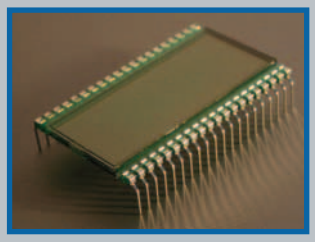
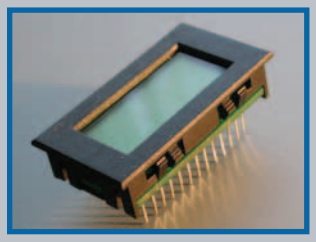
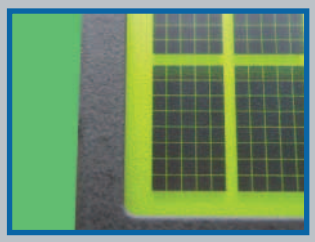
PRODUCTS 01/2013



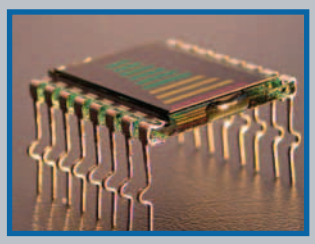




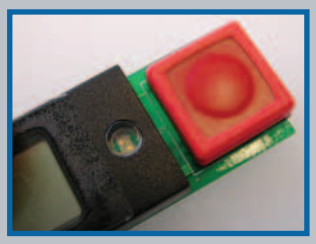


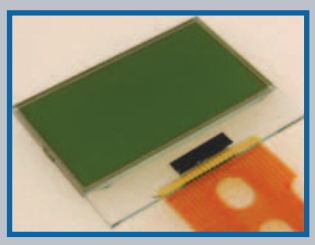


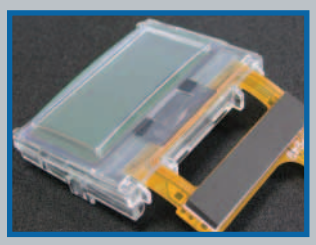




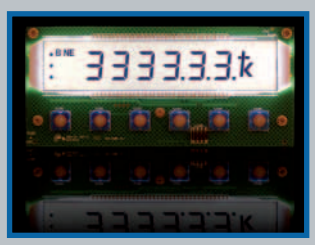


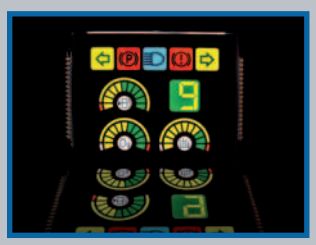




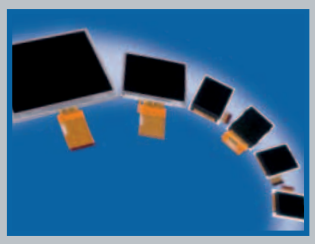


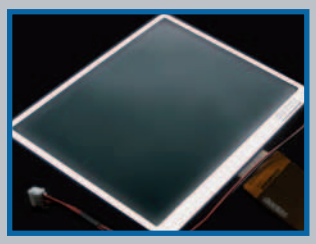






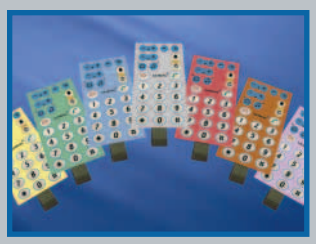












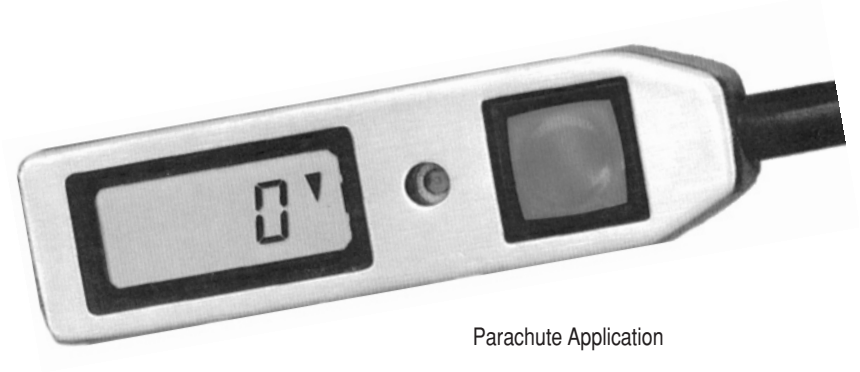


LCD

Display Elektronik GmbH was established in 1984 as a value added supplier of Liquid Crystal Displays.

