Danfoss DEVIreg Hotwater DIN Rail Programmable Controller User Guide

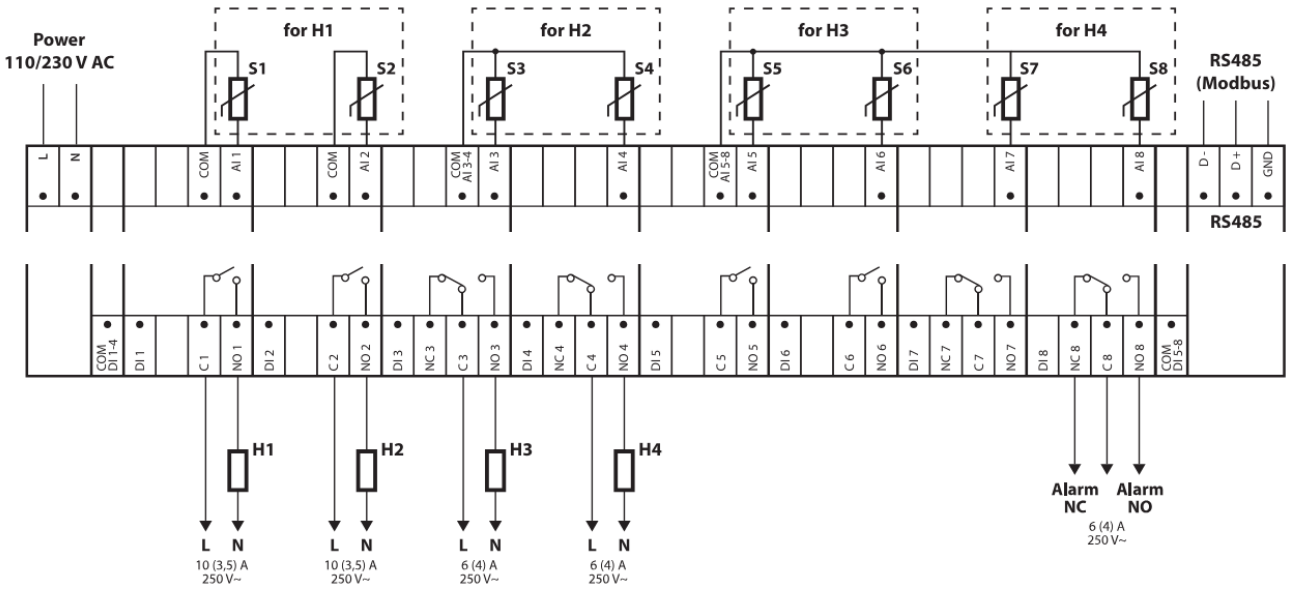
DEVIreg Hotwater DIN Rail
Programmable Controller
User Guide

Installation and User Guide
DEVIreg™ Hotwater
DIN-rail programmable controller for Hotwater maintenance

Contents

Introduction

DEVIreg™ Hotwater is a 4 channel electronic programmable controller. 3 additional chancels are not used in this constellation. The device is DIN-rail mountable and is used for control of Devi Hot watt cables. Every channel (4) can be individually set up, this will allow for 4 different temperatures and disinfection schedules.
Universal analog channels' inputs can be selected via software between 7 types of temperature sensors including NTC 15 kOhm at 25 °C. The controller has a LCD display, Modbus RS-485 serial interface and 110/230 V AC power supply. Voltage to sensors is SELV.
DEVIreg™ Hotwater has 8 control relays – 2 sets of max. 10 A and 6 sets of max. 6 A; For this specific application 2, 10A and 2, 6A relays are used. Relay control functions can be set to Hot-water maintenance and legionella control of a hot-water system by use of applicable heating cables. Additionally, relay contacts are not connected to a voltage source inside the controller, and can be used for control systems with any voltage up to 250 V AC.
Hardware of DEVIreg™ Hotwater is based on the Danfoss controller type MCX08M2, art. no. 080G0307, but is customized with special software.
The product complies with the EN/IEC Standard "Automatic electrical controls for household and similar use":
• EN/IEC 60730-1 (general)
• EN/IEC 60730-2-9 (thermostat)
More information on this product can also be found at: devi.com
Connection scheme DEVIreg™ Hotwater



S - temperature Sensor;
H - Heating element.

Safety Instructions

Make sure the mains supply to the controller is turned off before installation.
Please also note the following:

- The installation of the controller must be done by an authorized and qualified installer according to local regulations.
- The controller must be connected to a power supply via an all-pole disconnection switch.
- Always connect the controller to continuous power supply.
- Do not expose the controller to moisture, water, dust and excessive heat.

Note: Product is designed for Over Voltage Category II. When used, installation must be equipped with transient protection.

Mounting Instructions

Please observe the following placement guidelines:
Install the thermostat in an electric cabinet with DIN rail attachment or a separate DIN attachment according to local regulation on IP classes.
Do not place the thermostat in a way that will expose the controller to direct sunlight.
Follow the steps below to mount the thermostat:

1. Click the thermostat on the DIN rail attachment.
2. Connect the thermostat according to the connection diagram, see page 4.
3. The screen of the heating cable must be connected to the earth conductor of the power supply cable by using a separate connector.
4. Turn on the power supply.

