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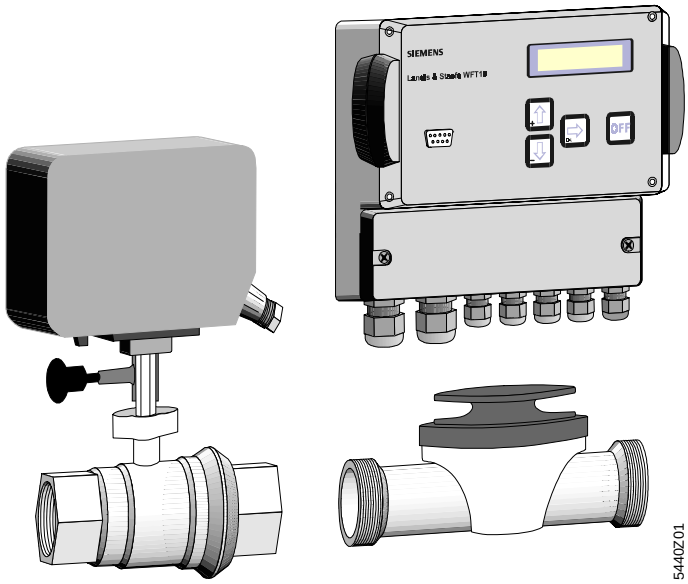


WATERBRAKE

Electronic Water Shutoff WFT10

Electronic monitoring device for autonomous water supply networks, AC power supply.
By triggering an alarm and shutting off the water supply, the device minimizes damage that can occur due to burst or cracked pipes, continuously open taps, frost, or other causes.
Choice of 1.5 m^3/h or 2.5 m^3/h nominal flow.

Range of Use

WATERBRAKE is used for monitoring water supply networks. The main application areas are networks with a central, relatively constant water consumption.
These are typical in:
- Private homes
- Vacation homes
- Apartments

Typical users are:
- Private building owners
- Private apartment owners

Siemens Building Technologies
Landis & Staefa Division

Functions

- Continuous registration of flow speed, flow duration, flow volume and of the temperature
- Comparison of these control criteria with the set limits
- If the limits are exceeded, an alarm is set off and the supply is disrupted
- Alarm is also triggerable by signal from external sensor
- Display of current flow values
- Display of current warning or alarm
- Day / night mode
- Normal operation / holiday mode
- Deactivation option

Typenübersicht

Nominal Flow	*Length*	*Model Number*
1.5 m^3/h	265 mm	**WFT10.D12S**
2.5 m^3/h	285 mm	**WFT10.E13S**

Orders

When ordering, please indicate the model number according to the above table.

Contents

WATERBRAKE is delivered as a completely preassembled system. Included in the WFT10 package are the following system components as well as their connections:

- Volume Detector:
  - Volume detector with temperature sensor
  - Two 1" internal thread screw connections
  - Preinstalled 1.5 m control line
- Control Unit:
  - Control unit
  - Two PG11 cable glands
  - Five PG7 cable glands
- Shutoff Valve
  - Shutoff valve
  - Preinstalled 1.5 m power cord
  - Preinstalled 1.5 m control line
  - Two PG11 cable glands

Technology

Volume Detector

The volume detector transmits the registered data via an access line to the control unit. This compares the current data with the set limits. If a limit is exceeded or an alarm is set off by an external device, the shutoff valve disrupts the water supply.
WFT10 is purely a monitoring device. Calibration is not required; therefore small deviations compared with calibrated meters are not to be considered errors.
The water flow drives an impeller whose speed is monitored electronically (no magnetic field generated).
The temperature is measured by a temperature sensor.

Control Unit

A microprocessor in the control unit evaluates the flow volume and the current flow rate on the basis of flow speed and flow duration, determined by means of an internal clock. This data and the temperature data is constantly compared with the set limits. If 80 % of a set maximum value (or 3K above minimum temperature) is reached, a warning is shown in the display. Optionally, this warning can also be emitted by an external war-

ning device connected to the signal output. If a limit is reached, an alarm is triggered and the shutoff valve closes. A message appears in the display, and optionally you can get a visual or acoustic signal by a external warning device.