We rapidly gained a first class reputation as a supplier of high quality standard and custom designed displays. Our sales activities expanded throughout Europe and other parts of the world. We hold investments in LCD production plants and have licenced contracts with certified LCD-manufacturers. We serve the whole of Europe into the following applications:

APPLICATIONS:
Telecommunication
Electromedicine
Fuel pumps
Gas meters
Electricity meters
Home facilities
Measuring instruments
Automotive



Parachute Application

Our standard LCD-product range includes LCD-Panels, Digital-Modules, Alphanumeric-Modules and Graphic-Modules. To complete our LCD-Product range we offer CSTN (Colour STN), TFT-Displays and OLED-Displays as well. In addition we also offer LED-Displays, and several accessories like LED-Backlights and Touch-Panels as well. Besides this we also offer customized membrane switches and rubber keypads.

We are specialized in the LCD-Business and due to our well experience from the beginning of this technology we can offer you our full service in the design-in stage already.

Display Elektronik GmbH offers:

CELL-TECHNOLOGIES:

TN	– Twisted Nematic
HTN	– High Twisted Nematic
ETN	– Extended Twisted Nematic
EBTN	– Enhanced Brightness Twisted Nematic
ATN	– Automotive Twisted Nematic
STN	– Super Twisted Nematic
DSTN	– Double STN
ASTN	– Automotive STN
FSTN	– Film Compensated STN
FFSTN	– Dark FSTN
OLED	– Organic LED
PLED	– Polymer LED
LED	– Light Emitting Diode
CSTN	– Color STN
TFT	– Thin Film Transistor

MODULE -TECHNOLOGIES:

COB	– Chip On Board
COG	– Chip On Glass
TAB/TCP	– Tape Carrier Package
COF	– Chip On Foil

CONNECTION-TECHNOLOGIES:
Elastomer/Zebra
Pins (standard or custom)
Heat-Seal
FFC (Flat-Flexible-Cable)
FPC (Flexible-Printed-Circuit)
With or without stiffener (ZIF)
FMC (Flexible-Metal-Circuit)

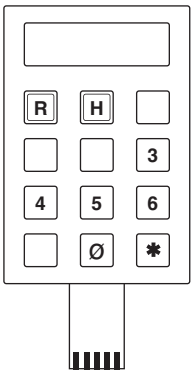
BACKLIGHT-TECHNOLOGIES:

LED	– Lightguide (indirect)
LED	– Lightbox (direct, matrix)
EL	– Electroluminescence foil
CCFL	– Cold Cathode Fluorescence lamp
RGB	– Red/Green/Blue backlight (LED)
OLED	– OLED-backlight (new technology)

PRODUCTION FACILITIES:

PLANTS	– 3 independent lines
SHEET SIZE	– 14” x 16” (mainly)
CAPACITY	– 500000m2 sheets per year
CLEANROOM	– CLASS 10000 – CLASS 1000 – CLASS 100
LOCATION	– Taiwan and China

KEYPADS:
Membrane Switch
Rubber Keypad



TOUCH-PANELS:

4WR	- 4 Wire Resistive
5WR	- 5 Wire Resistive
8WR	- 8 Wire Resistive
PCT	- Projective Capacitive
SAW	- Sound Acoustic Wave
IR	- Infrared

We offer a full custom design service, from a simple segment panel display through to a complete graphic display solution including interface, backlight and additional components like buttons. This includes a permanent technical support during the series production.

Please contact us – we will make sure that the first step will lead to a successful long lasting reliable partnership.

LCD

DESIGN OF CUSTOMIZED DISPLAYS

Please send us:

- a sketch or drawing of the intended display
- details according to the questionnaire
- volume of requested mass production with time schedule

We will send you an offer including:

- tooling costs incl. prototypes
- price for mass production
- time schedule and terms

In case of an order you will get a drawing for your approval. After approval of the drawing, we will start to manufacture the prototypes. After approval of the prototypes by yourself, we will start with mass production. We follow this procedure since many years. This is to ensure that each step has to be approved by you, before the next step will be done. You will be therefore on the safe side.

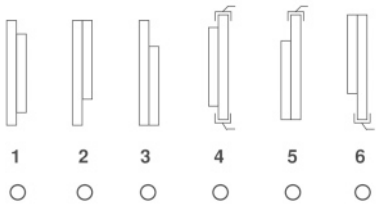
Our capabilities include:

– Glass LCDs
– Chip on Board
– Chip on Flex/Chip on Foil
– Chip on Glass
– Custom LCD Character and Graphics Modules
– Value Added including Zebra Strips, Bezels, PCB's, Membrane Switches, Silicone Rubber Key Pads

