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Optical Sensor Product Data Sheet LTR-556ALS-01

Spec No.: DS86-2015-0015

Effective Date: 11/11/2015

Revision: -

LITE-ON DCC

RELEASE

BNS-OD-FC001/A4

Optical Sensor LTR-556ALS-01

1. Description

The LTR-556ALS-01 is an integrated low voltage I²C digital light sensor [ALS] and proximity sensor [PS] with built-in emitter, in a single miniature chip lead-free surface mount package. This sensor converts light intensity to a digital output signal capable of direct I²C interface. It provides a linear response over a wide dynamic range from 0.01 lux to 64k lux and is well suited to applications under high ambient brightness. With built-in proximity sensor (emitter and detector), LTR-556ALS-01 offers the feature to detect object at a user configurable distance.

The sensor supports an interrupt feature that removes the need to poll the sensor for a reading which improves system efficiency. The sensor also supports several features that help to minimize the occurrence of false triggering. This CMOS design and factory-set one time trimming capability ensure minimal sensor-to-sensor variations for ease of manufacturability to the end customers.

2. Features

- I²C interface (Fast Mode @ 400kbit/s)
- Ultra-small ChipLED package
- Built-in temperature compensation circuit
- Low active power consumption with standby mode
- Supply voltage range from 2.4V to 3.6V capable of 1.7V logic voltage
- Operating temperature range from -30°C to +70°C
- RoHS and Halogen free compliant
- Light Sensor
 - Close to human eye spectral response
 - Immunity to IR / UV Light Source
 - Automatically rejects 50 / 60 Hz lightings flicker
 - 6 dynamic range from 0.01 lux to 64k lux
 - 16-bit effective resolution
- Proximity Sensor
 - Built-in LED driver, emitter and detector
 - Programmable LED drive settings
 - 11-bit effective resolution
 - High ambient light suppression

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3. Applications

To control display backlight in

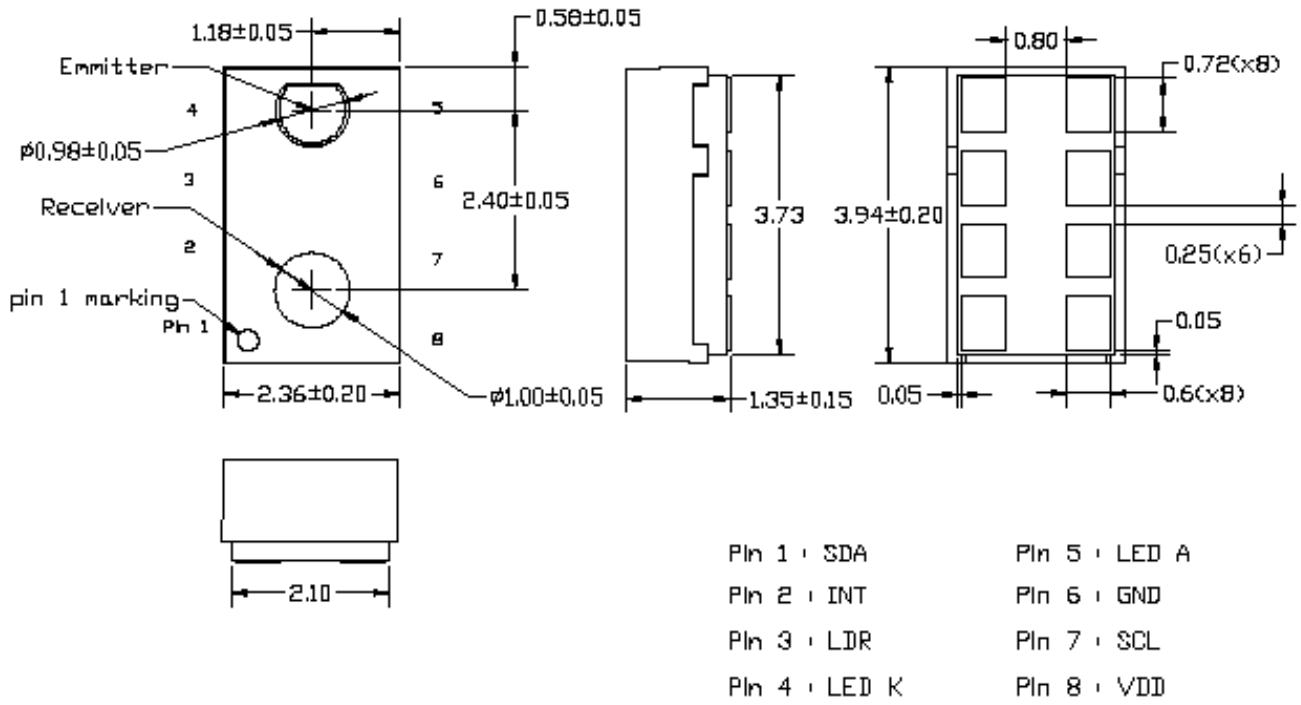
- Mobile Devices: Mobile phone, PDA
- Computing Devices: Notebook PC, Desktop Monitor
- Consumer Devices: LCD/PDP TV backlight systems, Cameras, Personal Navigation Device, Digital Photo Frame
- Dashboard

