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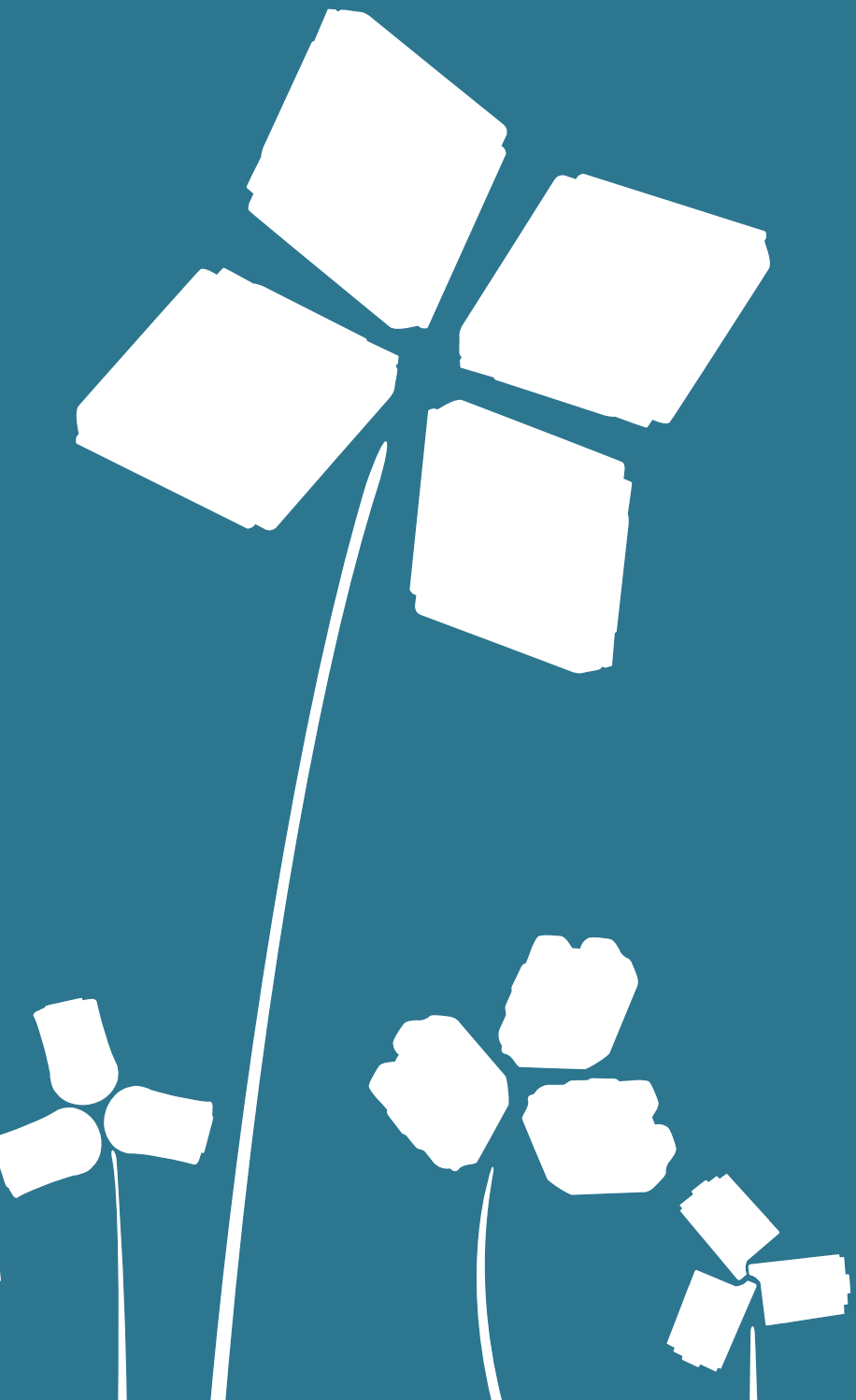
DISPLAYS 2012
LCD/OLED



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RAYSTAR
OLED Display Provider

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1.1 SOLOMON STANDARD TFT MODULES

Solomon Goldentek Display (SGD) started up more than 20 years ago as a subsidiary of the Taiwan semiconductor group Solomon Technology Corporation. SGD specialises in extremely high-quality TFT modules in the range 3.5 to 8.0 inches. Modules that are particularly suitable for industrial applications.

Compared to the products of other market players SGD products are characterised by the fact that all sizes are available in high bright and ultra high bright versions. With a 5 year operational guarantee on workmanship and interface, SGD has an excellent market position. Standard for all models are the resistive touch panel and LVDS interface. The FPCs and PCBs can be designed in accordance with customer wishes. As an additional highlight, back-light drivers are available as standard for many TFT modules.

Overview of the advantages of Solomon Goldentek Display (SGD) TFT modules:

- Modules compatible with Japanese standards
- Touch panels available for all modules
- LVDS interface available as standard
- Customizing of FPCs and PCBs
- LED back-light drivers available as standard
- Minimum back-light lifetime of up to 50,000 hours
- Modules available in high bright and ultra high bright versions
- **5-year operational guarantee on workmanship and interface**

Standard TFT-Modules 3.5“ to 8.0“

3.5 "	320 × 240	**GVTQ35SNAD1E0**	76.9 × 63.9 × 3.3	70.08 × 52.56	•		800	None	Ultra Hi-Bright
3.5 "	320 × 240	**GVTQ35SPAD2R0**	76.9 × 63.9 × 4.4	70.08 × 52.56	•		640	4 wires RTP	Ultra Hi-Bright
3.5 "	320 × 240	**GVTQ35SNAD3E0**	76.9 × 63.9 × 3.3	70.08 × 52.56	•		350	None	
3.5 "	320 × 240	**GVTQ35SPAD4R0**	76.9 × 63.9 × 4.4	70.08 × 52.56	•		285	4 wires RTP	
3.5 "	320 × 240	**GVTQ35SNAA1E0**	77.0 × 64.0 × 3.3	70.08 × 52.56	CPU		300	None	interface 6800 alternative
3.5 "	320 × 240	**GVTQ35SPAF1R0**	77.0 × 64.0 × 4.3	70.08 × 52.56	CPU		250	4 wires RTP	interface 6800 alternative

Standard TFT-Modules 3.5“ to 8.0“

FORMAT	DISPLAY RESOLUTION	PART NUMBER	MODULE SIZE (W×H×D) (mm)	ACTIVE AREA (W×H) (mm)	INTERFACE TTL RGB	INTERFACE LVDS	BRIGHTNESS cd/m²	TOUCH PANEL	REMARK
4.3 "	480 × 272	**GKTY43SNAH2E0**	105.50 × 67.2 × 3.95	95.04 × 53.856	•	CPU	1000	None	Ultra Hi-Bright/All-in-One FPC/PCT*
4.3 "	480 × 272	**GKTY43SPAH1R0**	105.50 × 67.2 × 5.05	95.04 × 53.856	•	CPU	800	4 wires RTP	Ultra Hi-Bright/All-in-One FPC/PCT*
4.3 "	480 × 272	**GVTY43SNAD1E0**	105.50 × 67.2 × 3.10	95.04 × 53.856	•		650	None	Sharp compliant
4.3 "	480 × 272	**GVTY43SNAD2R0**	105.50 × 67.2 × 4.20	95.04 × 53.856	•		500	4 wires RTP	Sharp compliant
4.3 "	480 × 272	**GKTY43SNAH3E0**	105.50 × 67.2 × 3.95	95.04 × 53.856	•	CPU	500	None	Hi-Bright/All-in-One FPC/PCT*
4.3 "	480 × 272	**GKTY43SPAH4R0**	105.50 × 67.2 × 5.05	95.04 × 53.856	•	CPU	400	4 wires RTP	Hi-Bright/All-in-One FPC/PCT*
5.0 "	800 × 480	**GVTW50SNAG1E0**	118.50 × 77.55 × 3.4	108.0 × 64.80	•		250	None	All-in-One FPC
5.0 "	800 × 480	**GVTW50SPBC1R0**	118.50 × 77.55 × 4.5	108.0 × 64.80	•		200	4 wires RTP	All-in-One FPC
5.0 "	800 × 480	**GVTW50SNAL2E0**	118.50 × 77.55 × 3.4	108.0 × 64.80	•		500	None	Hi-Bright/All-in-One FPC
5.0 "	800 × 480	**GVTW50SPBC2R0**	118.50 × 77.55 × 4.5	108.0 × 64.80	•		400	4 wires RTP	Hi-Bright/All-in-One FPC
5.7 "	320 × 240	**GKTQ57SNAD1E0**	144.00 × 104.6 × 13.0	115.2 × 86.40	•		1200	None	Ultra Hi-Bright
5.7 "	320 × 240	**GVTQ57SPBA1R0**	144.00 × 104.6 × 14.5	115.2 × 86.50	•		960	4 wires RTP	Ultra Hi-Bright
5.7 "	320 × 240	**GVTQ57NNAD1E0**	144.00 × 104.6 × 13.0	115.2 × 86.40	•		700	None	Sharp compliant
5.7 "	320 × 240	**GVTQ57NPAD2R0**	144.00 × 104.6 × 14.5	115.2 × 86.40	•		560	4 wires RTP	Sharp compliant
5.7 "	320 × 240	**GVTQ57NNAD3E0**	144.00 × 104.6 × 13.0	115.2 × 86.40	•		380	None	Sharp compliant
5.7 "	320 × 240	**GVTQ57NPAD4R0**	144.00 × 104.6 × 14.5	115.2 × 86.40	•		360	4 wires RTP	Sharp compliant
5.7 "	640 × 480	**GVTV57SNAX1E0**	144.00 × 104.6 × 13.0	115.2 × 86.40	•	•	900	None	Ultra Hi-Bright / LED Driver**
5.7 "	640 × 480	**GVTV57SPAX2R0**	144.00 × 104.6 × 14.5	115.2 × 86.40	•	•	720	4 wires RTP	Ultra Hi-Bright / LED Driver**
5.7 "	640 × 480	**GVTV57SNAD3E0**	144.00 × 104.6 × 13.0	115.2 × 86.40	•		380	None	Sharp compliant
5.7 "	640 × 480	**GVTV57SPAD4R0**	144.00 × 104.6 × 14.5	115.2 × 86.40	•		290	4 wires RTP	Sharp compliant
7.0 "	800 × 480	**GVTW70SNAGX1E0**	166.60 × 109.4 × 10.0	152.4 × 91.44	•	•	1000	None	Ultra Hi-Bright/LED-Driver**/PCT*
7.0 "	800 × 480	**GVTW70SPAHX1R0**	166.60 × 109.4 × 11.5	152.4 × 91.44	•	•	800	4 wires RTP	Ultra Hi-Bright/LED-Driver**/PCT*
7.0 "	800 × 480	**GVTW70SNADXE0**	166.60 × 109.4 × 10.0	152.4 × 91.44	•	•	500	None	Hi-Bright/Hitachi compliant
7.0 "	800 × 480	**GVTW70SPADXR0**	166.60 × 109.4 × 11.5	152.4 × 91.44	•	•	400	4 wires RTP	Hi-Bright/Hitachi compliant
7.0 "	800 × 480	**GATW70SNAD1E0**	165.00 × 104.0 × 5.4	153.6 × 86.60	•	•	550	None	LED-Driver/Hi-Bright
7.0 "	800 × 480	**GATW70SPBB1R0**	165.00 × 104.0 × 6.5	153.6 × 86.60	•	•	440	4 wires RTP	LED-Driver/ Hi-Bright
7.0 "	800 × 480	**GATW70SN8H2E0**	165.00 × 104.0 × 5.4	153.6 × 86.60	•	•	350	None	LED-Driver
7.0 "	800 × 480	**GATW70SN8K1RA**	165.00 × 104.0 × 6.5	153.6 × 86.60	•	•	280	4 wires RTP	LED-Driver
8.0 "	800 × 600	**GKTS80SNAG1XE0**	176.28 × 138.2 × 7.8	162.0 × 121.5	•	•	1300	None	Ultra Hi-Bright/LED-Driver
8.0 "	800 × 600	**GKTS80SNAG3XE0**	183.00 × 141.0 × 5.8	162.0 × 121.5	•	•	400	None	LED Driver
8.0 "	800 × 600	**GKTS80SPAHXR0**	183.00 × 141.0 × 5.8	162.0 × 121.5	•	•	320	4 wires RTP	LED Driver

