

# Analog-Frequency Transmitter AF 500

Output frequency programmable in range 0... 0.01Hz up to 0 ... 20kHz

## Features

- Inputs for standard signals for 0/4 ... 20 mA, 0/2 ... 10V DC
- Teach-in programming for analog start- and end value (only if input signal differs from standard signals)
- Output frequency range programmable by rotary switches
- Outputs transistor passive and relay SPDT
- Full 3-port isolation
- Supply voltage 24 V DC or 230 V AC
- Power-on and operating mode indicated by a 2-coloured LED
- 22,5mm case for DIN rail mounting



## General information

Analog frequency transmitter AF500 converts standard industry signals 0/4...20 mA or 0/2...10 V DC into a proportional frequency. The output frequency is programmable with rotary switches at the side.

## Short information

Accuracy of adjust	1 % at start value of the frequency unequal 0 0.1 % at start value of the frequency equal 0.
Teach-in	Tolerance of the input signal (standard signal) can be adapted.
Watch-dog	watches program running and provides auto-reset in case of error.
Outputs	Transistor output and relay are operating in parallel mode. For frequencies smaller than 9.9 Hz the relay output can be deactivated by front side DIP switch S4. For frequencies higher than 9.9 Hz the relay output is automatically deactivated.

## Technische data

### Power supply

Supply voltage	: 230 V AC $\pm 10$ % or 24 V DC $\pm 15$ %
Frequency AC	: 47 ... 63 Hz
Power consumption	: < 3 VA
Working temperature	: -10 ... +60 °C (14 ... 140 °F)
Rated voltage	: 250 V= acc. to VDE 0110 group 2 between input/output/supply voltage
Test voltage	: 4 kV= between input/output/supply voltage
CE - conformity	: EN55022, EN60555, IEC61000-4-4/5/11/13,

### Measuring input

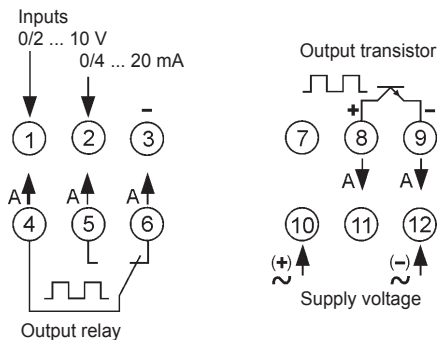
Current input	: 0 ... 20 mA, 4 ... 20 mA	switch selectable, Ri = 51 $\Omega$
Voltage input	: 0 ... 10 V DC, 2 ... 10 V DC	switch selectable, Ri = 20 k $\Omega$
Start value	: programmable in range	0 ... + 25 %
End value	: programmable in range	-15 ... + 10 %

### Outputs

Transistor	: max. 30 V DC, load max. 30 mA
Frequency range	: 0 ... 0.01 Hz, 0 ... 20 kHz duty cycle 0.5
Relay	: 250 V $\sim$ < 250 VA < 2 A, 100 V = < 50 W < 1 A
Frequency range	: 0 ... 0.01 Hz, 0 ... 9.9 Hz, duty cycle 0.5
Accuracy	: 0.1 % of end value
Temperature coefficient	: 0.01 %/K

Case	: Standard case of polycarbonate 8020 UL 94 V-1
Weight	: appr. 140 g
Protection	: Case IP 30, terminals IP20 acc. German BGV A3
Connection	: Screw terminals with pressure plates, max. 2.5 mm <sup>2</sup>

## Connection diagram

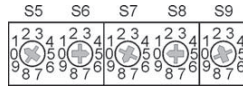


## Output-frequency range configurations

The frequency range can be programmed by five rotary switches (S5-S9) at the side of the case (start value = S5, S6; end value S7, S8. Switch S9 is the multiplier for the values. This condition applies only to switching position 1-6 of the multiplier (example 1). For switching position 7-0 only the end value of the frequency with four digits (S5-S8) (example 2) can be programmed.