Custom LCD Design Guide

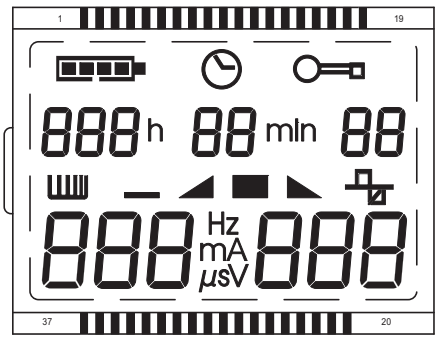


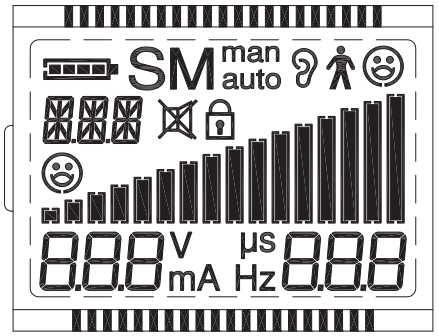
LCD Configuration - Select one



A = WIDTH OF GLASS _____ mm
B = LARGE GLASS _____ mm
C = VIEWING AREA _____ mm
D = VIEWING AREA _____ mm
E = SMALL GLASS _____ mm
F = GLASS THICKNESS _____ mm

CUSTOM LCD AND MODULES





Application _____ ❑ Outdoor ❑ Indoor
Operating temperature from _____°C to _____
Storage temperature from _____°C to _____
❑ Reflective (for ambient light)
❑ Transflective (for ambient light with possibility of backlight)
❑ Transmissive (for backlight only)

Mode

❑ TN ❑ STN (yellow/green) ❑ FSTN ❑ FSC ❑ NEGATIVE
❑ HTN ❑ STN (grey) ❑ DSTN ❑ CSTN ❑ POSITIVE
❑ EBTN ❑ STN (blue) ❑ FFSTN ❑ TFT
❑ ATN ❑ ESTN ❑ OLED
❑ ASTN

Connection

❑ Elastomer ❑ Heatseal
❑ Fixed pins ❑ FFC
❑ Connector ❑ FPC Pitch: _____ mm

Viewing angle ❑ Top view, 12 o'clock ❑ Bottom view, 6 o'clock

Electrical Specifications

operating voltage _____ Volt
Driving frequency _____ Hz
Driving IC, model _____
Brand of IC _____

Driving

❑ Static (direct) ❑ Multiplexed Duty rate _____

Custom Module Design Guide

PCB technology: size: COG: total size _____x_____x_____
COB: total size _____x_____x_____
TCP: total size _____x_____x_____

❑ Backlight ❑ LED ❑ EL ❑ CCFL Color: _____

❑ Touch-Panel Technology: _____

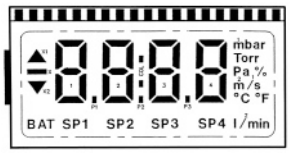
Other description: _____

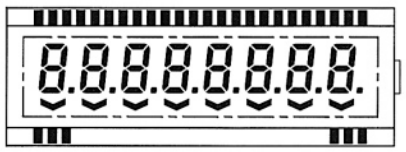
DISPLAY - DESIGN

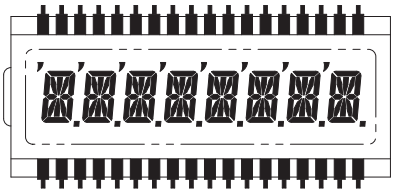
COMPANY _____ TEL _____
STREET _____ FAX _____
CITY _____
NAME _____ Req. prototypes _____ pcs
E-MAIL _____ Annual demand _____ pcs