4. Ordering Information

Part Number	Packaging Type	Package	Quantity
LTR-556ALS-01	Tape and Reel	8-pin chipled package	8000

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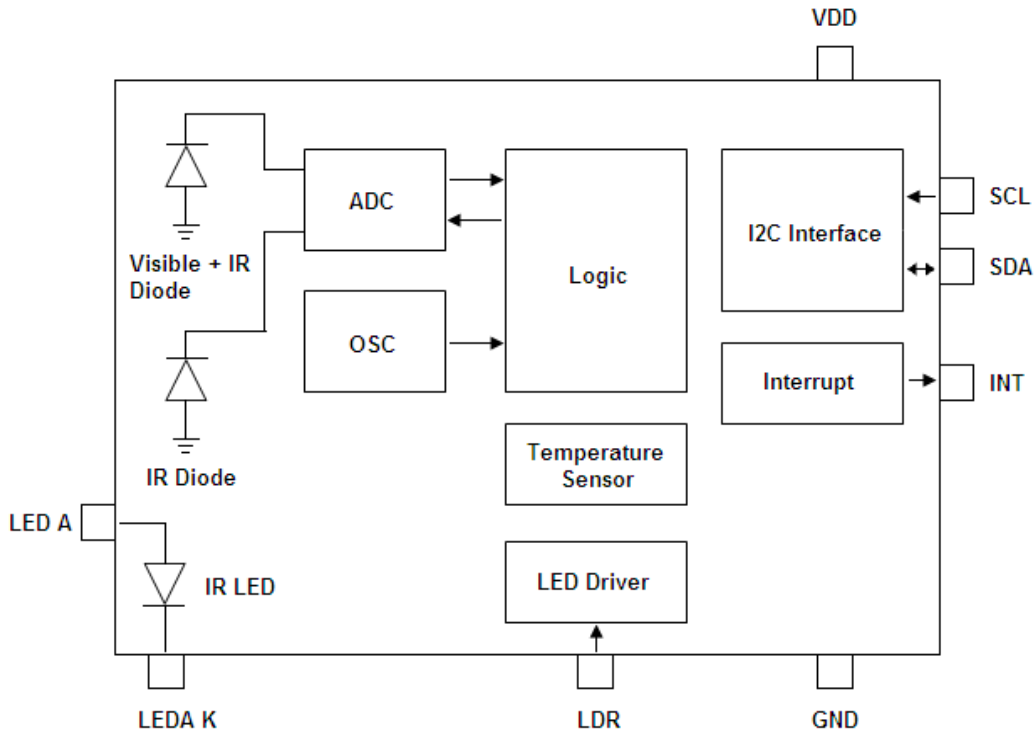
5. Outline Dimensions



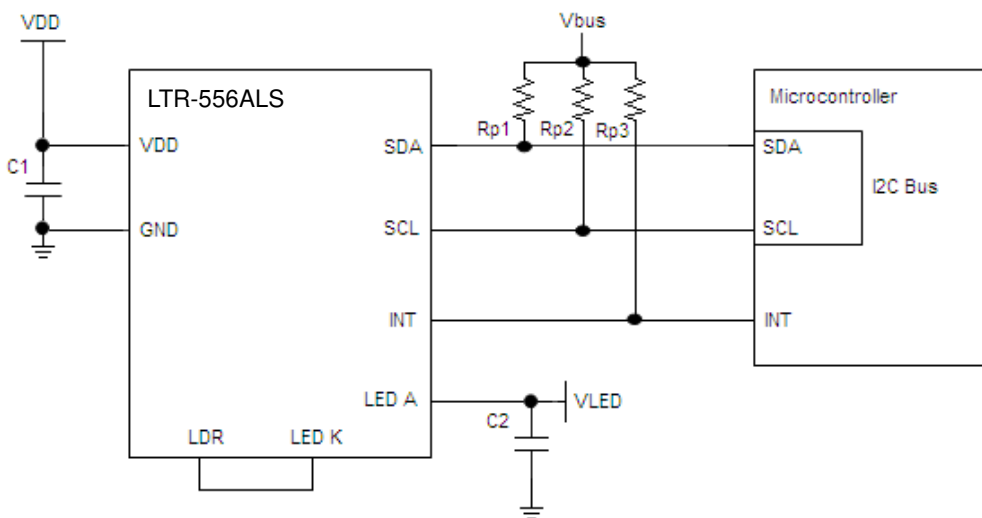
1. All dimensions are in millimeters

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6. Functional Block Diagram



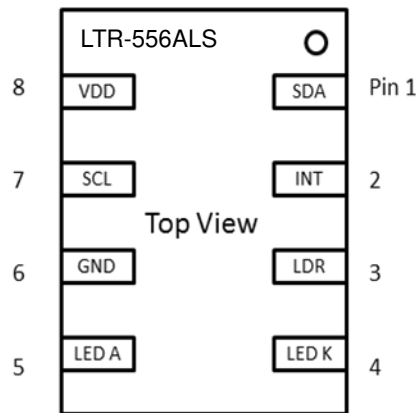
7. Application Circuit



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I/O Pins Configuration Table

