

## HQ HIGH QUALITY LCD MODULES

*For A Brighter Future*



## MONOCHROME AND COLOR GRAPHIC & CHARACTER LCDS

**BATRON**, a **DATA MODUL** brand, offers a wide range of high-quality alphanumeric and graphic LCD Modules, ranging from Industry Standard Modules to some unique sizes and configurations. Based on our continuous strive for creativity and innovation, our products feature leading-edge technology.

### Product features

- » High level of optical performance
- » Wide technology range:
  - TN, STN, FSTN, FFSTN, ISTN, TFT
  - Standard, extended & wide temperature range
- » Various module technologies:
  - COG
  - COB / SMD with bezel



### All our products are available with or without LED backlight

Available LED colors

- » Yellow-Green
- » Pure Green
- » Red
- » Amber
- » White
- » Blue
- » Multi-color (RGB)
- » Quattro LED (RGBW)

### Special features HQ-Line®



Minimized dot gap (down to 10µ) between the pixels

- » Smooth transition of the pixels for better readability
- » High contrast and improved viewing angle
- » The HQ-Line is fully compatible to standard modules



## easyFluid® for alphanumeric modules

- » easyFluid® substitutes the additional temperature compensation
- » Consistent contrast throughout the extended temperature range of -20°C...+70°C
- » Special LCD fluid balances the contrast with a single voltage supply of 5V
- » All easyFluid® modules are available in HQ-technology



## RoHS & Reach compliance

All of our displays conform to European standards and comply with RoHS (**R**eduction of **H**azardous **S**ubstances) & **REACH** regulations.

## Accessories

**BATRON** also offers a series of compatible/tailed accessories to our standard modules:

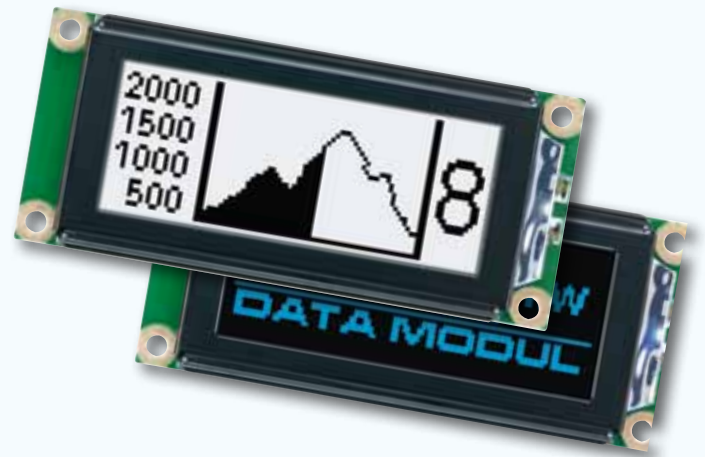
- » Mounting bezels
- » Connectors
- » Cables
- » Touchpanels



## OUR PROMISE

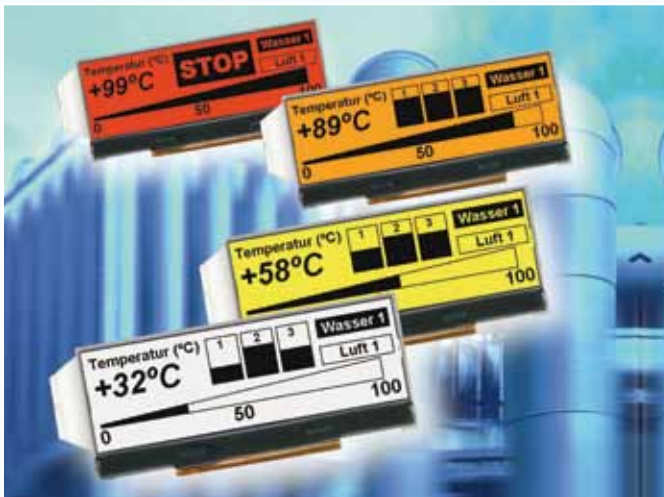
- » High level of optical performance
- » Long time availability of products (more than 20 years)
- » High product quality (low ppm level)
- » Excellent technical support
- » Excellent logistics support

