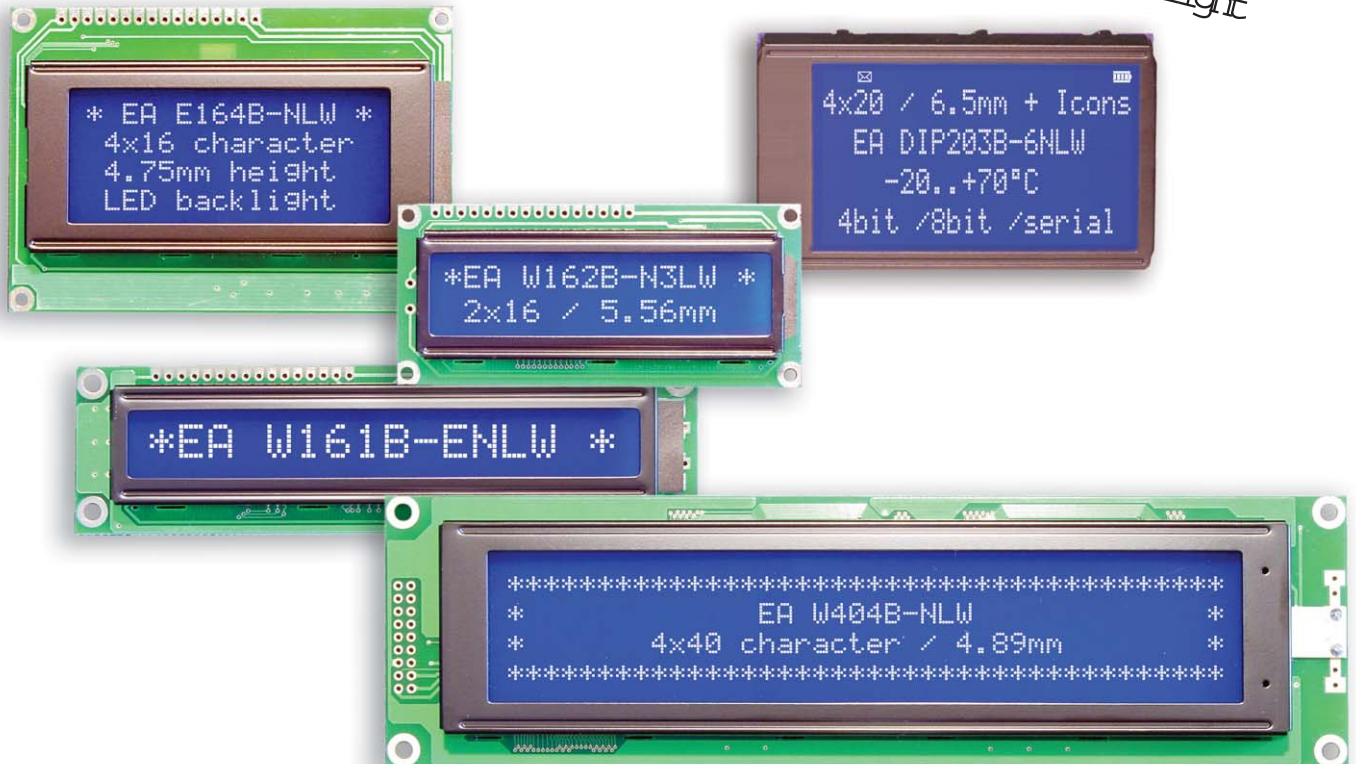


BLUELINE

Issue 07.2021

DOTMATRIX DISPLAYS 1x16..4x40

*15..100mA only
incl. LED backlight*

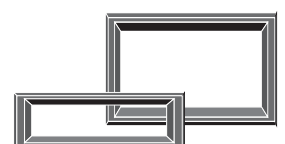


FEATURES

- * SUPERTWIST BLUE NEGATIVE
- * WITH WHITE LED BACKLIGHT
- * EXTREME POWER SAVING: LED CURRENT 15mA OFF (max. 75mA)
- * CHARACTER HEIGHT 4.75..12.7mm
- * ALL DISPLAYS WITH INTEGRATED CONTROLLER
- * INTERFACE FOR 8-BIT BUS (ALSO 4 BIT) OR ALTERNATIVELY VIA RS-232 INTERFACE
- * ALPHANUMERIC: ASCII CHARACTER SET+SPECIAL CHARACTER+8 FREE DEFINABLE
- * POWER SUPPLY +5V
- * OPERATING TEMPERATURE RANGE -20°C ... +70°C (SOME 0..+50°C)
- * STORAGE TEMPERATURE -30..+80°C (SOME -20..+70°C)

ACCESSORIES

- * FRONTAL BEZEL WITH ANTIGLARE WINDOW: SERIES **EA 017-xxUKE**
- * RS-232 OR RS-422 INTERFACE **EA 9707-V24S**



PINOUT

| Pinbelegung 1x16..4x20/2x40 Zeichen | | | |
|-------------------------------------|--------|-------|-------------------------------------|
| Pin | Symbol | Pegel | Beschreibung |
| 1 | VSS | L | Versorgung 0V, GND |
| 2 | VDD | H | Versorgung +5V |
| 3 | VEE | - | Displayspannung 0..0,5V |
| 4 | RS | H/L | Register Select |
| 5 | R/W | H/L | H: Read / L: Write |
| 6 | E | H | Enable |
| 7 | D0 | H/L | Datenleitung 0 (LSB) |
| 8 | D1 | H/L | Datenleitung 1 |
| 9 | D2 | H/L | Datenleitung 2 |
| 10 | D3 | H/L | Datenleitung 3 |
| 11 | D4 | H/L | Datenleitung 4 |
| 12 | D5 | H/L | Datenleitung 5 |
| 13 | D6 | H/L | Datenleitung 6 |
| 14 | D7 | H/L | Datenleitung 7 (MSB) |
| 15 | LED + | - | LED-Versorgung Plus /Vorwiderstand! |
| 16 | LED - | - | LED-Versorgung Minus |

*Advice for pins 15/16 (17/18):
This is power supply for LED backlight. Operation requires a current source or an external series resistor! The value for maximum current is mentioned at the relating counter drawings. In view of life time of backlight please take care of a derating at temperatures permanently above +25°C. The forward voltage of LED backlight is between 3.0V and 3.6V.*

| Pinbelegung EA W404B-NLW / 4x40 Zeichen | | | |
|---|--------|-------|------------------------------------|
| Pin | Symbol | Pegel | Beschreibung |
| 1 | D7 | H/L | Datenleitung 7 (MSB) |
| 2 | D6 | H/L | Datenleitung 6 |
| 3 | D5 | H/L | Datenleitung 5 |
| 4 | D4 | H/L | Datenleitung 4 |
| 5 | D3 | H/L | Datenleitung 3 |
| 6 | D2 | H/L | Datenleitung 2 |
| 7 | D1 | H/L | Datenleitung 1 |
| 8 | D0 | H/L | Datenleitung 0 (LSB) |
| 9 | E1 | H | Enable Zeile 1+2 |
| 10 | R/W | H/L | H: Read / L: Write |
| 11 | RS | H/L | Register Select |
| 12 | VEE | - | Displayspannung typ. +0,2V |
| 13 | VSS | L | Versorgung 0V, GND |
| 14 | VDD | H | Versorgung +5V |
| 15 | E2 | H | Enable Zeile 3+4 |
| 16 | NC | - | frei |
| 17 | LED + | - | LED-Versorgung Plus /Vorwiderstand |
| 18 | LED - | - | LED-Versorgung Minus |

CHARACTER SET

| Lower 4 bit | Upper 4 bit | 0000 (\$0x) | 0010 (\$2x) | 0011 (\$3x) | 0100 (\$4x) | 0101 (\$5x) | 0110 (\$6x) | 0111 (\$7x) | 1010 (\$Ax) | 1011 (\$Bx) | 1100 (\$Cx) | 1101 (\$Dx) | 1110 (\$Ex) | 1111 (\$Fx) |
|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | CG RAM (0) | | 0 | 1 | P | ~ | F | | - | 9 | E | α | p | |
| xxx0000 (\$x0) | (1) | ! | 1 | A | Q | a | q | | µ | 7 | 4 | ä | q | |
| xxx0001 (\$x1) | (2) | " | 2 | B | R | b | r | | Γ | ι | ϖ | ρ | θ | |
| xxx0010 (\$x2) | (3) | # | 3 | C | S | c | s | | ∟ | ϖ | τ | ε | ω | |
| xxx0011 (\$x3) | (4) | \$ | 4 | D | T | d | t | | ∨ | I | † | μ | Ω | |
| xxx0100 (\$x4) | (5) | % | 5 | E | U | e | u | | · | オ | ナ | ユ | ユ | Ü |
| xxx0101 (\$x5) | (6) | & | 6 | F | V | f | v | | ヲ | カ | ニ | ヨ | ρ | Σ |
| xxx0110 (\$x6) | (7) | ' | 7 | G | W | g | w | | フ | キ | ズ | ウ | g | π |
| xxx0111 (\$x7) | CG RAM (0) | (| 8 | H | X | h | x | | イ | ウ | ホ | リ | ∫ | ∞ |
| xxx1000 (\$x8) | (1) |) | 9 | I | Y | i | y | | ウ | ケ | ル | リ | ' | γ |
| xxx1001 (\$x9) | (2) | * | : | J | Z | j | z | | エ | コ | ハ | レ | j | ∫ |
| xxx1010 (\$xA) | (3) | + | ; | K | [| k | [| | オ | サ | ヒ | ロ | * | ∫ |
| xxx1011 (\$xB) | (4) | , | < | L | ¥ | l | l | | ハ | シ | フ | ワ | φ | ∫ |
| xxx1100 (\$xC) | (5) | - | = | M |] | m |] | | ユ | ズ | へ | ン | ε | ÷ |
| xxx1101 (\$xD) | (6) | . | > | N | ^ | n | ^ | | ヨ | セ | ホ | ン | ñ | |
| xxx1110 (\$xE) | (7) | / | ? | O | _ | o | _ | | ウ | リ | マ | " | ö | ∫ |
| xxx1111 (\$xF) | | | | | | | | | | | | | | |



