- power supply from 18 to 30V=
- optically separated input
- input frequency from 0 to 10 kHz
- output from 0 to 10 V=

Application

The frequency-to-voltage converter (in following mentioned as **f/V-converter**) DA-0/10-0/10-24 is intended for processing of discrete (frequency) signals in the circuits of control/regulating systems and for their conversion into analogue coherent signal which may be connected to the analogical (i.e. voltage) inputs of PLC's, regulators, servo-amplifiers, and so on. The input of f/V-converter is designed to be able to process voltage levels up to 30 Volts. Concerning mechanical design, the DA-0/10-0/10-24 module is intended for assembly in the electric cabinet, by means of standard 35 mm fixing strip.

Description

The f/V-converter DA-0/10-0/10-24 consists of following parts: protective input circuit; optically separated, integrated "frequency-to-voltage" converter; internal stabilized voltage source; output amplifier. The protective input circuit matches the input signal for the opto-electronic unit (shaping exciter) of the f/V-integrated converter. The protective input also protects the opto-electronic unit against connection of the voltage with reverse polarity. At the same time, this circuit ensures the noise immunity for the input. By means of an operating amplifier, the analogue output signal from f/V-integrated converter is amplified and treated (as for impedance). The amplifier's output signal ranges from 0 to 10V=; this output is equipped with protective diodes against imposed voltage and it is short-circuit-proof. The f/V-converter DA-0/10-0/10-24 is supplied with DC voltage 15 to¨30 Volts. The safety diodes serve for protection of the f/V-converter against overvoltage.

At the application, have a respect to the fact that the '**-out**' terminal is electrically interconnected with the '**-**' **terminal** (negative supply terminal. Considering output voltage's value, the cables (if longer) from the f/V-converter's output should be shielded-type. The power source supplying the circuits of f/V-converter DA-0/10-0/10-24 doesn't need to be stabilized, nevertheless, its waviness shouldn't lower than $1V_{RMSV}$.

The f/V-converters DA-0/10-0/10-24 may by assembled "side-by-side" onto the fixing strip; however, they shouldn't be positioned near the instruments producing disturbing electro-magnetic fields, or in such places where the heavy electrical power is switched-on.

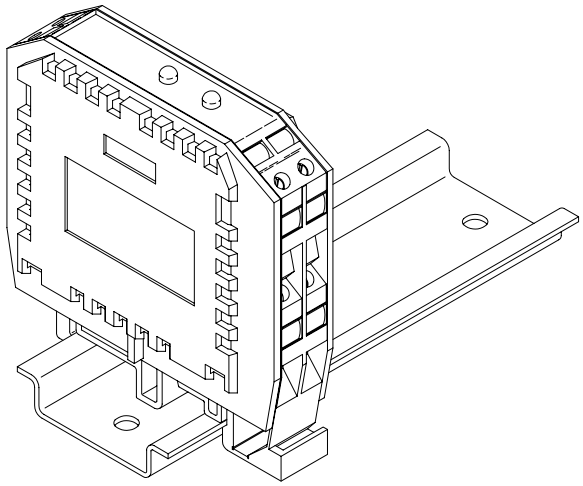
Concerning mechanical design, the f/V-converter DA-0/10-0/10-24 is designed as one printed-circuit board bearing whole electronic circuits, placed into standardized plastic box. This plastic box provides electric protection of IP20.

Absolute maximum ratings

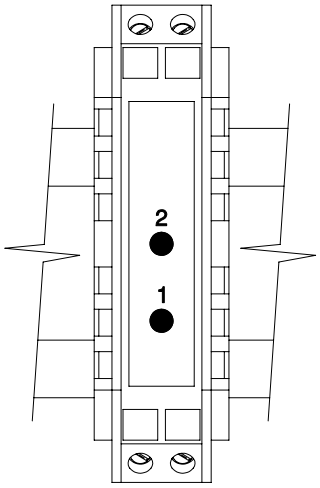
Maximum supply voltage	35 V=
Maximum supply current	15 mA
Maximum input voltage	50 V=
Maximum input current	50 mA
Maximum output voltage	12 V=
Maximum output current [1)]	5 mA
Insulating voltage input/output	750 V_{RMSV}
Operation temperature range	-20°C to +50°C
Storage temperature range	-30°C to +80°C

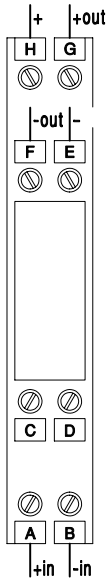
Note[1)] transmission linearity no more secured

