

# TAOS Opto Components



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TAOS' intelligent opto sensors simplify analog-to-digital conversion of light and are designed to reduce the need for signal conditioning or pre-processing circuitry in light-centric systems. TAOS' light sensing solutions improve system performance and reduce design-cycle time giving designers the flexibility they require.

## LIGHT-TO-VOLTAGE CONVERTERS

TAOS Inc.'s Light-to-Voltage (LTV) solutions combine a photodiode and transimpedance amplifier on a single monolithic IC. The LTV family provides a linear analog voltage output that is proportional to light intensity which is normally fed to an ADC for digital processing.

MOUSER STOCK NO.	Fig.	Responsivity (mV/μW/cm <sup>2</sup> )	Rise Time (μs)	Spectral Response (nm)	Voltage Range	Price Each			
						1	10	100	500
856-TSL257-LF	A	1300 @ 470nm	160	350-1000	2.7V to 5.5V	2.02	1.76	1.51	1.36
856-TSL267-LF	A	450 @ 940nm	160	850-1000	2.7V to 5.5V	2.02	1.76	1.51	1.36
856-TSL125-LF	A	248 @ 640nm	20	320-1050	2.7V to 5.5V	1.26	1.10	.95	.85
856-TSL235R-LF	A	248 @ 640nm	20	400-1000	2.7V to 5.5V	3.60	3.15	2.70	2.43
856-TSL253R-LF	A	248 @ 640nm	7	350-1000	2.7V to 5.5V	3.15	2.70	2.43	1.98
856-TSL254R-LF	A	248 @ 640nm	2.5	350-1000	2.7V to 5.5V	3.24	2.84	1.89	1.63
856-TSL250R-LF	A	137 @ 635nm	260	350-1000	2.7V to 5.5V	2.52	2.21	1.89	1.70
856-TSL135-LF	A	64 @ 640nm	8	320-1050	2.7V to 5.5V	1.26	1.10	.95	.85
856-TSL251R-LF	A	52 @ 635nm	70	350-1000	2.7V to 5.5V	2.52	2.21	1.89	1.70
856-TSL145-LF	A	16 @ 640nm	3	320-1050	2.7V to 5.5V	1.26	1.10	.95	.85
856-TSL252R-LF	A	10.2 @ 635nm	7	350-1000	2.7V to 5.5V	2.52	2.21	1.89	1.70
856-TSL261R-LF	A	43.5 @ 940nm	70	850-1000	2.7V to 5.5V	2.52	2.21	1.89	1.70
856-TSL262R-LF	A	248 @ 640nm	70	850-1000	2.7V to 5.5V	2.52	2.21	1.47	1.26
856-TSL257T	B	248 @ 640nm	160	350-1000	2.7V to 5.5V	2.32	2.02	1.35	1.16
856-TSL12T	B	96 @ 640nm	20	320-1050	2.7V to 5.5V	1.37	1.20	1.03	.92
856-TSL13T	B	24 @ 640nm	8	320-1050	2.7V to 5.5V	1.37	1.20	1.03	.92
856-TSL250RD	C	69 @ 640nm	260	350-1000	2.7V to 5.5V	2.88	2.52	2.16	1.94
856-TSL251RD	C	17 @ 640nm	70	350-1000	2.7V to 5.5V	2.88	2.52	2.16	1.94

## LIGHT-TO-FREQUENCY CONVERTERS

The LTF sensor performs the functions of light sensing, signal conditioning, and A/D conversion in a single monolithic IC. The LTF device converts light intensity to a digital format for a direct interface to a microcontroller.

MOUSER STOCK NO.	Fig.	Minimum Full Scale Frequency	Dark Signal Frequency	Spectral Response (nm)	Programmable	Price Each			
						1	10	100	500
856-TSL237S-LF	A	500KHz	0.1Hz	350-1000	No	3.78	3.31	2.84	2.55
856-TSL237SM-LF	A	500KHz	0.1Hz	350-1000	No	3.92	3.36	2.12	1.83
856-TSL245R	A	500KHz	0.1Hz	850-1000	No	3.60	3.15	2.70	2.43
856-TSL237T	B	500KHz	0.1Hz	350-1000	No	3.71	3.24	2.78	2.50
856-TSL238T	B	500KHz	0.3Hz	350-1000	Yes	2.50	2.25	1.98	1.80
856-TSL230RD	C	1.1MHz	0.4Hz	350-1000	Yes	2.29	2.16	2.10	2.03

## LIGHT-TO-DIGITAL CONVERTERS

TAOS Inc.'s Light-to-Digital Converters combine a broadband photodiode (350 nm to 1100 nm) with a visible light blocking photodiode in a single CMOS integrated circuit.