Pin	I/O Type	Symbol	Description
1	I/O	SDA	I ² C serial data. This pin is an open drain input / output.
2	O	INT	Level Interrupt Pin. This pin is an open drain output.
3	I	LDR	LED Driver for proximity emitter. This pin is an open drain input.
4	O	LED K	LED Cathode. Connect to LDR pin if using internal LED driver circuit.
5	I	LED A	LED Anode. Connect to VDD or VBAT on PCB
6		GND	Ground
7	I	SCL	I ² C serial clock. This pin is an open drain input.
8		VDD	Power Supply Voltage



Recommended Application Circuit Components

Component	Recommended Value
Rp1, Rp2, Rp3 [1]	1 k Ω to 10 k Ω
C1, C2	1 μ F \pm 20%, X7R Ceramic

[1] Selection of pull-up resistors value is dependent on bus capacitance values. For more details, please refer to I²C Specifications: http://www.nxp.com/documents/user_manual/UM10204.pdf

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8. Ratings and Specifications

Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Rating	Unit
Supply Voltage	VDD	3.8	V
Digital Voltage Range	SCL, SDA, INT	-0.5 to 3.8	V
Digital Output Current	SCL, SDA, INT	-1 to 20	mA
Storage Temperature	T _{stg}	-40 to 100	°C

Note: Exceeding these ratings could cause damage to the sensor. All voltages are with respect to ground. Currents are positive into, negative out of the specified terminal.

Recommended Operating Conditions

Description	Symbol	Min.	Typ.	Max.	Unit
Supply Voltage	VDD	2.4		3.6	V
LED Supply Voltage	VLED	2.5		4.35	V
Interface Bus Power Supply Voltage	V _{IO}	1.7		3.6	V
Operating Temperature	T _{ope}	-30		70	°C

Electrical & Optical Specifications

All specifications are at VDD = 3.0V, T_{ope} = 25°C, unless otherwise noted.

Parameter	Min.	Typ.	Max.	Unit	Condition
Active Supply Current			250	uA	Active Mode, T _{ope} = 25°C
Standby Current			5	uA	Standby / Sleep Mode
Initial Startup Time	60	100	1000	ms	(Note 1)
Wakeup Time from Standby			10	ms	(Note 1)

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Light Sensor

Parameter	Min.	Typ.	Max.	Unit	Condition
Full Scale ADC Count			65535	count	
Dark ADC Count	0		6	count	Ch0, Lux = 0
	0		6	count	Ch1, Lux = 0
ADC Count (Gain=96)	3200	4900	6600	count	Ch0 White LED 200 Lux Integration Time : 50ms Measurement Time : 100ms
	1200	1800	2400	count	Ch1 White LED 200 Lux Integration Time : 50ms Measurement Time : 100ms
ALS Ratio	0.15	0.26	0.35		Ratio = Ch1/(Ch1 + Ch0) Lux = 200 (White LED)

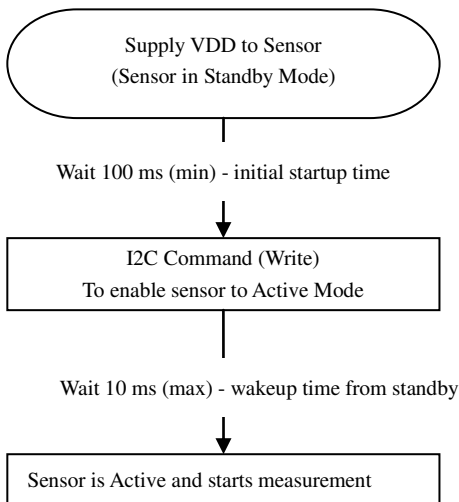
Proximity Sensor

Parameter	Min.	Typ.	Max.	Unit	Condition
Full Scale ADC Count			2047	count	
Peak Sensitivity	925	940	955	nm	
Detection Distance		30		nm	100mA, 8 pulses, 18% Gray card
Ambient Light Suppression			50k	Lux	Direct sunlight
LED Pulse Count	1		15	Pulses	
LED Pulse Frequency	30k		100k	Hz	Increment of 10k Hz
LED Duty Cycle	25		100	%	Increment of 25%
LED Peak Current		5		mA	LED Peak Current = 000
		10		mA	LED Peak Current = 001

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	20	mA	LED Peak Current = 010
	50	mA	LED Peak Current = 011
	100	mA	LED Peak Current = 1XX
Optical Rise / Fall Time	100	ns	

