

Analogue signals converter APP03_Bu

isolated (1,5 kV / 1 minute)

user configuration over PC

bipolar output +/- 10V

INPUT SIGNALS	
User configuration – over PC	
CURRENT	+/- 0 – 21 mA DC
VOLTAGE	+/- 0 – 10,5 V DC
	+/- 0 – 500 mV DC
POTENCIOMETER	10Ω – 500kΩ

OUTPUT SIGNALS	
User configuration – over PC	
VOLTAGE	+/- 10,5 V DC

TECHNICAL DATA	
POWER SUPPLY	24 V AC/DC : -15% / +20%
CONSUPTION	max. 2 W – device is protected by reversible fuse
Exc.power supply	22V @ 0mA , 19V @ 23mA
INPUT RESISTANCE	current input : 50 Ω (input resistor) + 25 Ω (protection resistor PTC)
	voltage input : 100 kΩ
CONVERSION	linear
MAXIMAL INPUT OVERLOAD	current : 100 mA continuous , 160 mA @ 1minute
	voltage : 48 VDC continuous
	48 VDC on terminal strip 3
DIGITAL RESOLUTION	analogue input : 20 bits
	analogue output : 14 bits
SIGNAL RESPONSE	from 0 to 100 % : 180 msec without mathematical filters
ACCURACY	+/- 0,1 % from full range
TEMP.COEFFIC.	0,005 % from full range / °C
ISOLATION STRENGTH	testing volatge : 1500 V DC / 1 min <i>input vs. output ; power supply vs.input, output</i>
	working voltage : 120 V DC <i>input vs. output ; power supply vs.input, output</i>
ANALO.OUTPUT	max. +/- 10,5 VDC
OUTPUT IMPEDANCE	voltage output : min. 5 kΩ
MAX. OUTPUT OVERLOAD	voltage : unlimited (<i>short-circuit resistant</i>)
CALIBRATION	valid for one year
MOUNTING	Plastic DIN rail box – 17,5 mm module
DIMMENSIONS	17.5 x 90 x 60 mm (W x H x D)
ENCLOSURE	IP00
WIRING CONNECTION	terminal strip <i>max. conductor cross-section is 2,5mm</i>
WEIGHT	69 grams
STABILISATION	5 minutes
OPERATING TEMPERATURE	- 10 °C / +50 °C
OPERATION	continuous
SITE ALTITUDE	max. 2000 metres above the sea level
EMC radiation	ČSN EN 61326-1 article 7 (2006)
	ČSN EN 55011/A1/A2, article 5.2, table 3, article 6 – group B
EMC immunity influence	ČSN EN 61000-4-2,3,4,5,6
	ČSN EN 61326-1(2006),article 6, table 2

NOTICE

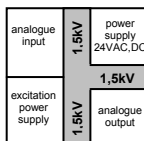
Attention

- Excitation power supply for sensors is galvanically connected with input signal.

APP03 series analogue signals converters for above specified industry signals are used as input interface for control systems, monitoring systems, data collection, controllers and everywhere else, where is signal conversion and galvanic isolation needed.

FUNCTION

- SIGNAL CONVERSION
- SMALL SIZE 17,5 x 90 x 60 mm
- INPUT and OUTPUT SIGNAL SELECTION by user
 - By PC (using comm.cable and SW MERCOS®) fully user adustable (eg. input 2 – 12 mA / output 1 – 5 V DC)
 - Due terminal strip wiring – active or passive current output
- EXCITATION POWER SUPPLY
- GALVANIC ISOLATION
 - Input signal from output signal
 - Input signal & output signal from power supply
 - Output signal & power supply from exc.supply



DESCRIPTION

APP03 signals converter works with all input and output signals in their full range. Converter configuration is performed by DIP switch on front panel or by communication software NP01_A over PC. For PC configuration is communication cable PS 01 (serial) or PU 01 (USB) needed, which galvanically isolate PC from APP 03_Bu converter.

PC communication software allows to set:

- Non-standart signals conversion
- Potentiometer end positions in full input range (0% a 100%)
- Advanced mathematical filters for signals conversion

APP 03_Bu converter is based on:

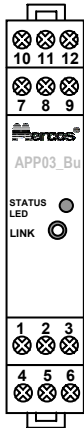
- Three-level isolation – pwr.supply X input , pwr.supply X output , input X output , pwr.supply & output X excitation power supply
- Measuring input signal by 20-bits AD converter, signal processing by Intel MCU and if selected than mathematical filters are applied (polynomial filter, moving average), galvanic isolation and digital signal conversion by 14-bits DA converter back to analogue output signal.