8 FREE DEFINABLE CHARACTER

All displays in BlueLine series are able to show 8 free definable character additionally to the 192 fixed ROM based character (ASCII codes 0..7).

- 1.) The command "CG RAM Address Set" set the pointer (bit 3,4,5) to the 1st dot line of the new character. The individual dot line will be addressed by bits 0,1 and 2. With this example a character with ASCII code \$00 will be defined.
- 2.) The command "Data Write" defines the upper dot row (here: 0x40). The next „Data Write“ commands are for the other dot rows. Full definition requires 8 write cycles where the last one is the cursor line.
- 3.) This new defined character will be used like a „normal“ ASCII character 0x00 ("DD RAM Address Set", "Data Write").

| Adresse im CG RAM setzen | | | | Daten des Zeichens | | | | | | | | | | | | |
|--------------------------|---|-----|---|--------------------|---|---|------|---|---|-----|---|-----|---|---|------|------|
| Adresse | | Hex | | Bit | | | | | | | | Hex | | | | |
| 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | | Hex | | | | | | |
| 0 | 1 | 0 | 0 | 0 | 0 | 0 | \$40 | X | X | X | 0 | 0 | 0 | 0 | \$04 | |
| | | | | 0 | 0 | 1 | \$41 | | | | 0 | 0 | 1 | 0 | 0 | \$04 |
| | | | | 0 | 1 | 0 | \$42 | | | | 0 | 0 | 1 | 0 | 0 | \$04 |
| | | | | 0 | 1 | 1 | \$43 | | | | 0 | 0 | 1 | 0 | 0 | \$04 |
| | | | | 1 | 0 | 0 | \$44 | | | | 1 | 0 | 1 | 0 | 1 | \$15 |
| | | | | 1 | 0 | 1 | \$45 | | | | 0 | 1 | 1 | 1 | 0 | \$0E |
| | | | | 1 | 1 | 0 | \$46 | | | | 0 | 0 | 1 | 0 | 0 | \$04 |
| | | | | 1 | 1 | 1 | \$47 | | | | 0 | 0 | 0 | 0 | 0 | \$00 |

COMMAND SET HD44780

| Instruction | Code | | | | | | | | | | Description | Execute Time (max.) | |
|----------------------------|------|-----|------------|------|------|------|------|------|------|------|---|---|------|
| | RS | R/W | DB 7 | DB 6 | DB 5 | DB 4 | DB 3 | DB 2 | DB 1 | DB 0 | | | |
| Clear Display | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Clears all display and returns the cursor to the home position (Address 0). | 1.64ms | |
| Cursor At Home | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | * | Returns the Cursor to the home position (Address 0). Also returns the display being shifted to the original position. DD RAM contents remain unchanged. | 1.64ms | |
| Entry Mode Set | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | I/D | S | Sets the Cursor move direction and specifies or not to shift the display. These operation are performed during data write and read. | 40µs | |
| Display On/Off Control | 0 | 0 | 0 | 0 | 0 | 0 | 1 | D | C | B | Sets ON/OFF of all display (D) cursor ON/OFF (C), and blink of cursor position character (B). | 40µs | |
| Cursor / Display Shift | 0 | 0 | 0 | 0 | 0 | 1 | S/C | R/L | * | * | Moves the Cursor and shifts the display without changing DD RAM contents. | 40µs | |
| Function Set | 0 | 0 | 0 | 0 | 1 | DL | N | F | * | * | Sets interface data length (DL) number of display lines (N) and character font (F). | 40µs | |
| CG RAM Address Set | 0 | 0 | 0 | 1 | ACG | | | | | | | Sets the CG RAM address. CG RAM data is sent and received after this setting. | 40µs |
| DD RAM Address Set | 0 | 0 | 1 | ADD | | | | | | | Sets the DD RAM address. DD RAM data is sent and received after this setting. | 40µs | |
| Busy Flag / Address Read | 0 | 1 | BF | AC | | | | | | | Reads Busy flag (BF) indicating internal operation is being performed and reads address counter contents. | - | |
| CG RAM / DD RAM Data write | 1 | 0 | Write Data | | | | | | | | Writes data into DD RAM or CG RAM | 40µs | |
| CG RAM / DD RAM Data Read | 1 | 1 | Read Data | | | | | | | | Reads data from DD RAM or CG RAM | 40µs | |

Hint
The execution time shown in table are valid with active check for „Busy Flag“ only; that means that before reading or writing data from or to the display the „Busy Flag“ BF needs to be checked for „0“. If there's no explicit „Busy Flag“ check but delay then execution time may be definitely longer. The 4 bit mode requires the „Busy Flag“ check every byte only.

Explanation:

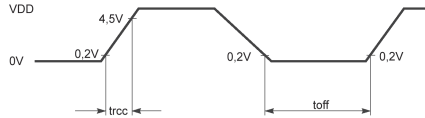
- | | | |
|-----|--|--|
| I/D | 1: DD-RAM increment address automatically | 0: Decrement DD-RAM address automatically |
| S | 1: Shift display content after read/write | 0: Move cursor after read/write |
| D | 1: Display on | 0: Display off |
| C | 1: Cursor visible | 0: Cursor invisible |
| B | 1: Character blinks | 0: Static character |
| S/C | 1: Shift display for 1 position (direction depends on R/L) | 0: Shift cursor for 1 position |
| R/L | 1: Shift to the right | 0: Shift to the left |
| DL | 1: Interface: 8-Bit data bus (DB0..7) | 0: Interface: 4-Bit data bus (DB4..7) |
| N | 1: 2-line display (also 8+8) | 0: 1-line display |
| F | 1: 5x10 dot display | 0: 5x7 dot display |
| BF | 1: Controller st busy | 0: Controller is ready to receive new data |

RELATIONSHIP DD-RAM ADDRESS AND POSITION ON DISPLAY

| Displaytyp | Anfangs - Endadresse (HEX) | | | | Bemerkung |
|------------|----------------------------|-----------|-----------|-----------|--|
| | 1.Zeile | 2.Zeile | 3.Zeile | 4.Zeile | |
| 1x8 | \$00-\$07 | | | | |
| 1x16 | \$00-\$0F | | | | MUX 1:8 |
| 1x16(8+8) | \$00-\$07 | | | | MUX 1:16 (linke Hälfte) (rechte Hälfte) |
| | \$40-\$47 | | | | |
| 1x20 | \$00-\$13 | | | | |
| 1x40 | \$00-\$27 | | | | |
| 2x8 | \$00-\$07 | \$40-\$47 | | | |
| 2x12 | \$00-\$0B | \$40-\$4B | | | |
| 2x16 | \$00-\$0F | \$40-\$4F | | | |
| 2x20 | \$00-\$13 | \$40-\$53 | | | |
| 2x24 | \$00-\$17 | \$40-\$57 | | | |
| 2x40 | \$00-\$27 | \$40-\$67 | | | |
| 4x16 | \$00-\$0F | \$40-\$4F | \$10-\$1F | \$50-\$5F | Kontroller HD44780 |
| | \$00-\$13 | \$40-\$53 | \$14-\$27 | \$54-\$67 | |
| 4x20 | \$00-\$13 | \$20-\$33 | \$40-\$53 | \$60-\$73 | Kontroller KS0073 |
| | \$00-\$27 | \$40-\$67 | - | - | 1. Kontroller (Enable 1) |
| 4x40 | - | - | \$00-\$27 | \$40-\$67 | 2. Kontroller (Enable 2) |

POWER-ON-RESET

The internal Power-On-Reset works only at following conditions:



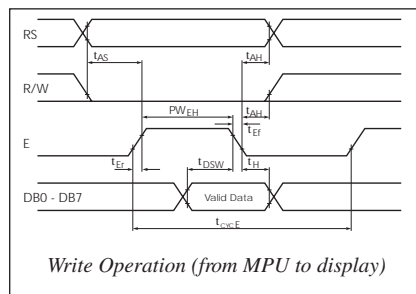
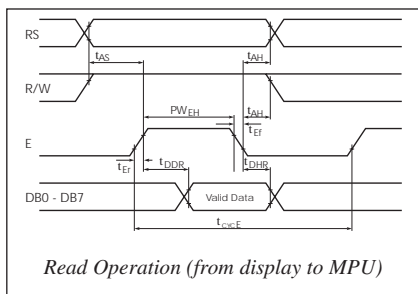
| Item | Symbol | Standard Value | | | Unit |
|------------------------|--------|----------------|-----|-----|------|
| | | min | typ | max | |
| Power Supply Rise Time | trcc | 0,1 | - | 10 | ms |
| Power Supply Off Time | toff | 1 | - | - | ms |

| Item | Symbol | Measuring Conditions | Standard Value | | | Unit |
|--------------------------------|----------|----------------------|----------------|------|------|------|
| | | | min. | typ. | max. | |
| Enable Cycle Time | tCYCE | see Figs.1 and 2 | 1000 | - | - | ns |
| Enable Pulse Width, High Level | PWEH | see Figs.1 and 2 | 450 | - | - | ns |
| Enable Rise and Delay Time *) | tER, tEF | see Figs.1 and 2 | - | - | 25 | ns |
| Address Setup Time, RS, R/W-E | tAS | see Figs.1 and 2 | 140 | - | - | ns |
| Data Delay Time | tDDR | see Fig.2 | - | - | 320 | ns |
| Data Setup Time | tDSW | see Fig.1 | 195 | - | - | ns |
| Data Hold Time | tH | see Fig.1 | 10 | - | - | ns |
| Data Hold Time | tDHR | see Fig.2 | 20 | - | - | ns |
| Address Hold Time | tAH | see Figs.1 and 2 | 10 | - | - | ns |

*) Important parameter!
Use "74LS" or "74HC" gate

VCC=5,0V ±5%, Ta=25°C

Input E (Enable) is the control pin for data lines DB0 to DB7. At E = H and R/W = 1 (µC reads data from display) the LCD controller switches it's data lines to output. Writing data from µC to the display will be done at the falling edge of E (Enable). The fall time of Enable signal (max. 25ns) is essential for an error free communication. IDC cable may deform signals even at a length of 20cm (depends on driver circuit, ambient condition, noise pinout etc.). Improvement can be done with:



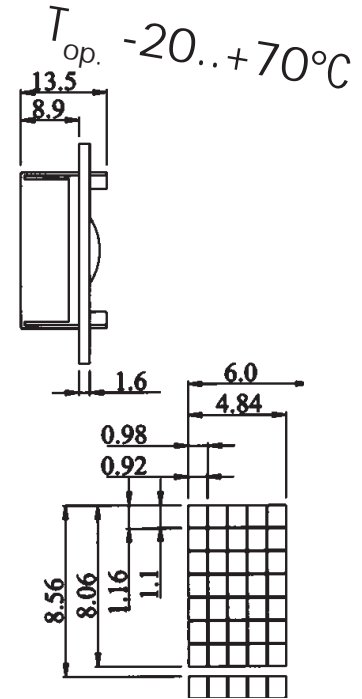
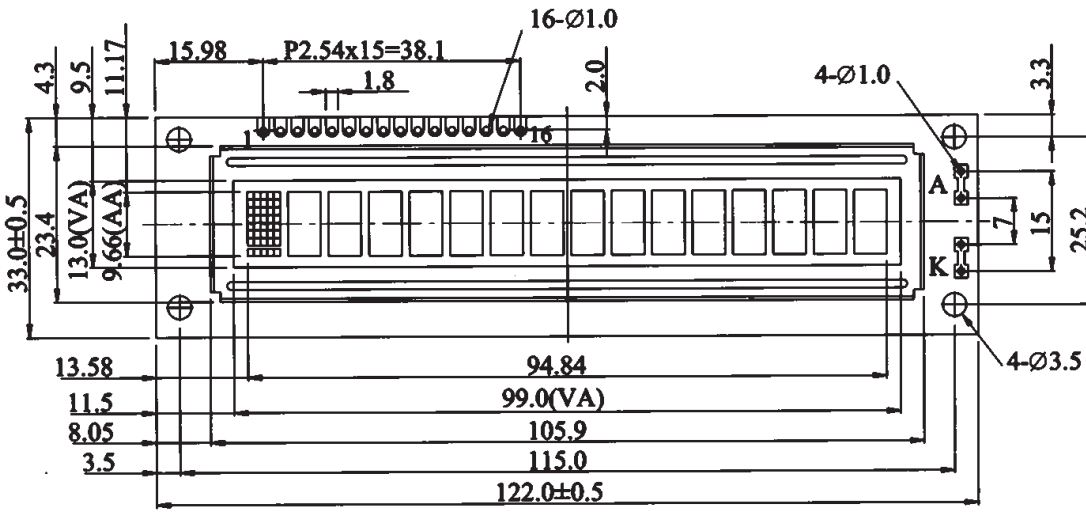
- "slower" data communication via port pins (if data setup or data hold time is too short)
- Pull-Up resistor connected directly to the „E“ pin at display side
- better driver on µC side
- Schmitt trigger on display side for Enable line
- shorten the cable (max. 10cm)

| INITIALISIERUNGSBEISPIEL FÜR DEN 4-BIT MODUS | | | | | | | |
|--|----|-----|-----|-----|-----|-----|--|
| Befehl | RS | R/W | DB7 | DB6 | DB5 | DB4 | Bemerkung |
| Function Set | 0 | 0 | 0 | 0 | 1 | 0 | 4-Bit Datenlänge einschalten (noch im 8-Bit Modus) |
| Function Set | 0 | 0 | 0 | 0 | 0 | 0 | 4-Bit Datenlänge, 1-zeiliges Display, 5x7 Font |
| Display ON/OFF | 0 | 0 | 0 | 0 | 0 | 0 | Display ein, Cursor ein, Cursor blinken |
| Clear Display | 0 | 0 | 0 | 0 | 0 | 0 | Display löschen, Cursor auf 1. Spalte von 1. Zeile |
| Entry Mode Set | 0 | 0 | 0 | 0 | 0 | 0 | Cursor Auto-Increment |

| INITIALISIERUNGSBEISPIEL FÜR DEN 8-BIT MODUS | | | | | | | | | | | |
|--|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Befehl | RS | R/W | DB7 | DB6 | DB5 | DB4 | DB3 | DB2 | DB1 | DB0 | Bemerkung |
| Function Set | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 8-Bit Datenlänge, 1-zeiliges Display, 5x7 Font |
| Display ON/OFF | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | Display ein, Cursor ein, Cursor blinken |
| Clear Display | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Display löschen, Cursor auf 1. Spalte von 1. Zeile |
| Entry Mode Set | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | Cursor Auto-Increment |

EA W161B-ENLW

1x16 CHARACTER 9,66mm



| Kompatibilität mit EA E161-ENLW | | |
|---------------------------------|-------------|------------------------------|
| Tätigkeit | Werte | Anmerkung |
| Widerstand RA einlöten | RA = 56 Ohm | I _{LED} = max. 30mA |

LED current max. 30mA@+25°C
external series resistor at Pin 15 and 16 required
VEE= typ. 4,5V@20°C

ORDERING CODE

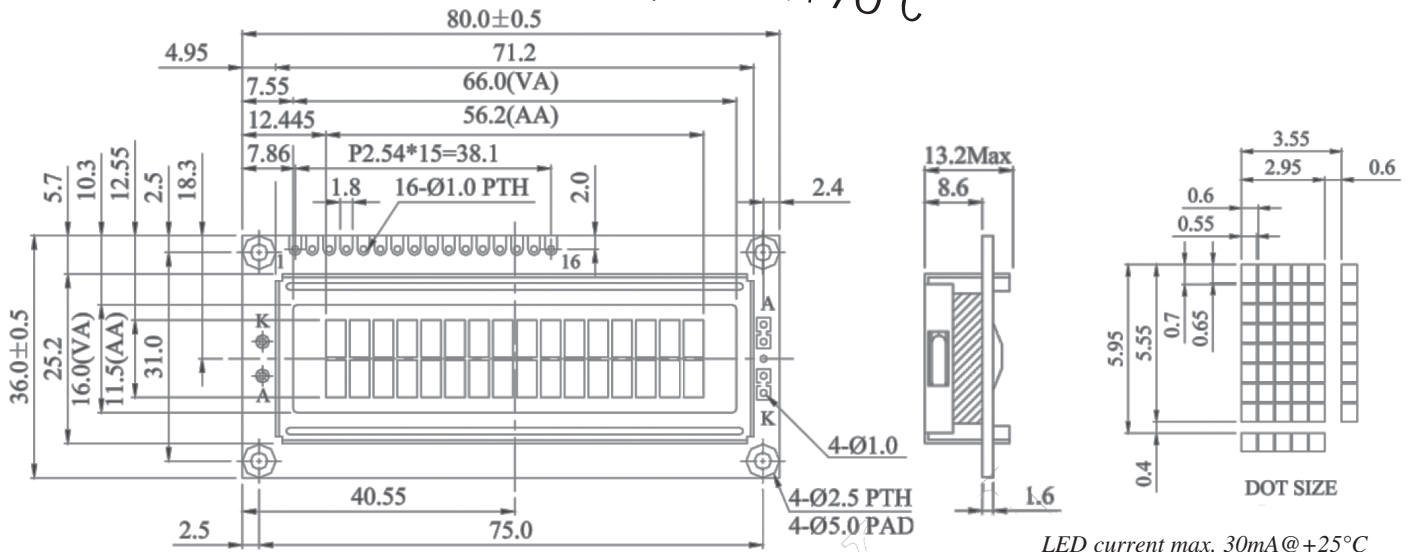
1x16 CHARACTER, 9,66mm, BLUE/WHITE, LED BACKLIGHT
BEZEL (WINDOW 98,5x12,8mm)