Note 1: Startup Sequence



LUX Formula

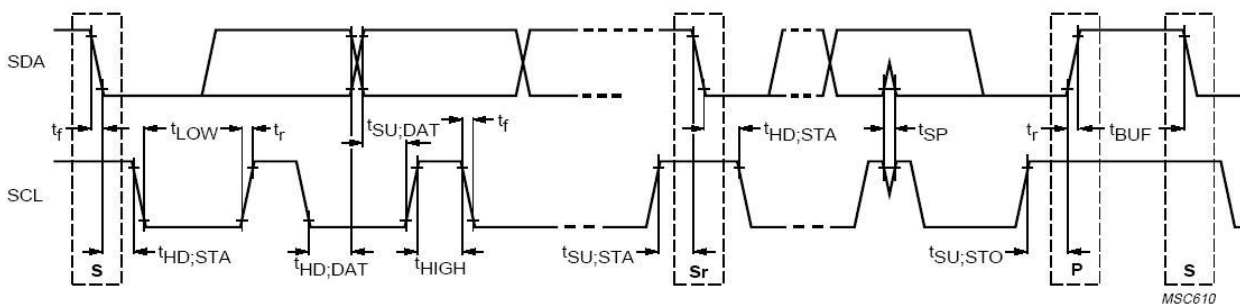
Refer to Appendix A for the lux formula

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AC Electrical Characteristics

All specifications are at VBus = 1.8V, T_{ope} = 25°C, unless otherwise noted.

Parameter	Symbol	Min.	Max.	Unit
SCL clock frequency	f_{SCL}	1	400	kHz
Bus free time between a STOP and START condition	t_{BUF}	1.3		us
Hold time (repeated) START condition. After this period, the first clock pulse is generated	$t_{HD;STA}$	0.6		us
LOW period of the SCL clock	t_{LOW}	1.3		us
HIGH period of the SCL clock	t_{HIGH}	0.6		us
Set-up time for a repeated START condition	$t_{SU;STA}$	0.6		us
Set-up time for STOP condition	$t_{SU;STO}$	0.6		us
Rise time of both SDA and SCL signals	t_r	30	300	ns
Fall time of both SDA and SCL signals	t_f	30	300	ns
Data hold time	$t_{HD;DAT}$	0.3	0.9	us
Data setup time	$t_{SU;DAT}$	100		ns
Pulse width of spikes which must be suppressed by the input filter	t_{SP}	0	50	ns

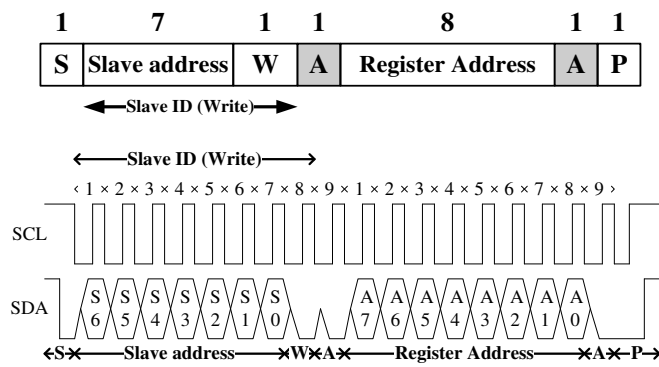


Definition of timing for I²C bus

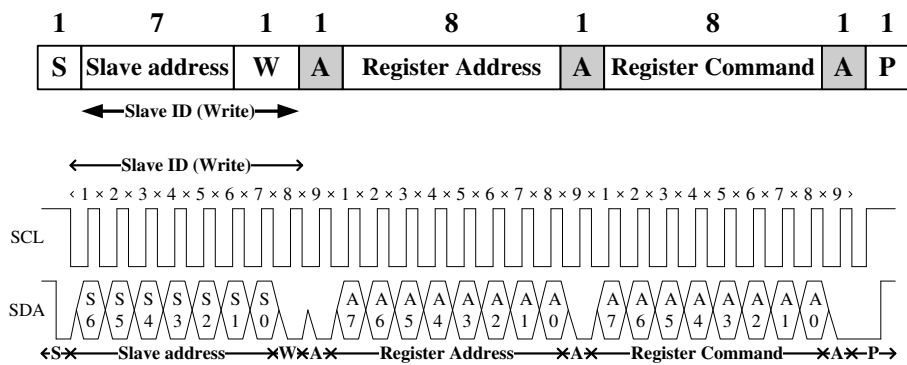
9. Principles of Operation

I²C Protocols

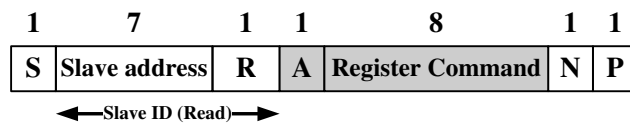
· I²C Write Protocol (type 1):



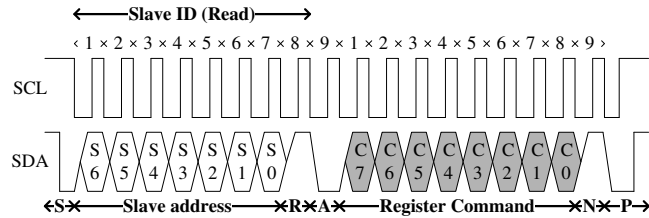
· I²C Write Protocol (type 2):