Note: Always install the sensors at assumed hottest and coldest locations on the respective pipe, and in direct contact with the pipe (2 sensors pr. heating circuit)

User Manual

4.1 General use

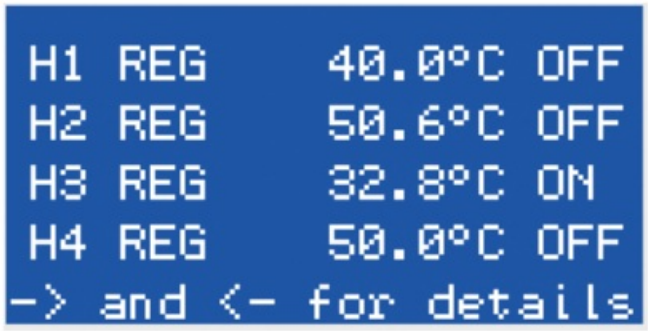
The DEVIreg™ Hotwater is operated via 6 physical buttons to the right of the LCD-display.
Buttons
The functions of the 4 operated buttons are:

Up, Down		Shows additional information
Left, Right		Next menu entry / next line / next setting parameter
Escape		Escape return to previous level of menu / show Alarm screen
Enter		Confirm / select / go to the Main menu

Display
The **DEVIreg™ Hotwater** can simultaneously control up to 4 different systems. These 4 systems are referred as **H1, H2, H3** and **H4** (short for Heater).
The **DEVIreg™ Hotwater** provides the user with an opportunity to view the current status of the all systems. This status is always shown on the main screen.

Main Screen view (default)

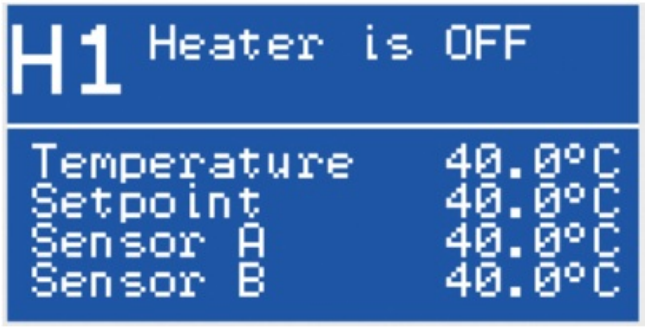
The Main Screen is the main window appearing when the controller is powered. This screen displays an overview of data from the different heaters. (H1-H4) by pressing the → and ← more detailed information can be obtained from the respective heaters sub screen.



This view provides the user with an overview of all systems, however with limited information.

Heater sub-screen view

These screens give to user quick and more detailed information about settings and status of each heater.

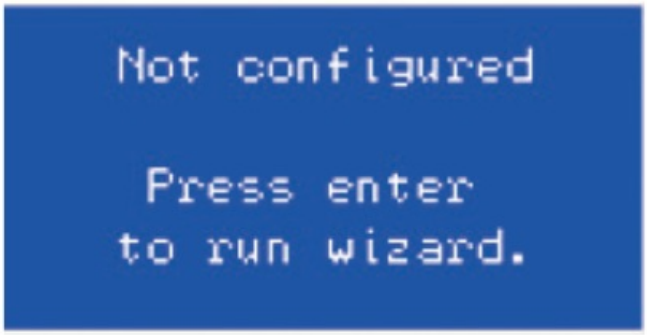


Just press button → on the Main Screen of con troller and H1 data will appear, press → again – and you'll see H2 data, and so on. To progress reversely through this menu please use ←.

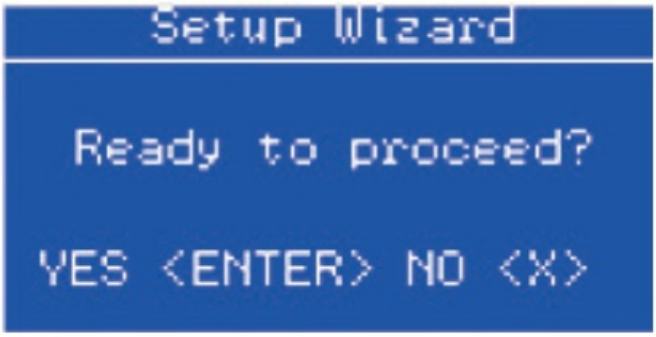
To exit from sub-screens view and return to the Main Screen – press ✕ 1 time.

Setup wizard

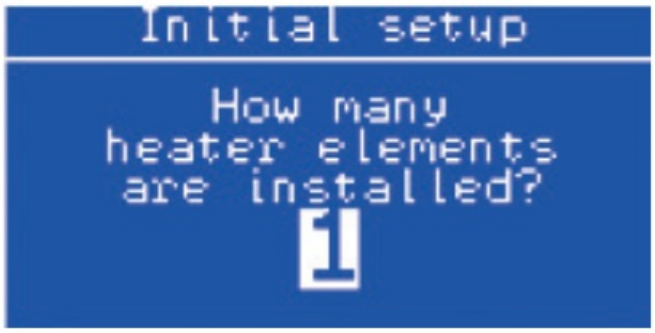
On the first power on of the device, the device will ask to run the wizard to do this press ↵



Press ↵ once more to proceed into the setup.



The device will ask for the amount heaters use ↑ ↓ to select and ↵ to accept.