EA W161B-ENLW
EA 017-6UKE

EA W162B-N3LW

2x16 CHARACTER 5,56mm

$T_{op.} -20..+70^{\circ}C$



LED current max. 30mA@+25°C
external resistor at Pin 15 and 16
required
VEE= typ. 3,4V@+20°C

ORDERING CODE

2x16 CHARACTER, 5,56mm, BLUE/WHITE, LED BACKLIGHT
BEZEL (WINDOW 60,0x14,8mm)

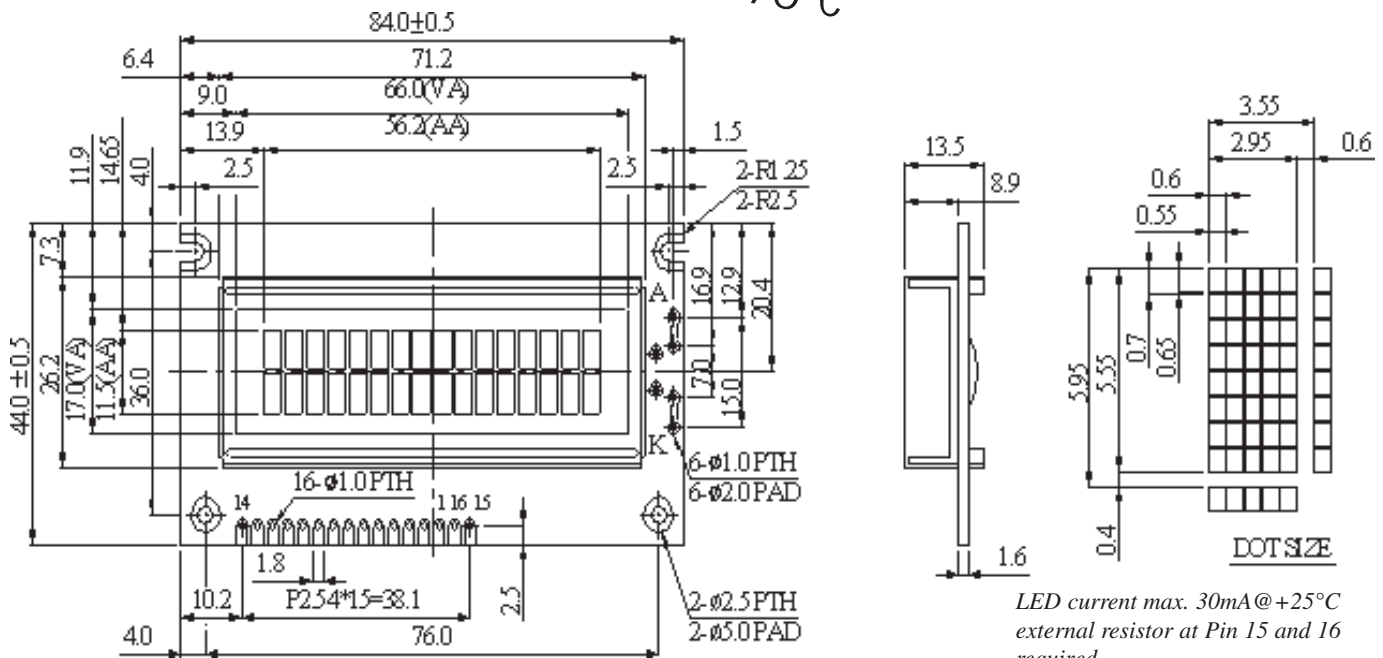
EA W162B-N3LW

EA 017-2UKE

EA W162B-NLW

2x16 CHARACTER 5,56mm

$T_{op.} -20..+70^{\circ}C$



LED current max. 30mA@+25°C
external resistor at Pin 15 and 16
required
VEE= typ. 3,7V@+20°C

ORDERING CODE

2x16 CHARACTER, 5,56mm, BLUE/WHITE, LED BACKLIGHT
BEZEL (WINDOW 60,0x14,8mm)

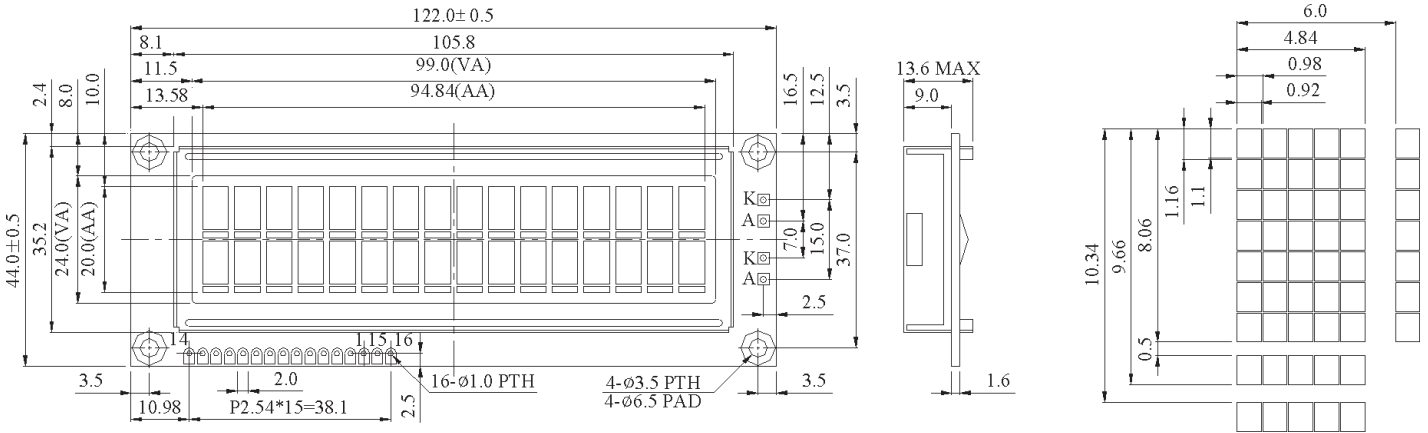
EA W162B-NLW

EA 017-2UKE

EA W162B-BNLW

$T_{op.} -20..+70^{\circ}C$

2x16 CHARACTER 9,66mm



| Kompatibilität mit EA E162-BNLW | | |
|---------------------------------|-------------|--|
| Tätigkeit | Werte | Anmerkung |
| Widerstand J15 nach rechts | J2 = 0 Ohm | Pins 15 und 16 freimachen, int. Versorgung über VDD/VSS; Beleuchtung nicht abschaltbar |
| Widerstand J16 nach rechts | J1 = 0 Ohm | |
| Widerstand RA austauschen | RA = 33 Ohm | I _{LED} = max. 45mA |

LED current max. 45mA@+25°C
external resistor at Pin 15 and 16
required
VEE= typ. 4,4V@20°C

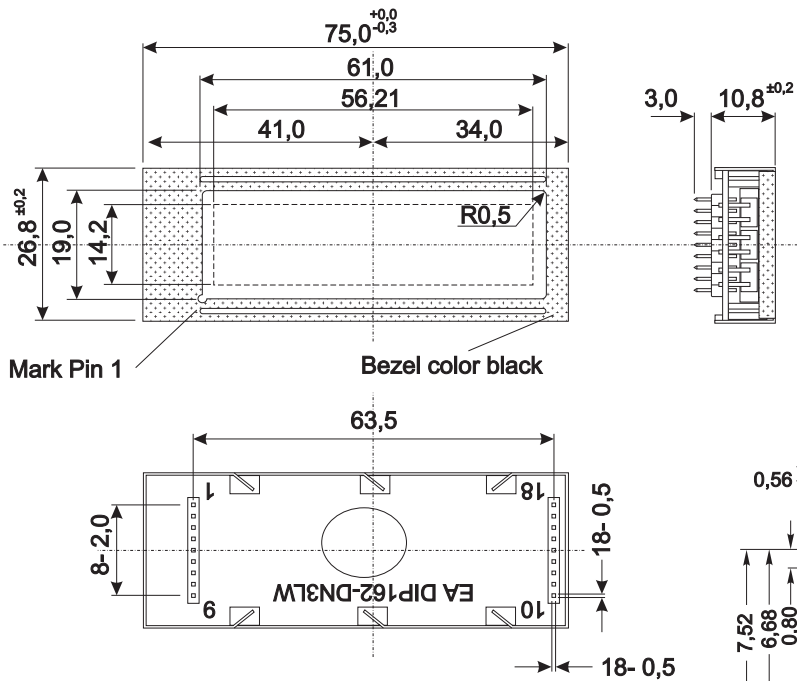
ORDERING CODE

2x16 CHARACTER, 9,66mm, BLUE/WHITE, LED BACKLIGHT
BEZEL (WINDOW 97,4x22,4mm)

