



# Course on Heat Flux Sensors

Principle, Applications & Practical Use

16 and 17 October 2002

TNO TPD



## Hotels Delft

Below you will find an overview of hotel accommodation. Please make your own reservation. The prices stated are in euros for one night (including breakfast and VAT). More detailed information you can find on [www.vvvdelft.nl](http://www.vvvdelft.nl)

Hotel	Single room	Double/twin room	Phone and fax number
De Ark**** Koornmarkt 65 <a href="http://www.deark.nl">www.deark.nl</a>	66-95	120	T +31 15 215 79 99 F +31 15 214 49 97
Delft Museumhotel*** Oude Delft 189 <a href="http://www.museumhotels.com">www.museumhotels.com</a>	100	137-186	T +31 15 214 09 30 F +31 15 214 09 35
Bridges House Hotel*** Oude Delft 74 <a href="http://www.bridges-house.nl">www.bridges-house.nl</a>	95-120	120-145	T +31 15 212 40 36 F +31 15 213 36 00
De Plataan*** Doelenplein 10 <a href="http://www.hoteldeplataan.nl">www.hoteldeplataan.nl</a>	73-83	85-95	T +31 15 212 60 46 F +31 15 215 73 27
De Vlaming*** Vlamingstraat 52 <a href="http://www.hoteldevlaming.nl">www.hoteldevlaming.nl</a>	60-95	90-100	T +31 15 213 21 27 F +31 15 212 20 06

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Delft, The Netherlands

Organised by TNO TPD

### Heat Flux Sensors

Nowadays most processes where heat transfer plays an important role are controlled by means of temperature measurements. However only measuring temperature results in a limited amount of information. Measuring Heat Flux provides the user with extra and useful information. There is a wide range of Heat Flux Sensors available for measuring heat transfer phenomena in the three modes: conduction, radiation and convection. Numerous companies have been using these sensors to improve their products and production processes. The field of application of heat flux sensors is still expanding as the specific advantages of this type of sensor become known more widely. During practical use one can be concerned with practical problems. Which type of sensor do I have to choose? How do I have to mount the sensor? How can I prevent measuring errors? This training wants to help to find an answer to these questions.

### TNO TPD

In the development and application of heat flux sensors TNO TPD has over 50 years' experience. TNO TPD has the ambition to provide industry with every possible solution in the field of heat flux sensors in combination with excellent advice from specialists on the best way to apply them. In addition to the standard line TNO TPD has developed numerous special heat flux sensors for more demanding and rare applications.

### Objectives of the training

Theoretical background and practical experience will form the basis for familiarisation with heat flux sensors and will include:

- discussion of different types of heat flux sensors and their applications;
- training in practical use (preventing measuring errors, mounting);
- choosing the right sensor.

After this course you will know how to:

- select the appropriate sensor for your application;
- apply heat flux sensors in practical situations without introducing measuring errors;
- interpret heat flux measurement and get relevant information on heat transfer phenomena in your application.

### Audience

The course will be relevant to people in the following fields: building and construction, meteorology and soil physics, food and nutrition, space, petrochemicals, process equipment as well as universities and research institutes.

### General information

- The course will be conducted in English.
- The trainers are Rik van der Graaf and Huib Blokland.
- The price of this course will amount EUR 750,=.
- More detailed information about the course will be sent to you after registration.

# Programme

## 1st day (16 October 2002)

09.30 - 10.00	Reception
10.00 - 10.50	Heat Transfer
10.50 - 11.00	Coffee break
11.00 - 12.00	Principle of Heat Flux Sensors
12.00 - 12.30	Heat Flux Sensor types
12.30 - 13.30	Lunch
13.30 - 14.00	Calibration
14.00 - 14.45	Applications
14.45 - 15.00	Coffee break
15.00 - 16.00	Relevant applications
16.00 - 17.00	Tour of the TNO TPD laboratories

## 2nd day (17 October 2002)

09.30 - 10.00	Reception
10.00 - 10.45	Practical use
10.45 - 11.00	Coffee break
11.00 - 12.00	Measuring errors
12.00 - 13.00	Lunch
13.00 - 16.00	Experiments with different Heat Flux Sensor
16.00 - 16.30	Evaluation

For more information about the content and course programme please contact:

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