Setting Limits

Only authorized service personnel can set the limits of the control criteria. This can be done on the device itself or with a PC via the RS232 interface, and the limits are separately adjustable for each day of the week as well as for night and day.

Inputs

An input is available for receiving alarm signals triggered by an external device.
There is another input for connecting an additional OFF switch. Both inputs can be connected to floating potential switches.

Signal Outputs

Floating potential outputs are available for both the alarm and warning message. Both outputs can switch a voltage of AC 230 V and a current of AC 1 A.

Display

The device's standard display is the current flow rate, as long as no alarm or warning messages are activated. In addition, the following displays can be chosen:

- Current flow volume and duration
- Day of the week and time
- Beginning of day mode
- Beginning of night mode
- Normal operation / holiday mode

Error Messages

The control unit monitors compliance with the set limits as well as the functioning of the valve and the temperature sensor. It can also display detected deviations and errors. The following warning and alarm messages are possible:

Error Message	Explanation
"FLOW RATE WARNING"	80 % of maximum flow rate reached
"DURATION WARNING"	80 % of maximum flow duration reached
"FLOW VOLUME WARNING"	80 % of maximum flow volume reached
"FROST WARNING"	Temperature dropped to 3 K above minimum
"VALVE ERROR"	Missing valve feedback
"BATTERY ERROR"	Buffer battery exhausted
"TEMPERATURE SENSOR"	Defective sensor cable
"FLOW RATE ALARM"	Maximum flow rate reached
"DURATION ALARM"	Maximum flow duration reached
"FLOW VOLUME ALARM"	Maximum flow volume reached
"FROST ALARM"	Temperature dropped to minimum
"EXT. SENSOR ALARM"	Alarm by external sensor

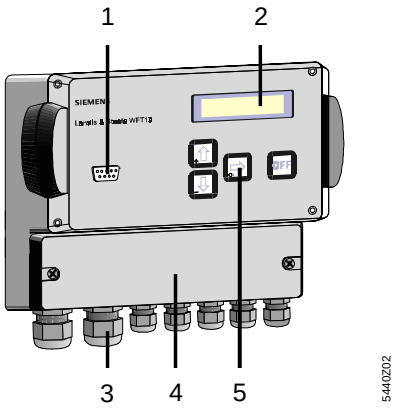
With a connected PC, the last 30 warning and alarm messages as well as the current limit settings can be read out.

Shutoff Valve

The ball valve is directly controlled by an electric motor with downstream reduction gear. In case of malfunction, the valve also has a manual operating mode. The two additional end-position-switches for feedback enable communication with the control unit. In addition, the device is equipped with a visual Open/Closed indicator.
In case of alarm, the shutoff valve requires about 90 seconds to completely disrupt the water supply.

General Features

The WFT10 housing is made of plastic and is attached to the wall with three screws. It includes a service part with hinged lid as well as a clamp box.



1 RSR232 interface
2 Display
3 cable glands
4 Clamp box cover
5 Button board

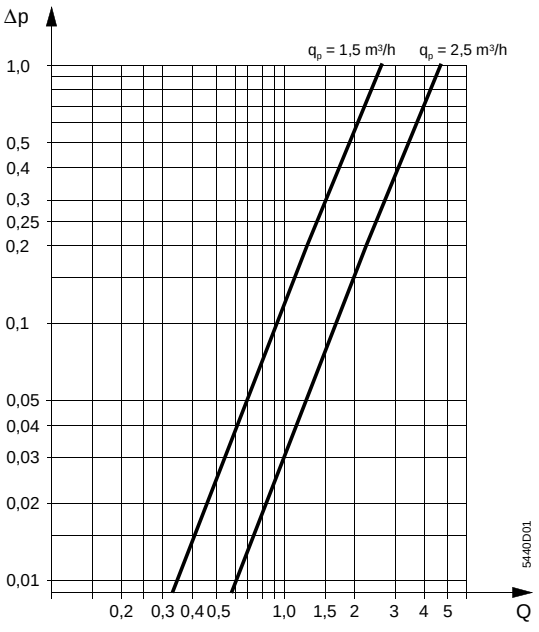
Service Part

The service part is made accessible by opening the transparent lid. It includes four buttons, the LCD display, and the RS232 interface.

