EBDSPIR-DNET1, EBDMR-DNET1, EBMHS-DNET1 & EBDHS-DNET1

Command Set of PIR Sensor on DALI - V2.07

Introduction

All commands and queries in the range 0 to 255 can be sent broadcast or short addressed. DAPC is not supported. Command numbers above 255 are inherently broadcast.

Standard Commands and Queries

Query 160, Query Actual Level
MSB of response is 1 for occupied (not timed out), 0 for occupied (timed out) – see Query 241 and Command 252 for timeout value.
7 LSBs represent 0 to 1000 lux in 7.8 lux steps, linearly. The value used is an average of the last 8 samples taken 0.1 second apart. To convert it to 7 bits from 10 bits, it is multiplied by 10 then divided by 78, then limited to 127.

Query 194, Query Random Address H
High byte of 24 bit random address is returned.

Query 195, Query Random Address M
Middle byte of 24 bit random address is returned.

Query 196, Query Random Address L
Low byte of 24 bit random address is returned.

Command 32, Reset
Needs to be repeated twice within 100ms to take effect.
Random address is reset to 0xFFFFFF.
Search address is reset to 0xFFFFFF.
No other changes, does not restart the micro.

Query 153, Query Device Type
Device Type 128 is returned.

Query 151, Query Version Number
Version number 0 is returned. (Version 1 is for devices complying with IEC62386 which includes memory banks, this device does not support memory banks).

Query 152, Query Content DTR
Returns DTR value.

Query 150, Query Missing Short Address
If short address is not set (greater than 63), reply Yes, otherwise No.

Query 145, Query Ballast
Always replies Yes.

Query 144, Query Status
Bit 2 is set if occupied (not timed out), clear if unoccupied (timed out).
Bit 6 is set if missing short address (greater than 63), clear if not.

Query 161, Query Max Level
Returns unsmoothed instantaneous lux reading as 8 bit value.
Current 10 bit value is multiplied by 10 and then divided by 39, then limited to 255.

Query 162, Query Min Level (from software issue 2.03)
Returns unsmoothed instantaneous lux reading as 8 bit value.
Current 10 bit value is limited to a maximum of 255.

Command 5, Recall Max Level
Green LED turns on.

Command 6, Recall Min Level
Green LED turns off.

Command 128, Store DTR as Short Address.
Needs to be repeated twice within 100ms to take effect.
DTR value shifted right once is transferred to short address and is immediately written to EEPROM. Note that values 0 to 63 are valid for short addresses, above 63 will act as to clear the short address (missing short address).

Application Extended Commands

Commands greater than 223 are only accepted if the device type is enabled. Command 272 with data 128 enables this device type. Commands outside the range 224 to 225 disables the device type extended commands, as does completion of an extended command.

Command 240, Start Identification
Green LED is flashed for 10 seconds (if it is not permanently on).

Query 241, Query Timeout
Detector timeout is returned, as an 8 bit value, in 0.1 second steps.

Query 242, Query Sensitivity
Detector Sensitivity is returned as an 8 bit value, in range 1 to 9, where 9 is most sensitive.

Query 243, Query Flags
Bit 0 is set for Walk Test On (red LED on when detecting), clear for Walk Test Off (red LED not affected by detection).
Bit 1 is set for Power Up On (always detects on power up), clear for Power Up Off (suspends detection for 40 seconds after power up, reports as not occupied until PIR circuit has settled).
Bit 2 is set for Disable Detection (no detection is done), clear for enable detection.
Bit 3 is set for Verify Mode On (requires multiple PIRs to detect in high bay versions before detection is true), clear for Verify Mode Off. EBDHS-DNET1 only.
Bit 7 is set for Enable IR (remote control), clear for Disable IR. When IR is disabled, all commands apart from Enable IR received over IR are not accepted.

Command 250, Physical Indicator Off
The Red LED is turned off.

Command 251, Physical Indicator On
The Red LED is turned on.

Command 252, Store DTR as Timeout
Needs to be repeated twice within 100ms to take effect.
The DTR value is stored as the detector timeout for the next detection cycle, it does not affect the currently running timeout. In 0.1 second steps. Immediately written to EEPROM.

Command 253, Store DTR as Sensitivity
Needs to be repeated twice within 100ms to take effect.
Takes effect immediately and is immediately written to EEPROM.
Range is 1 to 9, 9 is most sensitive.

Command 254, Store Flags using DTR
Bit 0 is set for Walk Test On (red LED on when detecting), clear for Walk Test Off (red LED not affected by detection).
Bit 1 is set for Power Up On (always detects on power up), clear for Power Up Off (suspends detection for 40 seconds after power up, reports as not occupied until PIR circuit has settled).
Bit 2 is set for Disable Detection (no detection is done), clear for enable detection.
Bit 3 is set for Verify Mode On (requires multiple PIRs to detect in high bay versions before detection is true), clear for Verify Mode Off.
Bit 7 is set for Enable IR (remote control), clear for Disable IR. When IR is disabled, all commands apart from Enable IR received over IR are not accepted.

Query 255, Query Extended Version Number
The software version number is reported in the response byte (currently 0).

Special Commands (above 255)

Command 257, DTR
DTR value is set to the value of the second byte of the command.

Command 258 Initialize
Depending on the second byte of the command as per the IEC62386-102 spec, the initialize timer is started at 15 minutes when this command is received twice within 100ms.

Command 256 Terminate
The initialize timer is cleared and the withdrawn flag is cleared.

Command 272 Enable Device Type
The enabled device type is set according to the second byte of the command.

Special Mode Commands

The following commands (259 to 270) are only accepted while the initialize timer is running (command 258)

Command 259, Randomize
Needs to be repeated twice within 100ms to take effect.
A 24 bit random number is chosen using a combination of internal timer values and the PIR analogue value. It is immediately stored in EEPROM.

Command 260, Compare
If the random address is less than or equal to the search address and the withdrawn flag is clear, the reply is YES.

Command 261, Withdraw
If the random address equals the search address, the withdraw flag is set. It is not cleared if there is no match, there is no action.

Command 264, Search Address H
High byte of the 24 bit search address is set.

Command 265, Search Address M
Mid byte of the 24 bit search address is set.

Command 266, Search Address L
Low byte of the 24 bit search address is set.

Command 267, Program Short Address
If the random address equals the search address, the short address is set and immediately written to EEPROM. If the second byte is 0xFF, the short address is deleted (missing).

Command 268, Verify Short Address
If the short address matches the second byte (shifted right one bit) then the reply is Yes.

Query 269, Query Short Address
If the random address equals the search address, the short address is returned shifted left one bit and bitwise or'ed with 0x01.

Factory Defaults

Walk Test On
IR Enabled
Detection Enabled
Power Up On
Random Address 0xFFFFFF
Search Address 0xFFFFFF
Short Address MASK
DTR 0
Timeout 1.0 second
Sensitivity 8
Verify Off. EBDHS-DNET1 only.

Not Implemented

Memory Banks
Group Addresses
Error or Fault reporting
Master modes (capability to send forward frames).
System Failure behavior (DALI powered).
Scenes.
DTR1, DTR2.