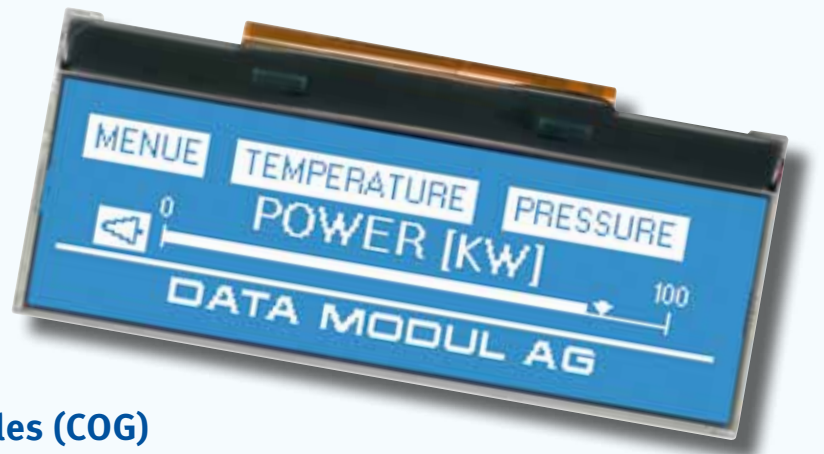
## GRAPHIC DISPLAY MODULES



### Chip-on-Board Graphic Display Modules

Model Number	Dot Pixels W x H	Outline Dimensions W x H x D [mm]		Effective Viewing Area W x H [mm]	Dot Size W x H [mm]	Controller Type	Mechanically compatible to
		Without LED-Backlight	With LED-Backlight				
BTHQ 100032	100 x 32	65 x 28.4 x 8	65 x 28.4 x 8,5	46 x 18.4	0.415 x 0.464	SBN1661	BT 42003
BT 80016	80 x 16	–	84 x 44 x 14	61.0 x 15.8	0.61 x 0.625	SBN1661	BT 21605
BT 96016	96 x 16	–	122 x 43 x 14	99 x 23	4.4 x 6.8	AX6120	BT 21608
BT 120032	120 x 32	–	146 x 62.5 x 15	123 x 42.5	0.93 x 1.14	RA8835	BT 42008 BT 240064
BT 128064B	128 x 64	75 x 52.7 x 8.5	75 x 52.7 x 13	60 x 32.5	0.40 x 0.40	NT7107	–
BTHQ 128064AVF	128 x 64	–	74.0 x 41.9 x 12.9	63.41 x 32.69	0.465 x 0.465	NT7534	–
BT 240064	240 x 64	–	146 x 62.5 x 15	123 x 42.5	0.45 x 0.56	S1D13700	BT 42008 BT 120032
BTHQ 256064AV	256 x 64	–	91.04 x 29.24 x 17.28	81.33 x 20.44	0.295 x 0.275	S1D15712	–





## Chip-on-Glass Graphic Display Modules (COG)

Model Number	Dot Pixels W x H	Outline Dimensions W x H x D [mm]		Effective Viewing Area W x H [mm]	Dot Size W x H [mm]	Controller Type (or compatible version)
		Without LED-Backlight	With LED-Backlight			
BTHQ 96040	96 x 40	46 x 36.2 x 1.9	–	40 x 23	0.32 x 0.40	ST7549
BT 120032AVB	120 x 32	65 x 29 x 2.8	65 x 29 x 5.0	60 x 16	0.43 x 0.38	SED15607
BTHQ 128064AVC	128 x 64	66.5 x 52 x 2.0	66 x 52 x 5.0	60 x 40	0.43 x 0.57	UC1601
BTHQ 128064AVD	128 x 64	54.6 x 42.2 x 1.9	54.6 x 42.2 x 4.5	50.6 x 31	0.35 x 0.42	ST7576
BTHQ 128064AVE	128 x 64	74.8 x 47.5 x 1.83	89.7 x 49.8 x 6.0	66.8 x 35.5	0.48 x 0.48	SED1565
BTHQ 128064AVG	128 x 64	–	45.24 x 29.14 x 6.0	37.04 x 20.24	0.25 x 0.25	NT7534
BTHQ 128064AVO	128 x 64	–	89.7 x 49.8 x 6.3	69,0 x 36,5	0.48 x 0.48	NT7538
BTHQ 128128AJA	128 x 128	--	75.0 x 85.0 x 6.0	69.0 x 69.0	0.48 x 0.48	NT7506 / UC1698
BTHQ 160160AVR	160 x 160	–	75.0 x 83.0 x 6.0	66.0 x 66.0	0.35 x 0.35	ST7529
BTHQ 240064AVB	240 x 64	108.0 x 43.2 x 2.7	120 x 44.8 x 5.5	102.4 x 30.2	0.39 x 0.39	ST7576
BTHQ 240128T	240 x 128	–	98.7 x 67.7 x 5.7	92 x 53	0.33 x 0.33	UC1608
<b>NEW</b> BTHQ 240160E	240 x 160	--	88.6 x 67.4 x 6.0	82.6 x 53.4	0.3 x 0.3	UC1611S
BTHQ 248160V	248 x 160	–	63 x 55 x 5.2	57 x 41	0.21 x 0.21	UC1698

## Multi-Color LED (RGB) Backlight for COG Graphic Line

Monochrome graphic displays are now available with fully selectable RGB backlight, consisting of red, green and blue LEDs (light emitting diodes) .

With this effect, the backlight color can be individually adjusted.



## Quattro LED (RGBW) Backlight for COG Graphic Modules

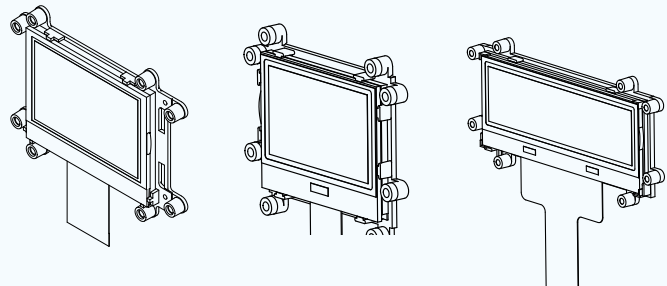
Specific modules are now available with Quattro Led (RGBW) backlight consisting of 6 high brightness RGB Led chips AND 7 Led White chips which can be used alternatively.



With this effect, the backlight color can be individually adjusted to any color or pure white!

