DANISH TECHNOLOGICAL INSTITUTE

Evaluation of DanTaet KMP-F

DanTaet Electronics a/s

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Requester

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1 Description of the task

Teknologisk Institut has been tasked to evaluate DanTaet System KMP-F, which comprises a leakage protection system for district heating installations.
The evaluation is based on a technical review of the system undertaken together with the manufacturer, and a subsequent review of User and Factory manuals for the system.

2 Description of the system

DanTaet System KMP-F is a leakage protection system for use in district heating installations of any size. The system employs data from ultrasonic flow meters, which may be accessed via a data interface to a Kamstrup MULTICAL® energy calculator. The system continually monitors the installation, issuing alarms on leakage or seepage from the installation. The installation is cut off on detected leakage.

	Main components: • 1 control unit, model 200 shown here • 2 ultrasonic flow meters, possibly 1 auxiliary flow meter • 2 or 3 electrically actuated valves • check valve for return pipe • optional energy calculator with 2 or 3 temperature sensors

The system integrates with AERS for alarm propagation, visualization and remote control.
AERS is a system for propagation of alarms and acquisition of consumption data from DanTaet leakage protection systems, and for the remote control thereof. The customer receives alarms as text or e-mail and can access his DanTaet systems in an Internet browser on a smartphone, tablet, laptop or PC. AERS visualizes the build-up to an alarm

and permits the customer to restart the system. Likewise, AERS provides access for DanTaet technicians to the system's configuration interface.

In addition to leakage monitoring, the system performs regular self-testing with subsequent alarm on the following faults:

- flow meter error forward and return
- valve error forward and return
- liquid sensor error, if liquid sensor attached
- operating pressure fault, if pressure sensor attached
- communication error (if energy calculator attached)
- power supply error
- mains error (230 V ac error)

During valve testing, a concurrent, highly sensitive checking of installation tightness is undertaken
(OptiTight®), which detects minute seepage from the installation. On larger systems, a high seepage sensitivity is obtained through use of a third, smaller meter and valve (OptiTight® Extended).

The system is factory preset to a standard configuration but is subsequently adapted to the actual installation and its pattern of consumption by DanTaet's technicians by way of AERS.

3 Installation of the system

A complete installation guide for plumbing and electrical installation is provided.

4 Description of operation

The system design emphasizes an uncomplicated user interface to minimize risk of user errors.
The system's user manual explains functions available on the front panel.
The front panel of the KMP-F model 200/300 features a text display which either conveys actual monitor state or error state in case of alarm. KMP-F model 100 indicates alarm on an LED; specifics are obtained via DanTaet AERS. The front also features a key for Alarm Reset, on certain systems further a key for manual valve closure, and possibly a key for manual triggering of the OptiTight test.

5 Description of functions

The system monitors the Forward-Return flow difference, alarming if this exceeds preset values.
A special arrangement allows for the passage of minor air pockets without causing an alarm, thus benefiting reliability.

The system performs the OptiTight test, which examines the installation for minor leaks and seepage. The checking is undertaken at times where consumption and flow are minimal to avoid discomfort and disruption of operation.
When equipped with the pressure sensor option, the system monitors the operating pressure of the district heating utility, cutting off and isolating the installation if the pressure becomes insufficient. This prevents drainage of the installation is case of road works on the distribution pipes, minimizing system restart difficulties.

6 Overall assessment

The view of the Institute is that KMP-F offers a series of integrated functions for alarming, cut-off and user-friendly control, providing optimal leakage protection as well as flexibility in operation and settings.
KMP-F is an advanced leakage protection system, suitable for small and large buildings. It ensures monitoring, error reporting and fast cut-off, and is suitable for integration with building automation.
The system is highly functional on a technical level, offering the customer substantial protection from water damage. The system is further developed for ease of use, even for non-technical personnel, thus avoiding misconceptions.