### Example 1

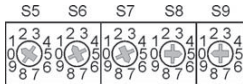
Range : 1,5 ... 8,0 Hz  
Switch position : 1-5-8-0-2



Start value    End value    Multiplier  
(resp. only End value)

### Example 2

Range : 0 ... 12750 Hz  
Switch position : 1-2-7-5-0



Start value    End value    Multiplier  
(resp. only End value)

### Side switches

S9	Multiplier	Function for S5-S8
1	0.0 1 Hz	Start- and end value 2-digit each programmable
2	0.1 Hz	
3	1 Hz	
4	10 Hz	
5	100 Hz	
6	1000 Hz	
7	0.01 Hz	
8	0.1 Hz	0 ... (only) end value
9	1 Hz	4-digit programmable
0	10 Hz	

### Front switches

DIP-switch	OFF	ON
S1	-	f Start value
S2	-	f End value
S3	0 mA / 0 V	4 mA / 2 V
S4	Relay OFF	Relay ON

### Front view



### Decreasing characteristic output curve:

Rotary switch S7, S8 = Start-value; S5, S6 = End-value. Only DIP-switch Position 1-6 (S9)

### LED Function

- Green permanent    Normal operation
- Green flashing      (Calibration mode) Input signal in correct range
- Red flashing        (Calibration mode) Input signal out of range or wrong DIP-switch position
- Red permanent     Program error, factory repair service required

### Calibration input signal

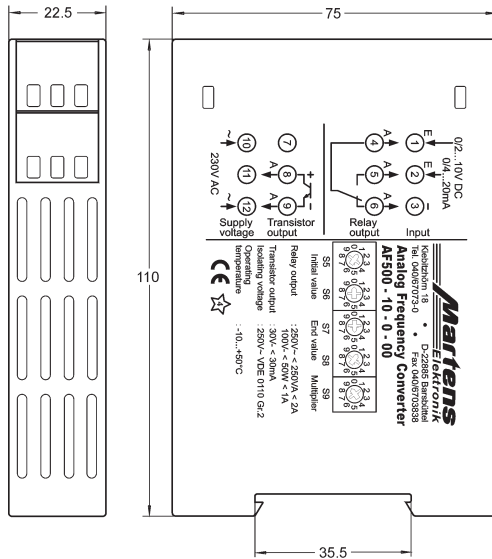
It is possible to calibrate the start- and end-value if the input signal differs to the standard industry signals 0/4...20 mA and 0/2...10 V.

### Example:

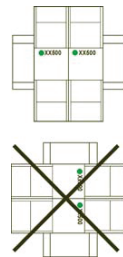
Input signal 0.2 ... 19.8 mA; output frequency 0 ... 12750 Hz

- Select Frequency range with rotary switches
- Connect Start value 0.2mA at terminals
- DIP-switch S1 at position ON.
- LED flashes green (Note: LED is flashing red, the input signal is out of range).
- The connected start value will be entered if DIP-switch S1 is switched to position OFF
- Connect End value 19.8 mA at terminals
- DIP-switch S2 at position ON.
- LED flashes green (Note: LED is flashing red, the input signal is out of range).
- The connected start value will be entered if DIP-switch S2 is switched to position OFF

## Dimensions



**Caution!**  
 Mounting of multiple units without distance is only permitted in horizontal orientation.



TS35 DIN rail mounting  
 acc. to DIN 46277 and DIN EN 50022

## Ordering code

AF500 -  1. -  2. -  3.

### 1. Measuring range

10 Input 0/4 ... 20 mA, 0/2 ... 10 V DC  
 Programmable output frequency from 0 ... 0.01 Hz up to 0 ... 20 kHz

### 2. Supply voltage

0 230 V AC  $\pm 10\%$   
 5 24V DC  $\pm 15\%$

### 3. Options

00 without options