## Mounting Bezels for COG Graphic Modules

- » Fast and easy mounting
- » Variable mounting possibilities due to break-away mounting holes
- » Material: Polycarbonate PC White (UL94v0)



## Graphic Modules (COG)

### BTHQ 96040-I2C-COG



<b>LCD Type:</b>	(F)STN
<b>Dot Pixels:</b>	96 x 40
<b>Viewing Area:</b>	40.00 x 23.00
<b>Module Dimensions:</b>	46.00 x 36.20
<b>Backlight:</b>	not available
<b>Operating Temperature:</b>	-20°C...70°C
<b>Storage Temperature:</b>	-30°C...80°C
<b>Viewing Direction:</b>	12 o'clock
<b>Interface:</b>	I2C-Bus Connection
<b>Logic Supply Voltage:</b>	3.0V typ.
<b>Controller:</b>	ST7549
<b>Special-Feature:</b>	Pin Connection

Item-Nr	Description	Backlight	Mode
BT 49901	BTHQ 96040AV2-FERE-12-I2C-COG	without	FSTN, reflective, pos.
BT 49902*	BTHQ 96040AV2-FSTF-12-I2C-COG	without	FSTN, transfective, pos.
BT 49903	BTHQ 96040AV2-FETF-12-I2C-COG	without	FSTN, transfective, pos.

### BTHQ 128064AVC-COG



<b>LCD Type:</b>	(F)STN
<b>Dot Pixels:</b>	128 x 64
<b>Viewing Area:</b>	60.00 x 40.00
<b>Module Dimensions:</b>	66.50 x 52.5 x 2.00 (5,00 with Backlight)
<b>Backlight:</b>	LED-Green, White, Amber and other Colors
<b>Operating Temperature:</b>	-20°C...+70°C
<b>Storage Temperature:</b>	-30°C...+80°C
<b>Viewing Direction:</b>	6 o'clock
<b>Interface:</b>	Parallel/Serial
<b>Logic Supply Voltage:</b>	3.0V typ.
<b>Controller:</b>	UC 1601
<b>Special-Feature:</b>	incl. Negative Voltage Generator incl. Temperature Compensation Touch Panel optional Mounting Bezel optional FPC-Connection HQ — 15 Micron Dot-Gap Version

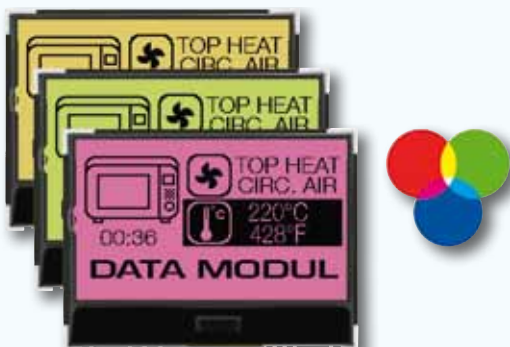
Item-Nr	Description	Backlight	Mode
BT 45115*	BTHQ 128064AVC1-FSRE-06-COG	without	FSTN, reflective, pos.
BT 46121*	BTHQ 128064AVC1-STF-06-LED02YG-COG	LED-Green	STN, Yellow/Green, transfective, pos.
BT 45243*	BTHQ 128064AVC2-FSTF-06-LEDWhite-COG	LED-White	FSTN, transfective, pos.
BT 45249	BTHQ 128064AVC2-EMN-06-LEDWhite-COG	LED-White	STN, Blue, transmissive, neg.
BT 45198	BTHQ 128064AVC1-FFSMN-06-LEDAmber-COG	LED-Amber	FFSTN, transmissive, neg.

#### Accessories for BTHQ 128064AVC-COG

BT21019	Connector for Module
BT21024	Connector for Touch Panel
BT21011	Mounting Bezel for Reflective Version
BT21012	Mounting Bezel for LED-Backlight Version

\* Runner item, i.e. not linked to MOQ

### BTHQ 128064AVD-COG



**New Feature:**

*Backlight with High Brightness LEDs*

<b>LCD Type:</b>	(F)STN
<b>Dot Pixels:</b>	128 x 64
<b>Viewing Area:</b>	50.60 x 31.00
<b>Module Dimensions:</b>	54.60 x 42.20 x 1.90 (4,5 with Backlight)
<b>Backlight:</b>	LED-Green, White, Multi Color and other Colors
<b>Operating Temperature:</b>	-30°C...+80°C
<b>Storage Temperature:</b>	12 o'clock
<b>Viewing Direction:</b>	Parallel/Serial
<b>Interface:</b>	3.3 typ.
<b>Logic Supply Voltage:</b>	ST 7565
<b>Controller:</b>	ST 7565