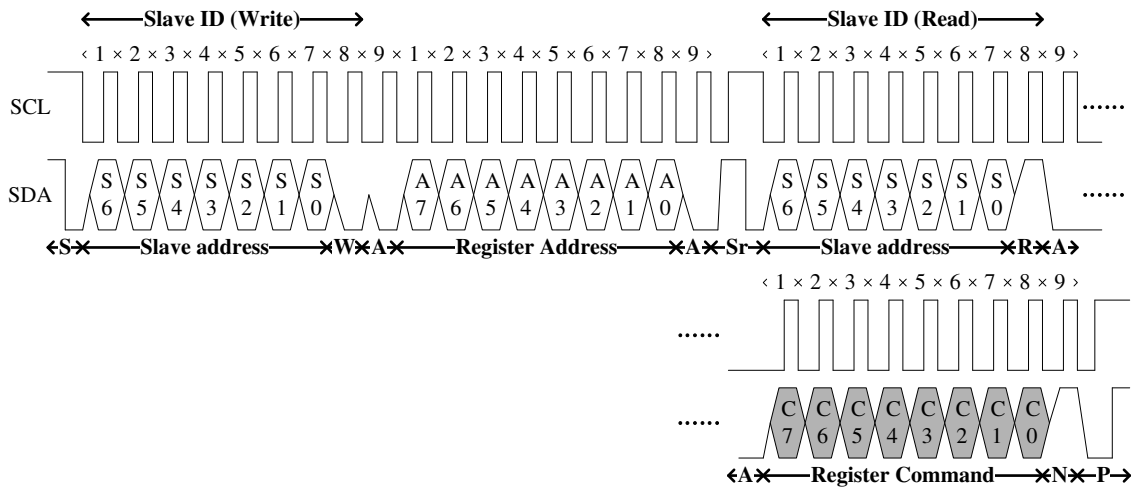
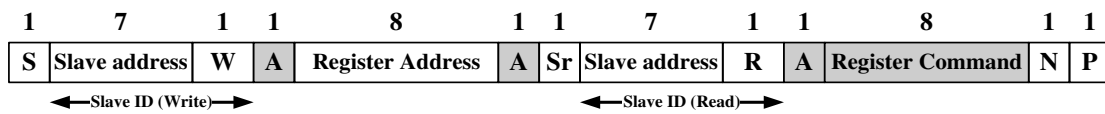
· I²C Read Protocol:



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I²C Read (Combined format) Protocol:



- | | |
|---|---|
| <p>A Acknowledge (0 for an ACK)</p> <p>S Start condition</p> <p>P Stop condition</p> <p>W Write (0 for writing)</p> <p> Slave-to-master</p> | <p>N Non-Acknowledge(1 for an NACK)</p> <p>Sr Repeated Start condition</p> <p>R Read (1 for read)</p> <p> Master-to-Slave</p> |
|---|---|

I²C Slave Address

The 7 bits slave address for this sensor is 0x23H. A read/write bit should be appended to the slave address by the master device to properly communicate with the sensor.

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I ² C Slave Address									
Command Type	(0x29H)							W/R	value
	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0	
Write	0	1	0	0	0	1	1	0	0x46H
Read	0	1	0	0	0	1	1	1	0x47H

Register Set

Addr	R / W	Register Name	Description	Reset Value
0x80	R/W	ALS_CONTR	ALS operation mode control SW reset	0x00
0x81	R/W	PS_CONTR	PS operation mode control	0x00
0x82	R/W	PS_LED	PS LED setting	0x7F
0x83	R/W	PS_N_PULSES	PS number of pulses	0x01
0x84	R/W	PS_MEAS_RATE	PS measurement rate in active mode	0x02
0x85	R/W	ALS_MEAS_RATE	ALS measurement rate in active mode	0x03
0x86	R	PART_ID	Part Number ID and Revision ID	0x92
0x87	R	MANUFAC_ID	Manufacturer ID	0x05
0x88	R	ALS_DATA_CH1_0	ALS measurement CH1 data, lower byte	0x00
0x89	R	ALS_DATA_CH1_1	ALS measurement CH1 data, upper byte	0x00
0x8A	R	ALS_DATA_CH0_0	ALS measurement CH0 data, lower byte	0x00
0x8B	R	ALS_DATA_CH0_1	ALS measurement CH0 data, upper byte	0x00
0x8C	R	ALS_PS_STATUS	ALS and PS new data status	0x00
0x8D	R	PS_DATA_0	PS measurement data, lower byte	0x00
0x8E	R	PS_DATA_1	PS measurement data, upper byte	0x00
0x8F	R/W	INTERRUPT	Interrupt settings	0x00
0x90	R/W	PS_THRES_UP_0	PS interrupt upper threshold, lower byte	0xFF
0x91	R/W	PS_THRES_UP_1	PS interrupt upper threshold, upper byte	0x07
0x92	R/W	PS_THRES_LOW_0	PS interrupt lower threshold, lower byte	0x00
0x93	R/W	PS_THRES_LOW_1	PS interrupt lower threshold, upper byte	0x00
0x94	R/W	PS_OFFSET_1	PS offset, upper byte	0x00
0x95	R/W	PS_OFFSET_0	PS offset, lower byte	0x00
0x97	R/W	ALS_THRES_UP_0	ALS interrupt upper threshold, lower byte	0xFF
0x98	R/W	ALS_THRES_UP_1	ALS interrupt upper threshold, upper byte	0xFF
0x99	R/W	ALS_THRES_LOW_0	ALS interrupt lower threshold, lower byte	0x00
0x9A	R/W	ALS_THRES_LOW_1	ALS interrupt lower threshold, upper byte	0x00
0x9E	R/W	INTERRUPT PERSIST	ALS / PS Interrupt persist setting	0x00

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Notes:

- 1) When reading ALS data registers, read sequence should always be from lower address to higher address (E.g. For ALS data, Ch1 data should be read first followed by Ch0 data. Read sequence should be 0x88, 0x89, 0x8A, 0x8B. When 0x8B is read, all four ALS data registers will be populated with new set of data).
- 2) When setting of INTERRUPT register (addr 0x8F) is necessary, it should be done before the device is in Active mode.