7-SEGMENT PANELS









MODEL	DISPLAY FORMAT	SEGMENT INFO	DIGIT HEIGHT	VIEWING AREA	GLASS SIZE	POLARIZER MODE	TEMPERATURE RANGE	PIN-LENGTH	OPERATING VOLTAGE	DRIVING METHOD
DE 174-RS-20/6,35	1 CHAR	5x7 MATRIX	70,0	50,8 x 71,1	57,2 x 82,6	REFLECTIVE	-20°C ... +70°C	6,35	5 Volt	STATIC
DE 174-RS-20/7,5	1 CHAR	5x7 MATRIX	70,0	50,8 x 71,1	57,2 x 82,6	REFLECTIVE	-20°C ... +70°C	7,5	5 Volt	STATIC
DE 324-RU-20/8,0/12°	1 DIGIT	-	50,8	38,1 x 54,9	42,5 x 68,5	REFLECTIVE	-20°C ... +70°C	8	3-5 Volt	STATIC
DE 323-RS-20/7,5	1 DIGIT	-	76,0	71,2 x 89,0	76,2 x 101,6	REFLECTIVE	-20°C ... +70°C	7,5	3-5 Volt	STATIC
DE 112-RS-20/6,35	2 DIGITS	-	12,7	22,0 x 16,9	28,0 x 30,5	REFLECTIVE	-20°C ... +70°C	6,35	3-5 Volt	STATIC
DE 112-TS-20/7,5	2 DIGITS	-	12,7	22,0 x 16,9	28,0 x 30,5	TRANSFLECTIVE	-20°C ... +70°C	7,5	3-5 Volt	STATIC
DE 112-TU-30/6,35	2 DIGITS	-	12,7	22,0 x 16,9	28,0 x 30,5	TRANSFLECTIVE	-40°C ... +90°C	6,35	3-5 Volt	STATIC
DE 112-TU-30/13,0	2 DIGITS	-	12,7	22,0 x 16,9	28,0 x 30,5	TRANSFLECTIVE	-40°C ... +90°C	13	3-5 Volt	STATIC
DE 123-RS-20/6,35	3 DIGITS	-	8,9	24,1 x 11,4	30,5 x 22,9	REFLECTIVE	-20°C ... +70°C	6,35	3-5 Volt	STATIC
DE 123-RS-20/7,5	3 DIGITS	-	8,9	24,1 x 11,4	30,5 x 22,9	REFLECTIVE	-20°C ... +70°C	7,5	3-5 Volt	STATIC
DE 123-TU-30/7,5	3 DIGITS	-	8,9	24,1 x 11,4	30,5 x 22,9	TRANSFLECTIVE	-40°C ... +90°C	7,5	3-5 Volt	STATIC
DE 151-RS-20/7,5	3-1/2 DIGITS	ARROW	8,9	44,5 x 11,4	50,8 x 22,9	REFLECTIVE	-20°C ... +70°C	7,5	3-5 Volt	STATIC
DE 115-RS-20/7,5	3-1/2 DIGITS	LO BAT	10,0	38,0 x 13,0	42,0 x 22,0	REFLECTIVE	-20°C ... +70°C	7,5	3-5 Volt	STATIC
DE 113-RS-20/6,35	3-1/2 DIGITS	LO BAT	12,7	44,5 x 16,5	50,8 x 30,5	REFLECTIVE	-20°C ... +70°C	6,35	3-5 Volt	STATIC
DE 113-RS-20/7,5	3-1/2 DIGITS	LO BAT	12,7	44,5 x 16,5	50,8 x 30,5	REFLECTIVE	-20°C ... +70°C	7,5	3-5 Volt	STATIC
DE 113-RS-20/8,4	3-1/2 DIGITS	LO BAT	12,7	44,5 x 16,5	50,8 x 30,5	REFLECTIVE	-20°C ... +70°C	8,4	3-5 Volt	STATIC
DE 113-RS-20/12,2	3-1/2 DIGITS	LO BAT	12,7	44,5 x 16,5	50,8 x 30,5	REFLECTIVE	-20°C ... +70°C	12,2	3-5 Volt	STATIC
DE 113-RS-30/7,5	3-1/2 DIGITS	LO BAT	12,7	44,5 x 16,5	50,8 x 30,5	REFLECTIVE	-40°C ... +90°C	7,5	3-5 Volt	STATIC
DE 113-TS-20/7,5	3-1/2 DIGITS	LO BAT	12,7	44,5 x 16,5	50,8 x 30,5	TRANSFLECTIVE	-20°C ... +70°C	7,5	3-5 Volt	STATIC
DE 113-TU-20/8,4	3-1/2 DIGITS	LO BAT	12,7	44,5 x 16,5	50,8 x 30,5	TRANSFLECTIVE	-20°C ... +70°C	8,4	3-5 Volt	STATIC