EA W162B-BNLW
EA 017-12UKE

EA DIP162-DN3LW

2x16 CHARACTER 6,68mm



$T_{op.} -20..+70^{\circ}C$
Temp.Comp. built-in

ORDERING CODE

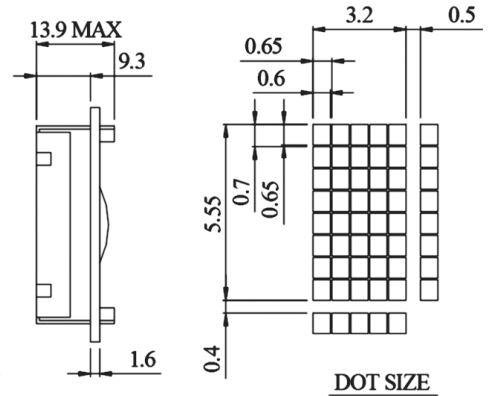
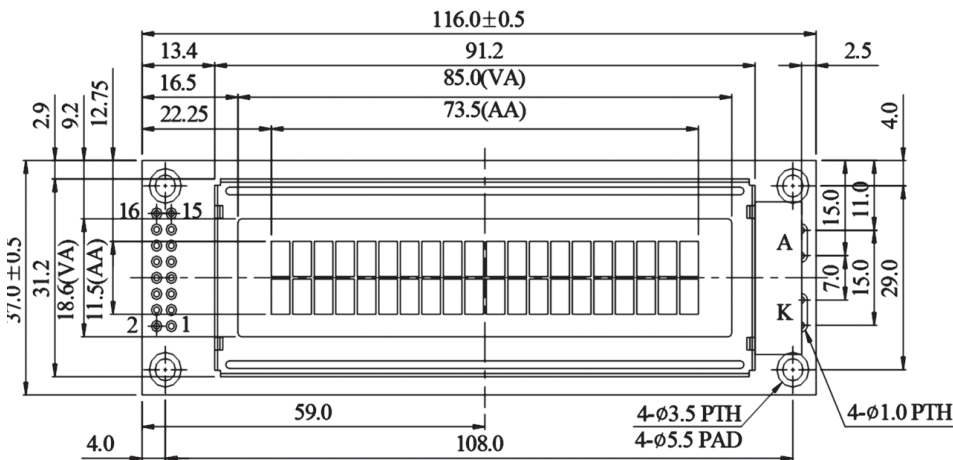
2x16 CHARACTER, 6,68mm, BLUE/WHITE
BEZEL (WINDOW 60,0x14,8mm)

EA DIP162-DN3LW
EA 017-2UKE

EA W202B-NLW

2x20 CHARACTER 5,55mm

$T_{op.} -20..+70^{\circ}C$



LED current max. 30mA@+25°C
external resistor at Pin 15+ and 16-
required
VEE= typ. 4,4V@+20°C

ORDERING CODE

2x20 CHARACTER, 5,55mm, BLUE/WHITE, LED BACKLIGHT
BEZEL (WINDOW 81,5x17,2mm)

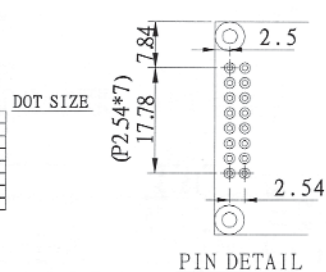
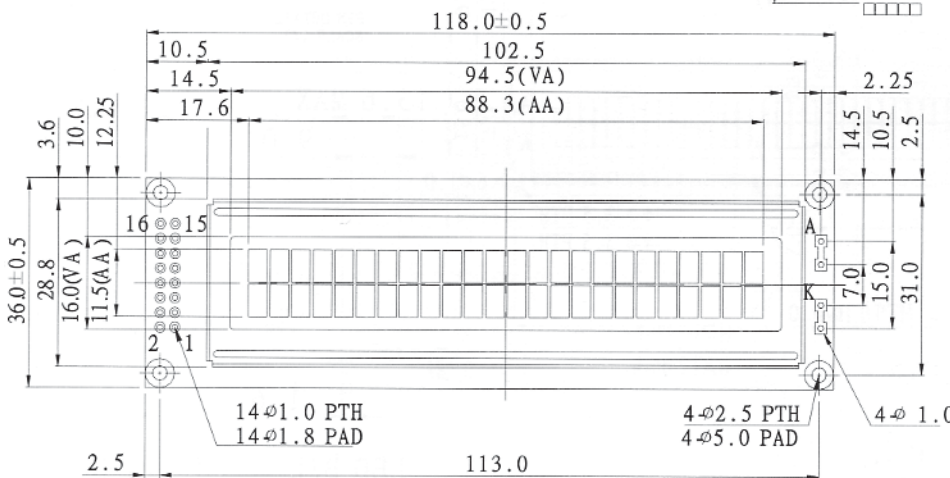
EA W202B-NLW
EA 017-7UKE

EA W242B-NLW

2x24 CHARACTER 5,55mm

$T_{op.} -20..+70^{\circ}C$

| Kompatibilität mit EA E242-NLW | | |
|--------------------------------|--------------------------|---------------------------|
| Tätigkeit | Werte | Anmerkung |
| J15 und J16 öffnen | | Pins 15 und 16 freimachen |
| Widerstände J1 und J2 einlöten | J1 = 0 Ohm J2 = 0 Ohm | Versorgung über VDD/VSS |
| Widerstand RA einlöten | RA = 33 Ohm | ILED= typ. 40mA |



LED current max. 30mA@+25°C
VEE= typ. 4,8V@+20°C

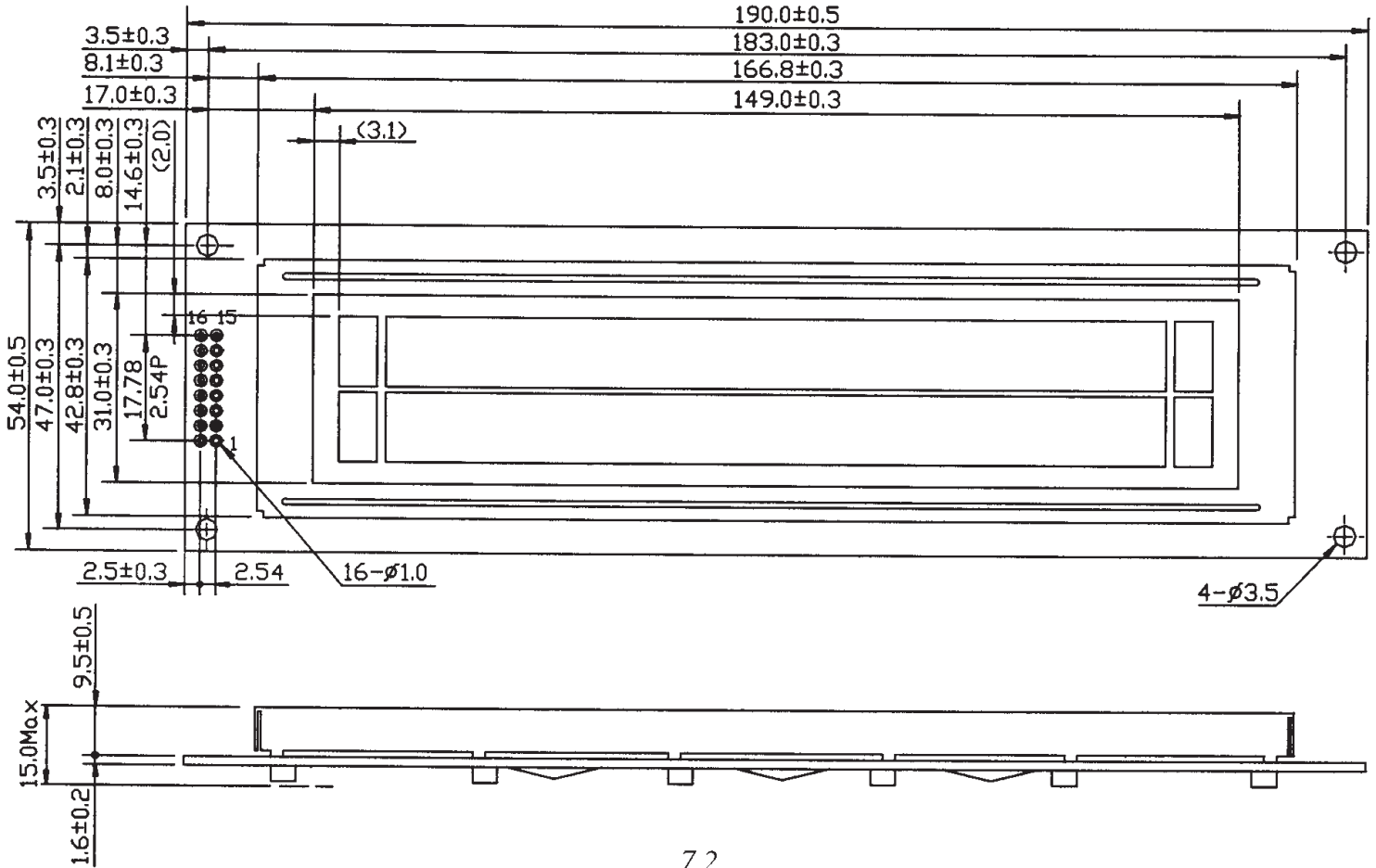
ORDERING CODE

2x24CHARACTER, 5,55mm, BLUE/WHITE, LED BACKLIGHT
BEZEL (WINDOW 92,0x14,8mm)