* - Projected Capacitive Touch Panel Option, ** - LED Backlight-Treiber in Entwicklung

1.2 SOLOMON SUNLIGHT READABLE TFT MODULES

The excellent optical performance provided by the optical bonding technology as well as the cost advantages of the DBEF / low-reflection technology are remarkable. These modules are available in the sizes 3.5 to 8.0 inches. Sunlight readability is achieved by two different processes: coating with special polarising material and optical bonding. In general both technologies are used in SGD's production and can be applied for the sizes 3.5 to 8.0 inches. The excellent optical results of the optical bonding technology and the cost advantages of the DBEF / low-reflection technology are noteworthy. For these modules too SGD guarantees 5 years for workmanship and interface.

DBEF/Low-reflection technology

In connection with an extremely bright SGD back-light the sunlight readability of the TFT modules is improved by the use of a low-reflection polarizer. Furthermore the so-called DBEF back polarizer is used as standard for all ultra high bright TFT modules. As a result of this design, the degree of reflection is reduced significantly.

Optical Bonding

In the case of optical bonding, the TFT is bonded to a protective glass panel or outdoor touch panel by using a special gel. This process is by far the most effective in reducing reflection and is particularly suitable for hundred percent outdoor usage. Furthermore optical bonding prevents dust and condensation between the TFT and the protective glass panel or touch panel respectively.

TFT module without touch panel

Upper half of the picture: **without** DBEF / low-reflection polarizer
Lower half of the picture: **with** DBEF / low-reflection polarizer

TFT module with four-wire resistive touch panel

Upper half of the picture: **without** optical bonding
Lower half of the picture: **with** optical bonding

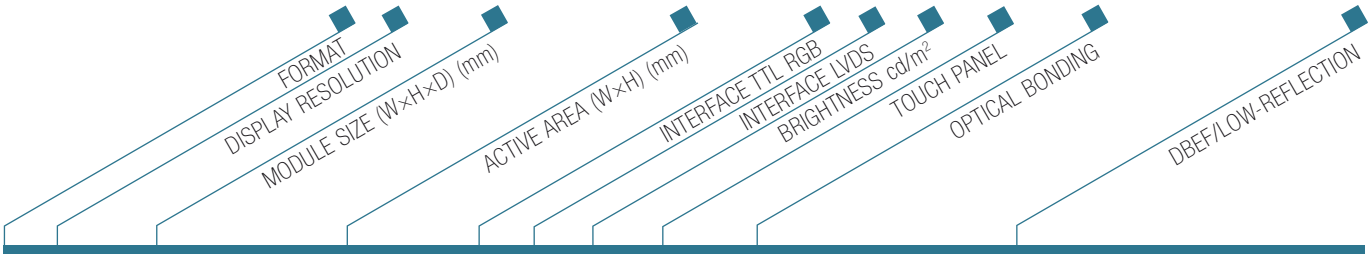
Overview of the advantages of the SGD sunlight readable TFT modules:

» Both sunlight readable technologies are produced by SGD in-house.

» Both processes are available for the TFT sizes of 3.5 to 8.0 inches.

» The DEBF / low-reflection technology has a superb price/performance ratio.

» **SGD's sunlight readable TFT modules also have a 5-year guarantee on workmanship and interface.**



Sunlight Readable TFT-Modules 3.5" to 8.0"

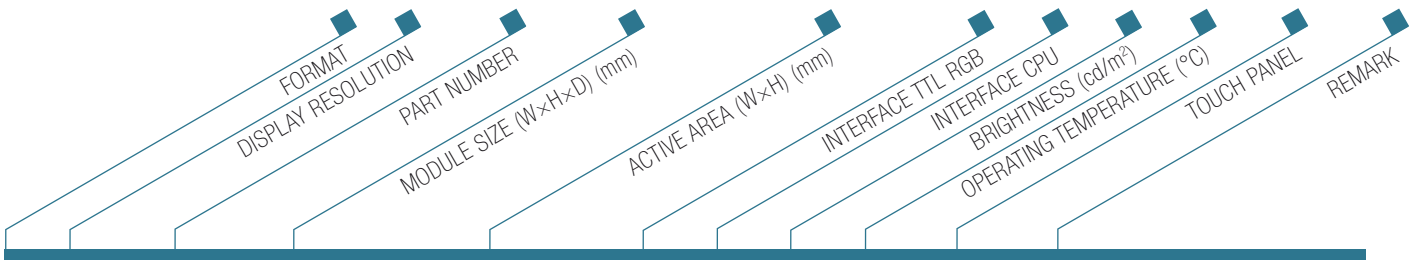
								AR Glass (Anti-Reflection)	Outdoor TP Circular-Polarizer	Back-Polarizer DBEF	Top-Polarizer Low-Reflection	Outdoor TP Circular-Polarizer
3.5 "	320 × 240	76.90 × 63.90 × 3.30	70.08 × 52.56	•		800	None	•	–	•	•	–
3.5 "	320 × 240	76.90 × 63.90 × 4.40	70.08 × 52.56	•		640	4 wires RTP	–	•	•	•	•
4.3 "	480 × 270	105.5 × 67.20 × 3.95	95.04 × 53.85	•	CPU	1000	None	•	–	•	•	–
4.3 "	480 × 272	105.5 × 67.20 × 5.05	95.04 × 53.85	•	CPU	800	4 wires RTP	–	•	•	•	•
4.3 "	480 × 272	105.5 × 67.20 × 3.10	95.04 × 53.85	•		650	None	•	–	•	•	–
4.3 "	480 × 272	105.5 × 67.20 × 4.20	95.04 × 53.85	•		500	4 wires RTP	–	•	•	•	•
5.0 "	800 × 480	118.5 × 77.55 × 3.40	108.0 × 64.80	•		500	None	•	–	–	–	–
5.7 "	320 × 240	144.0 × 104.6 × 13.0	115.2 × 86.40	•		1200	None	•	–	•	•	–
5.7 "	320 × 240	144.0 × 104.6 × 14.5	115.2 × 86.40	•		960	4 wires RTP	–	•	•	•	•
5.7 "	320 × 240	144.0 × 104.6 × 13.0	115.2 × 86.40	•		700	None	•	–	•	•	–
5.7 "	320 × 240	144.0 × 104.6 × 14.5	115.2 × 86.40	•		560	4 wires RTP	–	•	•	•	•
5.7 "	640 × 480	144.0 × 104.6 × 13.0	115.2 × 86.40	•	•	900	None	•	–	•	•	–
5.7 "	640 × 480	144.0 × 104.6 × 14.5	115.2 × 86.40	•	•	720	4 wires RTP	–	•	•	•	•
7.0 "	800 × 480	166.6 × 109.4 × 10.0	152.4 × 91.44	•	•	1000	None	•	–	•	•	–
7.0 "	800 × 480	166.6 × 109.4 × 11.5	152.4 × 91.44	•	•	800	4 wires RTP	–	•	•	•	•
7.0 "	800 × 480	166.6 × 109.4 × 10.0	152.4 × 91.44	•	•	500	None	•	–	•	•	–
7.0 "	800 × 480	166.6 × 109.4 × 11.5	152.4 × 91.44	•	•	400	4 wires RTP	–	•	•	•	•
8.0 "	800 × 600	176.28 × 138.2 × 7.80	162.0 × 121.5	•	•	1300	None	•	–	–	–	–

2 MULTI-INNO TFT MODULES

Multi-Inno Technology Co., Ltd is a company specialising in TFT modules, which are produced in China. A high priority in the production of these models is cost optimization without any compromise on quality. By rapid adaptation of the TFT modules semi-customised solutions can be produced fast and cost effectively.
Through the extremely close cooperation between Endrich and Multi-Inno direct delivery in Asia and a complete support of the Asian FAE is possible at all times.