DE 114-RS-20/6,35	3-1/2 DIGITS	~ BAT	12,7	44,5 x 18,4	50,8 x 30,5	REFLECTIVE	-20°C ... +70°C	6,35	3-5 Volt	STATIC
DE 114-RS-20/7,5	3-1/2 DIGITS	~ BAT	12,7	44,5 x 18,4	50,8 x 30,5	REFLECTIVE	-20°C ... +70°C	7,5	3-5 Volt	STATIC
DE 114-RS-20/8,4	3-1/2 DIGITS	~ BAT	12,7	44,5 x 18,4	50,8 x 30,5	REFLECTIVE	-20°C ... +70°C	8,4	3-5 Volt	STATIC
DE 170-RS-20/7,5	3-1/2 DIGITS	ARROW	12,7	44,5 x 16,5	50,8 x 30,5	REFLECTIVE	-20°C ... +70°C	7,5	3-5 Volt	STATIC
DE 170-RU-20/6,35	3-1/2 DIGITS	ARROW	12,7	44,5 x 16,5	50,8 x 30,5	REFLECTIVE	-20°C ... +70°C	6,35	3-5 Volt	STATIC
DE 131-RU-20/8,4	3-1/2 DIGITS	ARROW	17,8	62,2 x 24,1	69,9 x 38,1	REFLECTIVE	-20°C ... +70°C	8,4	3-5 Volt	STATIC
DE 182-RS-20/7,5	3-1/2 DIGITS	~ BAT	17,8	65,8 x 26,0	69,8 x 38,0	REFLECTIVE	-20°C ... +70°C	7,5	3-5 Volt	STATIC
DE 117-RS-20/7,5	4 DIGITS	-	6,8	21,5 x 9,4	23,9 x 16,8	REFLECTIVE	-20°C ... +70°C	7,5	3-5 Volt	STATIC
DE 117-RS-21	4 DIGITS	-	6,8	21,5 x 9,4	23,9 x 14,0	REFLECTIVE	-20°C ... +70°C	ZEBRA	3-5 Volt	STATIC
DE 117-TS-20/7,5	4 DIGITS	-	6,8	21,5 x 9,4	23,9 x 16,8	TRANSFLECTIVE	-20°C ... +70°C	7,5	3-5 Volt	STATIC
DE 118-RS-20/6,35	4 DIGITS	-	8,0	34,0 x 12,0	38,0 x 20,3	REFLECTIVE	-20°C ... +70°C	6,35	3-5 Volt	STATIC
DE 118-RS-21	4 DIGITS	-	8,0	34,0 x 12,0	38,0 x 20,3	REFLECTIVE	-20°C ... +70°C	ZEBRA	3-5 Volt	STATIC
DE 118-RU-21	4 DIGITS	-	8,0	34,0 x 12,0	38,0 x 20,3	REFLECTIVE	-20°C ... +70°C	ZEBRA	3-5 Volt	STATIC
DE 118-TS-20/8,0	4 DIGITS	-	8,0	34,0 x 12,0	38,0 x 20,3	TRANSFLECTIVE	-20°C ... +70°C	ZEBRA	3-5 Volt	STATIC
DE 116-TU-31	4 DIGITS	-	8,0	34,0 x 12,1	38,0 x 20,3	TRANSFLECTIVE	-40°C ... +90°C	ZEBRA	3-5 Volt	STATIC
DE 127-RS-20/6,35	4 DIGITS	-	8,9	44,5 x 11,4	50,8 x 22,9	REFLECTIVE	-20°C ... +70°C	6,35	3-5 Volt	STATIC
DE 127-RS-20/7,5	4 DIGITS	-	8,9	44,5 x 11,4	50,8 x 22,9	REFLECTIVE	-20°C ... +70°C	77,5	3-5 Volt	STATIC
DE 127-TS-20/7,5	4 DIGITS	-	8,9	44,5 x 11,4	50,8 x 22,9	TRANSFLECTIVE	-20°C ... +70°C	77,5	3-5 Volt	STATIC
DE 325-RS-20/8,4 (3V)	4 DIGITS	DIVERSE	11,5	45,0 x 19,0	49,0 x 25,5	REFLECTIVE	-20°C ... +70°C	8,4	3 Volt	MUX 1/4
DE 325-RS-20/8,4 (5V)	4 DIGITS	DIVERSE	11,5	45,0 x 19,0	49,0 x 25,5	REFLECTIVE	-20°C ... +70°C	8,4	5 Volt	MUX 1/4
DE 119-RS-20/6,35	4 DIGITS	-	12,7	44,5 x 16,5	50,8 x 30,5	REFLECTIVE	-20°C ... +70°C	6,35	3-5 Volt	STATIC
DE 119-RS-20/7,5	4 DIGITS	-	12,7	44,5 x 16,5	50,8 x 30,5	REFLECTIVE	-20°C ... +70°C	7,5	3-5 Volt	STATIC
