DALI Commands

The DALI protocol defines several standard commands which allow system designers to use devices from different manufacturers without having to modify software. The Microchip DALI 2.0 library contains the following commands:

Command	Opcode	Description
OUTPUT LEVEL INSTRUCTIONS		
OFF	0x00	Switches off lamp(s)
UP	0x01	Increases lamp(s) illumination level
DOWN	0x02	Decreases lamp(s) illumination level
STEP UP	0x03	Increases the target illumination level by 1
STEP DOWN	0x04	Decreases the target illumination level by 1
RECALL MAX LEVEL	0x05	Changes the current light output to the maximum level
RECALL MIN LEVEL	0x06	Changes the current light output to the minimum level
STEP DOWN AND OFF	0x07	If the target level is zero, lamp(s) are turned off; if the target level is between the min. and max. levels, decrease the target level by one; if the target level is max., lamp(s) are turned off
ON AND STEP UP	0x08	If the target level is zero, lamp(s) are set to minimum level; if target level is between min. and max. levels, increase the target level by one
ENABLE DAPC SEQUENCE	0x09	Indicates the start of DAPC (level) commands
GO TO LAST ACTIVE LEVEL(1)	0x0A	Sets the target level to the last active output level
GO TO SCENE	0x10	Sets a group of lamps to a predefined scene
CONFIGURATION INSTRUCTIONS		
DALI RESET	0x20	Configures all variables back to their Reset state
STORE ACTUAL LEVEL IN DTR0	0x21	Stores the actual level value into Data Transfer Register 0 (DTR0)
SAVE PERSISTENT VARIABLES(1)	0x22	Stores all variables into Nonvolatile Memory (NVM)
SET OPERATING MODE DTR0(1)	0x23	Sets the operating mode to the value listed in DTR0
RESET MEMORY BANK DTR0(1)	0x24	Resets the memory bank identified by DTR0 (memory bank must be implemented and unlocked)
IDENTIFY DEVICE(1)	0x25	Instructs a control gear to run an identification procedure

SET MAX LEVEL DTR0	0x2A	Configures the control gear's maximum output level to the value stored in DTR0
SET MIN LEVEL DTR0	0x2B	Configures the control gear's minimum output level to the value stored in DTR0
SET SYSTEM FAILURE LEVEL DTR0	0x2C	Sets the control gear's output level in the event of a system failure to the value stored in DTR0
SET POWER ON LEVEL DTR0	0x2D	Configures the output level upon power-up based on the value of DTR0
SET FADE TIME DTR0	0x2E	Sets the fade time based on the value of DTR0
SET FADE RATE DTR0	0x2F	Sets the fade rate based on the value of DTR0
SET EXTENDED FADE TIME DTR0**(1)**	0x30	Sets the extended fade rate based on the value of DTR0; used when fade time = 0
SET SCENE	0x40	Configures scene 'x' based on the value of DTR0
REMOVE FROM SCENE	0x50	Removes one of the control gears from a scene
ADD TO GROUP	0x60	Adds a control gear to a group
REMOVE FROM GROUP	0x70	Removes a control gear from a group
SET SHORT ADDRESS DTR0	0x80	Sets a control gear's short address to the value of DTR0
ENABLE WRITE MEMORY	0x81	Allows writing into memory banks
QUERY INSTRUCTIONS		
QUERY STATUS	0x90	Determines the control gear's status based on a combination of gear properties
QUERY CONTROL GEAR PRESENT	0x91	Determines if a control gear is present
QUERY LAMP FAILURE	0x92	Determines if a lamp has failed
QUERY LAMP POWER ON	0x93	Determines if a lamp is On
QUERY LIMIT ERROR	0x94	Determines if the requested target level has been modified due to max. or min. level limitations
QUERY RESET STATE	0x95	Determines if all NVM variables are in their Reset state
QUERY MISSING SHORT ADDRESS	0x96	Determines if a control gear's address is equal to 0xFF
QUERY VERSION NUMBER	0x97	Returns the device's version number located in memory bank 0, location 0x16
QUERY CONTENT DTR0	0x98	Returns the value of DTR0
QUERY DEVICE TYPE	0x99	Determines the device type supported by the control gear
QUERY PHYSICAL MINIMUM	0x9A	Returns the minimum light output that the control gear can operate at

