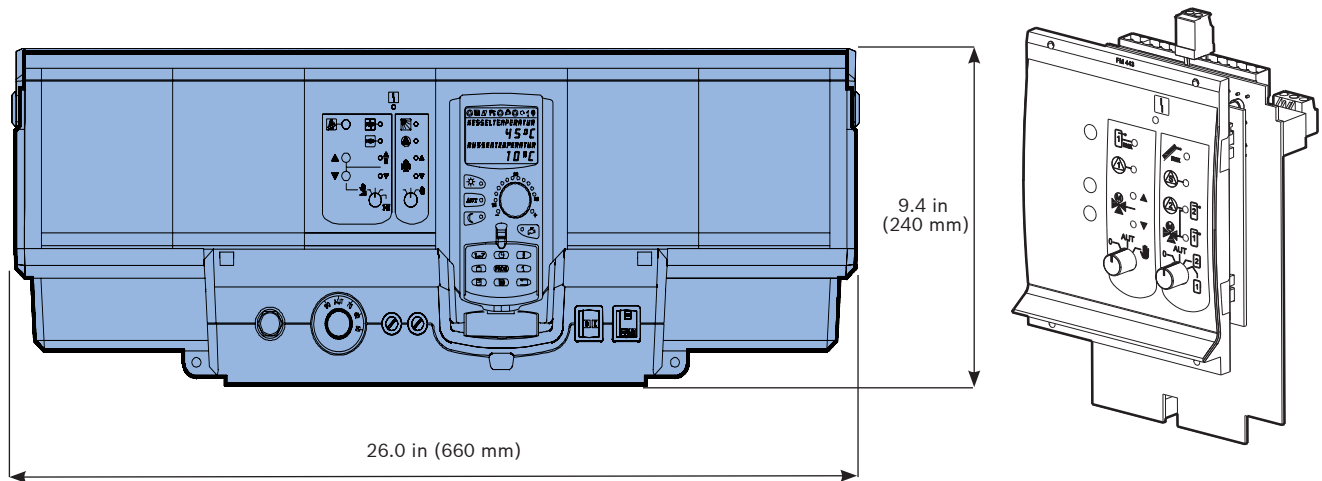


4000 Controls with FM443 Solar Module

Engineering
Submittal
Sheet

Buderus
Bosch Group

4000 Controls with FM443 Solar Module



Controller Engineering Specifications

The controls shall be a Buderus Logamatic 4000 with an FM443 module for controlling the solar thermal system. For EMS bus boilers Logamatic 4323 shall be used, for all others 4321 controls.

The solar thermal system controller shall have the following functionality:

The controller shall use an FM443 module for integration of a solar thermal system for DHW and/or space heating support.

The internal communication of the controls shall use the ECO CAN Bus. All sensor and line voltage connections shall use color and key coded plugs with numbered screw terminals. The controller shall support solar thermal systems with one or two consumers in combination with Buderus KS pump stations.

Heating support shall be able to use Buderus combi and buffer tanks and Buderus Thermosiphon tanks. The controller shall provide high flow and low flow through modulation of the speed for pump 1. Reloading shall be optimized through reduced flow and integration in the complete heating system. The second consumer shall also be loaded using variable flow rates.

Daily heating of a preheat tank shall be monitored and if necessary reheating using backup heat shall be triggered.

On DHW systems daily disinfection for elimination of Legionella bacteria shall be incorporated. For space heating support either buffer-bypass or alternating tank loading shall be supported.

The controller shall allow measurement of the energy output of the solar thermal system through a heat meter with pulsed flow input and two temperature sensors for delta T measurement.

LED indicators shall provide system status information including operation and faults.

Other indicators shall include:

- Solar pump consumer 1
- Diverter valve consumer 2
- Solar pump consumer 2
- Buffer bypass valve
- Collector at maximum temperature
- Tank 1 satisfied

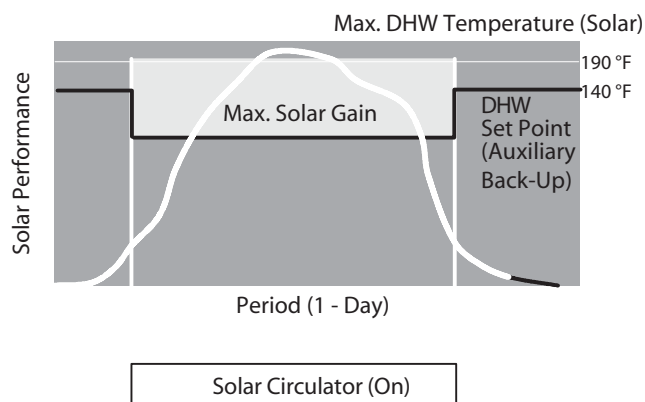
FM443 Solar Module Specifications

For applications involving the control of a solar thermal system, the Logamatic 4000 controls shall be equipped with an FM443 card. The card shall fit in a dedicated slot of the Logamatic controls and be automatically detected on initial power up. The FM443 card shall be capable of running a solar thermal DHW system or a solar thermal DHW and space heating system.

It shall have an output for one solar thermal pump station at a modulation rate of 20 - 100% and be compatible with systems with one or 2 tanks. It shall be able to reload from one tank to another, and intelligent buffer tank management. The FM443 card shall allow the use of a flow meter with pulsed output to calculate BTU harvested. The card shall have dials allowing selecting the following features: OFF, automatic mode, manual mode, manual loading of tank 1 or tank 2.

Module Details

Solar Control Sequence of Operation



Solar Application