Overview of the advantages of Multi-Inno TFT modules:

- Cost-optimized TFT modules
- Semi-customized TFT adaptations
- Excellent FAE / design-in support of production facilities in Asia



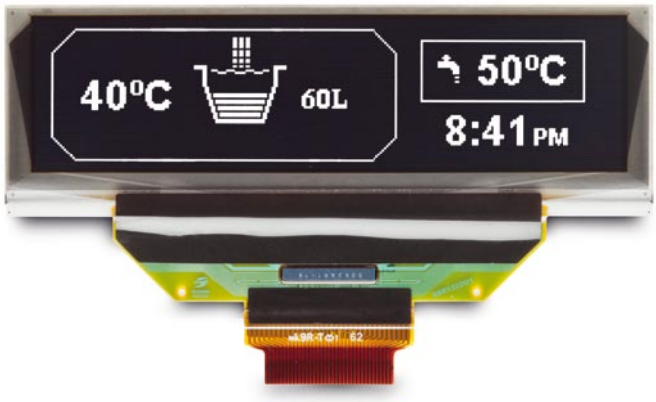
MULTI-INNO TFT MODULES 1.45“ to 9.0“

1.45 "	128 × 128	**MI0145AT-1**	32.36 × 38.00 × 2.60	36.035 × 26.035		•	140	-20...+70	None	SPI interface
2.2 "	320 × 240	**MI0220VT-1**	50.34 × 45.01 × 2.20	44.640 × 33.480	•	•	240	-20...+70	None	landscape, SPI interface
2.2 "	240 × 320	**MI0220ET-1**	40.60 × 56.60 × 2.70	33.840 × 45.120	•	•	90	-20...+70	None	ZIF, transflective
2.4 "	240 × 320	**MI0240ST-4**	42.72 × 60.26 × 2.35	36.720 × 48.960		•	310	-20...+70	None	ZIF

MULTI-INNO TFT MODULES 1.45“ to 9.0“

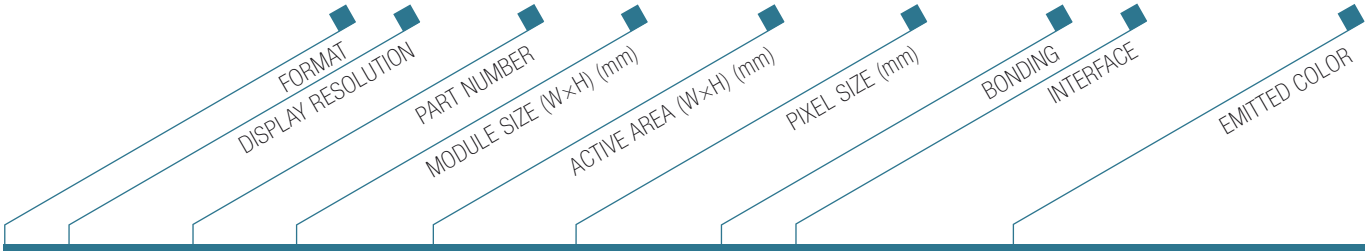
FORMAT	DISPLAY RESOLUTION	PART NUMBER	MODULE SIZE (W×H×D) (mm)	ACTIVE AREA (W×H) (mm)	INTERFACE TTL RGB	INTERFACE CPU	BRIGHTNESS cd/m²	OPERATING TEMPERATURE (°C)	TOUCH PANEL	REMARK
2.4 "	240 × 320	**MI0240ST-5**	42.72 × 60.26 × 3.60	36.72 × 48.96		•	250	-20...+60	4 wires RTP	ZIF
2.4 "	240 × 320	**MI0240ZT-1**	42.72 × 60.26 × 1.85	36.72 × 48.96		•	320	-20...+70	None	all view
2.4 "	320 × 240	**MI0240VT-3**	53.00 × 46.42 × 2.05	48.00 × 36.00		•	200	-20...+70	None	landscape
2.8 "	240 × 320	**MI0283ST**	50.00 × 69.20 × 2.85	47.00 × 60.10	•	•	160	-20...+70	None	transflective
2.8 "	240 × 320	**MI0283ST-1**	50.00 × 69.20 × 2.85	47.00 × 60.10	•	•	160	-20...+60	4 wires RTP	transflective
2.8 "	240 × 320	**MI0283QT-9**	50.20 × 69.30 × 4.00	43.20 × 57.60		•	240	-20...+70	None	ZIF
2.8 "	240 × 320	**MI0283QT-8**	50.20 × 69.30 × 3.20	43.20 × 57.60		•	280	-20...+70	4 wires RTP	ZIF
3.2 "	240 × 320	**MI0320ET-2**	57.54 × 79.20 × 3.65	48.60 × 64.80	•	•	200	-20...+70	None	ZIF, 9:00, SPI interface
3.2 "	240 × 320	**MI0320ET-3**	57.54 × 79.20 × 4.80	48.60 × 64.80	•	•	140	-10...+60	4 wires RTP	ZIF, 9:00, SPI interface
3.2 "	240 × 400	**MI0320GT-1**	47.60 × 80.90 × 2.60	41.76 × 69.60		•	250	-20...+70	None	WQVGA
3.2 "	240 × 400	**MI0320GT-2**	47.60 × 80.90 × 3.90	41.76 × 69.60		•	250	-20...+60	4 wires RTP	WQVGA
3.2 "	240 × 320	**MI0320HT**	57.54 × 79.20 × 3.36	48.60 × 64.80	•	•	120	-20...+70	None	transflective, ZIF
3.2 "	240 × 320	**MI0320HT-1**	57.54 × 79.20 × 4.85	48.60 × 64.80	•	•	120	-10...+60	4 wires RTP	transflective, ZIF
3.2 "	320 × 480	**MI0320IT-3**	50.74 × 78.35 × 2.20	44.64 × 66.96	•	•	380	-20...+60	None	ZIF, HVGA
3.5 "	320 × 480	**MI0347AT-1**	55.26 × 84.69 × 2.25	48.96 × 73.44	•	•	300	-20...+70	None	ZIF, HVGA, all view
3.5 "	240 × 320	**MI0350BT-3**	64.00 × 85.00 × 2.93	53.64 × 71.52	•		125	-20...+60	None	ZIF, transflective, SPI interface
3.5 "	240 × 320	**MI0350BT-2**	64.00 × 85.00 × 4.13	53.64 × 71.52	•		125	-20...+60	4 wires RTP	ZIF, transflective, SPI interface
3.5 "	480 × 800	**MI0350B1T-1**	51.06 × 86.95 × 2.60	45.36 × 75.60	•	•	240	-20...+70	None	ZIF, SPI interface, all view
3.5 "	480 × 800	**MI0350B1T**	51.06 × 86.95 × 3.70	45.36 × 75.60	•	•	200	-10...+60	4 wires RTP	ZIF, SPI interface, all view
3.5 "	320 × 240	**MI0350CT-6**	76.90 × 63.90 × 3.15	70.08 × 52.56	•		300	-20...+60	None	CCIR601, CCIR656 interface
3.5 "	320 × 240	**MI0350CT-3**	76.90 × 63.90 × 4.00	70.08 × 52.56	•		350	-20...+60	4 wires RTP	CCIR601, CCIR656 interface
3.5 "	640 × 480	**MI0350ST-1**	84.25 × 65.24 × 3.45	72.00 × 52.56	•		250	-20...+70	None	VGA
3.5 "	640 × 480	**MI0350ST**	84.25 × 65.40 × 4.45	72.00 × 52.56	•		210	0...+60	4 wires RTP	VGA
4.3 "	480 × 272	**MI0430KT-1**	105.5 × 67.20 × 2.90	95.04 × 53.86	•		350	-20...+70	None	
4.3 "	480 × 272	**MI0430KT**	105.5 × 67.20 × 4.10	95.04 × 53.86	•		280	-20...+70	4 wires RTP	
4.7 "	480 × 272	**MI0470AT-4**	114.3 × 72.50 × 3.80	103.68 × 58.75	•		320	-20...+60	None	
4.7 "	480 × 272	**MI0470AT-3**	114.3 × 72.50 × 5.00	103.68 × 58.75	•		280	-20...+60	4 wires RTP	
5.0 "	480 × 272	**MI0500LT-1**	120.7 × 75.80 × 3.10	110.88 × 62.83	•		350	-20...+70	None	
5.0 "	480 × 272	**MI0500LT**	75.80 × 120.7 × 4.25	62.83 × 110.88	•		300	-20...+70	4 wires RTP	
5.7 "	640 × 480	**MI0570KT**	127.0 × 98.43 × 7.00	115.20 × 86.40	•		500	-20...+70	None	all in one PCB
5.7 "	640 × 480	**MI0570KT-1**	127.0 × 98.43 × 9.60	115.20 × 86.40	•		400	-20...+70	4 wires RTP	all in one PCB
6.0 "	800 × 480	**MI0600BT-1**	145.5 × 87.80 × 3.40	133.20 × 73.90	•		350	-20...+70	None	
6.0 "	800 × 480	**MI0600BT**	145.5 × 87.80 × 4.50	133.20 × 73.90	•		400	-20...+60	4 wires RTP	
7.0 "	800 × 480	**MI0700S1T-2**	164.9 × 100.0 × 5.70	154.08 × 85.92	•		350	-20...+60	None	
7.0 "	800 × 480	**MI0700S1T**	164.9 × 100.0 × 6.80	154.08 × 85.92	•		280	-20...+70	4 wires RTP	
9.0 "	800 × 480	**MI0900AT-1**	211.1 × 126.5 × 5.90	198.00 × 111.696	•		250	-20...+70	None	
9.0 "	800 × 480	**MI0900AT-3**	211.1 × 126.5 × 7.60	198.00 × 111.696	•		320	-10...+60	4 wires RTP	

3.1 MONOCHROME GRAPHIC OLED



In the past 10 years RiTdisplay Corp. has grown to a world market leader for passive OLED displays. The spectrum of these products extends from monochrome to full colour OLEDs. As a unique product highlight RiTdisplay produces as the only supplier in the world OLED displays with an integrated capacitive touch panel.
Special optical qualities of the OLED displays are an extremely high contrast of 2000:1 and an unusually wide viewing angle of 160°. Most of the displays have in addition to the 8-bit parallel interface an SPI and I²C interface.

The monochrome OLED displays are supplied in the sizes 0.7 to 3.2 inches with a maximum resolution of 256x64 pixels. In many applications, monochrome OLED displays replace standard LC modules. The user gets the benefit of much improved optical performance, in short a greatly improved final product.



