

## FUNCTIONALITY SPECIFICATION

Thermo-Floor Z-Wave thermostat technical spesification

Multireg<sup>®</sup> Z-Wave thermostat TF 016

Heatit<sup>®</sup> Z-Wave thermostat TF 021

Employing Z-Wave functionality

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## 1. TERMINOLOGY

List used abbreviations and their meanings

- TBD To-Be-Defined, these will be defined later on
- TBU To-Be-Updated, these will be updated later on

## 2. INTRODUCTION

This document describes the Z-Wave thermostat operation from the Z-Wave point of view.

### 2.1 Z-wave essentials

#### 2.1.1 Z-Wave Product Information

- Supports Z-Wave Beaming Technology? Yes
- Supports Z-Wave Network Security? Yes
- Supports Z-Wave AES-128 Security? No

#### 2.1.2 Z-Wave Technical

- Z-Wave Frequency: Europe
- Z-Wave Manufacturer ID: 0x019B
- Z-Wave Product ID: 0x0001
- Z-Wave Product Type: 0x0001
- Z-Wave Device Type / Role Type: Thermostat - HVAC / Always On Slave

### 2.2 Thermostat features

Thermostat has the following Z-Wave related features:

- This is a Z-Wave Plus certified device
- 3 operating states: Heat, Energy save heat, OFF
- Temperature setpoint for CO I. comfort mode (Heat)
- Temperature setpoint for ECO I. economy mode (Energy save heat)
- Room temperature sensor
- Support for controlling 8 external switching units (assoc. grp 2)
- Association group 1: Max 1 unit, 'lifeline'
- Association group 2: Max 8 units, 'On/Off control'
- Configuration cc allows device configuration via gateway

## 3 COMMAND CLASSES

### 3.1 SUPPORTED COMMAND CLASSES

Thermostat implements the following command classes:

- COMMAND\_CLASS\_BASIC
- COMMAND\_CLASS\_ZWAVEPLUS\_INFO\_V2
- COMMAND\_CLASS\_THERMOSTAT\_SETPOINT\_V3
- COMMAND\_CLASS\_SENSOR\_MULTILEVEL
- COMMAND\_CLASS\_VERSION
- COMMAND\_CLASS\_THERMOSTAT\_MODE
- COMMAND\_CLASS\_ASSOCIATION\_GRP\_INFO
- COMMAND\_CLASS\_ASSOCIATION
- COMMAND\_CLASS\_POWERLEVEL
- COMMAND\_CLASS\_MANUFACTURER\_SPECIFIC
- COMMAND\_CLASS\_DEVICE\_RESET\_LOCALLY
- COMMAND\_CLASS\_CONFIGURATION\_V2

#### 3.1.2 COMMAND\_CLASS\_THERMOSTAT\_SETPOINT\_V3

The device supports the following setpoints:

- THERMOSTAT\_SETPOINT\_SET\_SETPOINT\_TYPE\_ENERGY\_SAVE\_HEATING\_V2
- THERMOSTAT\_SETPOINT\_SET\_SETPOINT\_TYPE\_HEATING\_1\_V2
  
- Scale: Celsius
- Size 2 bytes
- Precision 1 decimal

#### 3.1.3 COMMAND\_CLASS\_SENSOR\_MULTILEVEL

Thermostat implements room air temperature sensor functionality. Despite the operating mode, sensor measures always the room temperature.

- Sensor type: Air temperature 0x01
- Scale: Celsius 0x00
- Size 2 bytes
- Precision 1 decimal

### 3.1.4 COMMAND\_CLASS\_THERMOSTAT\_MODE

Following modes are supported:

- OFF 0x00
- HEAT 0x01
- ENERGY HEAT 0x0B

### 3.1.5 COMMAND\_CLASS\_ASSOCIATION

Following modes are supported:

- Association Group 1: 'Lifeline'. All run-time reporting is addressed to this group. Max. nodes: 1.
- Association group 2: 'On/Off control'. This controls external heaters replicating the state of the internal relay. Uses BASIC\_SET command, values 0x00 (off) and 0xFF (on). Max. nodes: 8.

### 3.1.6 COMMAND\_CLASS\_MANUFACTURER\_SPECIFIC

- Manufacturer ID: 0x019B
- Product ID: 0x0001
- Product Type: 0x0001

### 3.1.7 COMMAND\_CLASS\_CONFIGURATION\_V2

Supports parameter numbers from 1 to 12 (if cooling enabled, from 1 to 13). Accepts byte sizes 1,2 and 4 bytes, but it is recommended to use 2-byte parameters in order get access to the whole temperature range.

#	Parameter	Description	Range	Default	What if value out of range
1	CO	Operation mode	0x00 OFF 0x01 HEAT (0x02 COOL) 0x0B ENERGY SAVE HEAT	0x01 HEAT	Ignored
2	ECO	Sensor mode	0: F-mode 1: A-mode 2: AF-mode 3: A2-mode 4: P-mode 5: FP-mode	1: A	Ignored
3	PWR	Floor sensor type	0: 10k ntc 1: 12k ntc 2: 15k ntc 3: 22k ntc 4: 33k ntc 5: 47k ntc	0: 10k ntc	Ignored
4		DIFF I. Temperature control Hysteresis	3-30 (0.3'c...3.0'c)	5: 0.5'c	Ignored
5		FLo, Floor min limit	50-400 (5.0'c...40'0c)	50: 5.0'c	Ignored
6		FHi, Floor max limit	50-400 (5.0'c...40'0c)	400: 40.0'c	Ignored
7		ALo, Air min limit	50-400 (5.0'c...40'0c)	50: 5.0'c	Ignored
8		AHi, Air max limit	50-400 (5.0'c...40'0c)	400: 40.0'c	Ignored
9		PLo, FP-mode P setting	0-9	0	Ignored
10		CO mode setpoint	50-400 (5.0'c...40'0c)	210: 21.0'c	Ignored
11		ECO mode setpoint	50-400 (5.0'c...40'0c)	180: 18'c	Ignored
12		P setting	0-10	2	Ignored
13		COOL setpoint	50-400 (5.0'c...40'0c)	210: 21.0'c	Ignored