DE 119-TS-20/7,5	4 DIGITS	-	12,7	44,5 x 16,5	50,8 x 30,5	TRANSFLECTIVE	-20°C ... +70°C	7,5	3-5 Volt	STATIC
DE 119-TU-20/12,2	4 DIGITS	-	12,7	44,5 x 16,5	50,8 x 30,5	TRANSFLECTIVE	-20°C ... +70°C	12,2	3-5 Volt	STATIC
DE 119-TU-30/8,4	4 DIGITS	-	12,7	44,5 x 16,5	50,8 x 30,5	TRANSFLECTIVE	-30°C ... +85°C	8,4	3-5 Volt	STATIC
DE 161-RS-20/7,5 (3V)	4 DIGITS	-	12,7	45,7 x 17,7	50,8 x 30,5	REFLECTIVE	-20°C ... +70°C	7,5	3 Volt	MUX 1/3
DE 161-RS-20/7,5 (5V)	4 DIGITS	-	12,7	45,7 x 17,7	50,8 x 30,5	REFLECTIVE	-20°C ... +70°C	7,5	5 Volt	MUX 1/3
DE 161-TS-20/7,5 (3V)	4 DIGITS	-	12,7	45,7 x 17,7	50,8 x 30,5	TRANSFLECTIVE	-20°C ... +70°C	7,5	3 Volt	MUX 1/3
DE 161-TS-20/7,5 (5V)	4 DIGITS	-	12,7	45,7 x 17,7	50,8 x 30,5	TRANSFLECTIVE	-20°C ... +70°C	7,5	5 Volt	MUX 1/3
DE 152-RS-20/7,5	4 DIGITS	TRIANGLE	12,7	44,5 x 16,5	50,8 x 30,5	REFLECTIVE	-20°C ... +70°C	7,5	3-5 Volt	STATIC
DE 120-RS-20/7,5	4 DIGITS	-	17,8	63,5 x 24,1	69,9 x 38,1	REFLECTIVE	-20°C ... +70°C	7,5	3-5 Volt	STATIC
DE 120-TS-20/7,5	4 DIGITS	-	17,8	63,5 x 24,1	69,9 x 38,1	TRANSFLECTIVE	-20°C ... +70°C	7,5	3-5 Volt	STATIC
DE 158-RS-20/8,4	4 DIGITS	-	25,4	87,5 x 31,8	94,0 x 45,7	REFLECTIVE	-20°C ... +70°C	8,4	3-5 Volt	STATIC
DE 158-RU-30/8,4	4 DIGITS	-	25,4	87,5 x 31,8	94,0 x 45,7	REFLECTIVE	-35°C ... +85°C	8,4	3-5 Volt	STATIC
DE 158-TU-30/8,4	4 DIGITS	-	25,4	87,5 x 31,8	94,0 x 45,7	TRANSFLECTIVE	-35°C ... +85°C	8,4	3-5 Volt	STATIC
DE 128-RS-20/7,5	4-1/2 DIGITS	ARROW	8,9	44,5 x 11,4	50,8 x 22,9	REFLECTIVE	-20°C ... +70°C	7,5	3-5 Volt	STATIC
DE 128-RS-20/12,2	4-1/2 DIGITS	ARROW	8,9	44,5 x 11,4	50,8 x 22,9	REFLECTIVE	-20°C ... +70°C	12,2	3-5 Volt	STATIC
DE 128-TU-20/7,5	4-1/2 DIGITS	ARROW	8,9	44,5 x 11,4	50,8 x 22,9	TRANSFLECTIVE	-20°C ... +70°C	7,5	3-5 Volt	STATIC
DE 121-RS-20/7,5	4-1/2 DIGITS	LO BAT	10,2	44,5 x 16,5	50,8 x 30,5	REFLECTIVE	-20°C ... +70°C	7,5	3-5 Volt	STATIC
DE 159-RS-20/7,5	4-1/2 DIGITS	ARROW	10,2	44,5 x 16,5	50,8 x 30,5	REFLECTIVE	-20°C ... +70°C	7,5	3-5 Volt	STATIC
DE 183-RU-20/8,4 (3V)	4-1/2 DIGITS	DIVERSE	10,0	46,8 x 18,0	50,8 x 30,5	REFLECTIVE	-20°C ... +70°C	8,4	3 Volt	MUX 1/3
DE 183-RU-20/8,4 (5V)	4-1/2 DIGITS	DIVERSE	10,0	46,8 x 18,0	50,8 x 30,5	REFLECTIVE	-20°C ... +70°C	8,4	5 Volt	MUX 1/3
DE 183-TU-20/8,4 (5V)	4-1/2 DIGITS	DIVERSE	10,0	46,8 x 18,0	50,8 x 30,5	TRANSFLECTIVE	-20°C ... +70°C	8,4	5 Volt	MUX 1/3
DE 184-RU-20/7,5	4-1/2 DIGITS	ARROW	15,2	63,0 x 24,0	69,9 x 38,1	REFLECTIVE	-25°C ... +75°C	7,5	3-5 Volt	STATIC