ALS_CONTR Register (0x80)

The ALS_CONTR register controls the ALS Gain setting, ALS operation modes and software (SW) reset for the sensor. The ALS sensor can be set to either standby mode or active mode. At either of these modes, the I²C circuitry is always active. The default mode after power up is standby mode. During standby mode, there is no ALS measurement performed but I²C communication is allowed to enable read/write to all the registers.

0x80	ALS_CONTR (default = 0x00)							
	B7	B6	B5	B4	B3	B2	B1	B0
	Reserved			ALS Gain			SW Reset	ALS Mode

Field	Bits	Default	Type	Description	
Reserved	7:5	000	--	-- MUST write to 000 (default)	
ALS Gain	4:2	000	RW	000	Gain 1X → 1 lux to 64k lux (default)
				001	Gain 2X → 0.5 lux to 32k lux
				010	Gain 4X → 0.25 lux to 16k lux
				011	Gain 8X → 0.125 lux to 8k lux
				100	Reserved
				101	Reserved
				110	Gain 48X → 0.02 lux to 1.3k lux
				111	Gain 96X → 0.01 lux to 600 lux
SW reset	1	0	RW	0	Initial start-up procedure is NOT started (default)
				1	Initial start-up procedure is started, bit has default value of 0 after start-up
ALS mode	0	0	RW	0	Stand-by mode (default)
				1	Active mode

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PS_CONTR Register (0x81)

The PS_CONTR register controls the PS operation modes. The PS sensor can be set to either standby mode or active mode. At either of these modes, the I²C circuitry is always active. The default mode after power up is standby mode. During standby mode, there is no PS measurement performed but I²C communication is allowed to enable read/write to all the registers.

PS Saturation Indicator Enable bit is used for enabling the saturation indicator in Bit 7 of PS_DATA register (0x8E).

0x81	PS_CONTR (default = 0x00)							
	B7	B6	B5	B4	B3	B2	B1	B0
	<i>Reserved</i>		<i>PS Saturation Indicator Enable</i>	<i>Reserved</i>			<i>PS Mode</i>	

Field	Bits	Default	Type	Description	
Reserved	7:6	00	--	--	MUST write to 00
PS Saturation Indicator Enable	5	0	RW	0	Saturation indicator disable
				1	Saturation indicator enable
Reserved	4:2	000	--	--	Must be 0
PS Mode	1:0	00	RW	00	Stand-by mode (default)
				01	
				10	Active mode
				11	

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PS_LED Register (0x82)

The PS_LED register controls the LED pulse modulation frequency, LED current duty cycle and LED peak current.

0x82	PS_LED (default = 0x7F)							
	B7	B6	B5	B4	B3	B2	B1	B0
	<i>LED Pulse Frequency</i>			<i>LED Duty Cycle</i>		<i>LED Peak Current</i>		

Field	Bits	Default	Type	Description	
LED Pulse Modulation Frequency	7:5	011	RW	000	LED pulse period = 30kHz
				001	LED pulse period = 40kHz
				010	LED pulse period = 50kHz
				011	LED pulse period = 60kHz (default)
				100	LED pulse period = 70kHz
				101	LED pulse period = 80kHz
				110	LED pulse period = 90kHz
				111	LED pulse period = 100kHz
LED Duty Cycle	4:3	11	RW	00	DUTY = 25%
				01	DUTY = 50%
				10	DUTY = 75%
				11	DUTY = 100% (default)
LED Current	2:0	111	RW	000	LED pulsed current level = 5mA
				001	LED pulsed current level = 10mA
				010	LED pulsed current level = 20mA
				011	LED pulsed current level = 50mA
				100	LED pulsed current level = 100mA (default)
				101	
				110	
				111	

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PS_N_Pulses Register (0x83)

The PS_N_Pulses register controls the number of LED pulses to be emitted.

0x83	PS_N_Pulses (default = 0x01)							
	B7	B6	B5	B4	B3	B2	B1	B0
	<i>Reserved</i>				<i>LED Pulse Count</i>			

Field	Bits	Default	Type	Description	
Reserved	7:4	0000	--	--	0000 (default)
PS number of LED pulses	3:0	0001	RW	0000	RESERVED
				0001	Number of pulses = 1 (default)
				0010	Number of pulses = 2
				0011	Number of pulses = 3
				0100	Number of pulses = 4
				0101	Number of pulses = 5
				0110	Number of pulses = 6
				0111	Number of pulses = 7
				1000	Number of pulses = 8
				1001	Number of pulses = 9
				1010	Number of pulses = 10
				1011	Number of pulses = 11
				1100	Number of pulses = 12
				1101	Number of pulses = 13
				1110	Number of pulses = 14
1111	Number of pulses = 15				

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PS_MEAS_RATE Register (0x84)

The PS_MEAS_RATE register controls the timing of the periodic measurements of the PS in active mode. PS Measurement Repeat Rate is the interval between PS_DATA registers update.