The device will now ask for the details of each heater in the following pattern
– Pipe material
– Sensor type
– Temperature setpoint
– Enable disinfection

All mentioned can be selected with and accepted by.

If multiple heaters are entered, this exact procedure will repeat till all information is filled for all heaters.

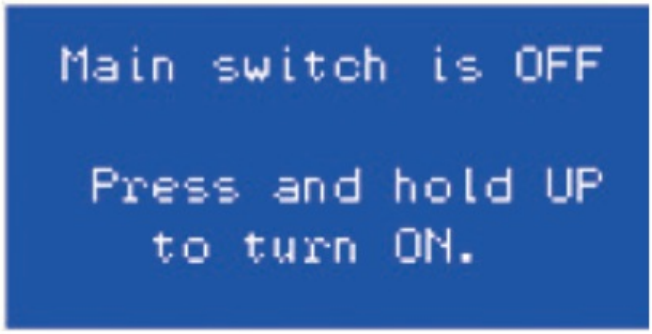
The final step in the wizard is the RTC (Real Time Clock) press

Navigate with or select with Manipulate with accept with or return with

Once time and date are set confirm with

First start-up

Ensure everything is correctly connected and securely fixed.
Please check this now.



Once verified press and hold (approx. 3-5 sec.) to turn on the device.
The device will now commence normal operation.

Sub-menu Alarm

The structure in this Sub-menu is navigated like the main menu.

Active alarms: display of the currently active alarms and is to navigate like Alarm view. Having an active alarm will activate alarm relay. Alarms will be retained till reset has been performed.

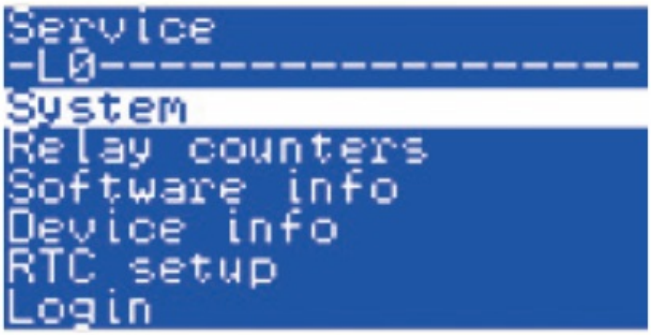
Reset Alarms: Reset all alarms by pressing

Log history: display previous alarms in a list with date and timestamp. This is navigated like Alarm view.

Clear log history: clears the log history permanently by pressing .

Sub-menu Service

The structure in this Sub-menu is navigated like the main menu.



System: contains a system submenu for professional users containing (Yxx) parameters.
Additionally this menu should under normal circumstances not be used.
This menu will change according to the user level password entered in Login.

Relay counters:
Displays the number of relay ON/OFF switching's performed by each relay.

Software info:
Displays the installed software version.

Device info:
Displays serial number, product code and BIOS version

RTC setup:
Setup of the real time clock, this is to navigate like explained in setup wizard step RTC.

Login:

Enables a password to be input and is to be navigated with and select with

Configuration:
Contains buzzer activation time, delay for alarm activation and alarm state when device is OFF.

Serial settings:
Contains Modbus/CAN serial address, Modbus serial baudrate and Modbus serial settings

Language:
The structure in this Sub-menu is navigated like the main menu.
Contains the different language variants.

Function Setup Wizard
This function will reset the device into the Setup Wizard.

Yes with or NO with

Sub-menu (H1-H4)
The structure in this Sub-menu is navigated like the main menu.

Sensor type:

to select correct type and to confirm.
Be aware that 2 sensors must be used for each heater circuit (H1-H4) and that these must be the same type.
-PT1000
-NTC16K (NTC16.8K)
-NTC100 (NTC100K)
-NTC2K
-NTC5K
-NTC10K
-NTC15K (Std. DEVI sensor)
Has no default value as this must be set in setup wizard. Please refer to the sensors maximum and minimum

temperatures to ensure safe operation of the system.

Setpoint:

Settable with ↑ ↓ to select and ↵ to confirm.
Settable temperature setpoint (desired maintained temperature) between 20.0-80.0°C (20-60.0°C on plastic pipe).
Has no default value as this must be set in setup wizard.

Hysteresis:

Settable with ↑ ↓ to select and ↵ to confirm.
Settable between 1.0-10.0K
Defaults to 2.0K

High temperature:

Settable with ↑ ↓ to select and ↵ to confirm.
Settable between 20.0-90.0K
Defaults to Setpoint+Hysteresis+5K
Not settable below setpoint

Alarm delay:

Settable with ↑ ↓ to select and ↵ to confirm.
Temperature alarm delay
Settable between 10-240s
Defaults to 10s

Sensor weighting:

Settable with ↑ ↓ to select and ↵ to confirm.
Weighting the impact of the 2 sensors on the heater regulation.
0% means that the regulation is made on basis of sensor A only 100% meaning sensor B only, thus 50% is the mean between sensor A and B.
Settable between 0-100%
Defaults to 50%

Disinfection temp:

Settable with ↑ ↓ to select and ↵ to confirm.
Settable between 55-80.0°C
Defaults to 55°C

Pipe material:

Settable with ↑ ↓ to select and ↵ to confirm.
This parameter will have impact on the maximum settable temperatures.
Can be set to metal or plastic.
Has no default value as this must be set in setup wizard

