

# Frequency Measuring Converter FM 600

The FM 600 is a freely **programmable 2-channel frequency/analogue measuring converter with indicator unit.**

Due to its multi-functional input frequency processing and the 2 analogue outputs (current/voltage) or the rateable digital outputs, the device is optimal suitable for indication of instantaneous through-flow quantities with simultaneous rateable meter pulse output for water meter with main and secondary meters.

A scaled sum forming is integrated especially for large water meter with bypass.

Here the instantaneous through-flows as well as the meter quantities are outputted, correctly added.



## Function overview:

- Programming: via keys at the front or an optional programming software
- Input signal types: NAMUR, contact, open collector, 3-conductor Opto, 24V active (from 0...0.001 Hz to 0...10 kHz)
- Outputs: each channel analogue (current/voltage) and impulse output as well as composite signal (can also be used as frequency and impulse summator or limit switch)
- Indicator unit: signal presentation as numeric value and bar graph on illuminated graphic LCD
- Types of mounting: front mounting or DIN rail mounting

## Operation

The freely programmable frequency converter of series FM 600 solves all requirements of a modern through-flow quantity indicator and diverse regulating and monitoring tasks. The parameterizing software, menu-guided and shown in plain language, convinces through easy and operator-friendly structured build-up in the operating languages German, English and French. The input of all characteristic quantities is carried out without additional aids directly at the device or via the optional PC programming software "AD-Studio".

## Inputs

With 2 impulse inputs, the most diverse types of transducers can be connected in a frequency range from 0-0.001Hz to 0-10kHz. All inputs are galvanically separated to the output and to the auxiliary voltage.

## Outputs

The analogue outputs can be freely set in the range of max. 20mA and max. 10V in each channel (current and voltage run synchronised). An impulse output in each measuring channel with potential free contact (optionally also opto-coupler) offers extensive impulse summation and impulse scaling possibilities with its evaluation possibilities.

Alternatively, switch-on and switch-off limiting values (hysteresis function) can be defined.

A sum forming, which can be activated, enables water meter with bypass to combine to one unit.

An analogue simulation mode enables extensive test possibilities, also with automatic, time-dependent switch-off.

## Auxiliary voltage

With the integral wide range power pack, a supply voltage range of 20-253V DC and 50-253V AC can be covered.

## Indicator unit

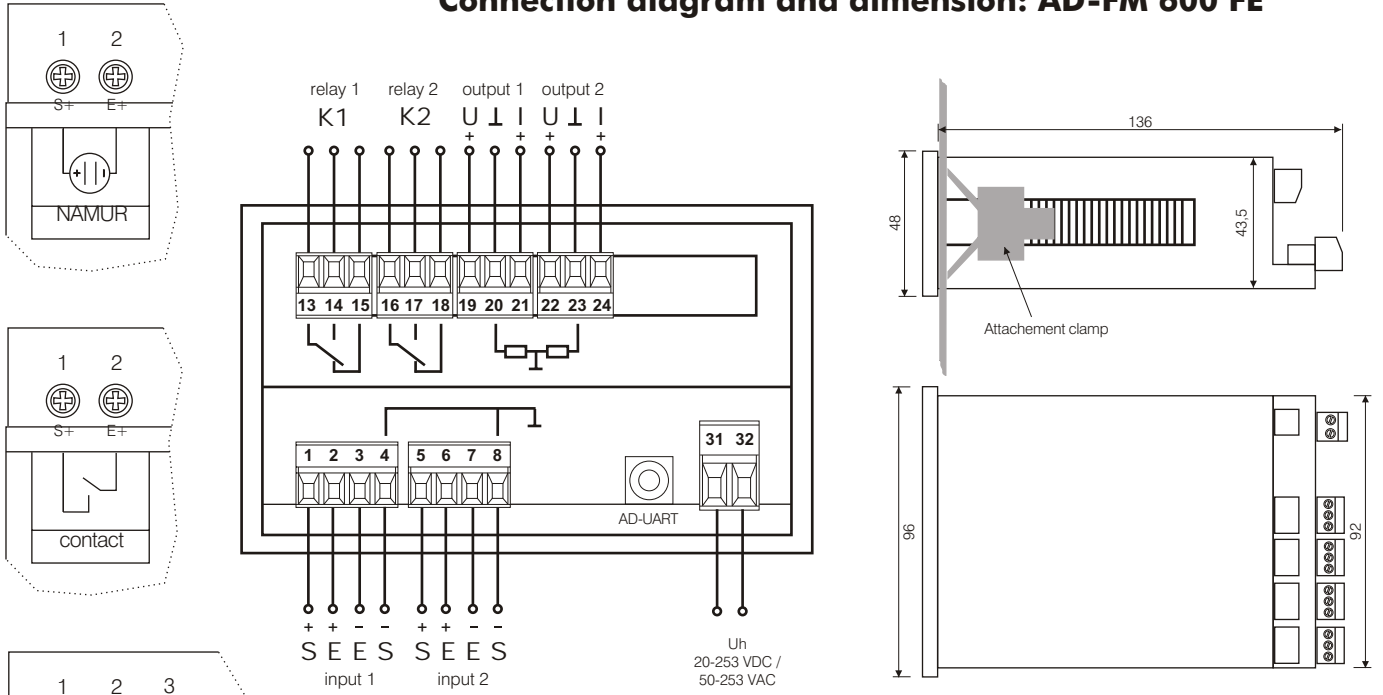
Background lit graphic LCD (122x32 pixel). Different indicator modes are available. The physical measuring values can be freely scaled. Apart from an extensive unit list, a free 2-digit unit and an 8-digit measuring point description string is available for each channel.