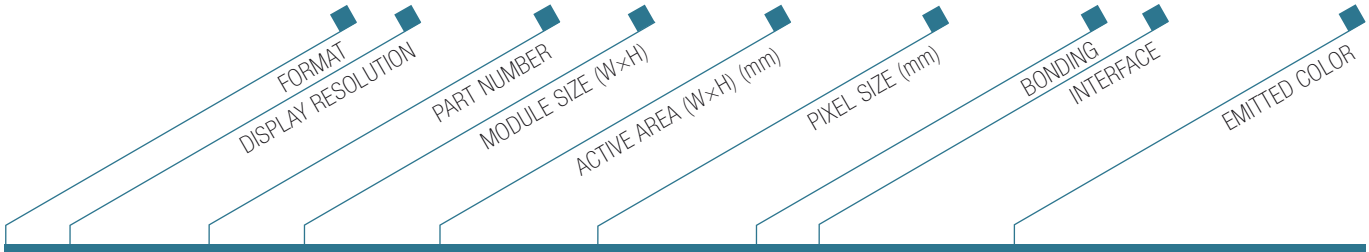
Monochrome Graphic OLED 0.7“ to 3.2“

							Parallel	SPI	I²C	Yellow	White	Blue	Green	Red
0.7"	96 × 16	**P18701**	26.30 × 8.000	17.64 × 3.260	0.164 × 0.185	COG			•		•			
0.7"	96 × 32	**P20603**	19.80 × 12.80	16.30 × 5.420	0.150 × 0.150	COG	•	•			•			
0.8"	96 × 32	**P23302**	28.50 × 11.50	19.18 × 6.380	0.180 × 0.180	COG		•	•		•			
1.0"	128 × 32	**P23601**	28.50 × 15.40	25.58 × 6.380	0.180 × 0.180	COG	•	•	•		•			
1.1"	128 × 64	**P23201**	26.40 × 19.70	21.74 × 10.86	0.150 × 0.150	COG	•	•	•		•			
1.1"	128 × 36	**P23701**	31.00 × 14.30	26.86 × 7.540	0.190 × 0.190	COG	•	•	•,		•			
1.1"	96 × 64	**P19601**	29.00 × 21.00	23.49 × 15.65	0.215 × 0.215	TAB	•	•		•				
1.3"	128 × 96	**P14201**	33.00 × 26.80	26.86 × 20.14	0.190 × 0.190	COF	•	•			•			
1.3"	128 × 96	**P14203**	33.00 × 26.80	26.86 × 20.14	0.190 × 0.190	COF	•	•				•		
1.5"	128 × 128	**P22101**	33.80 × 36.50	26.86 × 26.86	0.190 × 0.190	COG	•	•	•	•				
1.5"	128 × 128	**P22102**	33.80 × 36.50	26.86 × 26.86	0.190 × 0.190	COG	•	•	•		•			
1.6"	128 × 64	**P19401**	41.90 × 28.00	36.45 × 18.21	0.255 × 0.255	COG	•	•		•				
2.4"	128 × 22	**P21501**	63.30 × 20.80	58.85 × 11.85	0.430 × 0.510	COG	•	•	•	•				
2.4"	128 × 64	**P19701**	60.50 × 37.00	55.01 × 27.49	0.400 × 0.400	TAB	•	•	•	•				
2.4"	128 × 64	**P19703**	60.50 × 37.00	55.01 × 27.49	0.400 × 0.400	TAB	•	•	•		•			
2.7"	128 × 64	**P19301**	70.90 × 41.86	61.41 × 30.69	0.450 × 0.450	TAB	•	•	•	•				
3.1"	256 × 32	**P19101**	83.80 × 18.00	79.08 × 9.870	0.289 × 0.289	COF	•	•	•		•			
3.2"	256 × 64	**P21301**	87.40 × 28.50	79.08 × 19.76	0.289 × 0.289	COF	•	•			•			
3.2"	256 × 64	**P21302**	87.40 × 28.50	79.08 × 19.76	0.289 × 0.289	COF	•	•		•				

3.2 FULL-COLOR GRAPHIC OLED

Full colour OLED displays are supplied in the sizes 1.0 to 1.8 inches. They are particularly suitable as replacements for small TFT modules or CSTN displays. The typical lifetime of these OLED displays is approximately 20,000 hours.

Full colour OLED displays with capacitive touch panel are currently available as a standard product. The capacitive touch panels are produced in-house by RiTdisplay and can be adapted according to customer wishes to all other OLED sizes.



Full-Color Graphic OLED 1.0“ to 1.8“

							Parallel	SPI	I²C	
1.0"	96 × 3 × 64	**P19801**	24.2 × 20.9	20.135 × 13.420	0.045 × 0.190	COG		•		65 k Full Colors
1.1"	96 × 3 × 96	**P20101**	27.0 × 30.1	20.135 × 20.140	0.045 × 0.190	COG	•	•		262 k Full Colors
1.3"	128 × 3 × 96	**P22201**	33.0 × 25.8	26.279 × 19.708	0.0405 × 0.1855	COF	•	•		262 k Full Colors
1.5"	128 × 3 × 128	**P23901**	33.5 × 33.5	26.279 × 26.284	0.0435 × 0.1855	COF	•	•		262 k Full Colors
1.8"	160 × 3 × 128	**P16803**	42.7 × 33.4	35.015 × 28.012	0.048 × 0.199	COF	•	•		262 k Full Colors

Full-Color Graphic OLED with Capacitive Touch Panel

1.8"	160 × 3 × 128	**P16885**	42.8 × 33.5	35.015 × 28.012	0.048 × 0.199	COF	•	•		262 k Full Colors

3.3 MONOCHROME ALPHANUMERIC OLED

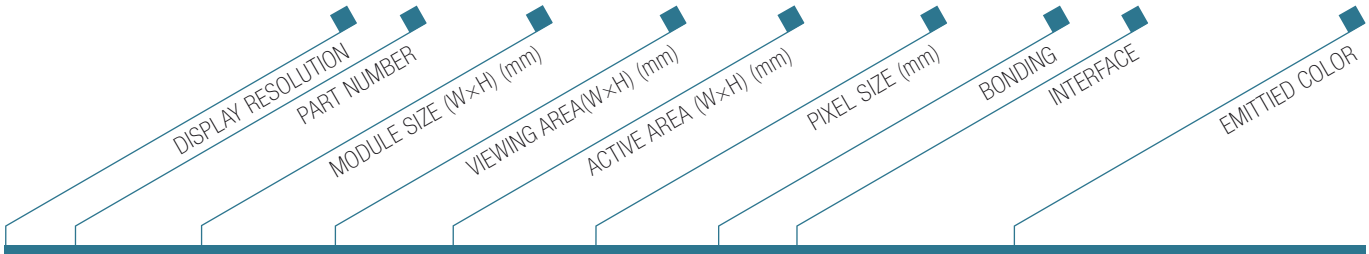
Raystar Optronics was established in Taiwan in 2007. Raystar specialises in the production of standard alphanumeric and graphic OLED displays as well as monochrome LC modules. In the last few years Raystar has succeeded in making a name in the Taiwan market as an OLED panel manufacturer.

Raystar alphanumeric OLED displays

- Mechanically and electrically compatible with alphanumeric LC displays
- Sunlight readable technology available

Typical lifetime at 80 cd/m²

- yellow: 100,000 hours
- red: 100,000 hours
- green: 100,000 hours
- white: 50,000 hours
- blue: 50,000 hours



Monochrome Alphanumeric OLED

							Parallel	SPI	I²C	Yellow	White	Blue	Green	Red
8 × 2	REC000802A	58.00 × 32.0	38.0 × 16.0	28.16 × 11.86	0.56 × 0.66	COB	•	•		•			•	
12 × 2	REC001202A	55.70 × 32.0	46.0 × 14.5	38.95 × 11.80	0.45 × 0.60	COB	•	•		•			•	
16 × 1	REC001601A	80.00 × 36.0	66.0 × 16.0	56.95 × 6.35	0.55 × 0.75	COB	•	•		•	•	•	•	
16 × 2	REC001602A	80.00 × 36.0	66.0 × 16.0	56.95 × 11.85	0.50 × 0.60	COB	•	•		•	•	•	•	•
16 × 2	REC001602B	122.0 × 44.0	99.0 × 24.0	91.14 × 18.98	0.92 × 1.10	COB	•	•		•			•	
16 × 2	REC001602C	85.00 × 36.0	66.0 × 16.0	56.95 × 11.85	0.55 × 0.65	COB	•	•		•	•	•	•	•
16 × 2	REC001602D	85.00 × 30.0	66.0 × 16.0	56.95 × 11.85	0.55 × 0.65	COB	•	•		•	•	•	•	•
16 × 2	REC001602E	84.00 × 44.0	66.0 × 16.0	56.95 × 11.85	0.55 × 0.65	COB	•	•		•	•	•	•	•
20 × 2	REC002002A	116.0 × 37.0	85.0 × 18.6	77.30 × 11.85	0.60 × 0.65	COB	•	•		•	•	•	•	
20 × 4	REC002004A	98.00 × 60.0	77.0 × 25.2	70.16 × 20.95	0.54 × 0.55	COB	•	•		•			•	
20 × 4	REC002004B	98.00 × 60.0	77.0 × 25.2	70.16 × 20.95	0.54 × 0.55	COB	•	•		•			•	

3.4 MONOCHROME GRAPHIC OLED

Graphic COB and TAB OLED displays

- COB OLED compatible with the alphanumeric OLED displays
- COB OLED compatible with the alphanumeric LC modules
- Sunlight readable technology available

Typical lifetime at 80 cd/m²

- yellow: 100,000 hours
- red: 100,000 hours
- green: 100,000 hours
- white: 50,000 hours
- blue: 50,000 hours

DISPLAY RESOLUTION | PART NUMBER | MODULE SIZE (W×H) (mm) | VIEWING AREA (W×H) (mm) | ACTIVE AREA (W×H) (mm) | PIXELSIZE (mm) | BONDING | INTERFACE | EMITTED COLOR