Disinfection alarm temperature:

Settable ↑ ↓ with ↵ to select and to confirm.
This parameter will have impact on the alarm temperature for disinfection temperatures.
Defaults to 65°C

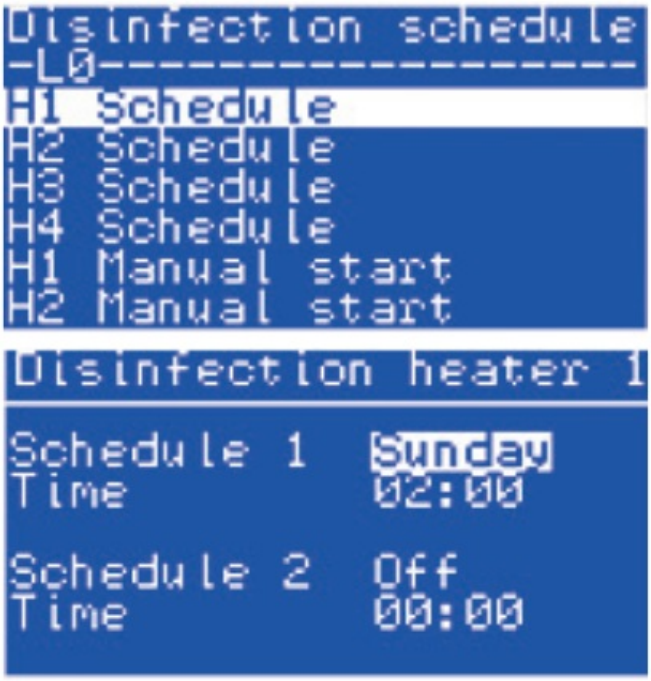
Maximum rising time:

Settable ↑ ↓ with ↵ to select and to confirm.
This parameter will have impact on when the alarm will be triggered due to, too low temperature (setpoint not reached).
Defaults to 120 minutes.

Sub-menu Disinfection schedule

The structure in this Sub-menu is navigated like the main menu.

(H1-H4) Schedule:



Press to go to next parameter and to cancel.

Settable with to select and to confirm.
Defaults to Sunday at 02:00.

(H1-H4) Manual start:

Starts the Disinfection procedure manually by pressing

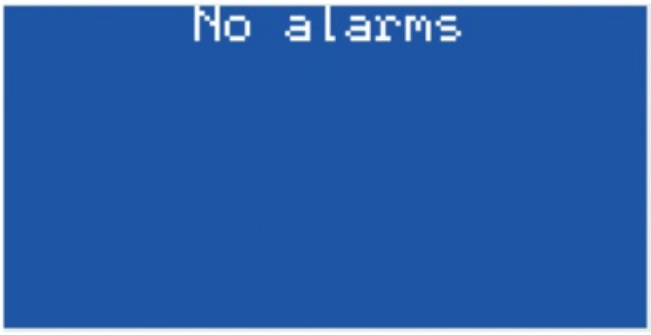
Temperature time table:

Temperature of disinfection [C°]	**Disinfection time**
55	2h 00 minutes
56	1h 20 minutes
57	1h 00 minutes
58	0h 50 minutes
59	0h 45minutes
60	0h 40 minutes
61	0h 35 minutes
62	0h 30minutes
63	0h 28 minutes
64	0h 27 minutes
65	0h 26minutes

66	0h 25 minutes
67	0h 25 minutes
68	0h 22 minutes
69	0h 21 minutes
70	0h 20 minutes
71	0h 18minutes
72	0h 14 minutes
73	0h 12 minutes
74	0h 10 minutes
75	0h 10 minutes

Alarms view

By pressing button from Main Screen – screen(-s) with Alarm appears.
If more than 1 Alarm is happened – use navigation by going . Pressing button again leads from Alarm to Main Screen. Having an active alarm will activate alarm relay. Alarms will be retained till reset has been performed.



Main menu

By pressing from the Main Screen– screen Main Menu appears.

The menu system is navigated from Main Screen by the following sequence:
The main menu is navigated by and.
Pressing the the selected sub-menu will be shown. Pressing button you will be taken back to the previous menu step.

4.2 Language setting

DEVIreg™ Hotwater controller has different programmed languages located in Sub-menu Service under languages.

4.3 Date and Time settings

DEVIreg™ Hotwater controller has RTC (Real Time Clock) for fixing time of data logging information, for example **Alarms.**

NB: Battery back-up time is min. 48 hours.

4.4 BMS(Building Management System) settings

DEVIreg™ Hotwater controller has Modbus RS-485 opto-insulated serial interface.