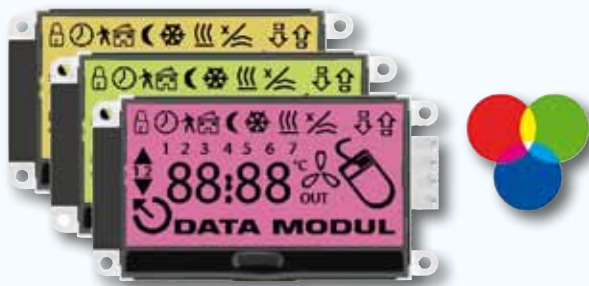
<b>Special-Feature:</b>	incl. Negative Voltage Generator incl. Temperature Compensation Mounting Bezel optional FPC-Connection HQ – 15 Micron Dot-Gap Version
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Item-Nr	Description	Backlight	Mode
BT 45229*	BTHQ 128064AVD1-STF-12-LED02YG-COG	LED-Green	STN, Yellow/Green, transfective pos.
BT 45228*	BTHQ 128064AVD1-FSTF-12-LEDWhite-COG	LED-White	FSTN, transfective, pos.
BT 45232*	BTHQ 128064AVD1-FSTF-12-LEDMulti-COG	LED-Multi Color	FSTN, transfective, pos.
BT 45212*	BTHQ 128064AVD1-SMN-12-LEDWHITE-COG	LED-White	STN, Blue, transmissive, neg.
BT 45166	BTHQ 128064AVD1-FFSMN-12-LEDAmber-COG- High brightness	LED-Amber HB	FFSTN, transmissive, neg.

**Accessories for BTHQ 128064AVD-COG**

HI 03297	Connector for Module
BT 21013	Mounting Bezel for Reflective Version
BT 21014	Mounting Bezel for LED-Backlight Version except multi-pro B/L

### BTHQ 128064AVE-COG



**New Feature:**

*Multi-Color Backlight*

<b>LCD Type:</b>	(F)STN
<b>Dot Pixels:</b>	128 x 64
<b>Viewing Area:</b>	66.80 x 35.50
<b>Module Dimensions:</b>	74.80 x 47.5 x 1.84 (89.7 x 49.8 x 6.00 with Backlight)
<b>Backlight:</b>	LED-White, Green, Multi-Color
<b>Operating Temperature:</b>	-20°C...+70°C
<b>Storage Temperature:</b>	-30°C...+80°C
<b>Viewing Direction:</b>	6 o'clock
<b>Interface:</b>	Parallel
<b>Logic Supply Voltage:</b>	5.0V typ.
<b>Controller</b>	SED 1565

<b>Special-Feature:</b>	LED-Backlight designed as Mounting Unit, Square Dots FPC-Connection HQ – 15 Micron Dot-Gap Version
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Item-Nr	Description	Backlight	Mode
BT 45090*	BTHQ 128064AVE-FERE-06-COG	without	FSTN, reflective, pos.
BT 45156	BTHQ 128064AVE-STF-06-LED02YG-COG	LED-Yellow/Green	STN, Yellow/Green, transfective pos.
BT 45258*	BTHQ 128064AVE1-FETF-06-LEDWhite-COG	LED-White	FSTN, transfective, pos.
BT 45260*	BTHQ 128064AVE1-EMN-06-LEDWhite-COG	LED-White	STN, blue, transmissive, neg.
BT 45136	BTHQ 128064AVE-FETF-06-LED05RGB-COG	LED-Multi Color	FSTN, transfective, pos.

**Accessories for BTHQ 128064AVE-COG**

BT63314	Connector for Module
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**BTHQ 128064AVG-COG**



<b>LCD Type:</b>	(F)STN
<b>Dot Pixels:</b>	128 x 64
<b>Viewing Area:</b>	37.04 x 20.24
<b>Module Dimensions:</b>	45.24 x 29.14 x 6.00
<b>Backlight:</b>	LED-Green, White, Multi-Color
<b>Operating Temperature:</b>	-20°C...+70°C
<b>Storage Temperature:</b>	-30°C...+80°C
<b>Viewing Direction:</b>	6 o'clock
<b>Interface:</b>	Parallel / Serial
<b>Logic Supply Voltage:</b>	3.3V typ.
<b>Controller</b>	NT7534 (COG)

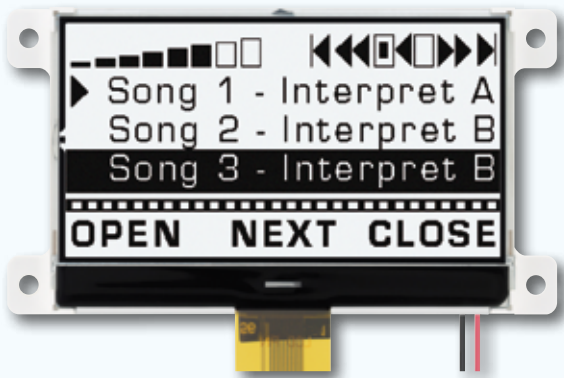
<b>Special-Feature:</b>	electronic voltage control N-line inversion FPC connection, square dots HQ – 15 Micron-Dot gap version
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Item-Nr	Description	Backlight	Mode
BT 45182*	BTHQ 128064AVG-FFEMN-06-LED02WHITE-COG	LED-White	FFSTN, transmissive, neg.
BT 45184	BTHQ 128064AVG-FFEMN-06-LED02MULTI-COG	LED-multi color	FFSTN, transmissive, neg.
BT 45282	BTHQ 128064AVG-FETF-06-LED02WHITE-COG	LED-White	FSTN, transreflective, pos.
BT 45208	BTHQ 128064AVG-YETF-06-LEDGREEN-COG	LED-Green	STN, transreflective, pos.