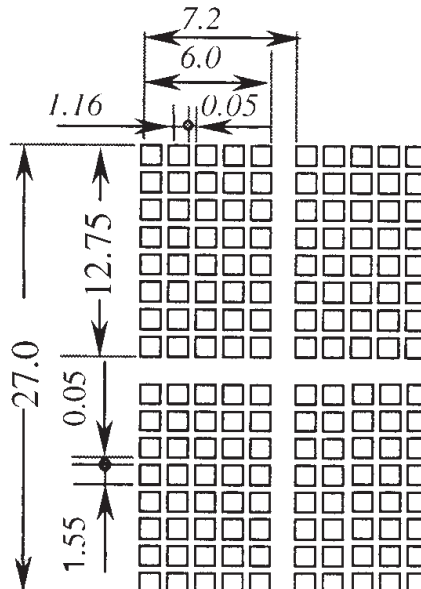
EA W242B-NLW
EA 017-14UKE

EA E202-CNLW

2x20 CHARACTER 12,7mm
Operating temperature 0..+50°C



$T_{op.} 0..+50^{\circ}C$



LED current max. 60mA@+25°C
Pin 15+ and 16- directly at 5V

ORDERING CODE

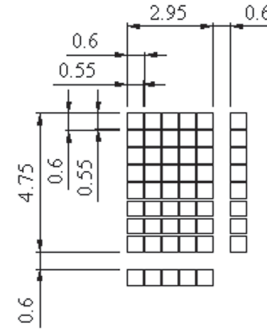
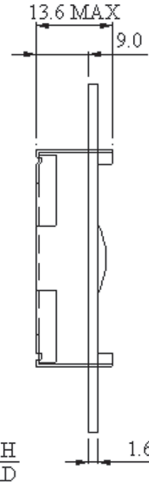
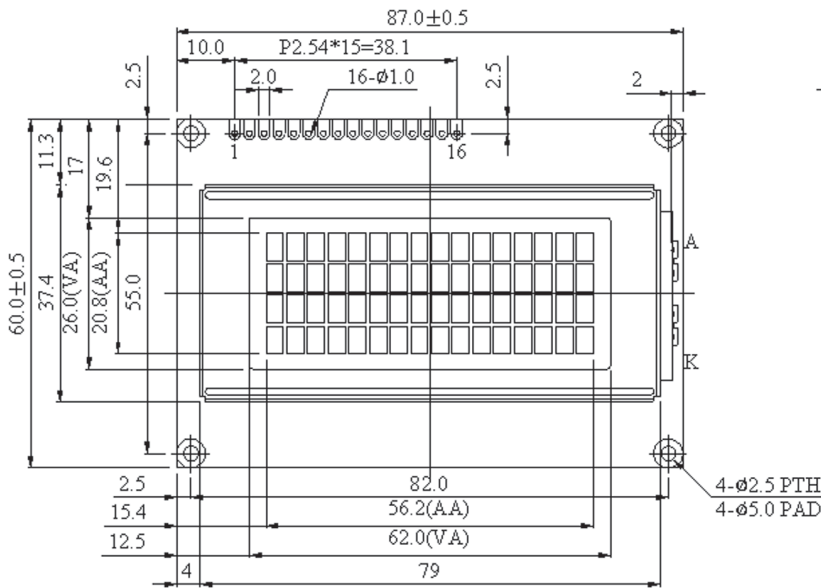
2x20 CHARACTER, 12,7mm, BLUE/WHITE, LED BACKLIGHT
BEZEL (WINDOW 145,0x33,8mm)

EA E202-CNLW
EA 017-27KE

EA W164B-NLW

4x16 CHARACTER 4,75mm

$T_{op.} -20..+70^{\circ}C$
Temp.Comp. built-in



LED current max. 45mA@+25°C
external resistor at Pin 15+ and 16-
required
VEE= typ. 4,5V@+20°C

ORDERING CODE

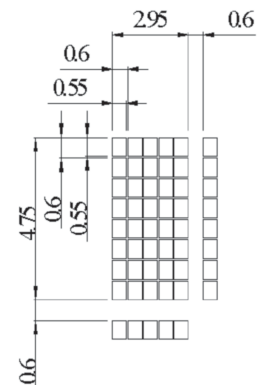
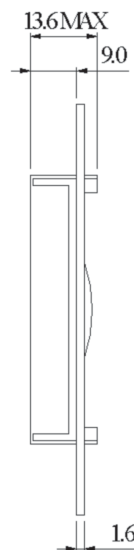
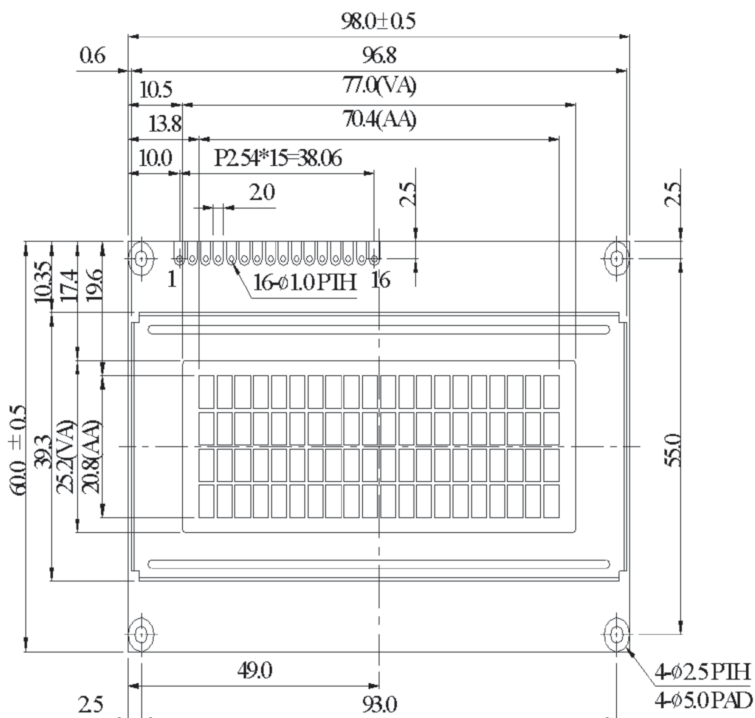
4x16 CHARACTER, 4,75mm, BLUE/WHITE, LED BACKLIGHT
BEZEL (WINDOW 60,8x24,2mm)

EA W164B-NLW
EA 017-8UKE

EA W204B-NLW

4x20 CHARACTER 4,75mm

$T_{op.} -20..+70^{\circ}C$



LED current max. 45mA@+25°C
external resistor at Pin 15 and 16
required
VEE= typ. 4,7V@+20°C

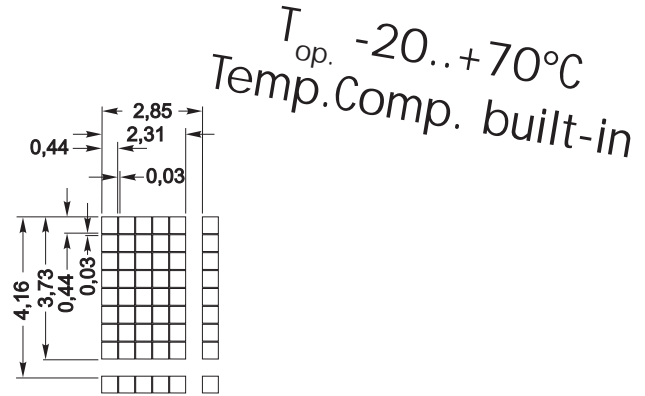
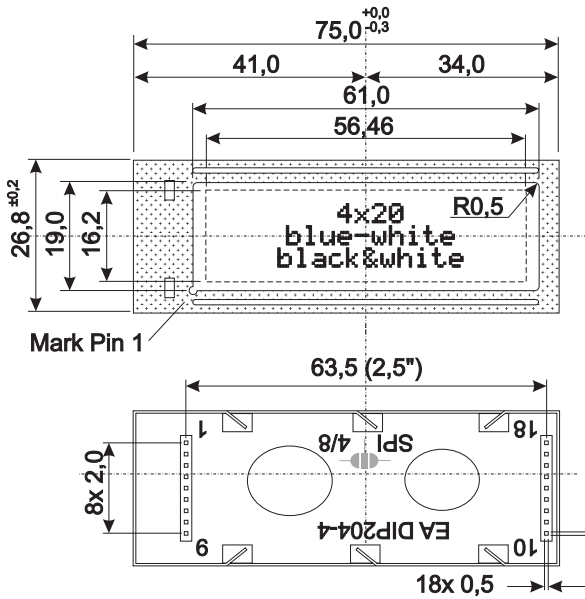
ORDERING CODE