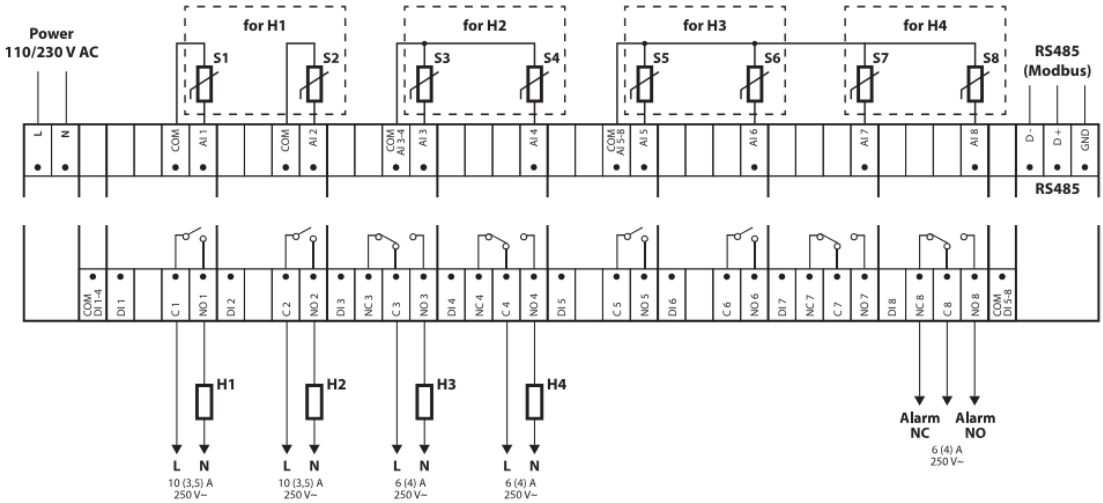
Modbus RS-485 settings can be done by the following menu sequence:

Main Screen – Enter to Main Menu – Enter to Service – Enter to Serial settings

More detailed information is contained in the Appendix A.

Connection diagram

Connection scheme DEVIreg™ Hotwater



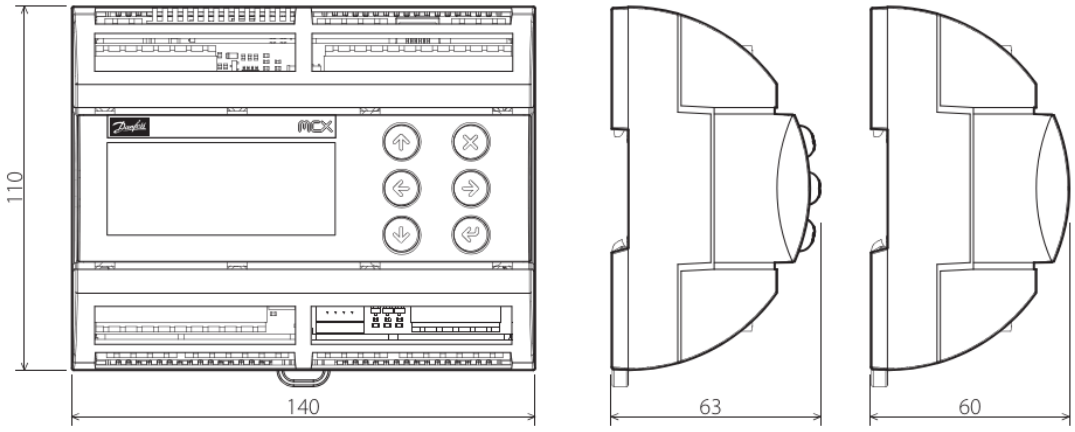
S - temperature Sensor;
H - Heating element.

Technical Specifications

6.1 Technical data

Type	Value
Nominal voltage	110/230 V~ AC, 50–60 Hz
Power consumption, max.	20 V A
Relay load: Resistive (inductive, cos(phi sign) = 0,6) Total current l oad limit C1-NO1, C2-NO2 C3-NO3-NC3, C4-NO4-NC4 C8-NO8-NC8	32 A 10 (3,5) A (100 000 cycles), cos(phi) = 0.5 6 (4) A (100 000 cycles), cos(phi) = 0.6 6 (4) A (100 000 cycles), cos(phi) = 0.6
Sensor inputs	Analog inputs AI1-AI8
Compatible sensors	NTC15k (15 kOhm @ 25 °C) (standard) (max 90 °C) NTC10k (10 kOhm @ 25 °C) NTC5k (5 kOhm @ 25 °C) NTC2k (2 kOhm @ 25 °C) NTC100 (100 kOhm @ 25 °C) NTC16k (16,7 kOhm @ 100 °C) PT1000 (1000 Ohm @ 0 °C)
Digital inputs	DI1-DI8, voltage free contacts, on/off inputs
Connection specification	Grouped screws plug-in connectors
Cable specification for connectors terminals	0,2-2,5 mm²
Battery back-up time, min.	48 hours
Ball pressure test	125 °C
Pollution degree	2 (domestic use)
Controller type	1 C
Operating temperatures and conditions	CE: -20T60 / UL: 0T55, 90% RH non-condensing
Storage temperature and conditions	-30T85, 90% RH non-condensing
IP class	IP40 only on the front cover
Protection class	Class II –
Immunity against voltage surges	Over Voltage Category II
Dimensions (H/W/D), DIN dimension :	110(122) x 138 x 70 mm, 8 DIN modules
Mounting method	DIN rail, complying with EN 60715
Weight, net	511 g
Menu languages:	EN
Base controller	Danfoss MCX08M2, item no. 080G0307
Software class	A

6.2 Dimensions



Disposal Instruction

Appendix A. BMS and RS-485 interface

The controller has a built-in Modbus data transmission system and can be connected to the BMS central unit.

A1. Communication settings

Default communication settings:

- Serial address: 1.
- Serial baud rate (Transmission speed): 19200.
- Serial setting: 8N1.