**Accessories for BTHQ 128064AVG-COG**

FL12054	Connector for Module
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**BTHQ 128064AVO-COG**



<b>LCD Type:</b>	(F)STN
<b>Dot Pixels:</b>	128 x 64
<b>Viewing Area:</b>	69.0 x 36.5
<b>Module Dimensions:</b>	89.7 x 49.8 x 6.3
<b>Backlight:</b>	LED-White
<b>Operating Temperature:</b>	-20°C...+70°C
<b>Storage Temperature:</b>	-30°C...+80°C
<b>Viewing Direction:</b>	6 o'clock
<b>Interface:</b>	Parallel / Serial
<b>Logic Supply Voltage:</b>	3.3V typ.
<b>Controller</b>	NT7538

<b>Special-Feature:</b>	FPC-Connection HQ – 15 Micron Dot-Gap Version mechanical compatible to Optrex F51852GNFJSLWAJN
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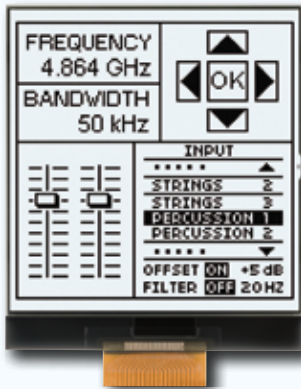
Item-Nr	Description	Backlight	Mode
BT 49100*	BTHQ 128064AVO-FETF-06-LEDWHITE02-COG	LED-White	FSTN, transreflective, pos.
BT 49102	BTHQ 128064AVO-EMN-06-LEDWHITE02-COG	LED-White	STN, blue, transmissive, neg.

**Accessories for BTHQ 128064AVO-COG**

BT63314	Connector for Module
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\* Runner item, i.e. not linked to MOQ

## BTHQ 128128AJA-COG



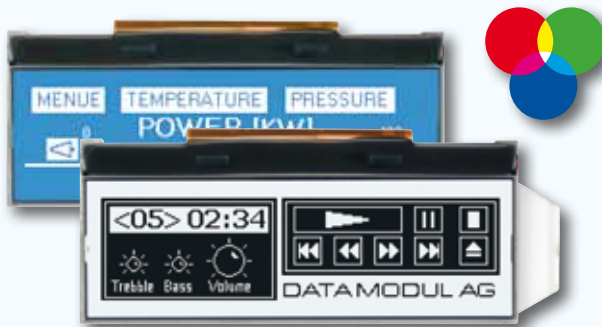
<b>LCD Type:</b>	(F)STN
<b>Display size (active):</b>	3,5"
<b>Dot Pixels:</b>	128 x 128
<b>Viewing Area:</b>	69.00 x 69.00
<b>Module Dimensions:</b>	75.00 x 85.00 x 6.00
<b>Backlight:</b>	LED-White
<b>Operating Temperature:</b>	-20°C...+70°C
<b>Storage Temperature:</b>	-30°C...+80°C
<b>Viewing Direction:</b>	6 o'clock
<b>Interface:</b>	Parallel / Serial
<b>Logic Supply Voltage:</b>	3.0V typ.
<b>Controller</b>	UC1698 / NT7506
<b>Special-Feature:</b>	incl. negative voltage Generator incl. temperature compensation Square dots, FPC-Connection HQ- 15 Micron-Dot gap version

Item-Nr	Description	Backlight	Mode
BT 45195*	BTHQ 128128AJA-FETF-06-LEDWHITE-COG (NT7506)	LED-White	FSTN, transfective, pos.
BT 45200	BTHQ 128128AJA-FETF-06-LEDWHITE-COG (UC1698)	LED-White	FSTN, transfective, pos.
BT 45284	BTHQ 128128AJA-EMN-06-LEDWHITE-COG (UC1698)	LED-White	STN, blue, transmissive, neg.
BT 45206	BTHQ 128128AJA-FETF-06-LEDWHITE-COG-TP (UC1698)	LED-White	FSTN, transfective, pos.

### Accessories for BTHQ 128128AJA-COG

BT63314	Connector for Module
BT21026	Mouting Bezel

## BTHQ 240064AVB-COG



<b>LCD Type:</b>	(F)STN
<b>Dot Pixels:</b>	240 x 64
<b>Viewing Area:</b>	102.40 x 30.22
<b>Module Dimensions:</b>	109.60 x 44.80 x 2.70 120.00 x 44.80 x 5.50 (with Backlight)
<b>Backlight:</b>	LED-Green, White, Multi Color and other Colors
<b>Operating Temperature:</b>	-20°C...+70°C
<b>Storage Temperature:</b>	-30°C...+80°C
<b>Viewing Direction:</b>	6 o'clock
<b>Interface:</b>	Serial
<b>Logic Supply Voltage:</b>	3V typ.
<b>Controller:</b>	ST7565 (2x)
<b>Special-Feature:</b>	incl. negative voltage Generator incl. temperature compensation Mounting Bezel optional Touch Panel optional available for all modules FPC-Connection, Square Dots

Item-Nr	Description	Backlight	Mode
BT 45216*	BTHQ 240064AVB1-YETF-06-LED02YG-COG	LED Yellow/Green	STN, Yellow/Green, transfective pos.
BT 45217*	BTHQ 240064AVB1-FETF-06-LEDWhite-COG	LED-White	FSTN, transfective, pos.
BT 45233	BTHQ 240064AVB1-FETF-06-LEDMulti-COG	LED-Multi Color	FSTN, transfective, pos.
BT 45231*	BTHQ 240064AVB1-EMN-06-LEDWhite-COG	LED-White	STN, Blue, transmissive, neg.
BT 45220*	BTHQ 240064AVB1-FFSMN-06-LEDWHITE-COG	LED-White	FFSTN, transfective, neg.

