE according to 2014/35/EU
Mode of operation	Type 1	Type 1	Type 1
Rated impulse voltage supply		0.8 kV	4 kV
Control pollution degree	3	3	3
Ambient temperature range	0...50 °C	0...50 °C	0...50 °C
Non-operating temperature	-40...80 °C	-40...80 °C	-30...80 °C
Ambient humidity	Max. 95% r.h., non-condensing	Max. 95% r.h., non-condensing	Max. 95% r.h., non-condensing
Maintenance	Maintenance-free	Maintenance-free	Maintenance-free
Weight	0.5 kg	0.5 kg	0.42 kg

Safety notes

- This device has been designed for use in stationary heating, ventilation and air conditioning systems and must not be used outside the specified field of application, especially in aircraft or in any other airborne means of transport.
- Only authorised specialists may carry out installation. All applicable legal or institutional installation regulations must be complied during installation.
- The actuator is to be protected against moisture. It is not suitable for outdoor applications.
- The device does not contain any parts that can be replaced or repaired by the user.
- The device contains electrical and electronic components and must not be disposed of as household refuse. All locally valid regulations and requirements must be observed.
- The correct functioning of the strain relief for the cable in the actuator housing is to be checked.

Manual override

Manual override with push-button possible (the gear is disengaged for as long as the button is pressed or remains locked).

High functional reliability

The actuator is overload protected and automatically stops when the end stop is reached.

Electrical installation

Notes !

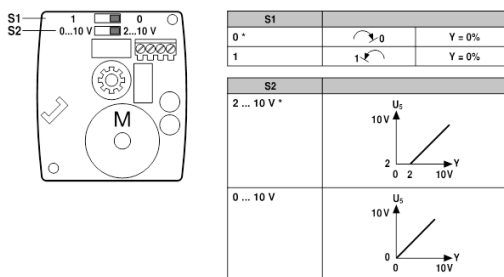
AC/DC 24 V 0-10V and AC24V 3p actuators

- connection via safety isolating transformer.

AC 230V actuator

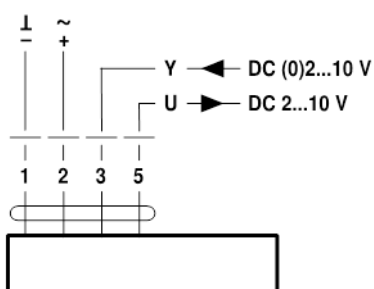
- Caution: Power supply voltage!

Operating controls and indicators AC/DC 24V 0-10V:

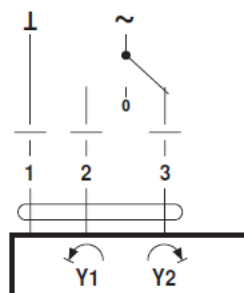


Wiring diagrams:

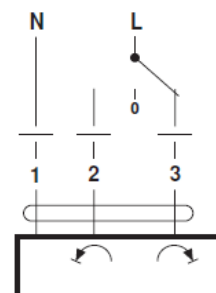
AC/DC 24 V, modulating



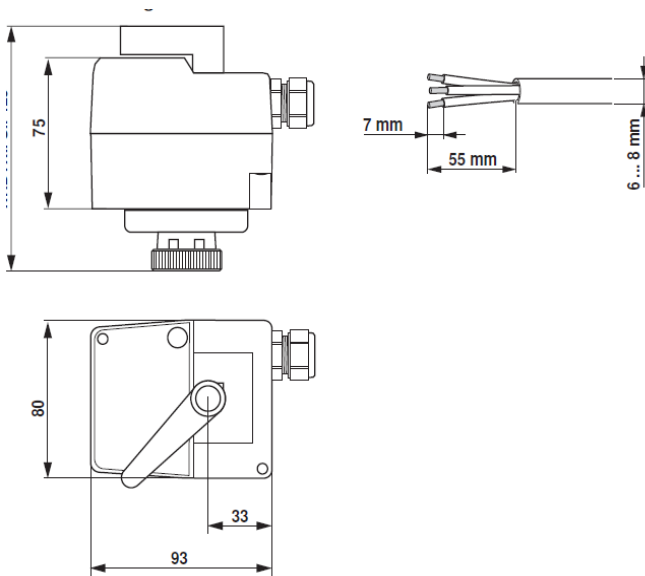
AC 24 V, 3-point



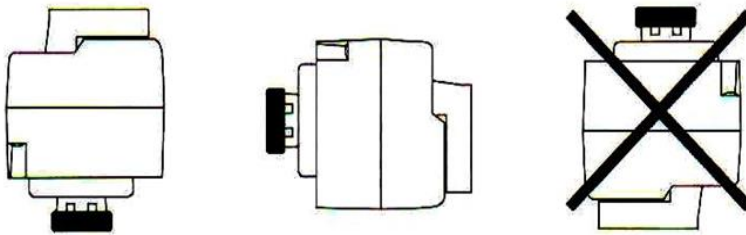
AC 230 V, 3-point



Dimensional drawings:

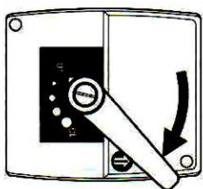


Mounting positions:



Manual override:

The servo-motor and regulator are in the workshop adjusted at the right pressure. When loss of control, the actuator can be set to manual. Therefore you use a screwdriver to turn the manual button in the housing and the desired position can be set using the lever .