other models upon request

7-SEGMENT PANELS

MODEL	DISPLAY FORMAT	SEGMENT INFO	DIGIT HEIGHT	VIEWING AREA	GLASS SIZE	POLARIZER MODE	TEMPERATURE RANGE	PIN-LENGTH	OPERATING VOLTAGE	DRIVING METHOD
DE 160-RS-20/7,5	4-1/2 DIGITS	ARROW	20,5	87,5 x 31,7	93,9 x 45,7	REFLECTIVE	-20°C ... +70°C	7,5	3-5 Volt	STATIC
DE 129-RS-20/12,2	5 DIGITS	-	10,2	44,5 x 16,5	50,8 x 30,5	REFLECTIVE	-20°C ... +70°C	12,2	3-5 Volt	STATIC
DE 303-RU-20/12,2 (3V)	5 DIGITS	-	11,0	47,0 x 15,3	50,8 x 30,5	REFLECTIVE	-20°C ... +70°C	12,2	3 Volt	MUX 1/2
DE 130-RS-20/7,5	5 DIGITS	-	17,8	74,9 x 24,1	81,3 x 38,1	REFLECTIVE	-20°C ... +70°C	7,5	3-5 Volt	STATIC
DE 130-TS-20/7,5	5 DIGITS	-	17,8	74,9 x 24,1	81,3 x 38,1	TRANSFLECTIVE	-20°C ... +70°C	7,5	3-5 Volt	STATIC
DE 163-RU-20/7,5	5 DIGITS	-	25,4	107,0 x 30,5	114,3 x 45,7	REFLECTIVE	-20°C ... +70°C	7,5	3-5 Volt	STATIC
DE 163-TU-20/7,5	5 DIGITS	-	25,4	107,0 x 30,5	114,3 x 45,7	TRANSFLECTIVE	-20°C ... +70°C	7,5	3-5 Volt	STATIC
DE 126-RS-20/7,5	6 DIGITS	-	8,9	58,5 x 12,4	63,5 x 22,9	REFLECTIVE	-20°C ... +70°C	7,5	3-5 Volt	STATIC
DE 122-RS-20/6,35	6 DIGITS	-	12,7	63,5 x 16,5	69,9 x 30,5	REFLECTIVE	-20°C ... +70°C	6,35	3-5 Volt	STATIC
DE 122-TU-20/12,2	6 DIGITS	-	12,7	63,5 x 16,5	69,9 x 30,5	TRANSFLECTIVE	-20°C ... +70°C	12,2	3-5 Volt	STATIC
DE 132-RS-20/8,4	6 DIGITS	-	17,8	87,5 x 24,1	93,9 x 38,1	REFLECTIVE	-20°C ... +70°C	8,4	3-5 Volt	STATIC
DE 132-TU-30/8,4	6 DIGITS	-	17,8	87,5 x 24,1	93,9 x 38,1	TRANSFLECTIVE	-40°C ... +90°C	8,4	3-5 Volt	STATIC
DE 156-RU-30/7,5	6 DIGITS	-	25,4	130,8 x 31,8	137,2 x 45,7	REFLECTIVE	-40°C ... +90°C	7,5	3-5 Volt	STATIC
DE 156-TU-30/7,5	6 DIGITS	-	25,4	130,8 x 31,8	137,2 x 45,7	TRANSFLECTIVE	-40°C ... +90°C	7,5	3-5 Volt	STATIC
DE 336-RU-30/6,35	6 DIGITS	-	40,0	162,0 x 58,0	170,0 x 75,0	REFLECTIVE	-30°C ... +80°C	6,35	3-5 Volt	STATIC
DE 336-TU-30/6,35	6 DIGITS	-	40,0	162,0 x 58,0	170,0 x 75,0	TRANSFLECTIVE	-30°C ... +80°C	6,35	3-5 Volt	STATIC
DE 337-RU-30/7,5	6 DIGITS	-	80,0	329,0 x 84,0	335,0 x 96,0	REFLECTIVE	-30°C ... +80°C	7,5	3-5 Volt	STATIC
DE 337-TU-30/7,5	6 DIGITS	-	80,0	329,0 x 84,0	335,0 x 96,0	TRANSFLECTIVE	-30°C ... +80°C	7,5	3-5 Volt	STATIC
DE 124-RS-20/7,5 (3V)	8 DIGITS	-	6,0	34,0 x 11,6	38,0 x 20,3	REFLECTIVE	-20°C ... +70°C	7,5	3 Volt	MUX 1/2
DE 124-RS-21 (3V)	8 DIGITS	-	6,0	34,0 x 11,6	38,0 x 20,3	REFLECTIVE	-20°C ... +70°C	ZEBRA	3 Volt	MUX 1/2
DE 301-RS-20/6,35 (3V)	8 DIGITS	14 SEGMENT	7,0	47,0 x 13,0	52,0 x 22,0	REFLECTIVE	-20°C ... +70°C	6,35	3 Volt	MUX 1/4
DE 301-RS-20/6,35 (5V)	8 DIGITS	14 SEGMENT	7,0	47,0 x 13,0	52,0 x 22,0	REFLECTIVE	-20°C ... +70°C	6,35	5 Volt	MUX 1/4
DE 301-RS-21 (3V)	8 DIGITS	14 SEGMENT	7,0	47,0 x 13,0	52,0 x 22,0	REFLECTIVE	-20°C ... +70°C	ZEBRA	3 Volt	MUX 1/4
DE 301-RS-21 (5V)	8 DIGITS	14 SEGMENT	7,0	47,0 x 13,0	52,0 x 22,0	REFLECTIVE	-20°C ... +70°C	ZEBRA	5 Volt	MUX 1/4
DE 301-TU-30/6,35 (5V)	8 DIGITS	14 SEGMENT	7,0	47,0 x 13,0	52,0 x 22,0	TRANSFLECTIVE	-30°C ... +85°C	6,35	5 Volt	MUX 1/4
DE 302-RU-30/6,35 (4,7V)	8 DIGITS	14 SEGMENT	9,0	64,0 x 12,5	70,0 x 25,0	REFLECTIVE	-30°C ... +80°C	6,35	4,7 Volt	MUX 1/4
DE 133-RS-30/6,35/12° (3V)	8 DIGITS	ARROW	9,0	64,0 x 14,5	70,0 x 25,0	REFLECTIVE	-40°C ... +90°C	6,35	3 Volt	MUX 1/3
DE 133-RS-30/6,35/12° (5V)	8 DIGITS	ARROW	9,0	64,0 x 14,5	70,0 x 25,0	REFLECTIVE	-40°C ... +90°C	6,35	5 Volt	MUX 1/3
DE 125-RS-20/7,5	8 DIGITS	-	12,7	87,5 x 16,5	93,9 x 30,5	REFLECTIVE	-20°C ... +70°C	7,5	3-5 Volt	STATIC
DE 125-TU-30/12,2	8 DIGITS	-	12,7	87,5 x 16,5	93,9 x 30,5	TRANSFLECTIVE	-40°C ... +90°C	12,2	3-5 Volt	STATIC
DE 335-TU-30/6,35	8 DIGITS	-	25,4	167,7 x 31,8	174,0 x 45,7	TRANSFLECTIVE	-30°C ... +90°C	6,35	3-5 Volt	STATIC
DE 137-RS-20/6,35	32 x BAR	BARGRAPH	12,7	95,2 x 16,5	101,7 x 30,5	REFLECTIVE	-20°C... +70°C	6,35	3-5 Volt	STATIC
DE 137-TU-30/13	32 x BAR	BARGRAPH	12,7	95,2 x 16,5	101,7 x 30,5	TRANSFLECTIVE	-40°C... +90°C	13	3-5 Volt	STATIC
DE 334-TU-30/13	16 x BAR	BARGRAPH	12,7	26,7 x 20,1	31,1 x 30,5	TRANSFLECTIVE	-40°C... +90°C	13	3-5 Volt	STATIC