Monochrome Graphic OLED

							Parallel	SPI	I²C	Yellow	White	Blue	Green	Red
50 × 16	REG005016A	58.00 × 32.00	38.00 × 16.00	29.96 × 11.16	0.56 × 0.66	COB	•	•		•			•	
76 × 16	REG007616A	55.70 × 32.00	46.00 × 14.50	41.70 × 11.10	0.45 × 0.60	COB	•	•		•			•	
100 × 8	REG010008A	80.00 × 36.00	66.00 × 16.00	59.95 × 6.35	0.55 × 0.75	COB	•	•		•	•	•	•	
100 × 16	REG010016A	80.00 × 36.00	66.00 × 16.00	59.95 × 11.15	0.65 × 0.55	COB	•	•		•	•	•	•	•
100 × 16	REG010016B	122.0 × 44.00	99.00 × 24.00	95.94 × 17.86	1.06 × 0.90	COB	•	•		•			•	
100 × 16	REG010016C	85.00 × 36.00	66.00 × 16.00	59.95 × 11.15	0.55 × 0.65	COB	•	•		•	•	•	•	•
100 × 16	REG010016D	85.00 × 30.00	66.00 × 16.00	59.95 × 11.15	0.55 × 0.65	COB	•	•		•	•	•	•	•
100 × 16	REG010016E	84.00 × 44.00	66.00 × 16.00	59.95 × 11.15	0.55 × 0.65	COB	•	•		•				•
100 × 16	REG010016F	116.0 × 37.00	85.00 × 18.60	64.95 × 11.15	0.65 × 0.60	COB	•	•		•	•	•	•	
100 × 32	REG010032A	98.00 × 60.00	77.00 × 25.20	58.95 × 19.15	0.54 × 0.55	COB	•	•		•			•	
100 × 32	REG010032B	98.00 × 60.00	77.00 × 25.20	58.95 × 19.15	0.54 × 0.55	COB	•	•		•			•	
128 × 64 (2.4“)	REG012864G*	75.00 × 52.70	57.01 × 29.49	55.01 × 27.49	0.40 × 0.40	TAB	•	•	•	•				
128 × 64 (2.4“)	REG012864M	60.50 × 37.00	57.01 × 29.49	55.01 × 27.49	0.43 × 0.43	TAB	•	•	•	•				
128 × 64 (2.7“)	REG012864L*	73.00 × 41.86	63.41 × 32.69	61.41 × 30.69	0.45 × 0.45	TAB	•	•		•				
128 × 64 (2.7“)	REG012864C*	82.70 × 40.20	63.41 × 32.69	61.41 × 30.69	0.45 × 0.45	TAB	•	•	•	•			•	
128 × 64 (2.7“)	REG012864D	73.00 × 41.86	63.41 × 32.69	61.41 × 30.69	0.45 × 0.45	TAB	•	•	•	•			•	

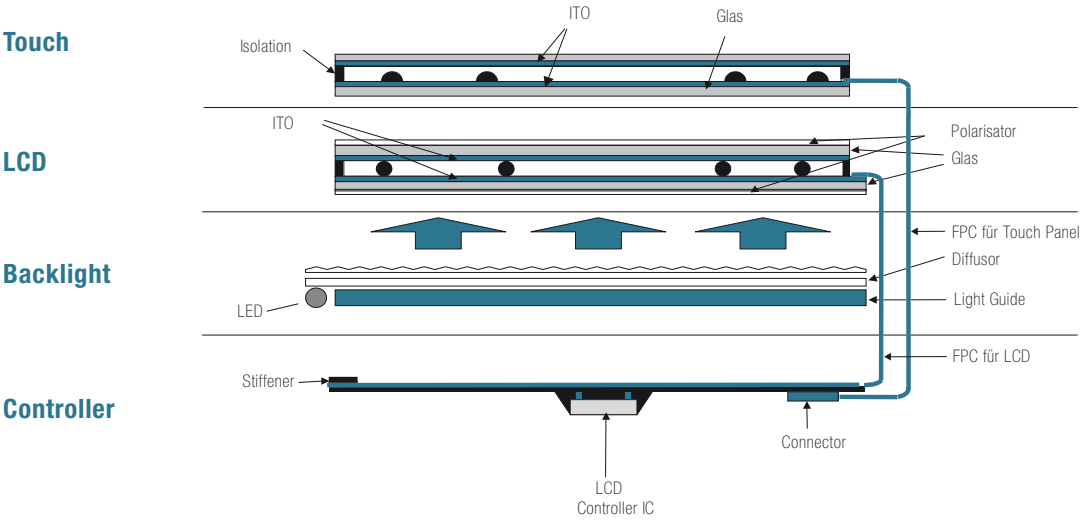
* TAB-Module mountable with fastening lugs

4.1 CUSTOMIZED LC-MODULES

One of Endrich's core competences is implementing customised displays. We guarantee our customers individual support during the development of LCDs matching their specific requirements. On the basis of our specialised know-how and years of experience we can offer our customers the best and most cost-effective products for meeting their requirements. On the basis of a wide range of technologies Endrich supplies solutions for industry, audio, telecommunications, medical or automotive applications.

Display components:

Most important for an optimal appearance is matching in detail the individual components, for example, liquid crystals, polarizers, controllers and back-lights. Endrich provides active support for its customers when choosing components to develop an attractive and innovative display for the application in question.



Available technologies:

- LCD glass: TN, HTN, STN, DSTN, FSTN, Enhanced FSTN, Super White FSTN, DFSTN, IBN, Black Mask, Black Mask Color Ink Print
- Max.working temperature: -40°C ... +85°C
- IC Bonding: COB, COG, TAB
- LCD Backlight: LED, EL, CCFL, Lightguide
- Touch Panel: capacitive and resistive technologies
- Contacting: FFC, FPC, heat sealing, pins, conducting rubber
- Certifications: ISO 9001, ISO 14001, ISO/TS 16949

4.2 CUSTOMIZED SOLUTIONS

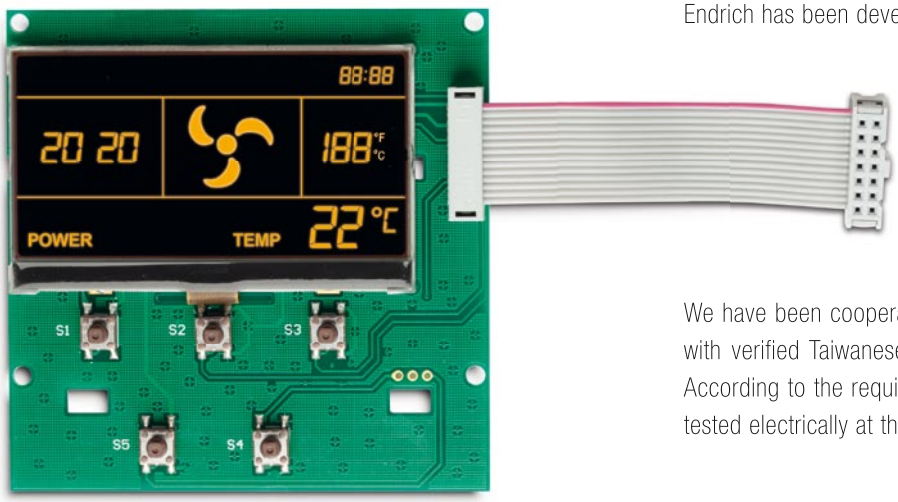
Special LC technologies:
IBN (Improved Black Nematic)

IBN technology has been designed for segment displays. The extremely high contrast – typical values are 500:1 – is unique for monochrome displays.

Technical features

- » LCD type: Segment display
- » Max.operating temp.: -30°C ... +85°C
- » IC Bonding: COB, COG
- » LCD Backlight: LED
- » Contacting: FFC, FPC, Heatseal, Pins
- » Special features: Contrast typically 500:1

Complete solutions:
LC module, PCB, push-button, customized cable



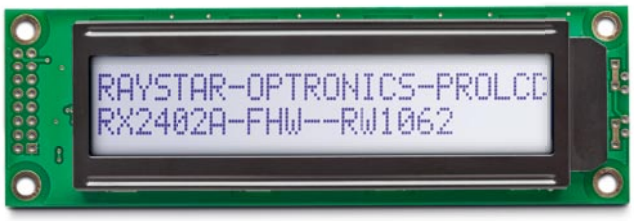
Endrich has been developing total solutions for many years.

We have been cooperating for a considerable number of years with verified Taiwanese suppliers in sourcing the components. According to the requirements of the customer each module is tested electrically at the supplier.

Fixing displays mechanically

For customer-specific modules fixing the display mechanically to the PCB assumes greater and greater importance. Cost-effective solutions are obtained using modules with plastic hooks, which we develop according customer requirements.
This solution saves time in production in comparison with screwing or adhesive fixing.

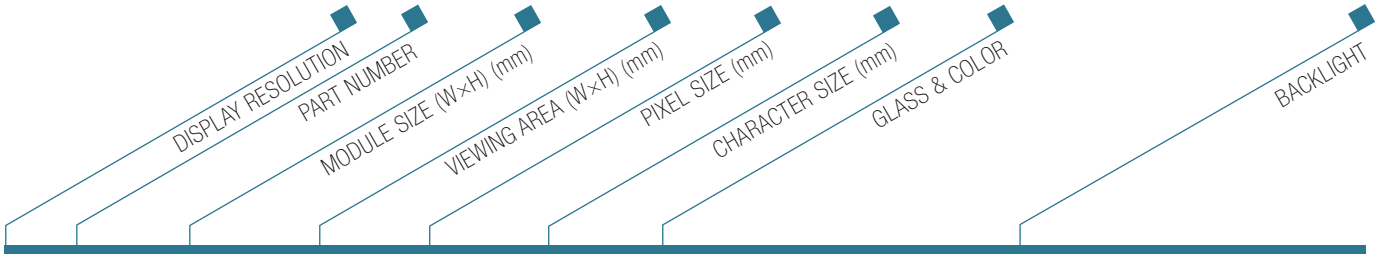
5.1 STANDARD ALPHANUMERIC LC-MODULES



Raystar Optronics has an extremely comprehensive production program of graphic and alphanumeric displays. The program covers a wide range of sizes, technologies and back-light colours for the various modules.

