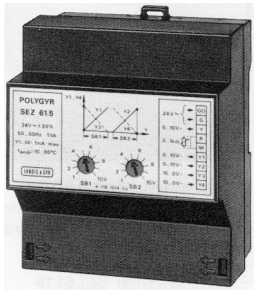
POLYGYR®

Signal Doubler/Inverter SEZ61.5

for 0...10V d.c. control signals



Application

The SEZ61.5 is used in POLYGYR controlled ventilating, air conditioning and heating installations to double and/or invert the 0...10 V d.c. control signal supplied by a continuous POLYGYR controller.

Doubling of signal

Control of two regulating units if these have to be controlled in sequence by the same controller and if their modes of operation are the same.

Examples:
- Control of two valves which are hydraulically connected in parallel to improve the controllability with small flow rates
- Switching of electrical loads with more than six stages, whereby the SEZ61.5 controls two SEL61... step controllers in series

Doubling and inverting of signal

Control of two regulating units if these have to be controlled in sequence by the same controller and if their modes of operation are opposed.

Example:
- Sequence control of an air damper system and a heat recovery system, whereby the control output Y3 of the RWF61.30 controller (or Y1 of the RWF61.11) acts on the SEZ61.5

Inverting of signals

Control of a regulating unit whose mode of operation is opposed to that of the control signal supplied.

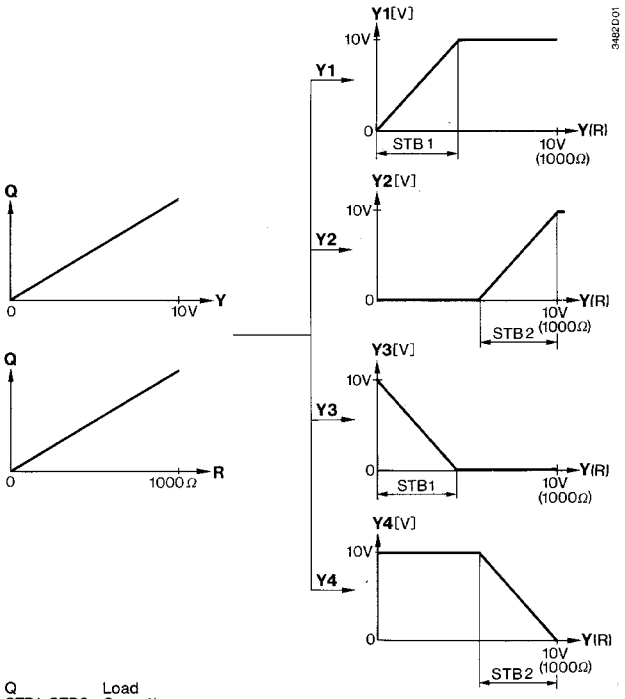
Example:
- Control of a recirculated air damper which must be closed when the operating voltage is switched off

An additional input for potentiometers of 0...1000 Ω offers the following possibilities:
- Operation of a continuous frost protection unit
- Manual control (e.g. of air dampers) from a setting unit
- Setting of minimum position (e.g. of air dampers) by means of a setting unit

Function

The following diagram shows the possible functions of the SEZ61.5 with the output signals Y1...Y4 depending on the input signals Y (0...10 V d.c.), or R (0...1000 Ω) and the two operating ranges STB1 and STB2.

The operating range STB1 or STB2 is the range by which the input signal or the sum of the two input signals must change so that the output signals change over the whole voltage range of 0...10 V d.c. (Y1, Y2) or 10...0 V d.c. (Y3, Y4).



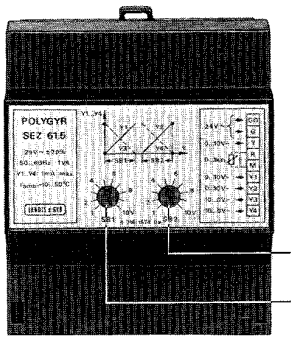
Q	Load
STB1, STB2	Operating ranges
Y	Control signal 0...10 V d.c.
R	Control signal 0...1000 Ω
Y1...Y4	Output signals 0...10 V d.c. or 10...0 V d.c.

The operating ranges can be individually set, the setting range being 1...10 V d.c. The following reference points are used:
- With STB1 (Y1, Y3) 0 V d.c. or 0 Ω input signal
- With STB2 (Y2, Y4) 10 V d.c. or 1000 Ω input signal

If the SEZ61.5 receives the input signals Y and R simultaneously, the action of R is added to that of Y.
The operating ranges STB1 and STB2 then relate to the sum of the input signals.

