Analogue converters controlled by processor

☐ *isolated*   ☐ *free adjustabled by user*

Input signals

- 0 - 22 mA DC
- 0 -11 VDC
- 0 - 100 kOhm
- min.range: 0 - 90 Ohm

Output signals

- 0 - 22 mA DC
- 0 - 22 mA DC - passive: <u>NEW</u>
- 0 - 11 VDC

FUNCTIONS

- ☐ **SIGNAL CONVERSION**
- ☐ **INPUT SIIGNAL CHOOSED BY USER**
- ☐ OUTPUT SIGNAL CHOOSED BY USER
- ☐ **GALVANIC ISOLATION**
- ☐ **EXCITATION SUPPLY**

DESCRIPTION

Converters series APP for industrial signals mentioned above are designed as an input interface for data acquistition systems, control units and everywhere a change of type signals or a galvanic isolation of an output from an input is demanded.

<u>**APP converter is able to operate with these input signals**</u>:

- current signal í 0 - 22 mA DC
- voltage signal í 0 - 11 V DC
- resist transmitter í 0 - 100 kOhm, min.range : 0-90 Ohm

With these signals it operates in its full range.
The APP converter is setuped by two buttons and several jumpers.

FEATURES:

- four levels isolation - supply,input and output signals, excitation supply
- measuring input signal by 12-bits AD converter, Signal processing with an INTEL, procesor, *galvanic isolation* and backward conversion of digital signal rrom procesor by 12-bits DA convertor into types of signals lmentioned above.
- **user selectable type of input/output**

SETTING POSSIBILITY of **APP CONVERTER**:

- ☐ user selectable of INPUT:
- current, voltage or resist transmitter
- setuped by user in ranges: 0-22 mA DC, 0-11 VDC, 0-100 kOhm
- ☐ user selectable of OUTPUT:
- current or voltage
- settuped by user in ranges: 0-22 mA DC, 0-11 VDC

APP converter could be ordered in these two variants

- BASIC
- EXTENDED variant: APP converter has an excitation supplyí for sensor

Converter is built-in a plastic box mounted on DIN bar. All the operating buttons and jumpers are accessible from the front panel .

TECHNICAL DATA

POWER	24 VAC or 24 VDC : **-15% / +20%**
POWER consuption (Fuse	2.0 VA : základní provedení
	3.0 VA : rozšířené provedení s pom.zdrojem
INPUT RESISTANCE	current input: 22 Ohm
	voltage input: 200 kOhm
Ref.voltage for RT	0,44 V DC / max 50 mA
CONVERSION	linear
MAX OUTPUT OVERLOAD	current: 100 mA/ trvale, 160 mA/ 1 min
	voltage: 48 V DC trvale
	RT: short cicuit between term. A,B; 48VDC on term.
DIGITAL RESOLUTION	analogue input : 12 bits
	analogue output : 12 bits
SIGNAL	from 0 onto 100 %: 250 ms
MEAS. ACCURACY	0.1 % from full range
TEMP.COEFFIC.	0.01% from full range / ºC
OUTPUT LOAD RESISTANCE	0 - 10 VDC: more than 1000 ohm
	0/4 - 20 mA: less than 600 ohm
ELECTRICAL STRENGHT	510 V eff / 1 min : input / output power / input,output
ANALOG. OUTPUT	<u>maximal:</u> 22.3 mA or 12.5 VDC
MAX. OUTPUT OVERLOAD	current: without limit
	voltage: without limit
CALIBRATION	validity max 1 year
MOUNTING	box on DIN bar
DIMENSIONS	22.5 x 75 x 110 mm (H x W x D)
ENCLOSURE	IP 20
CONNECTION	term.strip: max 2,5 mm
WEIGHT	125 g
STABILIZAT. TIME	5 minutes
OPERATING	0 - + 60 ºC
TYPE OF DUTY	continuous
EMC	due EN 61000-4-2,3,4
due standart.spec.	due EN 55011, group.1, class.A
VF array interaction	max 0.1 % (for unscreened wires)

NOTES

- ☐ power supply is <u>*galvanically isolated*</u> from
- input / output signal
- excitation supply (e.v. g. sensor)
- ☐ device can be connected to AC or DC power supply without any consideration, when DC is used the polarity is unimportant

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IDENTIFICATION CODE

APP 0.

