

# Heat flow

## Heat Flow Plates FQAx



- For determining the heat flow density up to max. 150°C.
- Application-oriented designs, consisting of a meander of opposing thermocouples that are embedded in a substrate.
- In case of thick substrates no lateral circulation of the heat flow because of sufficient meander shell zone.
- Software for U value measurement, see chapter Software



Each heat flow plate has been assigned a calibration value, which corresponds to the heat flow density in  $W/m^2$  when the plate provides an output of 1mV. The calibration value will be stored as factory-setting in the ALMEMO® connector so that ALMEMO® devices will immediately indicate the current heat flow density in  $W/m^2$ .

### Technical Data:

Type	Dimensions (mm)	Meander Size (mm)	Substrate	Temperature Stability	Calibr. Val. appr. ( $W/m^2 \approx mV$ )	Accuracy of Calibr. Value
117	100 x 30 x 1.5	80 x 20	epoxy resin	-40 ... 80°C	< 50	5% at 23°C
118	120 x 120 x 1.5	90 x 90	epoxy resin	-40 ... 80°C	< 15	5% at 23°C
119	250 x 250 x 1.5	180 x 180	epoxy resin	-40 ... 80°C	< 8	5% at 23°C
120	33 Ø x 1.5	20 Ø	epoxy resin	-40 ... 80°C	< 150	6% at 23°C
117SI	100 x 30 x 3	80 x 20	silikone	-40 ... 80°C	< 50	5% at 23°C
118SI	120 x 120 x 3	90 x 90	silikone	-40 ... 80°C	< 15	5% at 23°C
119SI	250 x 250 x 4	180 x 180	silikone	-40 ... 80°C	< 8	5 % at 23°C

### Accessories

Adhesive tape for room temperature  
Self-adhesive film 24 x 100cm for room temperature

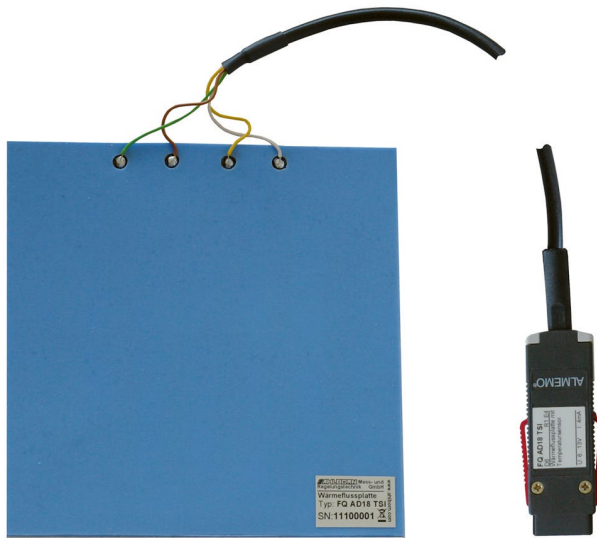
### Order no.

ZQ9017KB  
ZQ9017KF

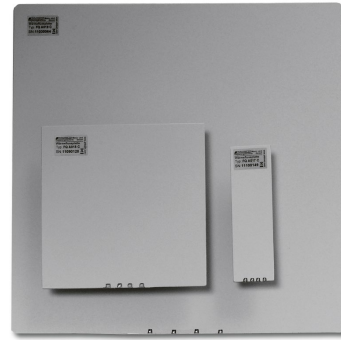
### Types incl. connecting cable, 2 m, with ALMEMO® connector and manufacturer's test certificate

Model	Application	Order no.
117	for even surfaces, e.g. casement sections	FQA017C
118	for universal applications, e.g. solar-electric systems and insulating plates	FQA018C
119	especially for constructional industry, brickwork insulating plates, old buildings	FQA019C
120	small heat flow plate, e.g. for medicine, veterinary medicine, small components etc.	FQA020C
117 SI	flexible heat flow plate, suitable for even surfaces, e.g. casement sections	FQA017CSI
118 SI	flexible heat flow plate, suitable for even surfaces, e.g. solar-electric systems and insulating plates	FQA018CSI
119 SI	flexible heat flow plate, suitable for even surfaces	FQA019CSI

## Digital heat flow plate FQADx, with integrated temperature sensor for automatically correcting the heat flow plate's temperature coefficient, with ALMEMO® D6 plug



- This automatically corrects the heat flow plate's temperature coefficient using a miniature NTC sensor integrated in the heat flow plate for the purpose of measuring the plate's mean temperature.
- It measures heat flows and temperatures using a A/D converter incorporated in the ALMEMO® D6 plug.
- Two measuring channels are programmed (at our factory).
- Plate's mean temperature (°C, t) Heat flow, temperature-compensated (W/m<sup>2</sup>, fq)



model 117, 118, 119

### Technical Data

#### Heat flow sensor (see table on page 13.04)

Accuracy of calibration value at nominal temperature	5 %
Nominal temperature	23 °C
Temperature coefficient	-0.12 % / K (epoxide plate) or -0.17 % / K (silicone plates)

#### Temperature sensor

Sensor element	Miniature NTC type N
Accuracy	±0.5 K at 0 to +80 °C

#### A/D converter incorporated in ALMEMO® D6 plug

Input 1	NTC sensor (clamp connector in plug)
Resolution	0.01 K
Linearization	computing method according to Galway Steinhart (no approximations)
Accuracy	±0.05 K
Nominal temperature	23 °C ±2 K
Temperature drift:	0.004 %/K (40 ppm)
Input 2	Voltage mV (clamp connector in plug)
Measuring range	0 to 26 mV, 0 to 260 mV
Precision class	AA see page 01.05
Refresh rate	0.4 seconds for both channels
Supply voltage	6 to 13 VDC
Current consumption	4 mA

### Accessories

see page 13.03

General features and accessories, ALMEMO® D6 sensors see page 01.08

### Order no.

### Variants including manufacturer's test certificate

		Order no.
Heat flow plate with integrated temperature sensor cable permanently fitted, PVC, length 2 meters with ALMEMO® D6 plug.		
Type 117	Substrate Epoxy resin, Dimensions 100 x 30 x 1.5 mm	<b>FQAD17T</b>
Type 118	Substrate Epoxy resin, Dimensions 120 x 120 x 1.5 mm	<b>FQAD18T</b>
Type 119	Substrate Epoxy resin, Dimensions 250 x 250 x 1.5 mm	<b>FQAD19T</b>
Type 117SI	Substrate Silicone, Dimensions 100 x 30 x 3 mm	<b>FQAD17TSI</b>
Type 118SI	Substrate Silicone, Dimensions 120 x 120 x 3 mm	<b>FQAD18TSI</b>
Type 119 SI	Substrate Silicone, Dimensions 250 x 250 x 4 mm	<b>FQAD19TSI</b>