Design Features

Plastic housing consisting of base and cover, suitable for wall mounting or on standard DIN rails. The cover snaps on. A screwdriver is required to open it. A printed circuit board carries the electronic components and the connecting terminals. After the removal of the cover the terminals are easily accessible. The bottom and rear of the unit are provided with knockout holes (Pg11) for the cable entry. The setting potentiometers for the operating ranges are located on the front of the unit; they are easily accessible from outside.



Setting potentiometer for operating range STB2

Setting potentiometer for operating range STB1

Combination of Units

All POLYGYR units that supply the 0...10 V d.c. control signal can be connected to the input side of the SEZ61.5:
- Compact controllers type R...61...
- Universal controllers type RWF61...
- Priority relay type SEL61.19
- Actuators type S...61... (measuring output U)

The SEZ61.5 cannot be used, however, to receive active measuring signals from detectors type Q...61...

All POLYGYR actuators and units that have the 0...10 V d.c. control input can be connected to the output side of the SEZ61.5:
- Actuators type S...61...
- Step controllers type SEL61...
- Current valves type SEL61...
- Signal converters and output units

Technical Data

Operating voltage	24 V a.c. ±20%
Frequency	50...60 Hz
Power consumption	1 VA
Input signal (Y)	
Voltage	0...10 V d.c., continuous
Current	0,1 mA max.
Output signals	
Voltage on Y1 and Y2	0...10 V d.c., continuous
Voltage on Y3 and Y4	10...0 V d.c., continuous
Current per output	1 mA max.
Operating ranges	
STB1	1...10 V d.c. } adjustable
STB2	1...10 V d.c. } adjustable
Number of POLYGYR units that can be connected	max. 10 per output
Permissible ambient temp.	
Operation	−15...+50°C
Transport and storage	−25...+65°C
Permissible ambient humidity	class D to DIN 40040
Radio interference protection	N to VDE 0875, §4
Vibration test	with 2 g, to DIN 40046, sheet 8
Protection standard of housing	IP41 to DIN 40050
Weight	0,100 kg

Ordering Specification

When ordering, please give full type reference: **SEZ61.5**.

Application Advice

Data Sheet 3401 contains basic system data on POLYGYR. All hints and explanations given in this sheet must be observed.
A transformer is required to generate the operating voltage of 24 V a.c.. When sizing the transformer, the power consumption of the SEZ61.5 must be taken into consideration.
For the designations of the connecting terminals refer to «Wiring Diagrams».
The SEZ61.5, the controller from which the SEZ61.5 receives its signal, and the corresponding actuators must be connected to the same system neutral (SN, terminal G0).

Mounting Advice

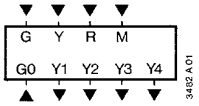
The SEZ61.5 is designed for control panel mounting, either back panel mounted or on standard DIN rails.

Commissioning Advice

When commissioning, the wiring is to be checked and a function test to be made. The two operating ranges must be adjusted. The scale value gives the voltage.
Note: − STB1 is from 0 V input signal upward
− STB2 is from 10 V input signal downward
− Also refer to the diagrams under «Function»

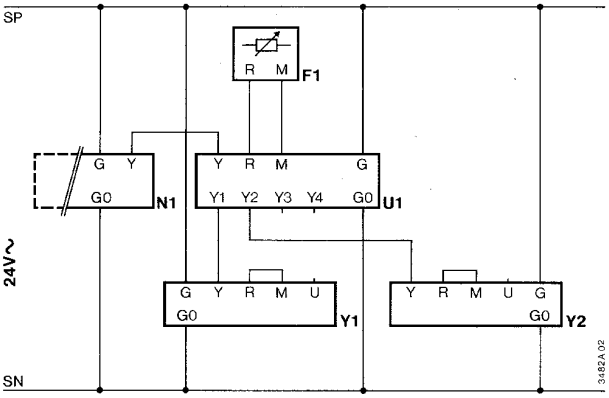
Wiring Diagrams

Connecting terminals



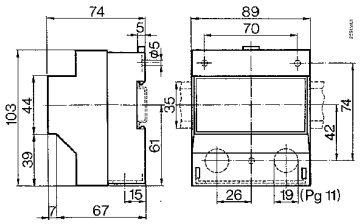
G, G0	Operating voltage 24 V a.c. G System potential (SP) G0 System neutral (SN)
Y	Input signal 0...10 V d.c.
R	Input signal 0...1000 Ω
Y1	Output signal 0...10 V d.c. } not inverted
Y2	Output signal 0...10 V d.c. } not inverted
Y3	Output signal 10...0 V d.c. } inverted
Y4	Output signal 10...0 V d.c. } inverted

Basic connections



N1	Controller
U1	SEZ61.5 signal doubler/inverter
Y1	Actuator
Y2	Actuator
F1	E.g. FZA21.1

Dimensions



Dimensions in mm