4x20 CHARACTER, 4,75mm, BLUE/WHITE, LED BACKLIGHT
BEZEL (WINDOW 75,0x24,2mm)

EA W204B-NLW
EA 017-9UKE

EA DIP203B-4NLW

4x20 CHARACTER 3,75mm



| SPI Mode | Parallel Mode (Factory Set) |
|----------|-----------------------------|
| | |

LED current max. 45mA@+25°C
external resistor at Pin 17 and 18
required

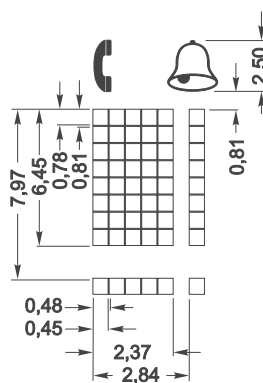
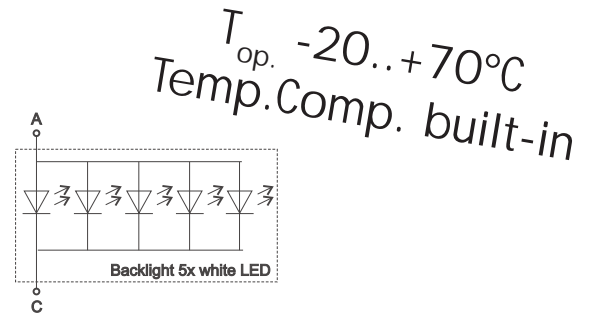
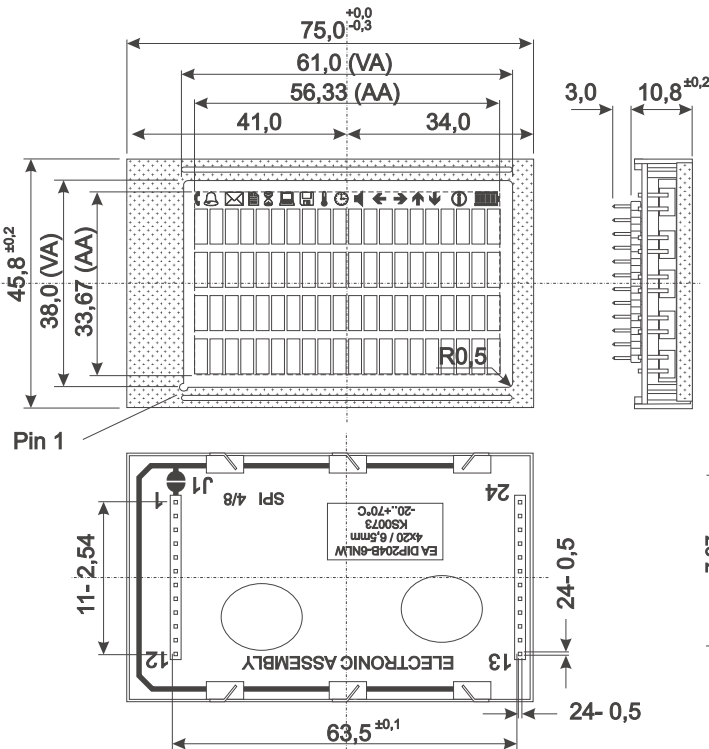
ORDERING CODE

4x20 CHARACTER, 3,75mm, BLUE/WHITE

EA DIP203B-4NLW

EA DIP203B-6NLW

4x20 CHARACTER 6,45mm



LED current max. 75mA@+25°C
external resistor at Pin 23 and 24
required

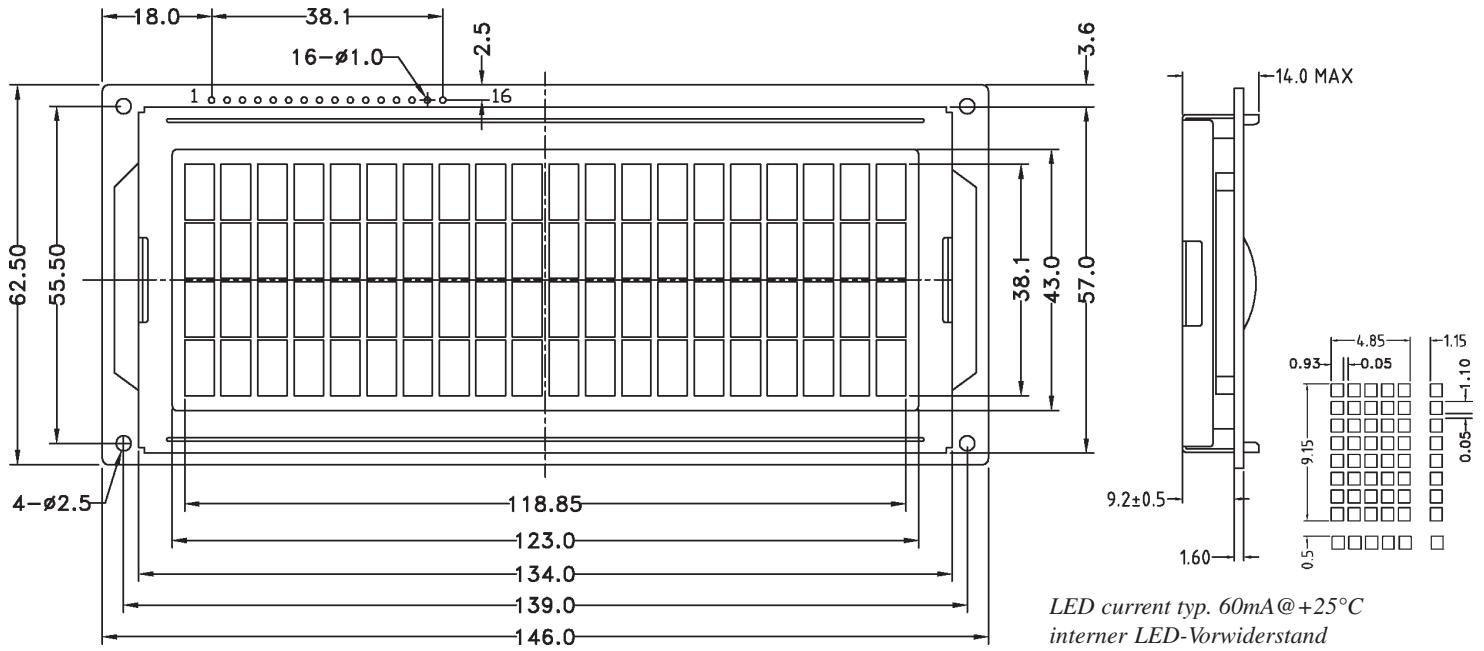
ORDERING CODE

4x20 CHARACTER, 6,45mm, BLUE/WHITE

EA DIP203B-6NLW

EA T204B-BNLW

4x20 CHARACTER 9,22mm



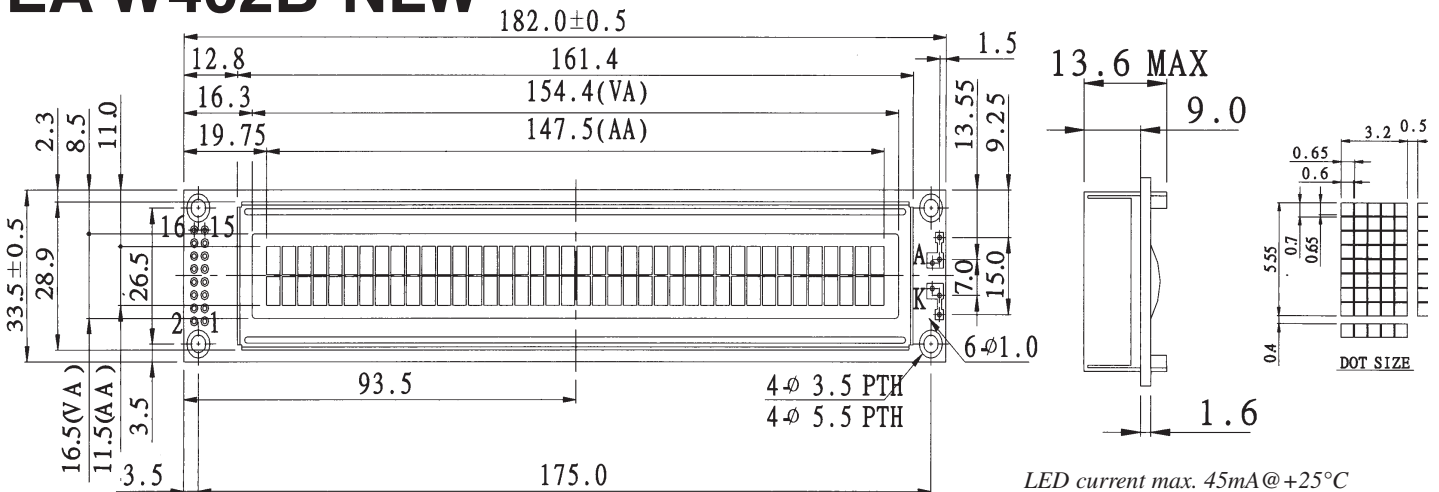
ORDERING CODE

4x20 CHARACTER, 9,22mm, BLUE/WHITE, LED BACKLIGHT
BEZEL (WINDOW 121,0x41,5mm)