A2. RS-485 specifications

MCX hardware network specifications (wiring, topology, etc.) can be found in Danfoss document:
User manual. Meet any HVAC requirement with the reliability of MCX network.
This document provides general indications for the setup of RS-485 networks.

A3. Modbus parameters and variables

Modbus parameters and variables for DEVIreg™ Hotwater controller.

LABEL	DESCRIPTION	MIN	MAX.	VALUE/ TYPE	UNIT	RW	ADU
	PARAMETERS & STATUS VARIABLES						
SYS	**Main Menu > System variables**						
S1	MaxH1_0dec	0	100	80		RW	3001
S2	MaxH1_1dec	0.0	100.0	80.0		RW	3002
S3	MaxH2_0dec	0	100	80		RW	3003
S4	MaxH2_1dec	0.0	100.0	80.0		RW	3004
S5	MaxH3_0dec	0	100	80		RW	3005
S6	MaxH3_1dec	0.0	100.0	80.0		RW	3006
S7	MaxH4_0dec	0	100	80		RW	3007
S8	MaxH4_1dec	0.0	100.0	80.0		RW	3008
S9	AlarmH1	0.0	90.0	90.0		RW	3009
S10	AlarmH2	0.0	90.0	90.0		RW	3010
S11	AlarmH3	0.0	90.0	90.0		RW	3011
S12	AlarmH4	0.0	90.0	90.0		RW	3012
S13	InitConfigured	0	1	0		RW	3013
S14	Dis_warn	0	1	0		RW	3014
StU	**Service > System**						
y01	Main switch	0	1	0 – OFF	Enum 1	RW	3015
y02	Heaters used	0	4	0		RW	3016
y03	Maximum plastic temp	0.0	80.0	60.0	°C	RW	3017
y04	Reset counters	0	4	0 – NO	Enum 7	RW	3018
y07	Restore default parameters	0	1	0 – NO	Enum 2	RW	3019
ALA	**Service > Configuration**						
BUZ	Buzzer activation time	0	15	1	min	RW	3023
AdL	Alarm relay activation delay	0	999	0	s	RW	3024
AOF	Alarm relay active if unit in OFF	0	1	1 – YES	Enum 2	RW	3025
SEr	**Service > Serial settings**						
SEr	Serial address (Modbus and CAN)	1	100	1		RW	3026
bAU	Serial baudrate (Modbus)	0	7	5 – 192	Enum 3	RW	3027
COM	Serial settings (Modbus)	0	2	0 – 8N1	Enum 4	RW	3028

HE1	**Main Menu > H1 Settings**						
H00	Sensor type	0	6	6 – PT1000	Enum 5	RW	3029
H01	Setpoint	20.0	S2	40.0	°C	RW	3030
H02	Hysteresis	1.0	10.0	2.0	K	RW	3031
H03	High temperature	H01	S9	55.0	°C	RW	3032
H04	Alarm delay	10	240	10	s	RW	3033
H05	Sensor weighting (0 = 100% sensor A)	0	100	50	%	RW	3034
H06	Disinfection temp	55	S1	55	°C	RW	3035
H07	Pipe material	0	1	0 – Metal	Enum 6	RW	3036
H08	Disinfection alarm temp	H06	90.0	65.0	°C	RW	3037
H09	Max rising time	1	240	120	min	RW	3038
HE2	**Main Menu > H2 Settings**						
H10	Sensor type	0	6	6 – PT1000	Enum 5	RW	3039
H11	Setpoint	20.0	S4	40.0	°C	RW	3040
H12	Hysteresis	1.0	10.0	2.0	K	RW	3041
H13	High temperature	H11	S10	55.0	°C	RW	3042
H14	Alarm delay	10	240	10	s	RW	3043
H15	Sensor weighting (0 = 100% sensor A)	0	100	50	%	RW	3044
H16	Disinfection temp	55	S3	55	°C	RW	3045
H17	Pipe material	0	1	0 – Metal	Enum 6	RW	3046
H18	Disinfection alarm temp	H16	90.0	65.0	°C	RW	3047
H19	Max rising time	1	240	120	min	RW	3048
HE3	**Main Menu > H3 Settings**						
H20	Sensor type	0	6	6 – PT1000	Enum 5	RW	3049
H21	Setpoint	20.0	S6	40.0	°C	RW	3050
H22	Hysteresis	1.0	10.0	2.0	K	RW	3051
H23	High temperature	H21	S11	55.0	°C	RW	3052
H24	Alarm delay	10	240	10	s	RW	3053
H25	Sensor weighting (0 = 100% sensor A)	0	100	50	%	RW	3054
H26	Disinfection temp	55	S5	55	°C	RW	3055
H27	Pipe material	0	1	0 – Metal	Enum 6	RW	3056