Should a particular required display not be part of our standard program we can develop this according to a customer's requirements.

The Raystar alphanumeric displays are supplied for 8 x 2 to 40 x 4 characters. For every size of display there is a number of different character sets, LC technologies and backlight colours.



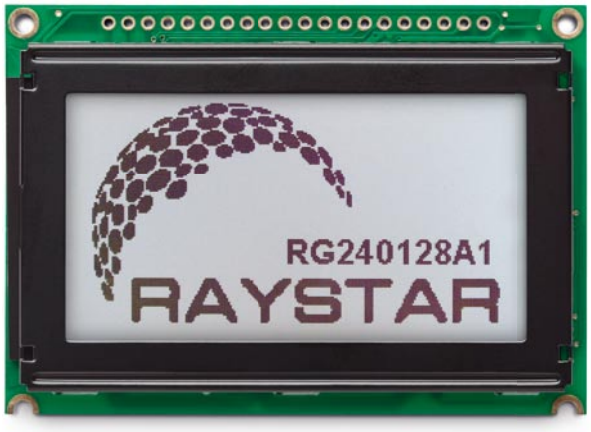
Standard Alphanumeric LC-Modules

						TN	STN Grey	STN Y-G	STN Blue	FSTN B/W	None	LED	EL
8 × 2	RC0802A/A1	58.00 × 32.0	38.0 × 16.0	0.56 × 0.66	2.96 × 5.56	•	•	•	•	•	•	•	•
8 × 2	RC0802B	56.00 × 24.0	36.1 × 15.1	0.56 × 0.57	4.91 × 3.00	•	•	•			•		•
12 × 2	RC1202A	55.70 × 32.0	46.0 × 14.5	0.45 × 0.60	2.65 × 5.50	•	•	•	•	•	•	•	•
16 × 1	RC1601A	80.00 × 36.0	66.0 × 16.0	0.55 × 0.75	3.07 × 6.56	•	•	•	•		•	•	•
16 × 1	RC1601B	85.00 × 28.0	66.0 × 16.0	0.55 × 0.75	3.07 × 6.56	•	•	•	•	•	•	•	•
16 × 1	RC1601C	122.0 × 33.0	99.0 × 13.0	0.92 × 1.10	4.84 × 8.06	•	•	•	•	•	•	•	•
16 × 2	RC1602A	84.00 × 44.0	66.0 × 16.0	0.55 × 0.65	2.95 × 5.55	•	•	•	•	•	•	•	•
16 × 2	RC1602B	80.00 × 36.0	66.0 × 16.0	0.55 × 0.66	2.95 × 5.56	•	•	•	•	•	•	•	•
16 × 2	RC1602B1	80.00 × 36.0	66.0 × 16.0	0.55 × 0.66	2.95 × 5.56	•	•	•	•	•	•	•	•
16 × 2	RC1602C	85.00 × 36.0	66.0 × 16.0	0.55 × 0.66	2.95 × 5.56	•	•	•	•	•	•	•	•
16 × 2	RC1602D	85.00 × 36.0	66.0 × 16.0	0.55 × 0.66	2.95 × 5.56	•	•	•	•	•	•	•	•
16 × 2	RC1602D1	85.00 × 36.0	66.0 × 16.0	0.55 × 0.66	2.95 × 5.56	•	•	•	•	•	•	•	•
16 × 2	RC1602E	122.0 × 44.0	99.0 × 24.0	0.92 × 1.10	4.84 × 9.99	•	•	•	•	•	•	•	•

Standard Alphanumeric LC-Modules

DISPLAY RESOLUTION	PART NUMBER	MODULE SIZE (W×H) (mm)	VIEWING AREA (W×H) (mm)	PIXEL SIZE (mm)	CHARACTER SIZE (mm)	GLASS & COLOR					BACKLIGHT		
						TN	STN Grey	STN Y-G	STN Blue	FSTN B/W	None	LED	EL
16 × 2	RC1602F	85.00 × 32.60	66.0 × 16.0	0.55 × 0.66	2.95 × 5.56	•	•	•	•	•	•	•	•
16 × 2	RC1602G	85.00 × 25.20	66.0 × 16.0	0.55 × 0.66	2.95 × 5.56	•	•	•	•	•	•	•	•
16 × 2	RC1602G1	85.00 × 25.20	66.0 × 16.0	0.55 × 0.66	2.95 × 5.56	•	•	•	•	•	•	•	•
16 × 2	RC1602H	59.00 × 29.30	52.0 × 15.3	0.45 × 0.54	2.45 × 4.67	•	•	•	•		•	•	•
16 × 2	RC1602I	65.40 × 28.20	54.8 × 19.0	0.51 × 0.67	3.05 × 5.57	•	•	•	•	•	•	•	•
16 × 2	RC1602M2	66.70 × 23.30	61.0 × 15.9	0.55 × 0.65	2.95 × 5.55	•	•	•	•		•	•	•
16 × 2	RC1602O	80.00 × 36.00	66.0 × 16.0	0.55 × 0.65	2.95 × 5.55	•	•	•	•		•	•	•
16 × 2	RC1602O1	80.00 × 36.00	66.0 × 16.0	0.55 × 0.65	2.95 × 5.55			•	•		•	•	
16 × 4	RC1604A	87.00 × 60.00	62.0 × 26.0	0.55 × 0.55	2.95 × 4.75	•	•	•	•	•	•	•	•
16 × 4	RC1604A1	87.00 × 60.00	62.0 × 26.0	0.55 × 0.55	2.95 × 4.75	•	•	•	•	•	•	•	•
16 × 4	RC1604B	70.60 × 60.00	60.0 × 32.6	0.55 × 0.55	2.95 × 4.75	•	•	•	•	•	•	•	•
16 × 4	RC1604D	70.60 × 60.00	60.0 × 32.6	0.55 × 0.55	2.95 × 4.75	•	•	•			•	•	
20 × 1	RC2001A	180.0 × 40.20	149.0 × 23.0	1.152 × 1.76	6.00 × 12.71	•	•	•	•	•	•	•	•
20 × 2	RC2002A	116.0 × 37.00	85.0 × 18.6	0.60 × 0.65	3.20 × 5.55	•	•	•	•	•	•	•	•
20 × 2	RC2002A2	115.0 × 36.00	85.0 × 18.6	0.60 × 0.65	3.20 × 5.55	•	•	•			•	•	
20 × 2	RC2002B	89.00 × 21.50	75.0 × 15.0	0.55 × 0.60	2.95 × 5.15		•	•		•		•	
20 × 2	RC2002C	180.0 × 40.00	149.0 × 23.0	1.12 × 1.12	6.00 × 9.66	•	•	•	•	•	•	•	•
20 × 2	RC2002D	146.0 × 43.00	123.0 × 23.0	1.12 × 1.12	6.00 × 9.66	•	•	•	•	•	•	•	•
20 × 4	RC2004A	98.00 × 60.00	77.0 × 25.2	0.55 × 0.55	2.95 × 4.75	•	•	•	•	•	•	•	•
20 × 4	RC2004A1	98.00 × 60.00	77.0 × 25.2	0.55 × 0.55	2.95 × 4.75	•	•	•	•	•	•	•	•
20 × 4	RC2004A2	118.0 × 43.00	77.0 × 25.2	0.55 × 0.55	2.95 × 4.75	•	•	•	•	•	•	•	•
20 × 4	RC2004B	77.00 × 47.00	60.0 × 22.0	0.42 × 0.46	2.30 × 4.03	•	•	•	•	•	•	•	•
20 × 4	RC2004C	146.0 × 62.50	123.5 × 43.0	0.92 × 1.10	4.84 × 9.22	•	•	•	•	•	•	•	•
24 × 2	RC2402A	118.0 × 36.00	94.5 × 16.0	0.60 × 0.65	3.20 × 5.55	•	•	•	•	•	•	•	•
40 × 2	RC4002A	182.0 × 33.50	154.4 × 16.5	0.60 × 0.65	3.20 × 5.55	•	•	•	•	•	•	•	•
40 × 4	RC4004A	190.0 × 54.00	147.0 × 29.5	0.50 × 0.55	2.78 × 4.89	•	•	•	•	•	•	•	•

5.2 STANDARD GRAPHIC LC-MODULES (COB)



Chip on board (COB) LC modules are available as standard products in resolutions of 122 x 32 to 320 x 240 pixels. The LC module is fixed to a PCB which includes also the controller. Various contact methods are available, e.g. FFC, pins or soldering lugs.

DISPLAY RESOLUTION | PART NUMBER | MODULE SIZE (W×H) (mm) | VIEWING AREA (W×H) (mm) | PIXEL SIZE (mm) | GLASS & COLOR | CONTROLLER | BACKLIGHT

Standard Graphic LC-Modules (COB)

					STN Grey	STN Y-G	STN Blue	FSTN B/W		None	LED	EL	CCFL
122 × 32	RG12232A2	84.00 × 44.00	60.00 × 18.00	0.400 × 0.450	•	•	•	•	ST9720	•	•	•	
122 × 32	RG12232B2	65.40 × 28.20	54.80 × 13.00	0.360 × 0.410	•	•			SBN1661G	•	•		
122 × 32	RG12232B3	65.40 × 28.20	52.00 × 15.00	0.345 × 0.345	•	•		•	ST9720	•			
122 × 32	RG12232C	59.00 × 29.30	52.00 × 15.00	0.345 × 0.345	•	•			SBN1661G	•	•	•	
122 × 32	RG12232C1	59.00 × 29.30	52.00 × 15.00	0.345 × 0.345	•	•			SBN1661G	•			
122 × 32	RG12232C2	59.00 × 32.10	52.00 × 15.00	0.345 × 0.345	•	•		•	SBN1661G	•	•	•	
122 × 32	RG12232C3	59.00 × 29.30	52.00 × 15.00	0.345 × 0.345	•	•		•	ST9720	•	•		
122 × 32	RG12232D	77.80 × 27.20	60.00 × 18.00	0.400 × 0.450	•	•		•	SBN1661G	•	•	•	
122 × 32	RG12232E1	80.00 × 36.00	60.00 × 18.00	0.400 × 0.450	•	•	•	•	SBN1661G	•	•	•	
128 × 64	RG12864A	93.00 × 70.00	72.00 × 40.00	0.480 × 0.480	•	•	•	•	KS0108	•	•	•	•
128 × 64	RG12864A2	93.00 × 70.00	72.00 × 40.00	0.480 × 0.480	•	•	•	•	ST9720	•	•	•	
128 × 64	RG12864B	75.00 × 52.70	60.00 × 32.60	0.390 × 0.390	•	•	•	•	KS0108	•	•	•	•
128 × 64	RG12864B2	75.00 × 52.70	60.00 × 32.60	0.390 × 0.390	•	•	•	•	ST9720	•	•	•	
128 × 64	RG12864C	78.00 × 70.00	62.00 × 44.00	0.420 × 0.580	•	•	•		KS0108	•	•	•	
128 × 64	RG12864C1	78.00 × 70.00	62.00 × 44.00	0.420 × 0.580	•	•	•	•	T6963C	•	•	•	
128 × 64	RG12864C4	78.00 × 70.00	62.00 × 44.00	0.420 × 0.580	•	•	•	•	T6963C	•	•	•	