APP 01	without excitation supply
APP 02	with excitation sup.: 24VDC 30mA

TERMINAL STRIP

K	L	M
○	○	○

D	E	F
○	○	○

○ LED

A	B	C
○	○	○

G	H
○	○

LEGENDA

- ☐ sv. **A, B** .....analogue input: current , voltage
- ☐ sv. **A, B, C** ..... nput from resist transmitter
- ☐ sv. **D, E** .... analogue output current-active
- ☐ sv. **F, D** .... analogue output current-active
- ☐ sv. **E, F** .... analogue ouput voltage
- ☐ sv. **G, H** .... excitation supply 24V, max 30 mA
- ☐ sv. **K, L, M** .... power : 24AC or DC
- ☐ M = PE .... term is used fo connection

    the lowest potencial /e.g.. ground/

    Itsn't necessary to connect.

WIRING of INPUT signals for APP

current

-	+	
A	B	C

voltage

-	+	
A	B	C

resist transmitter

-	Uref	+
A	B	C

WIRING of OUTPUT signals for APP

current-active

-	+
D	E

R_z max 600 Ohm

current-passive

-	+
F	D

10-32VDC, R_z max 1000 Ohm @24VDC

voltage

-	+
F	E

R_z min 1000 Ohm

SCHEMATIC DIAGRAM - APP 02

A	B	C		G	H
-	+			-	+

analogue input | excitation supply 24VDC,max30mA

GALVANIC **ISOLATION**

analogue output

+u	-u
+i passive	-i
-i	+i active

D	E	F

power 24VAC, DC

K	L	M PE

ORDERING EXAMPLE

APP 01: configure
input: 0-10 VDC   output: 4-20 mA DC

NOTE:

If input/output isn't specified by order , the default manufacturer's
values are: input: 0/4 -20 mA   output: 0/4 -20 mA

LOCATION of BUTTONS and JUMPERS in APP

K	L	M
○	○	○

D	E	F
○	○	○

J1

● LED

J2
J3
J4
RESERVE 1
RESERVE 2

■ DOWN
■ UP

J5
J6

A	B	C
○	○	○

G	H
○	○
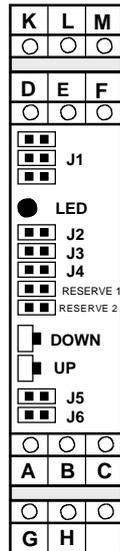
LEGEND

- ☐ jumper J1 .... type of analogoue input: AI
- ☐ jumper **J2** .... setting the beginning of analogue output
- ☐ jumper **J3** .... setting the end of analogue output
- ☐ jumper **J4** .... measure: MEAS
- ☐ jumper **J5,J6** .... type of analogoue output: AO
- ☐ button: DOWN .... dicreasing value of AO
- ☐ button: UP .... increasing value of AO

input: AI	J5	J6		
current	OFF	ON		
voltage	ON	OFF		
resist transm.	OFF	OFF		

output: AI	J1			current	voltage
current	ON	2 - 4	3 - 5		
voltage	ON	1 - 3	4 - 6		

setting: APP	J2	J3	J4
START	ON	OFF	OFF
END	OFF	ON	OFF
MEAS	OFF	OFF	ON

SET-UP PROCEDURE

☐ **TYPE OF INPUT SIGNAL**

   by jumpers J5, J6 we set-up the input signal type due to **settings table**

☐ **TYPE OF OUTPUT SIGNAL**

   ▪ by jumpers J1 we set-up the output signal type due to **settings table**

☐ **SETTINGS THE BEGINNING OF AO**

   ▪ we connect jumper J2 and program goes to the setup mode and the LED diode start blinking

   ▪ we connect signal to the input matching the beginning of output (e.g.. 4 mA ect..)

   ▪ by buttons UP/DOWN and multimeter connected on the output terms we set-up the value of output (e.g. 0 mA)

   ▪ by pressing buttons UP and DOWN together we validate the value .

☐ **SETTINGS THE END OF AO**

   ▪ we connect jumper J2 and program goes to the setup mode and the LED diode start blinking

   ▪ we connect signal to the input matching the end of output (e.g.. 20 mA ect..)

   ▪ by buttons UP/DOWN and multimeter connected on the output terms we set-up the value of output (e.g. 20 mA)

   ▪ by pressing buttons UP and DOWN together we validate the value .

☐ **END OF SET-UP PROCEDURE**

   ▪ we connect jumper J4 and program goes to the measuring mode and LED diode light