H28	Disinfection alarm temp	H26	90.0	65.0	°C	RW	3057
H29	Max rising time	1	240	120	min	RW	3058
HE4	**Main Menu > H4 Settings**						
H30	Sensor type	0	6	6 – PT1000	Enum 5	RW	3059
H31	Setpoint	20.0	S8	40.0	°C	RW	3060
H32	Hysteresis	1.0	10.0	2.0	K	RW	3061
H33	High temperature	H31	S12	55.0	°C	RW	3062
H34	Alarm delay	10	240	10	s	RW	3063
H35	Sensor weighting (0 = 100% sensor A)	0	100	50	%	RW	3064
H36	Disinfection temp	55	S7	55	°C	RW	3065
H37	Pipe material	0	1	0 – Metal	Enum 6	RW	3066
H38	Disinfection alarm temp	H36	90.0	65.0	°C	RW	3067
H39	Max rising time	1	240	120	min	RW	3068
LOG	**Status var > MCX Design Hotspots**						
V01	SystemOnOff	0	1	0 – OFF	Enum 1	Read	8101
C01	Reset Alarms	0	2			RW	1859
V11	H1_highTemp	0	1	0 – NO	Enum 2	Read	8102
V09	H1_controlTemp	-50.0	120.0	0.0	°C	Read	8103
V11	H1_reference	0.0	100.0	0.0	°C	Read	8104
V12	H1 pullDown	0	1	0 – NO	Enum 2	Read	8105
V13	H1 manualDis	0	1	0		RW	9901
V14	H2 manualDis	0	1	0		RW	9902
V15	H3 manualDis	0	1	0		RW	9903
V16	H4 manualDis	0	1	0		RW	9904
V16	H1 sensorA error	0	1	0 – NO	Enum 2	Read	8106
V17	H1 sensorB error	0	1	0 – NO	Enum 2	Read	8107
V16	H1_sensorA	-50.0	120.0	0.0	°C	Read	8108
V17	H1_sensorB	-50.0	120.0	0.0	°C	Read	8109
V15	H1_heater	0	1	0 – OFF	Enum 1	Read	8110
V16	H1_state	0	6	0		Read	8111
V17	H1_DisinfectionTimer	0	50000	0	s	Read	8112
V18	H2 sensorA	-50.0	120.0	0.0	°C	Read	8113
V19	H2 sensorB	-50.0	120.0	0.0	°C	Read	8114

V20	H2 sensorA error	0	1	0 – NO	Enum 2	Read	8115
V21	H2 sensorB error	0	1	0 – NO	Enum 2	Read	8116
V22	H2 controlTemp	-50.0	120.0	0.0	°C	Read	8117
V23	H2 reference	-50.0	120.0	0.0	°C	Read	8118
V24	H2 heater	0	1	0 – NO	Enum 2	Read	8119
V25	H2 pullDown	0	1	0 – NO	Enum 2	Read	8120
V26	H2 highTemp	0	1	0 – NO	Enum 2	Read	8121
V27	H2 DisinfectionTimer	0	50000	0	s	Read	8122
V28	H2 state	0	6	0		Read	8123
V29	H3_sensorA	-50.0	120.0	0.0	°C	Read	8124
V30	H3_sensorB	-50.0	120.0	0.0	°C	Read	8125

V31	H3_controlTemp	-50.0	120.0	0.0	°C	Read	8126
V32	H3_reference	-50.0	120.0	0.0	°C	Read	8127
V33	H3 heater	0	1	0 – NO	Enum 2	Read	8128
V34	H3 state	0	6	0		Read	8129
V35	H3 sensorA error	0	1	0 – NO	Enum 2	Read	8130
V36	H3 sensorB error	0	1	0 – NO	Enum 2	Read	8131
V37	H3 DisinfectionTimer	0	50000	0	s	Read	8132
V38	H3 highTemp	0	1	0 – NO	Enum 2	Read	8133
V39	H3 pullDown	0	1	0 – NO	Enum 2	Read	8134
V40	H4 sensorA	-50.0	120.0	0.0	°C	Read	8135
V41	H4 sensorB	-50.0	120.0	0.0	°C	Read	8136
V42	H4 sensorA error	0	1	0 – NO	Enum 2	Read	8137
V43	H4 sensorB error	0	1	0 – NO	Enum 2	Read	8138
V44	H4 controlTemp	-50.0	120.0	0.0	°C	Read	8139
V45	H4 reference	-50.0	120.0	0.0	°C	Read	8140
V46	H4 heater	0	1	0 – NO	Enum 2	Read	8141
V47	H4 state	0	6	0		Read	8142
V48	H4 DisinfectionTimer	0	50000	0	s	Read	8143
V49	H4 highTemp	0	1	0 – NO	Enum 2	Read	8144
V50	H4 pullDown	0	1	0 – NO	Enum 2	Read	8145
V51	H1 Duty	0	100	0	%	Read	8146

V52	H2 Duty	0	100	0	%	Read	8147
V53	H3 Duty	0	100	0	%	Read	8148
V54	H4 Duty	0	100	0	%	Read	8149
V56	H1 counter	0	2147483647	0		Read	8150
V57	H2 counter	0	2147483647	0		Read	8152
V58	H3 counter	0	2147483647	0		Read	8154
V59	H4 counter	0	2147483647	0		Read	8156
ALARMS							
LABEL	**DESCRIPTION**	**MIN**	**MAX**	**RESET**	**IN OFF**		
E01	Sensor1 A error	0	1	AUTO	ACTIVE	Read	1901 .08
E02	Sensor1 B error	0	1	AUTO	ACTIVE	Read	1901 .09
E03	Sensor2 A error	0	1	AUTO	ACTIVE	Read	1901 .10
E04	Sensor2 B error	0	1	AUTO	ACTIVE	Read	1901 .11
E05	Sensor3 A error	0	1	AUTO	ACTIVE	Read	1901 .12
E06	Sensor3 B error	0	1	AUTO	ACTIVE	Read	1901 .13
E07	Sensor4 A error	0	1	AUTO	ACTIVE	Read	1901 .14
E08	Sensor4 B error	0	1	AUTO	ACTIVE	Read	1901 .15
A01	Heater1 high temp	0	1	AUTO	INACTIVE	Read	1901 .00
A02	Heater2 high temp	0	1	AUTO	INACTIVE	Read	1901 .01
A03	Heater3 high temp	0	1	AUTO	INACTIVE	Read	1901 .02
A04	Heater4 high temp	0	1	AUTO	INACTIVE	Read	1901 .03
A05	Heater1 disinfection fail	0	1	MANUAL	INACTIVE	Read	1901 .04