ORDER CODE

APP 03_Bu

Analogue signals converter with bipolar voltage output excitation power supply. (see order example)

APP03 Bu converter TERMINAL STRIP



LEGEND

- strips 1 – 5** analogue inputs
 - current
 - voltage
 - potentiometer
- strip 6** excitation power supply
 - 19V @ 23 mA
- strips 8, 12** analogue output
- strips 10 – 11** APP03_Bu power supply
 - 24 VAC or 24 VDC (polarity is not important)

LEGEND

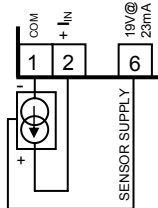
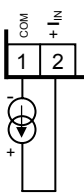
- LINK** communication socket for PC connection

INPUT SIGNALS WIRINGS for APP03 Bu

CURRENT INPUT

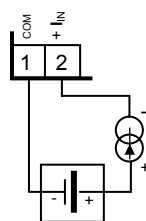
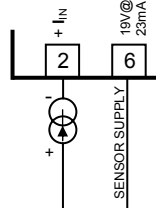
ACTIVE SENS.

- Two wires
 ▪ 0/4 – 20 mA
 ▪ +/- 0 – 20 mA



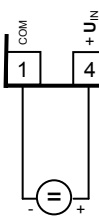
PASSIVE SENS.

- Two wires
 ▪ 4 – 20 mA
 supp. from APP03_Bu

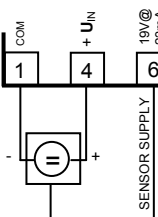


VOLTAGE INPUT

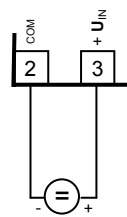
- Two wires
 ▪ 0 – 10 VDC
 ▪ +/- 0 – 10 VDC



- Three wires
 ▪ 0 – 10 VDC
 supply from APP03_Bu

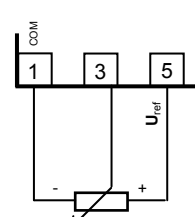


- Two wires
 ▪ 0 – 500 mVDC
 ▪ +/- 0 – 500 mVDC



POTENCIOMETER

- potentiometer (three wires)
 ▪ 10 Ω – 500 kΩ
 supply from APP03_Bu



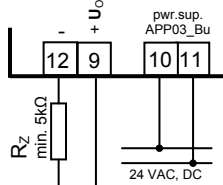
OUTPUT SIGNALS WIRINGS for APP03 Bu

VOLTAGE OUTPUT

voltage active



- +/- 10 V DC
- APP03_Bu generates voltage



HOW TO SET APP03 Bu

Settings over PC

ATTENTION: communication socket (LINK) has the potential of input terminal strips. Galvanic isolation of communication is realized by communication cable PS 01 (PU 01).

In situation when non standart signals conversion is needed, we set on DIP switch „User defined conversion PC“ option. This option allows user to set user defined input and output conversion. We will need communication cable PS 01 (serial) or PU 01 (USB) and communication software NP01_A, which is free for download from our webpage : <http://www.mercos.cz/> .

Communication software allows:

- To set non standart signals conversion, in their full range
- To choose mathematical filters for enviroment with high EMC disturbances
- To measure, display graph or record the input signal with measured data export in *.csv format (Excel, OpenOffice Calc, ...)

LED diode STATUS

The status LED diode is situated in the middle of front. It has red color and informs user about actual analogue signals converter status.

STATUS LED

Continuous light	Measuring mode
Slow blinking (two times a second)	Output signal is controled by PC (output setup) and analogue signal converter does not convert signal.
Fast blinking (ten times a second)	Analogue signal converter malfunction, please contact manufacturer.

ORDER EXAMPLE

APP03_Bu input signal / output signal

- if range is not specified, default settings are : 4..20mA / +/-10 V

Non-standart signals (inverted, special ranges – set by PC):

eg. APP03_Bu 0-1V / 2-5V , APP03_Bu 10-2 mA / 2-8 V

MOUNTING EXAMPLE

RECOMMENDATION:

- We recommend to mount converter on DIN rail vertically with inputs down.
- In case that operational temperature is expected to be higher than 40°C , we recommend to mount converters on DIN rail with 5mm space.