QUERY POWER FAILURE	0x9B	Determines if an external power cycle occurred
QUERY CONTENT DTR1	0x9C	Returns the value of DTR1
QUERY CONTENT DTR2	0x9D	Returns the value of DTR2
QUERY OPERATING MODE(1)	0x9E	Determines the control gear's operating mode
QUERY LIGHT SOURCE TYPE(1)	0x9F	Returns the control gear's type of light source
QUERY ACTUAL LEVEL	0xA0	Returns the control gear's actual power output level
QUERY MAX LEVEL	0xA1	Returns the control gear's maximum output setting
QUERY MIN LEVEL	0xA2	Returns the control gear's minimum output setting
QUERY POWER ON LEVEL	0xA3	Returns the value of the intensity level upon power-up
QUERY SYSTEM FAILURE LEVEL	0xA4	Returns the value of the intensity level due to a system failure
QUERY FADE TIME FADE RATE	0xA5	Returns a byte in which the upper nibble is equal to the fade time value and the lower nibble is the fade rate value
QUERY MANUFACTURER SPECIFIC MODE(1)	0xA6	Returns a 'YES' when the operating mode is within the range of 0x80 - 0xFF
QUERY NEXT DEVICE TYPE(1)	0xA7	Determines if the control gear has more than one feature, and if so, return the first/next device type or feature
QUERY EXTENDED FADE TIME(1)	0xA8	Returns a byte in which bits 6-4 is the value of the extended fade time multiplier and the lower nibble is the extended fade time base
QUERY CONTROL GEAR FAILURE(1)	0xAA	Determines if a control gear has failed
QUERY SCENE LEVEL	0xB0	Returns the level value of scene 'x'
QUERY GROUPS 0-7	0xC0	Returns a byte in which each bit represents a member of a group. A '1' represents a member of the group
QUERY GROUPS 8-15	0xC1	Returns a byte in which each bit represents a member of a group. A '1' represents a member of the group
QUERY RANDOM ADDRESS H	0xC2	Returns the upper byte of a randomly generated address
QUERY RANDOM ADDRESS M	0xC3	Returns the high byte of a randomly generated address
QUERY RANDOM ADDRESS L	0xC4	Returns the low byte of a randomly generated address
READ MEMORY LOCATION	0xC5	Returns the content of the memory location stored in DTR0 that is located within the memory bank listed in DTR1

QUERY EXTENDED VERSION NUMBER	0xFF	Returns the version number belonging to the device type or feature
SPECIAL COMMANDS		
TERMINATE	0xA1	Stops the control gear's initilization
DTR0 DATA	0xA3	Loads a data byte into DTR0
INITIALISE	0xA5	Initializes a control gear, command must be issued twice
RANDOMIZE	0xA7	Generates a random address value, command must be issued twice
COMPARE	0xA9	Compares the random address variable to the search address variable
WITHDRAW	0xAB	Changes the initialization state to reflect that a control gear had been identified but remains in the initialization state
PING(1)	0xAD	Used by control devices to indicate theirm presence on the bus
SEARCH ADDRH	0xB1	Determines if an address is present on the bus
SEARCH ADDRM	0xB3	Determines if an address is present on the bus
SEARCH ADDRL	0xB5	Determines if an address is present on the bus
PROGRAM SHORT ADDRESS	0xB7	Programs a control gear's short address
VERIFY SHORT ADDRESS	0xB9	Verifies if a control gear's short address is correct
QUERY SHORT ADDRESS	0xBB	Queries a control gear's short address
ENABLE DEVICE TYPE	0xC1	Enables a control gear's device type function
DTR1 DATA	0xC3	Loads a data byte into DTR1
DTR2 DATA	0xC5	Loads a data byte into DTR2
WRITE MEMORY LOCATION	0xC7	Writes data into a specific memory location and returns the value of the data written
WRITE MEMORY LOCATION NO REPLY(1)	0xC9	Writes data into a specific memory location but does not return a response

Note 1: Addition commands introduced in DALI 2.0.