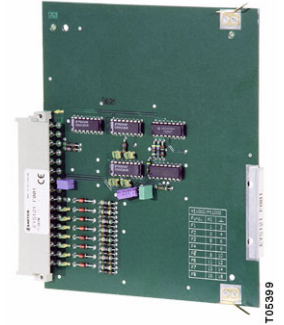


## EYS121: nova106, Function card for Ni1000/Pt1000 temperature measurement

The function card measures eight temperature values using Ni1000 (EN 43760) or Pt1000 (EN 60751) sensors. The null balancing and the curve linearisation are done in the software as standard.

Application for measuring temperature in the ranges:

- –50 to +150 °C (Ni1000)
- –100 to +500 °C (Pt1000)



### Products

Type	Description	Weight (kg)
EYS121F001	Function card for temperature measurement (Ni1000/Pt1000)	0.12

### Technical data

Electrical supply		Permitted ambient conditions	
Power supply	from rack	Operating temperature	0...45 °C
Max. current	12 mA	Storage and transport temperature	–25...70 °C
Power loss, max.	approx. 0.1 W	Humidity	10...90% rh no condensation
Inputs / Outputs		Standards, guidelines and directives	
Number of inputs	8	CE conformity as per	
Type of inputs	Ni1000 (EN 43760) or Pt1000 (EN 60751)	EMC Directive 2004/108/EC	EN 61000-6-1/EN 61000-6-2 EN 61000-6-3/EN 61000-6-4
Range			
Ni1000	–50...150 °C		
Pt1000	–100...500 °C		
Accuracy			
Ni1000 (linearity)	± 0.06 °C		
Pt1000	see table		
Max. output current of the inputs	1 mA with respect to earth pulset		
		Additional information	
		Fitting instructions	MV 505536
		Wiring diagram	<a href="#">A04585</a>

### Engineering notes

- The Ni/Pt inputs require no calibration, already take the cable resistance into account and can be used for both Ni1000 and Pt1000.

### Temperature inputs

<b>Linear-correction factors a and b</b>	$(Y = a X + b)$
<b>Slope a</b>	No entry is needed here. A proportional factor, which gives the result in °C, can be called up direct from the microprogram.
<b>Zero-point shift b</b>	No calibration is needed here. A line resistance of 2 Ω is included and has been compensated for. If the line resistance R is greater (deviation > 2 Ω): <ul style="list-style-type: none"> <li>• <math>b = -0.18 \times (R - 2 \Omega)</math> in room-temperature range</li> <li>or</li> <li>• <math>b = -0.16 \times (R - 2 \Omega)</math> at approx. 100 °C</li> </ul>

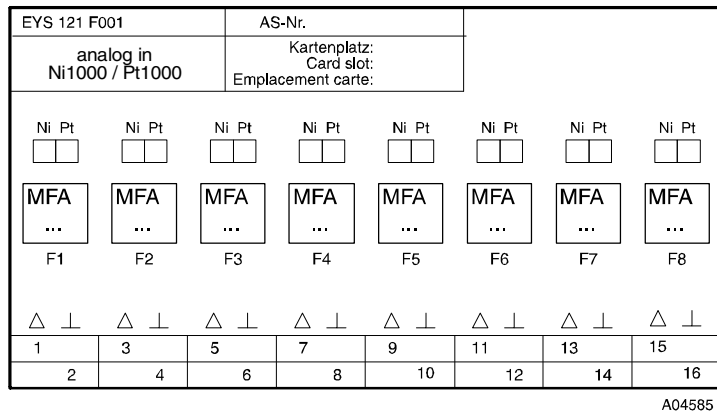
- The sensors are connected using the two-wire method; the connecting leads can be up to 55 m long if 0.8 mm<sup>2</sup>, or 170 m if 1.5 mm<sup>2</sup>. The measuring voltage is pulsed in order to prevent the sensor from warming up.

- Though the inputs are designed for Ni1000 sensors, they can also be used for Pt1000. The type of measurement can be configured via the software.
- The Ni1000 measuring value is strictly linear and is better than ± 0.06 °C from –50 °C to +150 °C.
- The linearisation for Pt1000 guarantees negligible error between –50 and +150 °C.
- For the full range using Pt1000 sensors, the following table applies:

### Measuring accuracy

Temperatur	Absolute difference
–100 °C	–0.05 °C
–50 °C bis +100 °C	< ± 0.02 °C
+150 °C	+0.05 °C
200 °C	+0.11 °C
300 °C	+0.29 °C
400 °C	–0.10 °C
500 °C	–0.31 °C

**Wiring diagram**



In cases where the industry standard (EN 61000-6-2) has to be met, the power cables should be no longer than 30 m.

**Wiring detail**