Standard Graphic LC-Modules (COB)

DISPLAY RESOLUTION	PART NUMBER	MODULE SIZE (W×H) (mm)	VIEWING AREA (W×H) (mm)	PIXEL SIZE (mm)	GLASS & COLOR				CONTROLLER	BACKLIGHT			
					STN Grey	STN Y-G	STN Blue	FSTN B/W		None	LED	EL	CCFL
128 × 64	RG12864D	80.00 × 70.00	72.00 × 40.00	0.48 × 0.48	•	•	•	•	KS0108	•	•	•	
128 × 64	RG12864E	113.0 × 53.00	72.00 × 40.00	0.48 × 0.48	•	•	•	•	KS0108	•	•	•	
128 × 64	RG12864F	95.50 × 50.20	72.00 × 40.00	0.48 × 0.48	•	•	•	•	KS0108	•	•	•	
128 × 64	RG12864G1	87.00 × 70.00	72.00 × 40.00	0.48 × 0.48	•	•	•		T6963C	•	•	•	
128 × 64	RG12864H	54.00 × 50.00	43.50 × 29.00	0.28 × 0.35	•	•		•	KS0108	•		•	
128 × 64	RG12864J	83.00 × 52.70	60.00 × 32.60	0.39 × 0.39	•				ST7920			•	
128 × 64	RG12864K	93.00 × 70.00	72.00 × 40.00	0.48 × 0.48	•	•	•	•	ST7921	•	•	•	
128 × 64	RG12864L	93.00 × 70.00	72.00 × 40.00	0.48 × 0.48		•	•	•	ST7920		•		
128 × 128	RG128128A	85.00 × 100.0	62.00 × 62.00	0.40 × 0.40	•	•	•	•	T6963C		•	•	
128 × 128	RG128128B	72.50 × 69.90	50.00 × 49.00	0.32 × 0.32	•	•	•		LC7981	•	•	•	
128 × 128	RG128128B1	65.50 × 70.00	50.00 × 49.00	0.32 × 0.32	•	•	•		T6963C	•	•	•	
144 × 32	RG14432A	85.00 × 36.00	66.00 × 16.00	0.38 × 0.38	•	•	•	•	ST7920	•	•	•	
144 × 32	RG14432B	80.00 × 36.00	66.00 × 16.00	0.38 × 0.38	•	•	•	•	ST7920	•	•	•	
144 × 32	RG14432C	84.00 × 44.00	66.00 × 16.00	0.38 × 0.38	•	•	•	•	ST7920	•	•	•	
144 × 32	RG14432D	85.50 × 30.00	66.00 × 16.00	0.38 × 0.38	•	•	•	•	ST7920	•	•	•	
144 × 32	RG14432E	80.00 × 36.00	66.00 × 16.00	0.38 × 0.38	•	•	•	•	ST7920	•	•	•	
160 × 32	RG16032A	85.00 × 55.00	72.00 × 22.00	0.40 × 0.56	•	•	•	•	SED1520	•	•	•	
160 × 32	RG16032B	78.20 × 55.00	74.00 × 22.00	0.40 × 0.56	•	•	•	•	ST7920	•	•	•	
160 × 32	RG16032E	122.0 × 44.00	90.00 × 24.00	0.55 × 0.55	•	•	•	•	ST7920		•		
160 × 80	RG16080B	100.0 × 55.00	72.00 × 40.00	0.48 × 0.48	•	•	•	•	LC7981	•	•	•	
160 × 80	RG16080C	93.00 × 70.00	72.00 × 40.00	0.39 × 0.39	•	•	•	•	LC7981	•	•	•	
160 × 128	RG160128A	129.0 × 102.0	101.0 × 82.00	0.56 × 0.56	•	•	•	•	TC6963C	•	•	•	•
160 × 128	RG160128A1	129.0 × 102.0	101.0 × 82.00	0.56 × 0.56	•	•	•	•	TC6963C		•	•	•
160 × 128	RG160128B	150.0 × 112.0	101.0 × 82.00	0.56 × 0.56	•	•	•	•	TC6963C		•	•	•
160 × 160	RG160160A	89.20 × 85.00	62.00 × 62.00	0.34 × 0.34	•	•	•	•	None	•	•	•	
160 × 160	RG160160B	85.00 × 100.0	62.00 × 62.00	0.34 × 0.34	•	•	•	•	LC7981	•	•	•	
160 × 160	RG160160C	88.00 × 100.0	62.00 × 62.00	0.34 × 0.34	•	•	•	•	RA8822		•		
192 × 32	RG19232A1	116.0 × 37.00	85.00 × 18.00	0.38 × 0.46	•	•	•	•	ST9720	•	•	•	
192 × 64	RG19264A	120.0 × 62.00	102.0 × 39.00	0.46 × 0.46	•	•	•		KS0107	•	•	•	
192 × 64	RG19264A1	130.0 × 65.00	102.0 × 39.00	0.46 × 0.46	•	•	•	•	KS0107	•	•	•	
192 × 64	RG19264B	150.0 × 62.50	123.5 × 43.00	0.59 × 0.59	•	•	•	•	KS0107	•	•		
192 × 64	RG19264C	100.0 × 60.00	84.00 × 31.00	0.36 × 0.36		•	•	•	NT7107		•		
192 × 64	RG19264D	100.0 × 60.00	84.00 × 31.00	0.36 × 0.36		•	•	•	NT7107		•		
192 × 128	RG192128A	102.3 × 86.00	78.50 × 55.00	0.35 × 0.35	•	•	•	•	LC7981	•	•		

Standard Graphic LC-Modules (COB)

DISPLAY RESOLUTION	PART NUMBER	MODULE SIZE (W×H) (mm)	VIEWING AREA (W×H) (mm)	PIXEL SIZE (mm)	GLASS & COLOR				CONTROLLER	BACKLIGHT			
					STN Grey	STN Y-G	STN Blue	FSTN B/W		None	LED	EL	CCFL
192 × 128	RG192128B	98.0 × 86.00	78.50 × 55.00	0.35 × 0.35		•		•	NT7086		•		
202 × 32	RG20232A	146.0 × 43.00	123.0 × 23.00	0.57 × 0.57	•	•	•	•	SED1520	•	•	•	
240 × 48	RG24048A	133.0 × 35.00	90.00 × 21.00	0.32 × 0.32	•	•		•	KS0107	•	•		
240 × 64	RG24064A	180.0 × 65.00	133.0 × 39.00	0.49 × 0.49	•	•	•	•	T6963C	•	•	•	•
240 × 64	RG24064A2	180.0 × 65.00	133.0 × 39.00	0.49 × 0.49	•	•	•	•	T6963C	•	•	•	•
240 × 64	RG24064A4	180.0 × 65.00	132.6 × 39.00	0.48 × 0.48	•	•	•	•	T6963C	•	•	•	•
240 × 64	RG24064B	180.0 × 65.00	133.0 × 39.00	0.49 × 0.49	•	•	•	•	RA6963	•	•	•	•
240 × 128	RG240128A	170.0 × 103.0	132.0 × 76.00	0.47 × 0.47	•	•	•	•	T6963C	•	•	•	•
240 × 128	RG240128A1	170.0 × 93.60	128.0 × 75.00	0.47 × 0.47	•	•	•	•	None	•	•	•	•
240 × 128	RG240128B	144.0 × 104.0	114.0 × 64.00	0.43 × 0.43	•	•	•	•	T6963C	•	•	•	•
240 × 128	RG240128B1	144.0 × 104.0	114.0 × 64.00	0.43 × 0.43	•	•	•	•	T6963C	•	•	•	•
240 × 128	RG240128B2	144.0 × 104.0	114.0 × 64.00	0.43 × 0.43	•	•	•	•	LC7981	•	•	•	•
240 × 128	RG240128D	150.0 × 82.00	114.0 × 64.00	0.43 × 0.43		•	•	•	T6963C		•		
240 × 128	RG240128F	140.0 × 82.00	114.0 × 64.00	0.43 × 0.43	•	•	•	•	RA8806	•	•	•	•
240 × 128	RG240128G	140.0 × 82.00	114.0 × 64.00	0.43 × 0.43			•	•	RA8822		•		
320 × 240	RG320240A	166.8 × 109.0	122.0 × 92.00	0.34 × 0.34	•	•	•	•	None	•	•	•	•
320 × 240	RG320240A1	166.8 × 109.0	122.0 × 92.00	0.34 × 0.34	•	•	•	•	RA8835	•	•	•	•
320 × 240	RG320240A2	160.0 × 109.0	122.0 × 92.00	0.34 × 0.34	•	•	•	•	None	•	•	•	•
320 × 240	RG320240A3	160.0 × 109.0	122.0 × 92.00	0.49 × 0.50		•		•	RA8803		•		
320 × 240	RG320240A4	160.0 × 109.0	122.0 × 92.00	0.34 × 0.34			•	•	S1D13700		•		
320 × 240	RG320240B	148.0 × 120.2	120.1 × 92.14	0.34 × 0.34	•	•	•	•	RA8835	•	•	•	•
320 × 240	RG320240B1	148.0 × 120.2	120.1 × 92.14	0.34 × 0.34	•	•	•	•	S1D13700	•	•	•	•
320 × 240	RG320240B2	148.0 × 120.2	120.1 × 92.14	0.34 × 0.34	•	•	•	•	None	•	•	•	•
320 × 240	RG320240C	142.0 × 96.00	104.0 × 79.30	0.27 × 0.27	•	•	•	•	None	•	•		•
320 × 240	RG320240C2	143.0 × 98.00	104.0 × 79.30	0.28 × 0.28	•	•	•	•	None	•	•		•
320 × 240	RG320240C3	142.0 × 96.00	104.0 × 79.30	0.27 × 0.27	•	•	•	•	S1D13700	•	•		•
320 × 240	RG320240C4	139.0 × 100.0	104.0 × 79.30	0.27 × 0.27	•	•	•	•	RA8835	•	•		
320 × 240	RG320240D	166.8 × 109.0	122.0 × 92.00	0.50 × 0.49	•	•	•	•	RA8806	•	•	•	•

5.3 STANDARD GRAPHIC LC-MODULES (COG)

Chip on glass (COG) LC modules are available as standard products in resolutions of 16 x 2 characters to 320 x 240 pixels. The controller is bonded to the LCD glass. The advantages of COG compared to COB modules are a lower construction height and weight and a better shock resistance.