### Accessories for BTHQ 240064AVB-COG

BT21019	Connector for Module
BT21024	Connector for Touch Panel
BT21015	Mounting Bezel for Reflective Version
BT21016	Mounting Bezel for LED-Backlight Version

### BTHQ 240128T-COG



<b>LCD Type:</b>	(F)STN
<b>Dot Pixels:</b>	240 x 128
<b>Viewing Area:</b>	92 x 53
<b>Module Dimensions:</b>	98.7 x 67.7 x 5.7
<b>Backlight:</b>	LED-White, Amber
<b>Operating Temperature:</b>	-20°C...+70°C
<b>Storage Temperature:</b>	-30°C...+80°C
<b>Viewing Direction:</b>	6 o'clock
<b>Interface:</b>	Parallel / Serial
<b>Logic Supply Voltage:</b>	3.0V typ.
<b>Controller</b>	UC 1608
<b>Special-Feature:</b>	FPC-Connection HQ - 15 Micron Dot-Gap Version Mounting ears

Item-Nr	Description	Backlight	Mode
BT 45205*	BTHQ 240128T-EMN-06-LEDWHITE-COG	LED-White	STN, Blue, transmissive, neg.
BT 45210	BTHQ 240128T-FETF-06-LEDWHITE-COG	LED-White	FSTN, transfective, pos.
BT 45267	BTHQ 240128T-FETF-06-LEDAmber-COG	LED-Amber	FSTN, transfective, pos.
BT 45269	BTHQ 240128T-FFEMN-06-LEDWHITE-COG	LED-White	FFSTN, transmissive, neg.

#### Accessories for BTHQ 240128T-COG

BT 63314	Connector for Module
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### BTHQ 240160E-COG



**New Feature:**  
Quattro LED (RGBW)

<b>LCD Type:</b>	(F)STN
<b>Dot Pixels:</b>	240 x 160
<b>Viewing Area:</b>	82.6 x 53.4
<b>Module Dimensions:</b>	88.6 x 67.4 x 6
<b>Backlight:</b>	LED Quattro (RGBW)
<b>Operating Temperature:</b>	-20°C...+70°C
<b>Storage Temperature:</b>	-30°C...+80°C
<b>Viewing Direction:</b>	6 o'clock
<b>Interface:</b>	Parallel / SPI
<b>Logic Supply Voltage:</b>	3.0V typ.
<b>Controller</b>	UC 1611
<b>Special-Feature:</b>	FPC-Connection HQ - 15 Micron Dot-Gap Version Mounting Ears Quattro Led (RGBW)

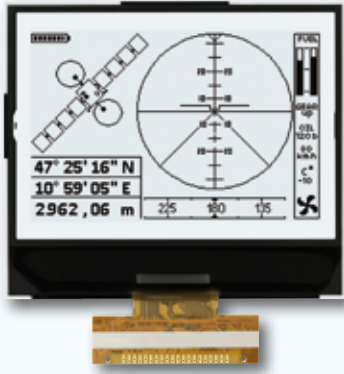
Item-Nr	Description	Backlight	Mode
BT 45254	BTHQ 240160E-FFEMN-06-LEDRGBW-COG	Quattro LED	FFSTN, transmissive, neg.
BT 45255	BTHQ 240160E-FETF-06-LEDRGBW-COG	Quattro LED	FSTN, transfective, pos.

#### Accessories for BTHQ 240160E-COG

BT 21027	Connector for Module
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\* Runner item, i.e. not linked to MOQ

## BTHQ 248160V-COG



<b>LCD Type:</b>	(F)STN
<b>Dot Pixels:</b>	248 x 160
<b>Viewing Area:</b>	57 x 41
<b>Module Dimensions:</b>	63 x 55 x 5.2
<b>Backlight:</b>	LED-White
<b>Operating Temperature:</b>	-20°C...+70°C
<b>Storage Temperature:</b>	-40°C...+80°C
<b>Viewing Direction:</b>	12 o'clock
<b>Interface:</b>	Parallel
<b>Logic Supply Voltage:</b>	3.0V typ.
<b>Controller</b>	UC 1698
<b>Special-Feature:</b>	FPC-Connection Super HQ - 10 Micron Dot-Gap Version

Item-Nr	Description	Backlight	Mode
BT 45204	BTHQ248160V-FETF-06-LEDWHITE	LED-White	FSTN, transfective, pos.
<b>Accessories for BTHQ 248160V-COG</b>			
BT 21322	Connector for Module		

