LoRaWAN Payload Description - Raumsensor Device

Uplink Payload (Device → Network Server)

Port: 2 **Length:** 7 bytes **Format:** Binary

Byte	Field	Type	Unit	Description
0-1	Room Temperature	int16_t	0.01°C	SHT4x sensor reading (big-endian)
2-3	Floor Temperature	int16_t	0.01°C	MLX90614 IR sensor reading (big-endian) *
4-5	Humidity	int16_t	0.01%	SHT4x sensor reading (big-endian)
6	Relay State	uint8_t	-	Current relay status (0=OFF, 1=ON)

Example Uplink: - `08 34 0A 28 15 E0 01` = 21.00°C room, 26.00°C floor, 56.00% humidity, relay ON

Downlink Payload (Network Server → Device)

Port: Any **Format:** Binary

Combined Configuration Packet

Length: 3 bytes **Format:** `[heating_enable][room_temp_threshold][floor_temp_threshold]`

Byte	Field	Type	Range	Description
0	Heating Enable	uint8_t	0-1	Heating control logic (0=DISABLED, 1=ENABLED)
1	Room Temperature Threshold	uint8_t	0-255	Target room temperature in °C
2	Floor Temperature Threshold	uint8_t	0-255	Target floor temperature in °C

Examples: - `01 16 19` = Enable heating, room 22°C, floor 25°C - `00 14 18` = Disable heating, room 20°C, floor 24°C

Send Interval Command

Length: 2 bytes **Format:** `'i'[interval_minutes]`

Byte	Field	Type	Range	Description
0	Command	ASCII	'i' (0x69)	Send interval command identifier
1	Interval	uint8_t	1-255	Send interval in minutes

Examples: - `69 05` = Set send interval to 5 minutes - `69 3C` = Set send interval to 60 minutes

Data Conversion

- **Temperature:** `value = (int16_t)(temperature * 100)`
- **Humidity:** `value = (int16_t)(humidity * 100)`
- **Decoding:** `actual_value = received_value / 100.0`

Special Cases

*** Floor Temperature Sensor:** If the MLX90614 sensor is not available or not responding, the floor temperature will be transmitted as `-273.15°C` (hex: `95 5D`).