0x84	PS_MEAS_RATE (default = 0x02)							
	B7	B6	B5	B4	B3	B2	B1	B0
	<i>Reserved</i>				<i>PS Measurement Repeat Rate</i>			

Field	Bits	Default	Type	Description	
Reserved	7:4	0000	--	--	0000 (default)
PS measurement rate	3:0	0010	RW	0000	50ms
				0001	70ms
				0010	100ms (default)
				0011	200ms
				0100	500ms
				0101	1000ms
				0110	2000ms
				0111	
1XXX	10ms				

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ALS_MEAS_RATE Register (0x85)

The ALS_MEAS_RATE register controls the integration time and timing of the periodic measurement of the ALS in active mode. ALS Measurement Repeat Rate is the interval between ALS_DATA registers update. ALS Integration Time is the measurement time for each ALS cycle.

ALS Measurement Repeat Rate must be set to be equal or larger than the ALS Integration Time. If ALS Measurement Repeat Rate is set to be smaller than ALS Integration Time, it will automatically be reset to be equal to ALS Integration Time by the IC internally.

0x85	ALS_MEAS_RATE (default = 0x03)							
	B7	B6	B5	B4	B3	B2	B1	B0
	<i>Reserved</i>		<i>ALS Integration Time</i>			<i>ALS Measurement Repeat Rate</i>		

Field	Bits	Default	Type	Description	
Reserved	7:6	00	--	--	--
ALS integration time	5:3	000	RW	000	100ms (default)
				001	50ms
				010	200ms
				011	400ms
				100	150ms
				101	250ms
				110	300ms
ALS measurement rate	2:0	011	RW	000	50ms
				001	100ms
				010	200ms
				011	500ms (default)
				100	1000ms
				101	2000ms
				110	
111					

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PART_ID Register (0x86) (Read Only)

The PART_ID register defines the part number and revision identification of the sensor.

0x86	PART_ID (default = 0x92)							
	B7	B6	B5	B4	B3	B2	B1	B0
	<i>Part Number ID</i>				<i>Revision ID</i>			

Field	Bits	Default	Type	Description
Part Number ID	7:4	1001	R	Part ID 0x09H
Revision ID	3:0	0010	R	Revision ID 0x02H

MANUFAC_ID Register (0x87) (Read Only)

The MANUFAC_ID register defines the manufacturer identification of the sensor.

0x87	MANUFAC_ID (default = 0x05)							
	B7	B6	B5	B4	B3	B2	B1	B0
	<i>Manufacturer ID</i>							

Field	Bits	Default	Type	Description
Manufacturer ID	7:0	00000101	R	Manufacturer ID (0x05H)

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ALS_DATA_CH1 Register (0x88 / 0x89) (Read Only)

The ALS_DATA registers should be read as a group, with the lower address read back first (i.e. read 0x88 first, then read 0x89). These two registers should also be read before reading channel-0 data (from registers 0x8A, 0x8B).

When the I²C read operation starts, all four ALS data registers are locked until the I²C read operation of register 0x8B is completed. This will ensure that the data in the registers is from the same measurement even if an additional integration cycle ends during the read operation. New measurement data is stored into temporary registers and the ALS_DATA registers are updated as soon as there is no on-going I²C read operation.

The ALS ADC channel-1 data is expressed as a 16-bit data spread over two registers. The ALS_DATA_CH1_0 and ALS_DATA_CH1_1 registers provide the lower and upper byte respectively.

0x88	ALS_DATA_CH1_0 (default = 0x00)							
	B7	B6	B5	B4	B3	B2	B1	B0
	<i>ALS Data Ch1 Low</i>							

0x89	ALS_DATA_CH1_1 (default = 0x00)							
	B7	B6	B5	B4	B3	B2	B1	B0
	<i>ALS Data Ch1 High</i>							

Field	Address	Bits	Default	Type	Description
ALS Data Ch1 Low	0x88	7:0	00000000	R	ALS ADC channel 1 lower byte data
ALS Data Ch1 High	0x89	7:0	00000000	R	ALS ADC channel 1 upper byte data

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ALS_DATA_CH0 Register (0x8A / 0x8B) (Read Only)

These two registers should be read after reading channel-1 data (from registers 0x88, 0x89). Lower address register should be read first (i.e. read 0x8A first, then read 0x8B). See ALS_DATA_CH1 register information above. The ALS ADC channel-0 data is expressed as a 16-bit data spread over two registers. The ALS_DATA_CH0_0 and ALS_DATA_CH0_1 registers provide the lower and upper byte respectively.

