

User Manual

Saratoga-Sample

Proximity and Ambient Light Sensor

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Vendor ID	0x01DE
Device ID	0x000002
IODD V1.1	Maxim-Saratoga-20140318-IODD1.1
IODD V1.0.1	Maxim-Saratoga-20140318-IODD1.0.1

IO-Link Version:	V1.1, compatible to V1.0
SIO Mode supported:	yes
PIN 2 supported:	as digital out (2 nd channel)

Technology inside:	
μController	Renesas RL78/G1A
Transceiver	Maxim MAX 14821EWA+
Sensor Chip	Maxim MAX 44000
Software	TMG TE GmbH

Introduction:

The Maxim-Saratoga-Sample demonstrates a small size design for an IO-Link sensor based on components from Maxim and Renesas and software from TMG TE. As powerful features the sensor offers proximity and ambient light (green and IR) measurement.

Standard IO Mode:

Pin 4:

In SIO Mode Pin4 will show the switch point (same as pin 2).

Pin 2:

Can be configured (V_Pin2Mode) to show the proximity or ambient light switch point or be controlled from the IO-Link master (e.g. controlled by the PLC).

If V_Pin2Mode is set to "Digital Output", Pin 2 bit from the process output bits will control state of Pin2. Pin2 function is available in SIO Mode and IO-Link Mode.

IO-Link Mode – Process Data:

Inputs (16 Bits):

Switch Points

Digital Out (bit 0)

Proximity or AMB switch point (bit 1)

Measurement Value (bit 2 to bit 15)

Outputs (8 Bits):

Pin 2

only active, if Pin2Mode = “digital output”

Device specific parameters:

V_Gain	(rw)	parameter for gain of the ADC
V_Time	(rw)	parameter for integration time of the ADC
V_LEDCurrent	(rw)	LED current in proximity mode
V_Pin2Mode	(rw)	configures Pin2 behaviour Controlled by process data output bit or by sensor switch point
V_AmbLightTV	(rw)	teach value (ambient light mode)
V_ProxTV	(rw)	teach value (proximity mode)
V_Mode	(rw)	operating mode proximity sensor ambient light green channel ambient light IR channel
V_TrimGain	(rw)	use factory-programmed values use values in trim registers
V_GainTrimGreen	(rw)	trim green (-64 to 63)
V_GainTrimIR	(rw)	trim IR (-256 to 255)
V_GainTrimGreenFactory	(ro)	trim green factory programmed
V_GainTrimIRFactory	(ro)	trim IR factory programmed

Commands

Teach proximity or ambient light sensor (system command 160)

Reset to factory settings (system command 130)