EA T204B-BNLW
EA 017-25KE

EA W402B-NLW

2x40 CHARACTER 5,55mm



LED current max. 45mA@+25°C
RV_{LED} extern required
VEE= typ. 4,5V@+20°C

$T_{op.} -20..+70^{\circ}C$

| Kompatibilität mit EA E402-NLW | | |
|--------------------------------|--------------------------|---------------------------|
| Tätigkeit | Werte | Anmerkung |
| J15 und J16 öffnen | | Pins 15 und 16 freimachen |
| Widerstände J1 und J2 einlöten | J1 = 0 Ohm J2 = 0 Ohm | Versorgung über VDD/VSS |
| Widerstand RA einlöten | RA = 38 Ohm | ILED= max. 45mA |

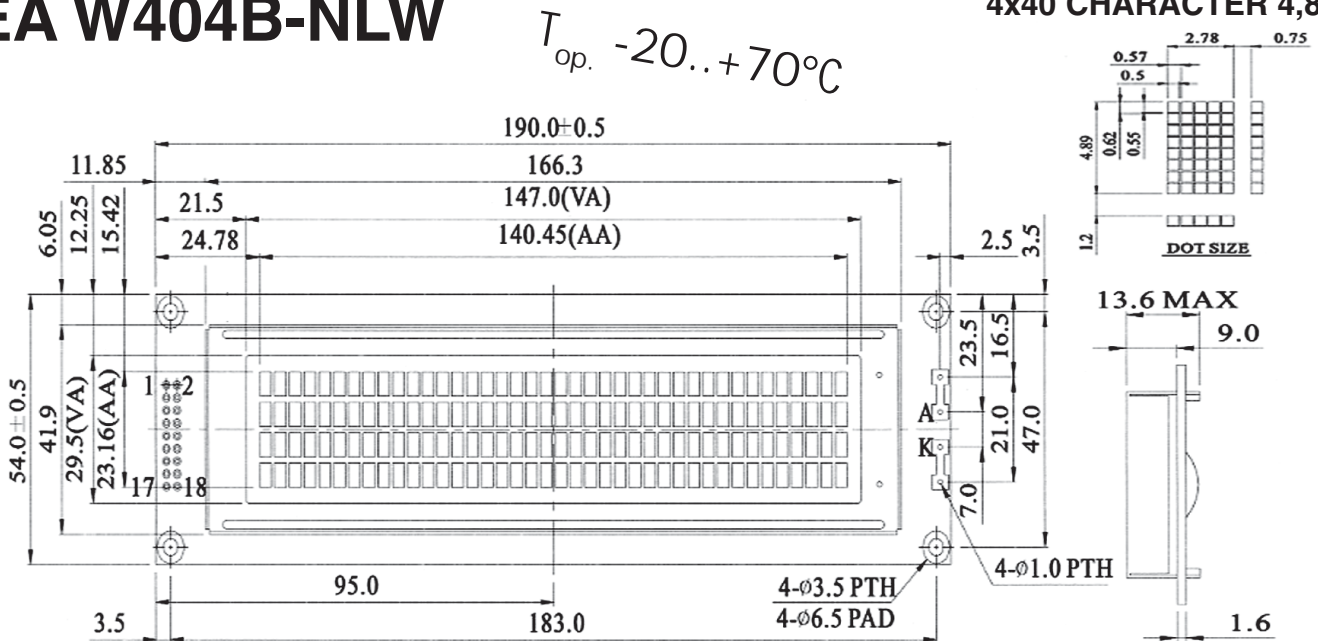
ORDERING CODE

2x40 CHARACTER, 5,55mm, BLUE/WHITE, LED BACKLIGHT
BEZEL (WINDOW 153,0x14,8mm)

EA W402B-NLW
EA 017-4UKE

EA W404B-NLW

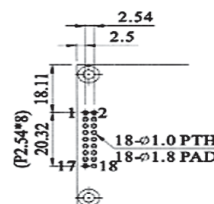
4x40 CHARACTER 4,89mm



LED current max. 75mA@+25°C
RV_{LED} extern required
VEE= typ. 4,8V@+20°C

$T_{op.} -20..+70^{\circ}C$

| Kompatibilität mit EA E404-NLW | | |
|--------------------------------|-------------|----------------------------|
| Tätigkeit | Werte | Anmerkung |
| Widerstand J14 nach links | J14 = 0 Ohm | Pins 17 und 18 freimachen, |
| Widerstand J13 nach unten | J13 = 0 Ohm | Versorgung über VDD/VSS |
| Widerstand RA auswechseln | RA = 23 Ohm | ILED= max. 75mA |



ORDERING CODE

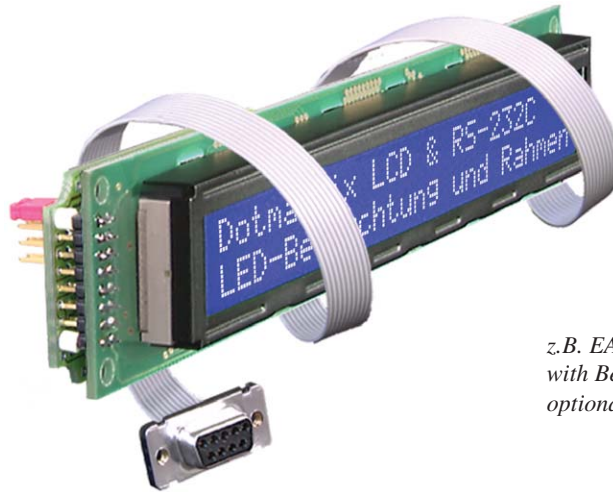
4x40 CHARACTER, 4,89mm, BLUE/WHITE, LED BACKLIGHT
BEZEL (WINDOW 145,0x28,0mm)

EA W404B-NLW
EA 017-13UKE

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BLUELINE DISPLAYS WITH RS-232 / RS-422



*z.B. EA SER402-NLW
with Bezel and
optionally cable EA KV24-9B*

FEATURES

- * SUPPLY VOLTAGE +5V
- * SET BAUDRATE BY JUMPER: 300, 1200, 2400 OR 9600 BAUD
- * AUTOMAT. LINE MANAGEMENT: CR / LF / SCROLL / PLACE CURSOR
- * MULTIPLE DISPLAYS AT 1 RS-232 LINE, ADDRESSABLE
- * SHIPMENT INCL. BEZEL WITH ANTIGLARE WINDOW

OPTIONALLY

- * DIP SWITCH INSTEAD OF SOLDER LINK TO SET THE ADDRESS: **EA OPT-DIP6**
- * RS-422 INTERFACE INSTEAD OF RS-232C (STANDARD): **EA OPT-RS422**

ACCESSORY

- * EA KV24-9B: CABLE WITH 9-PIN D-SUB CONNECTOR (FEMALE)

ORDERING CODE

1x16 CHARACTER, 9,66mm, RS-232
 2x16 CHARACTER, 5,56mm, RS-232
 2x16 CHARACTER, 5,56mm, RS-232
 2x16 CHARACTER, 9,66mm, RS-232
 2x20 CHARACTER, 5,55mm, RS-232
 2x20 CHARACTER, 12,7mm, RS-232
 2x24 CHARACTER, 5,55mm, RS-232
 4x20 CHARACTER, 4,75mm, RS-232
 2x40 CHARACTER, 5,55mm, RS-232
 4x40 CHARACTER, 4,89mm, RS-232

EA SER161-ENLW
EA SER162-N3LW
EA SER162-NLW
EA SER162-BNLW
EA SER202-NLW
EA SER202-CNLW
EA SER242-NLW
EA SER204-NLW
EA SER402-NLW
EA SER404-NLW

Mouser Electronics

Authorized Distributor

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[EA W162B-N3LW](#)