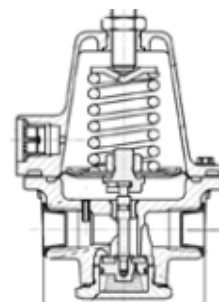


Note: If the lever in the desired position, lock it by turning the manual *button* again . If it is not locked you can cause severe damage to the actuator. The controller should always be disabled when using manual.

High pressure regulator 1584 VL

Technical data

Operating temperature range:	-20°C/+50°C.
Mac inlet pressure:	16 bar
Range of inlet pressure:	2,5 bar till 3,5 bar
Range of outlet pressure:	modulating 300-2000 mbar
Dimensions:	L 75mm H 124 mm
Connections:	inlet F NPT 1/2" Outlet F NPT 1/2"
Standards:	PED 97/23/EC
Capacity:	60 kg/h



Application

The pressure regulator is mainly used for LPG (butane, propane and their mixes) in vapour service. Do not use in liquid LPG service. It may also be used with other non-aggressive gases: natural gas, air, nitrogen, ...

Materials

- Body and cover in aluminum alloy
- Diaphragm, pad in an elastomer resistant to LPG and natural gas.

Warnings before installation

Note that pressurized gases must be treated with care and can be dangerous. They may cause serious injury and death. Installation, inspection and maintenance must be performed by persons with the necessary competence, in relation to the type of gas and required usage. The installation must be performed, inspected, used and maintained in conformity with the laws in force in the country of installation. Make sure that the installation valves are closed before fitting this regulator and that no sources of ignition are nearby. Ensure that the types of connection of the elements to join to the inlet and outlet, are compatible with those of the regulator. If couplings are used in the installation (connector with a nut), check the presence of the gasket and its integrity. Replace it if necessary. Thoroughly clean (blow through) upstream tubing.

Regulator installation

The regulator should preferably be installed outdoors (see local legislation) and be protected from rain, rain splatters and from all other agents (i.e. snow, dust, mortar) which could obstruct the vent .

We recommend positioning the vent down to prevent water entering and allow any internal atmospheric moisture or condensation to drain freely away from the regulator. Note that water collected in the regulator may freeze, in cold weather condition: this can lead to incorrect pressure control and possible escape of gas from the pressure relief valve, if fitted. Where possible, we recommend positioning the regulator in such a way that possible liquefied LPG cannot be trapped upstream the seat.

Connect the inlet and outlet following the gas passage direction, indicated by the arrow. After the installation is completed, open the upstream valve and check the sealing of the connections using a relevant soapy solution. Never use a flame.

Information to the user

The user must be informed about:

- the location and operation of the main shut off valve, capable to be closed in case of smell of gas or first signs appliance combustion trouble.
- the vent opening that must remain free from any obstruction and checked mainly after severe climatic conditions (snow, freezing, rain, heavy rain)
- the servicing that must be carried out only by qualified persons.

Maintenance

The operations of the regulator and the gas installation shall be checked periodically. In ideal use conditions and in order to guarantee the correct operation of the installation, we recommend replacing the regulator within 10 years of use. In severe service conditions it shall be inspected frequently and replaced sooner.

Repairs

Never replace or repair the regulator of the assembled Moduteck® system. It is only able to fit in the workshop of the manufacturer.

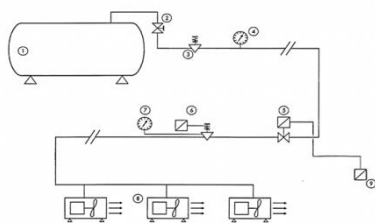
INSTRUCTION TO BE KEPT BY THE USER

The content of this instruction sheet is presented solely as information, as despite efforts to ensure its correctness, it should not be interpreted as an explicit or implicit cover guarantee for the products or services described or for their use or applicability. We reserve the right to change or improve product design or specifications at any moment and without notice

We advise you to provide fire protection to your propane system

A fire security kit can be ordered separately

Application: With the installation of a fire protection system, a heating or drying installation can be protected from overheating or fire.



- 1: Propane Tank
- 2: Main gas valve
- 3: Fuel Pressure Regulator
- 4: Tank pressure gauge
- 5: Safety valve
- 6: pressure regulator Moduteck ®
- 7: Manometer outlet pressure
- 8: Air heaters
- 9: Max thermostat

Operation: The thermostat can be set and monitored the system from overheating on the desired maximum temperature. The solenoid valve is installed in the gas supply line and will lose when the thermostat set maximum temperature. Also in case of power failure, the solenoid valve will block the gas. The closing time of the valve is less than 1 second.