Converter DA-0/10-0/10-24



Terminals





+, **-**	supply voltage from 15 to 30 V=
+out, **-out**	output signal from 0 to 10V=
+in, **-in**	input signal from 0 to 10 kHz

Operating status indication

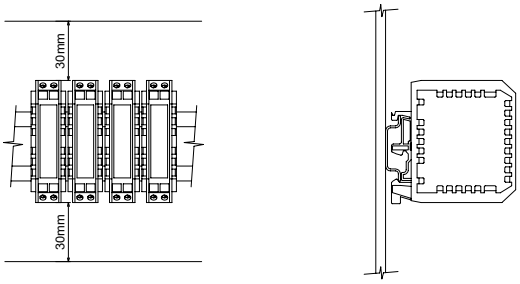
LED1	supply voltage, green
LED2	active input, red
SUPPLY VOLTAGE	LED1 is shining
ACTIVE "IN"	LED2 is shining

Parameters

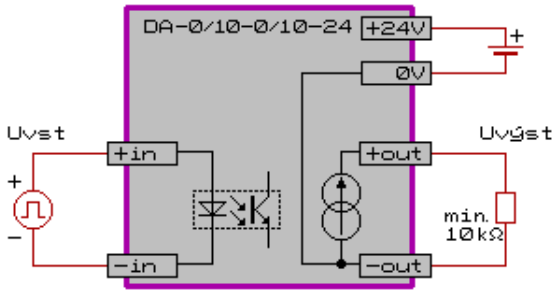
Supply voltage	15 to 30V=
Current consumption	8mA
Voltage for excitation of input	10 to 30V=
Current into input	10mA at 24V=
Input frequency (measured)	0 to 10kHz
Insulating voltage input/output	500V_{RMSV}
Rated output voltage	0 to 10V=
Load resistance	min 10kΩ
Transmission linearity input/output	±1%
"Zero" error	max 15mV
Output signal waviness	max 10mV
Terminals	screwed, for wires of 0.05 to 2.5 mm^2
Degree of protection	IP20
Dimensions (W×H×L)	62×65×18mm
Mounting position	vertical
Weight	0.08kg
Operating conditions	normal, no mechanic impurities
	no corrosive vapours/gases
	relative humidity 20 to 80%
	absolute humidity up to 40g/m^3
	barometric pressure 75 to 125kPa

Assembly

The f/V-converter DA-0/10-0/10-24 will be fixed onto 35mm mounting rail. To do this, proceed as follows: at first, set the upper clasp onto rail; then lock the ratchet by pressing downward. After sliding the module into desired position, connect the cables into terminals. When dismantling, at first disconnect the cables from the terminals; then release the ratchet using screwdriver, and, by pulling for lower nose on the box holder. See following illustration for preferred assembly position.



Typical application



Caution

Before connecting/switching-on the module read this catalogue sheet carefully. In case of any doubt, please contact your local dealer or the producer.

When using the module, it is a good idea to consider some reserve, to cover the function in case of temporary aggravation of operational conditions (violent increase of ambient temperature, distortion, spikes, etc.). The module shouldn't be positioned near the instruments producing disturbing electro-magnetic fields, or in such places where the heavy electrical power is switched-on.

The f/V-converter DA-0/10-0/10-24 doesn't require any attendance/maintenance; the repairs must be performed by producer. Any intervention into module's electric circuits causes loss of all warranties!

Never connect/switch-on the module that is damaged as a result of transport or due to any other influences!

Never connect the module to the voltage when it is dewy; wait until the visible moisture evaporates!

Before performing any operation on the terminals of the module, disconnect at first the module from the supply voltage!

Should the product be used in a way other as recommended by producer, the electrical/fire accident protection may be disturbed.

Others

This catalogue sheet serves also as accompanying document for the f/V-converter DA-0/10-0/10-24.

The data contained in this catalogue sheet only describes the product's characteristics without ensure it. NEWTE undertakes no responsibility for wrong using of this catalogue sheet.

Considering the developing of each product, it is possible that there will be some improvements that cannot be included in this catalogue sheet. NEWTE retains the right anytime to modify and to improve described product without previous notice.

The technical suggestions and schemes included in this catalogue sheet express briefly the main purpose. The user has to judge separately the applicability for all individual cases. The modules stated in this description are in industrial terminology designated as "devices". Nevertheless, these aren't devices or machines capable to be directly used or to be directly connected to the electric network, but these are the components. The final function of such components is set when these are integrated into user's construction. Concerning conformity of such construction with existing legal rules, the responsibility for this fully rests on the user.

This instruction doesn't needs to be complete and error-free. In case of any doubt, please contact your local dealer or producer.

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