## BTFT 036M+ monochrome TFT

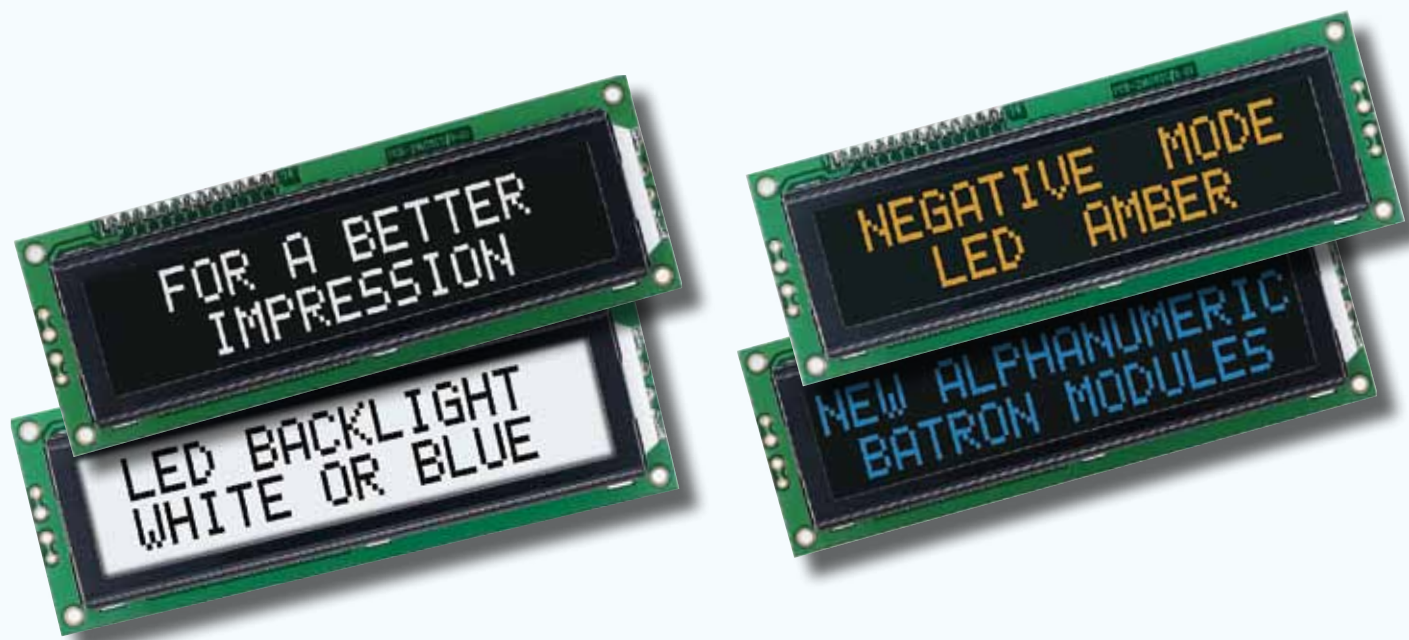


<b>LCD Type:</b>	mono TFT
<b>Dot Pixels:</b>	120 x 176
<b>Active Area:</b>	51.6 x 75.7
<b>Module Dimensions:</b>	60.5 x 90.6 x 3.1
<b>Operating Temperature:</b>	-30°C...+85°C
<b>Storage Temperature:</b>	-30°C...+85°C
<b>Viewing Angle:</b>	80/80/80/80
<b>Backlight:</b>	LEDWhite
<b>Interface:</b>	MCU, serial
<b>Power Supply Voltage:</b>	3,0V
<b>Special Feature:</b>	integrated graphic controller

## BATRON Solutions

Item-Nr	Description	Mode	Backlight	Brightness [cd/m²]	Response-Time [ms]	Contrast
BT30103	BTFT 036M-05	transmissive, negative	LED-White	800	35	900:1
<b>Accessories</b>						
BT21321	Connector for Display-Cable					
BT21320	Connector for Backlight-Cable					