Clamp Box

Seven cable glands are available for installing the connecting cables. Opening the cover provides access to the terminal clamps. The clamps can be removed from their connector strips for wiring.

Characteristics



Pressure loss characteristics

Δp Pressure loss in bar
q Flow rate in m^3/h

Installation Notes

The WATERBRAKE system required a fixed connection to the existing electrical network. The network must conform to the norm DIN 57 100 part 410 or VDE 0100 part 410 and others. The installation work is to be done by qualified personnel.

Volume Indicator

- Local regulations for water meters (installation, operation, etc.) should be observed.
- It is recommended to thoroughly clean the pipe before installing the WFT10.
- The volume indicator can be installed in a horizontal or vertical position.
- Observe the flow direction indicated by the arrow on the volume indicator.

Control Unit

- The housing should be installed horizontally at eye level so that one can easily read the LCD display and easily reach the controls.
- Ensure that the volume indicator and shutoff valve are not too far from the control unit so that the lengths of the cables provided are sufficient.
- In order to be able to switch off all power, it is recommended to install an external switch in front of the electronic unit.

Shutoff Valve

- Local regulations for valves (installation, operation, etc.) should be observed.
- The WFT10 should be connected as directly as possible to the main water supply, but in no case in front of the main water meter.
- The control panel's position can be chosen freely. However, an installation with vertical electric motor is preferable.
- Ensure that the valve's manual lever is freely movable and easily accessible.

The enclosed installation instructions should be followed.

Technical Data

Volume Detector

	Nominal Flow q_p = 1.5 m^3/h	2.5 m^3/h
Position	optional	optional
Maximum flow rate	q_s = 3 m^3/h	q_s = 5 m^3/h
Passivity	q_a = ca. 3 l/h	q_a = ca. 5 l/h
Nominal pressure	PN = 10 bar	PN = 10 bar
Pressure drop at q_p	< 250 mbar	< 250 mbar
Pressure drop at q_s	< 1 bar	< 3 bar
Max. median temperature	+90 °C	+90 °C
Connection	external thread G1	external thread G1

Control Unitc

	Operating voltage	AC 230 V
	Max. operating current	10 mA
Housing	Dimensions without cable glands	LxWxH = 185 x 213 x 104.5 mm^3
	International protection	IP65
Relay Outputs	Switching voltage	AC 230 V
	Operating life at nominal load	> 50.000 switchings
	Switching power supply	1 A
Inputs	Pulse input volume detector	
	Max. input voltage	5 V
	Input resistance	150 kΩ
	Inputs for feedback, alarm, and OFF contact	
	Contact rating max. voltage	5 V
	Contact rating max. current	20 mA

Limit Range

Value	Min.	Max.	Default	Incre-ment	Unit
Volume detector pulse value	5	19999	23	1	ml/pulse
Maximum flow rate	5	500	30	5	liter/minute
Flow volume	5	500	day: 10 night: 10	5	liter
Flow duration	5	200	day: 10 night: 10	5	minute
Minimum tem-perature	–1 °C	+7 °C	+5 °C	1 K	
Alarm input	Open = Alarm	Closed = Alarm	Open = Alarm		
Alarm output	Open = Alarm	Closed = Alarm	Open = Alarm		
Warnungs-ausgang	Open = Warning	Closed = Warning	Open = Warning		
OFF time	00:00	23:59	01:00	00:01	hour:minute

Shutoff Valve

Operating voltage	AC 230 V
Power consumption	max. 7 VA
International protection	IP55
Operating pressure	8 bar
Surrounding temperature	+5 °C ... +55 °C
Execution time	90 s / 90°
Connection	internal thread G¾

Wiring diagram