DISPLAY RESOLUTION
PART NUMBER
MODULE SIZE (W×H) (mm)
VIEWING AREA (W×H) (mm)
PIXEL SIZE (mm)
GLASS & COLOR
CONTROLLER
BACKLIGHT

Standard Graphic LC-Modules (COG)

					STN Grey	STN Y-G	STN Blue	FSTN B/W		None	LED	EL
16 × 2	RX1602A2	72.10 × 29.60	61.00 × 15.10	0.55 × 0.65	•	•	•	•	ST7032	•	•	•
16 × 2	RX1602A3	74.20 × 25.50	61.00 × 15.10	0.55 × 0.65				•	ST7032i		•	
16 × 2	RX1602A4	62.80 × 23.00	51.50 × 12.20	0.48 × 0.54				•	ST7032i		•	
16 × 2	RX1602A5	51.20 × 20.70	40.00 × 10.00	0.36 × 0.43				•	ST7032i		•	
20 × 2	RX2002A	74.20 × 25.20	61.00 × 15.10	0.45 × 0.54				•	ST7036i		•	
24 × 2	RX2402A	86.20 × 24.70	72.30 × 11.84	0.45 × 0.45				•	RW1062		•	
128 × 64	RX12864A1	60.10 × 44.50	54.60 × 32.00	0.36 × 0.40	•	•	•	•	ST7565P		•	
128 × 64	RX12864B1	89.70 × 49.80	69.00 × 36.50	0.47 × 0.47	•	•	•	•	ST7565P		•	
128 × 64	RX12864C2	55.20 × 39.80	45.20 × 27.00	0.28 × 0.34	•	•	•	•	ST7565P		•	
128 × 64	RX12864D2	90.00 × 54.00	70.70 × 38.80	0.48 × 0.48	•	•	•	•	ST7565P		•	
128 × 64	RX12864D3	80.00 × 54.00	70.70 × 38.80	0.48 × 0.48	•	•	•	•	ST7565P		•	
144 × 64	RX14464A	80.00 × 54.00	70.70 × 38.80	0.43 × 0.50	•			•	RA8816	•	•	
144 × 64	RX14464A1	90.00 × 50.60	70.70 × 38.80	0.43 × 0.50	•	•	•	•	RA8816	•	•	
144 × 64	RX14464A2	80.00 × 54.00	70.70 × 38.80	0.43 × 0.50	•			•	RA8816	•	•	
240 × 64	RX24064A	156.80 × 51.70	130.2 × 37.60	0.50 × 0.50	•			•	RA8816	•	•	
240 × 128	RX240128A	98.70 × 67.70	92.00 × 53.00	0.325 × 0.325			•	•	UC1608		•	
320 × 240	RX320240A	160.0 × 109.0	120.0 × 90.00	0.33 × 0.33				•	None	•		

5.4 STANDARD GRAPHIC LC-MODULES (TAB)

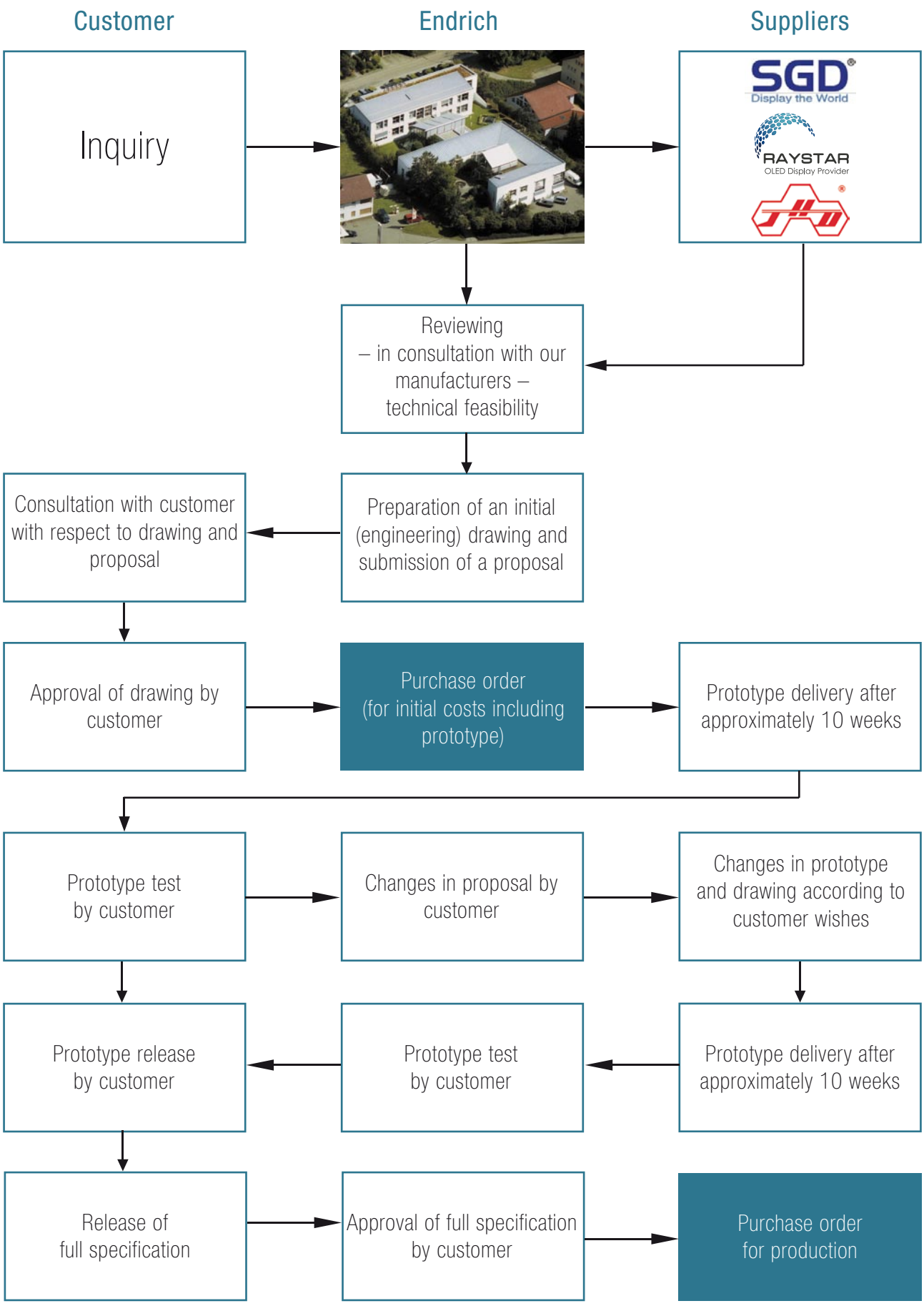
Tape automated bonding (TAB) LC modules are available in resolutions of 128 x 64 to 320 x 240 pixels. The controller is mounted on a TCP (tape carrier package). The TCP is connected with the ITO contacts on the LCD. TAB modules are extremely thin and require little space as the TCP can be folded down to the back of the LC module.

DISPLAY RESOLUTION | PART NUMBER | MODULE SIZE (W×H) (mm) | VIEWING AREA (W×H) (mm) | PIXEL SIZE (mm) | GLASS & COLOR | CONTROLLER | BACKLIGHT

Standard Graphic LC-Modules (TAB)

					STN Grey	STN Y-G	STN Blue	FSTN B/W		None	LED	EL
128 × 64	**RT12864C**	90.00 × 50.00	67.00 × 40.00	0.42 × 0.50	•	•		•	SED1565	•	•	
128 × 64	**RT12864E**	35.00 × 24.20	29.50 × 17.90	0.18 × 0.23	•	•		•	NT7534	•	•	•
128 × 64	**RT12864E1**	35.00 × 65.60	29.50 × 17.90	0.18 × 0.23	•	•		•	NT7534	•	•	•
128 × 64	**RT12864F**	56.00 × 42.50	52.00 × 36.00	0.35 × 0.40	•	•		•	NT7534	•		•
128 × 64	**RT12864F1**	56.00 × 42.50	52.00 × 36.00	0.35 × 0.40	•	•		•	NT7534	•		•
240 × 64	**RT24064A**	180.0 × 65.00	133.0 × 39.00	0.53 × 0.53	•		•	•	ST7665S	•	•	
240 × 64	**RT24064A1**	184.0 × 65.00	133.0 × 39.00	0.49 × 0.49	•		•	•	ST7665S	•	•	
240 × 160	**RT240160A**	74.60 × 56.70	66.00 × 47.50	0.22 × 0.22	•	•		•	None	•	•	•
320 × 240	**RT320240A**	92.20 × 73.30	81.40 × 62.20	0.225 × 0.225				•	None	•	•	•
320 × 240	**RT320240B3**	94.70 × 71.70	81.40 × 61.00	0.225 × 0.225				•	RA8835	•	•	•
320 × 240	**RT320240C**	94.70 × 71.70	81.40 × 61.00	0.225 × 0.225				•	None	•	•	•

6 PROJECT EXECUTION FOR CUSTOMIZED DISPLAYS



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