## ALPHANUMERIC DISPLAY MODULES



### Chip-on-Board Alphanumeric Display Modules (COB)

Model Number	Lines x Characters	Character Height	Outline Dimensions [mm] W x H x D (incl. Backl.)	Effective Viewing Area W x H [mm]	Character Size W x H [mm]	Easy Fluid (Ext. Temp. Range Versions)
BT 10809	1 x 8	~ 9mm	84 x 44 x 11 (14)	61 x 15.8	6.45 x 9.4	—
BTHQ 11605	1 x 16	~ 5mm	80 x 36 x 10 (15)	64.5 x 13.8	3.15 x 8.7	x
BT 11608	1 x 16	~ 8mm	122 x 33 x 11 (14)	99 x 13	4.84 x 8.06	—
BT 11612	1 x 16	~ 12mm	154.4 x 43.5 x 11 (14)	136.4 x 18.7	5.9 x 11.1	—
BT 12009	1 x 20	~ 9mm	182 x 33.5 x 10 (14)	154 x 15.3	6.7 x 9.4	—
BT 12012	1 x 20	~ 12mm	182 x 43.5 x 11 (13)	147 x 18.7	5.9 x 11.1	—
BT 20803	2 x 8	~ 3mm	33.7 x 44.4 x 10.0	26.5 x 12.2	2.1 x 3.39	—
BTHQ 21603	2 x 16	~ 3mm	53 x 20 x 8 (8.5)	36 x 10	1.85 x 3.15	x
BT 21604	2 x 16	~ 4mm	65 x 21.5 x 8	48.6 x 12	2.54 x 4.07	—
BTHQ 21605	2 x 16	~ 5mm	84 x 44 x 10 (14)	61 x 15.8	2.96 x 5.55	x
BTHQ 21608	2 x 16	~ 8mm	122 x 43 x 11 (14)	99 x 23	4.84 x 9.22	x
BT 22003	2 x 20	~ 3mm	65 x 20 x 8	46 x 10	1.85 x 2.75	—
BTHQ 22005	2 x 20	~ 5mm	116 x 37 x 10 (14)	83 x 18.6	3.2 x 5.55	x
BTHQ 22008	2 x 20	~ 8mm	146 x 43 x 10 (14)	123 x 23	4.84 x 9.22	x
BT 22012	2 x 20	~ 12mm	182 x 60 x 11 (14)	147 x 32.5	5.9 x 11.1	—
BT 22405	2 x 24	~ 5mm	118 x 36 x 11 (14)	93.5 x 15.8	3.2 x 4.5	—
BTHQ 24003	2 x 40	~ 3mm	108 x 20 x 8	89 x 12	1.85 x 3.15	—
BTHQ 24005	2 x 40	~ 5mm	182 x 33.5 x 10 (14)	154.4 x 15.8	3.15 x 5.55	x
BT 24008	2 x 40	~ 8mm	268 x 40.2 x 11	240.5 x 23	4.84 x 8.06	—
BT 41605	4 x 16	~ 5mm	87 x 60 x 10 (14)	61.8 x 25.2	2.95 x 4.15	—
BTHQ 42003	4 x 20	~ 3mm	65 x 28 x 9 (8.5)	46 x 18.4	1.85 x 3.15	x
BTHQ 42005	4 x 20	~ 5mm	98 x 60 x 11 (14)	76 x 25.2	2.95 x 4.69	x
BTHQ 42008	4 x 20	~ 8mm	146 x 62.5 x 11 (13.5)	123 x 42.5	4.84 x 9.22	x
BT 42012	4 x 20	~ 12mm	182 x 90 x 11 (14)	147 x 65.4	5.9 x 11.1	—
BT 44005	4 x 40	~ 5mm	196 x 56 x 11 (14)	154.4 x 27.6	3.15 x 4.8	—
BT 44008	4 x 40	~ 8mm	288.2 x 77.5 x 13	253.7 x 56.6	5.00 x 8.5	—

\* Runner item, i.e. not linked to MOQ

## Chip-on-Glass Alphanumeric Display Modules (COG)

### BTHQ 21605 I2C



<b>LCD Types:</b>	STN (Yellow/Green, Blue) / FSTN
<b>Lines x Character:</b>	2 x 16
<b>Character Height:</b>	~ 5mm
<b>Backlight:</b>	without / LED white
<b>Module Dimensions:</b>	66 x 27.8 x 2.8 74.5 x 29.8 x 4.5 (with backlight)
<b>Active Area:</b>	61.0 x 15.8
<b>Operating Temperature:</b>	-20°C..+70°C
<b>Storage Temperature:</b>	-30°C..+80°C
<b>Viewing Direction:</b>	6 o'clock / 12 o'clock
<b>Interface:</b>	I2C serial bus
<b>Logic Supply Voltage:</b>	3.0 V
<b>Controller:</b>	Philips PCF 2119RU/2/F2 COG

Item-Nr	Description	Backlight	Mode
BT 60300*	BTHQ 21605V-SRE-I2C-COG	without	STN, reflective, pos.
BT 66301*	BTHQ 21605V-FSTF-I2C-COG-LEDWHITE	LED-White	FSTN, transreflective, pos.
BT 60306*	BTHQ 21605V-FSRE-I2C-COG	without	FSTN, transreflective, pos.

### BTHQ 21608 I2C



<b>LCD Types:</b>	STN (Yellow/Green) / FSTN
<b>Lines x Character:</b>	2 x 16
<b>Character Height:</b>	~ 8mm
<b>Backlight:</b>	without / LED (Yellow-Green)
<b>Module Dimensions:</b>	68.0 x 29.8 x 13.8
<b>Active Area:</b>	61.0 x 17.8
<b>Operating Temperature:</b>	0°C..+50°C
<b>Storage Temperature:</b>	-10°C..+60°C
<b>Viewing Direction:</b>	6 o'clock
<b>Interface:</b>	I2C serial bus
<b>Logic Supply Voltage:</b>	3.0 V
<b>Controller:</b>	Philips PCF 2119SU/2/F2 COG

Item-Nr	Description	Backlight	Mode
BT 60315	BTHQ 21608V-SRE-I2C-COG	without	STN, reflective, pos.
BT 60313	BTHQ 21608V-STF-I2C-COG-LEDYG	LED Yellow/Green	STN, transreflective, pos.

\* Runner item, i.e. not linked to MOQ

## Overview of different LCD styles

Different STN modules in combination with polarizers, optical films and suitable backlights create a variety of completely unique looking modules.

This allows our customers to match their design requirements with their applications.

On this page, **DATA MODUL** provides an overview of the most common modules and backlight variations.



STN positive mode with yellow-green backlight



FSTN positive mode with amber backlight



FSTN positive mode with white backlight



Transmissive negative with white backlight („blue mode“)



FFSTN mode with white backlight



FFSTN mode with yellow-green backlight



FFSTN mode with red backlight



FFSTN mode with amber backlight



FFSTN mode with blue backlight



For multi color options and information on RGBW please refer to page 4



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