## Programming software "AD-Studio"

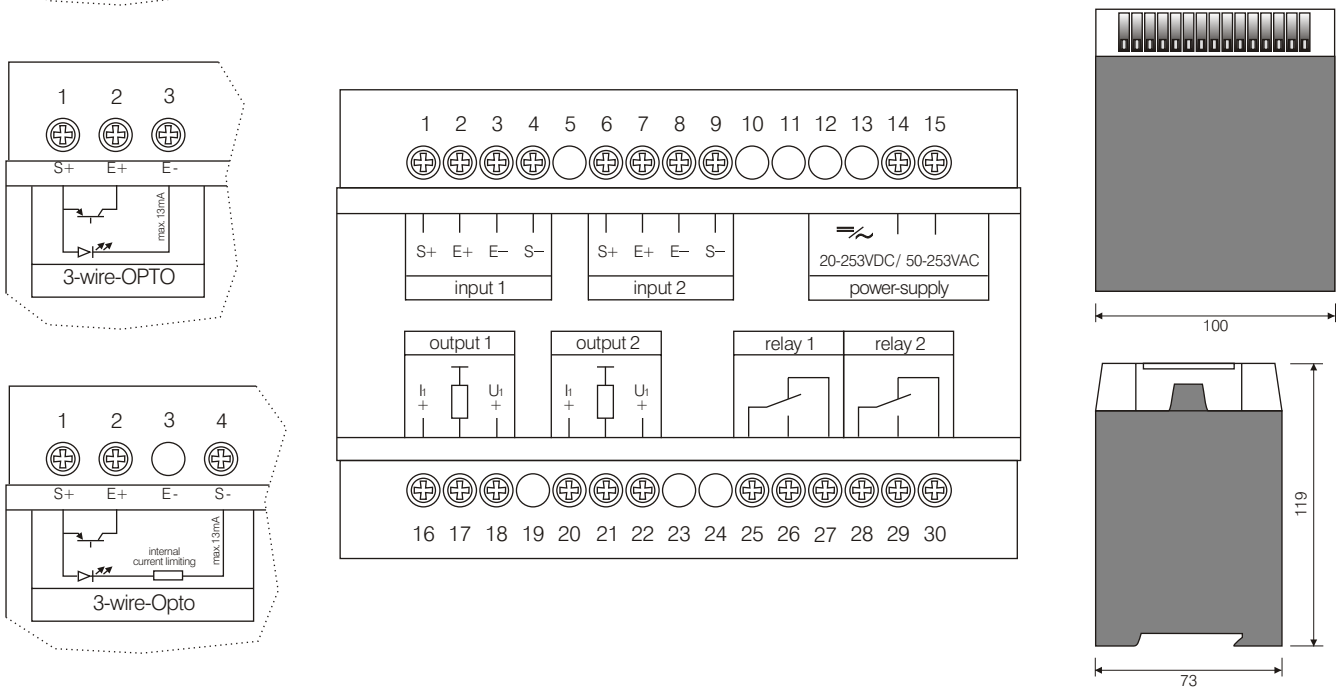
With an optional programming software with interface cable, the following possibilities are available additionally to the complete parameterizing:

- reading out the parameter of an existing device
- archiving parameter settings in a file
- duplicate existing parameter setting on further devices

## Connection diagram and dimension: AD-FM 600 FE



## Connection diagram and dimension: AD-FM 600 GA



## Technical data

|                                                         |                                                                                                                                                                                                                     |
|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Design FE (for front mounting)                          | switchboard housing acc. to DIN 43 700, 48x96 mm<br>WxHxD 91.5x43x131mm<br>switchboard cut-out: 92x44 mm<br>switchboard thickness 1.5-10 mm                                                                         |
| Design GA (for DIN rail)                                | DIN rail housing, WxHxD 100x74x119 mm                                                                                                                                                                               |
| Weight:                                                 | approx. 230 g.                                                                                                                                                                                                      |
| Terminal cross-section:                                 | mains terminal 2.5 mm <sup>2</sup> , all others 1.5 mm <sup>2</sup>                                                                                                                                                 |
| Ambient conditions                                      | admissible ambient temperature: 0...+50°C                                                                                                                                                                           |
| Electrical protective measures                          | protection class: II<br>IP rating: terminals IP 20 (front IP 65 at the FE housing)                                                                                                                                  |
| Signal separation I/O test voltage                      | 2kVAC                                                                                                                                                                                                               |
| Test voltage for supply                                 | 4kVAC                                                                                                                                                                                                               |
| Supply voltage                                          | ALLPOWER 20-253 VDC or 50-253 VAC                                                                                                                                                                                   |
| Power consumption                                       | max. 4 W or 5 VA                                                                                                                                                                                                    |
| Frequency generator supply                              | active: approx. 13.5V (max. 13mA) or for Namur sensors<br>8V/8mA                                                                                                                                                    |
| Digital inputs                                          | Namur sensor, contact sensor, open collector,<br>3-conductor opto sensor, 24V can be activated actively,<br>requires minimum impulse duration > 40 milliseconds                                                     |
| Contact debouncing function                             | 10 kHz                                                                                                                                                                                                              |
| Maximum input frequency                                 | each channel 20 mA/500 Ohm) (no-load running max. 15 V)<br>and 0-10 V at min. 10 kOhm (short circuit max. 24 mA)                                                                                                    |
| Analogue outputs                                        | 250V/2A or 300VA                                                                                                                                                                                                    |
| Output contact load                                     | input frequency, scaled instantaneous measuring value,<br>quantity impulse, scaled dimension as quasi analogue bar,<br>channel description and scaling unit in plain language                                       |
| Indicator functions each channel                        | graphic LCD: 122x32 pixel background lit<br>digital indicator: 5-digit, can be configured or edited freely<br>scaling unit can be selected freely from list                                                         |
| Indicator                                               |                                                                                                                                                                                                                     |
| The CE conformity is based on the following guidelines: |                                                                                                                                                                                                                     |
| Emission                                                | acc. to DIN EN 50081-2<br>radio interference voltage acc. to DIN EN 55011 (industrial<br>range)<br>radio interference immunity acc. to DIN EN 55011 (industrial<br>range)                                           |
| Interference immunity                                   | acc. to DIN EN 50082-2<br>ESD acc. to DIN EN 61000-4-2<br>burst acc. to DIN EN 61000-4-4<br>surge acc. to VDE 0843-5<br>HF current supply acc. to DIN 61000-4-6<br>electro-magnetic fields acc. to DIN EN 61000-4-3 |



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