MOUSER STOCK NO.	Fig.	Conversion Time(ms)	Dynamic Range (lux)	ADC Digital Output	Operating Voltage (Typ.)	Price Each			
						1	10	100	500
856-TSL2550T	B	160,800	0-10,000	7-bit companded	5V	3.28	2.87	2.46	2.21
856-TSL2560T	D	12,100,400	0-40,000	16 bit Linear	5V	2.77	2.37	1.50	1.29
856-TSL2561T	D	12,100,400	0-40,000	16 bit Linear	3V	2.84	2.49	2.13	1.92
856-TSL2563CS	D	12,100,400	0-40,000	16 bit Linear	2.5V	2.98	2.55	1.61	1.38
856-TSL2563T	D	12,100,400	0-40,000	16 bit Linear	2.5V	2.77	2.37	1.50	1.29
856-TSL2550D	C	160,800	0-10,000	7-bit companded	5V	3.49	3.06	2.62	2.36
856-TSL2561FN	D	12,100/400	0-40,000	16 bit Linear	3V	1.35	1.27	1.07	.97
856-TSL2563CL	D	12,100/400	0-40,000	16 bit Linear	2.5V	1.98	1.74	1.49	1.34
856-TSL2563FN	D	12,100/400	0-40,000	16 bit Linear	2.5V	2.12	1.86	1.59	1.43
856-TSL27711FN	I	2.58,2.9	0-40,000	16 bit Linear	3V	2.70	2.36	2.04	1.82
856-TSL27713FN	I	2.58,2.9	0-40,000	16 bit Linear	3V	2.70	2.36	2.04	1.82
856-TSL2581CS	F	2.7,688	0-40,000	16 bit Linear	3V	2.50	2.20	1.90	1.70
856-TSL2581FN	E	2.7,688	0-40,000	16 bit Linear	3V	1.23	1.16	0.90	0.72

## COLOR SENSORS, 2.7V TO 5.5V

The integrated color LTV sensors combine a photodiode, color filter, and transimpedance amplifier on a single die. TAOS solution requires fewer components, saves board space and reduces assembly cost over a discrete photodiode approach.

MOUSER STOCK NO.	Fig.	Output	Colors	Op. Temperature Range (TA)	Voltage Range	Price Each			
						1	10	25	50
856-TCS3200D-TR	C	4 CH Light to Freq.	RGB, Clear	-40°C to 85°C	2.7V to 5.5V	2.44	2.36	2.21	2.04
856-TCS3210D-TR	C	4 CH Light to Freq.	RGB, Clear	-40°C to 85°C	2.7V to 5.5V	2.44	2.36	2.21	2.04
856-TCS3413FN	G	16 Bit Digital	RGB, Clear	-30°C to 70°C	2.7V to 3.6V	2.97	2.81	2.48	2.31
856-TCS3414CS	F	16 Bit Digital	RGB, Clear	-40°C to 85°C	2.7V to 3.6V	3.51	3.39	3.18	2.94
856-TCS3414FN	G	16 Bit Digital	RGB, Clear	-30°C to 70°C	2.7V to 3.6V	2.97	2.81	2.48	2.31
856-TCS34717FN	G	16 Bit Digital	RGB, Clear	-30°C to 70°C	2.7V to 3.6V	2.97	2.81	2.48	2.31
856-TCS3103FN	H	3 CH Light to Voltage	RGB, Clear	-30°C to 70°C	4.5V to 5.5V	1.72	1.67	1.56	1.44
856-TCS3104FN	H	3 CH Light to Voltage	RGB, Clear	-30°C to 70°C	4.5V to 5.5V	1.72	1.67	1.56	1.44

## DIGITAL PROXIMITY DETECTOR

The TSL2671 family of devices provides a complete proximity detection system and digital interface logic in a single 6-pin package. The device includes a digital proximity sensor with integrated LED driver for the required external IR LED.

MOUSER STOCK NO.	Fig.	Programmable Wait Time	Output Current	Op. Temperature Range (TA)	Voltage Range	Price Each			
						1	10	25	50
856-TSL26711FN	I	2.72ms to > 8sec	-1mA to 20 mA	-40°C to 85°C	2.6V to 3.6V	1.23	1.16	1.02	0.96
856-TSL26713FN	I	2.72ms to > 8sec	-1mA to 20 mA	-40°C to 85°C	2.6V to 3.6V	1.23	1.16	1.02	0.96

## LINEAR SENSOR ARRAYS

MOUSER STOCK NO.	Fig.	Resolution	# Pixels	Active Length (mm)	Outputs	Price Each			
						1	10	100	500
856-TSL1401R-LF	I	400	128	8.12	one analog	8.17	7.15	6.13	5.52
856-TSL201R-LF	I	200	64	8.26	one analog	7.20	6.30	5.40	4.86
856-TSL1401CS	J	400	128	8.12	one analog	8.82	7.56	5.21	4.48
856-TSL1402R	K	400	256	-	two analog	14.31	13.70	9.03	8.23
856-TSL202R	K	200	128	-	one analog	12.50	10.00	9.63	9.63
856-TSL1406R	L	400	768	2.08	two analog	25.60	23.27	18.28	17.06
856-TSL1406RS	L	400	768	2.08	two analog	25.60	23.27	21.33	17.06
856-TSL1410R	L	400	1280	3.58	two analog	47.03	42.32	37.62	26.87
856-TSL1412S	L	400	1536	3.59	two analog	77.77	66.66	52.69	40.25

## EVALUATION BOARDS (EVM)

MOUSER STOCK NO.	Fig.	Description	Price Each
856-TCS3200EVM	-	Evaluation system for TCS230 color sensor, consist's of a lens module, white LED illuminator	175.00
856-LTFEVM	-	Evaluation system for Light to Frequency Module	191.00