0x8A	ALS_DATA_CH0_0 (default = 0x00)							
	B7	B6	B5	B4	B3	B2	B1	B0
	<i>ALS Data Ch0 Low</i>							

0x8B	ALS_DATA_CH0_1 (default = 0x00)							
	B7	B6	B5	B4	B3	B2	B1	B0
	<i>ALS Data Ch0 High</i>							

Field	Address	Bits	Default	Type	Description
ALS Data Ch0 Low	0x8A	7:0	00000000	R	ALS ADC channel 0 lower byte data
ALS Data Ch0 High	0x8B	7:0	00000000	R	ALS ADC channel 0 upper byte data

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ALS_PS_STATUS Register (0x8C) (Read Only)

The ALS_PS_STATUS register stores the information about ALS data status. New data means data has not been read yet. When the measurement is completed and data is written to the data register, the data status bit will be set to logic 1. When the data register is read, the data status bit will be set to logic 0.

Interrupt status determines if the ALS interrupt criteria are met. It will check if the ALS measurement data is outside of the range defined by the upper and lower threshold limits.

ALS Data Valid bit indicates the validity of the ALS data in Ch0 and Ch1.

0x8C	ALS_PS_STATUS (default = 0x00)							
	B7	B6	B5	B4	B3	B2	B1	B0
	<i>ALS Data Valid</i>	<i>ALS Gain</i>			<i>ALS Interrupt Status</i>	<i>ALS Data Status</i>	<i>PS Interrupt Status</i>	<i>PS Data Status</i>

Field	Bits	Default	Type	Description	
ALS Data Valid	7	0	R	0	ALS Data is Valid (default)
				1	ALS Data is Invalid
ALS Data Gain Range	6:4	000	R	000	ALS measured data in Gain 1X (default)
				001	ALS measured data in Gain 2X
				010	ALS measured data in Gain 4X
				011	ALS measured data in Gain 8X
				100	Invalid
				101	Invalid
				110	ALS measured data in Gain 48X
				111	ALS measured data in Gain 96X
ALS interrupt status	3	0	R	0	Interrupt signal INACTIVE (default)
					Interrupt signal ACTIVE
ALS data status	2	0	R	0	OLD data (data already read), (default)
				1	NEW data (first time data is being read)
PS Interrupt Status	1	0	R	0	Interrupt signal INACTIVE (default)
				1	Interrupt signal ACTIVE
PS Data Status	0	0	R	0	OLD data (data already read), (default)
				1	NEW data (first time data is being read)

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PS_DATA_0 Register (0x8D / 0x8E) (Read Only)

The PS ADC channel data are expressed as a 11-bit data spread over two registers. The PS_DATA_0 and PS_DATA_1 registers provide the lower and upper byte respectively. When the I²C read operation starts, both the registers are locked until the I²C read operation is completed. This will ensure that the data in the registers is from the same measurement even if an additional integration cycle ends during the read operation. New measurement data is stored into temporary registers and the PS_DATA registers are updated as soon as there is no on-going I²C read operation.

PS Saturation Flag is used for monitoring the internal IC saturation. It will be flagged when the IC has reached saturation and not able to perform any further PS measurement. The PS Saturation Indicator Enable bit in PS_CONTR Register (0x81) has to be enabled in order to use this feature. If it is not enable, the flag will always be indicated as 0.

0x8D	PS_DATA_0 (default = 0x00)							
	B7	B6	B5	B4	B3	B2	B1	B0
	<i>PS Data Low</i>							

0x8E	PS_DATA_1 (default = 0x00)							
	B7	B6	B5	B4	B3	B2	B1	B0
	<i>PS Saturation Flag</i>	<i>Reserved</i>				<i>PS Data High</i>		

Field	Address	Bits	Default	Type	Description	
PS Data, Low	0x8D	7:0	00000000	R	--	PS ADC lower byte data
PS Saturation Flag	0x8E	7	0	R	0	PS not saturated
					1	PS saturated
Reserved	0x8E	6:3	00000	--	--	--
PS Data, High	0x8E	2:0	000	R	--	PS ADC upper byte data

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INTERRUPT Register (0x8F) (Read Only)

The INTERRUPT register controls the operation of the interrupt pin and functions. When the Interrupt Mode is set to 00, the INT output pin 2 is inactive / disabled and will not trigger any interrupt. However at this condition, the ALS_PS_STATUS register will still be updated.

Note that when this register is to be set with values other than its default values, it should be set before device is in Active mode.

0x8F	INTERRUPT (default = 0x00)							
	B7	B6	B5	B4	B3	B2	B1	B0
	<i>Reserved</i>					<i>Interrupt Polarity</i>	<i>Interrupt Mode</i>	

Field	Bits	Default	Type	Description	
RESERVED	7:3	00000	--	--	Must write as 00000
Interrupt Polarity	2	0	RW	0	INT pin is considered active when it is a logic 0 (default)
				1	INT pin is considered active when it is a logic 1
Interrupt Mode	1:0	0	RW	00	Interrupt pin is INACTIVE / high impedance state (default)
				01	Only PS measurement can trigger interrupt
				10	Only ALS measurement can trigger interrupt
				11	Both ALS and PS measurement can trigger interrupt