STEINEL PROFESSIONAL

DALI-2 Interface Description
Input Device

Content:

1 Version / Compatibility

This specification can be applied for sensors with firmware version 2.0.
The firmware version of the sensor can be read from memory bank 0. It is stored at locations 0x09 (major) and 0xA (minor).

2 DALI Communication

STEINEL DALI-2 input device sensor products comply with the following parts of the DALI-standard:

- IEC 62386 Part 101 ed 2.0 (2014-11)
- IEC 62386 Part 103 ed 1.0 (2014-11)
- IEC 62386 Part 303 ed 1.0 (2017-05)
- IEC 62386 Part 304 ed 1.0 (2017-05)

Input devices are normally used in combination with an DALI-2 application controller.

STEINEL-specific settings have been added because the standard does not cover all of the sensors functions. A complete description of these settings is to be found in chapter 4 of this document.

2.1 Sensor Instances

Each sensor input value is assigned to a separate DALI instance. Depending on the type of sensor, they are equipped with two or three instances. Instances are identified via type and number.

Motion sensor with light measurement:

Instance Number	Instance Type	Description
0	4	Brightness measuring
1	3	Motion detection

DualTech motion sensor with light measurement:

Instance Number	Instance Type	Description
0	4	Brightness measuring
1	3	Motion detection ultrasonic
2	3	Motion detection infrared

Dual light measurement:

Instance Number	Instance Type	Description
0	4	Brightness measuring (spot)
1	4	Brightness measuring (diffuse)

2.2 Identification

An identification procedure can be triggered via DALI commands. The sensor is equipped with a status LED which blinks while the sensor is in identification mode.

3 Factory default settings

STEINEL sensors are preprogrammed with optimized DALI settings regarding occupancy sensing. After a RESET Command, all settings changes back to their standardized reset value. An Application controller should be aware of the significance of this settings.

Setting	Steinel Value	Reset Value	Description
Hold Timer	1	90	Occupied state last for 10 seconds instead of 900 seconds
Report Timer	5	20	Motion status is reported every 5 seconds instead of 20 seconds
Event Filter	7	3	Activate repeat event too

Bit	Description	Value
0	Occupied event enabled	“1” = Yes
1	Vacant event enabled	“1” = Yes
2	Repeat event enabled	“1” = Yes
3	Movement event enabled	“0” = No
4	No movement event enabled	“0” = No
5	Reserved	0
6	Reserved	0
7	Reserved	0

4 Memory Bank 2 (STEINEL-specific)

Memory bank 2 is customer specific and used for STEINEL-specific features. The complete content and its purpose is shown in the following table.
Data can be queried via the "READ MEMORY LOCATION (DTR0, DTR1)" command.
Write access to NVM data positions is only possible if the memory bank is unlocked (Lockbyte = 0x55).

Address	Description	Default value (factory)	Lockable	Memory type
0x00	Address of last accessible memory location	0x05	n/a	ROM
0x01	Reserved - not implemented	answer NO	n/a	n/a
0x02	Memory bank lock byte. Lockable bytes in the memory bank shall be read only while the lock byte has a value different from 0x55.	0xFF	NO	RAM
0x03	Sensor type	Sensor specific (see:4.1)	n/a	ROM
0x04	Sensor sensitivity	0xFF	YES	NVM
0x05	Detection range (HF / US)	0xFF	YES	NVM
[0x06, 0xFF]	Reserved - not implemented	answer NO	n/a	n/a

4.1 Sensor type

The Sensor type number depends on the physical type of sensor. The following table shows all existing sensor types, its type numbers and its capabilities.

Type number	Sensor type	Sensitivity setting supported	Detection range setting supported	Dali current consumption
2	Control Pro IR Quattro HD	Yes	No	8mA
3	Control Pro HF 360	Yes	Yes	10mA
4	Control Pro Dual HF	Yes	Yes	14mA
5	Control Pro DualTech	Yes	Yes (US)	24mA
6	Control Pro US 360	Yes	Yes	24mA
7	Control Pro Single US	Yes	Yes	20mA
8	Control Pro Dual US	Yes	Yes	24mA
10	IR Quattro Slim XS	Yes	No	4mA
20	IS 3360 MX	Yes	No	6mA
21	IS 345 MX	Yes	No	6mA
22	Dual Light Sensor	No	No	6mA
24	IR Micro	Yes	No	4mA
30	IS 3180	Yes	No	6mA
31	IS 3360	Yes	No	6mA
35	IS 345	Yes	No	6mA
36	HF 3360	Yes	Yes	10mA
37	IR Quattro Micro	Yes	No	4mA

4.2 Sensor Sensitivity

This parameter is used to change the sensor sensitivity. If “high” sensitivity is selected, the sensor will respond to any movement immediately. If “low” sensitivity is selected, the sensor will respond after detecting several movements. The default value is “0xFF” (high sensitivity).

0x00 ➔ 0% lowest possible sensitivity

…

0xFF ➔ 100% highest sensitivity

Available for all motion sensors.

4.3 Detection Range

Detection range is used to adjust how strong a motion signal must be in order to recognize it as motion. This setting is only applicable for HF and US sensor technology.

0x00 ➔ 0% only very large movements are detected

…

0xFF ➔ 100% minor movements are detected

5 EAN /GTIN

Each sensor type has a unique “European Article Number” for clear identification. This number is stored in memory bank 0 at position 0x03 to 0x08 and can be queried via the “READ MEMORY LOCATION” command.

EAN / GTIN	Sensor Name
4007841057497	Control Pro HD
4007841057480	Control Pro HF360
4007841057459	Control Pro Dual HF
4007841057473	Control Pro US DualTech
4007841057534	Control Pro US 360
4007841057503	Control Pro US Aisle Single
4007841057466	Control Pro US Aisle Dual
4007841066239	Generation 3000 IS 3360 AP (without design cover)
4007841066246	Generation 3000 IS 3360 MX AP (without design cover)
4007841066253	Generation 3000 IS 345 AP (without design cover)
4007841066260	Generation 3000 IS 345 MX AP (without design cover)
4007841066277	Generation 3000 IS 3180 AP (without design cover)
4007841066284	Generation 3000 HF 3360 AP (without design cover)
4007841066291	Generation 3000 Dual Light Sensor AP (without design cover)
4007841066307	Generation 3000 IS 3360 UP (without design cover)
4007841066314	Generation 3000 IS 3360 MX UP (without design cover)
4007841066321	Generation 3000 IS 345 UP (without design cover)
4007841066338	Generation 3000 IS 345 MX UP (without design cover)
4007841066345	Generation 3000 IS 3180 UP (without design cover)
4007841066352	Generation 3000 HF 3360 UP (without design cover)
4007841066369	Generation 3000 Dual Light Sensor UP (without design cover)
4007841065034	IR Quattro Slim XS (without design cover)
4007841053871	IR Quattro Micro
4007841057732	IR Micro Sensor
0	No sensor connected