A06	Heater2 disinfection fail	0	1	MANUAL	INACTIVE	Read	1901 .05

A07	Heater3 disinfection fail	0	1	MANUAL	INACTIVE	Read	1901 .06
A08	Heater4 disinfection fail	0	1	MANUAL	INACTIVE	Read	1901 .07
A09	Heater1 rising fail	0	1	MANUAL	INACTIVE	Read	1902 .08
A10	Heater2 rising fail	0	1	MANUAL	INACTIVE	Read	1902 .09
A11	Heater3 rising fail	0	1	MANUAL	INACTIVE	Read	1902 .10
A12	Heater4 rising fail	0	1	MANUAL	INACTIVE	Read	1902 .11
A13	Heater1 high disinfection	0	1	MANUAL	INACTIVE	Read	1902 .12
A14	Heater2 high disinfection	0	1	MANUAL	INACTIVE	Read	1902 .13
A15	Heater3 high disinfection	0	1	MANUAL	INACTIVE	Read	1902 .14
A16	Heater4 high disinfection	0	1	MANUAL	INACTIVE	Read	1902 .15
I/O CONFIGURATION							
AI	**ANALOG INPUTS**						
1	Sensor 1A	-30.0	170.0	PT1000		Read	18502
2	Sensor 1B	-30.0	170.0	PT1000		Read	18503
3	Sensor 2A	-30.0	170.0	PT1000		Read	18504
4	Sensor 2B	-30.0	170.0	PT1000		Read	18505
5	Sensor 3A	-30.0	170.0	PT1000		Read	18506
6	Sensor 3B	-30.0	170.0	PT1000		Read	18507
7	Sensor 4A	-30.0	170.0	PT1000		Read	18508
8	Sensor 4B	-30.0	170.0	PT1000		Read	18509
DI	**DIGITAL INPUTS**						
AO	**ANALOG OUTPUTS**						
DO	**DIGITAL OUTPUTS**						
1	Heater 1	0	1	N.O.		Read	18003
2	Heater 2	0	1	N.O.		Read	18004

3	Heater 3	0	1	N.O.		Read	18005
4	Heater 4	0	1	N.O.		Read	18006
8	Alarm	0	1	N.O.		Read	18002

Warranty

A 2-year product warranty is valid for:
• thermostats: DEVIreg™ Hotwater.
Should you, against all expectations, experience a problem with your DEVI product, you will find that Danfoss offers DEVI warranty valid from the date of purchase on the following conditions: During the warranty period Danfoss shall offer a new comparable product or repair the product if the product is found to be faulty by reason of defective design, materials or workmanship. The repairer replacement. The decision to either repair or replace will be solely at the discretion of Danfoss. Danfoss shall not be liable for any consequential or incidental damages including, but not limited to, damages to property or extra utility expenses. No extension of the warranty period following repairs undertaken is granted.
The warranty shall be valid only if the WARRANTY CERTIFICATE is completed correctly and in accordance with the instructions, the fault is submitted to the installer or the seller without undue delay and proof of purchase is provided. Please note that the WARRANTY CERTIFICATE must be filled in, stamped and signed by the authorized installer performing the installation (Installation date must be indicated). After the installation is performed, store and keep the WARRANTY CERTIFICATE and purchase documents (invoice, receipt or similar) during the whole warranty period.
DEVI warranty shall not cover any damage caused by incorrect conditions of use, incorrect installation or if installation has been carried out by non-authorized electricians. All work will be invoiced in full if Danfoss is required to inspect or repair faults that have arisen as a result of any of the above. The DEVIwarranty shall not extend to products which have not been paid in full. Danfoss will, at all times, provide a rapid and effective response to all complaints and inquiries from our customers.
The warranty explicitly excludes all claims exceeding the above conditions.
For full warranty text visit **www.devi.com.devi.danfoss.com/en/warranty/**
WARRANTY CERTIFICATE
The DEVIwarranty is granted to:

Address————————————
Stamp————————————
Purchase date ————————————-
Serial number of the product————————
Product ————————————-
Art. No.————————————-
*Connected output [W]————————————-
Installation Date & Signature————————
Connection Date & Signature————————-
*Not mandatory

8097137

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Denmark

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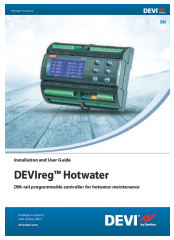
Documents / Resources

	Danfoss DEVIreg Hotwater DIN Rail Programmable Controller [pdf] User Guide DEVIreg Hotwater DIN Rail Programmable Controller, DEVIreg Hotwater, DIN Rail Programmable Controller, Rail Programmable Controller, Programmable Controller, Controller

References

- User Manual