other models upon request

ORDERING INFORMATION

DE - 1 1 3 - R S - 2 0 / 7,5 / M

- **model**
  - reflective = R
  - transflective = T
  - transmissive = M
- standard polarizer = S
- highstable polarizer = U
- 1 = 0°C to + 50°C
- 2 = -20°C to + 70°C
- 3 = -35°C to + 85°C (min.)
- 0 = fixed pins
- 1 = for elastomer (zebra)
- Pinlength (mm)
- internal information

Example:
DE-113-RS-20/7,5 /M
LCD 3-1/2 digits
Digit height 12,7 mm
Reflective
Standard polarizer
Extended temperature
Fixed pins
Pinlength 7,5 mm

7-SEGMENT MODULES

MODEL	DISPLAY FORMAT	DIGIT HEIGHT	VIEWING AREA	MODULE SIZE	TEMPERATURE RANGE	BACKLIGHT	BACKLIGHT COLOR (optional)	OPERATING VOLTAGE	IC DRIVER
DEM 9509 TGH-LY	8 CHARACTERS (14SEGMENT)	14,0	80,0 x 20,5	100,0 x 42,0	-10°C ... +70°C	LED	YELLOW/GREEN	5V	UPD7225

other models upon request

ORDERING INFORMATION

DEM 9509 T G H - L Y - _ _ / _

- **model**
  - F: FSTN S: STN T: TN
- **BACKGROUND MODE**
  - Y: Yellow-Green
  - G: Grey (pos.) / Dark (neg.)
  - D: Extra-Dark (FSTN, neg.)
  - B: Blue (STN, neg.)
- **OPERATING TEMPERATURE OPTION**
  - Blank: 0°C to +50°C
  - H: -20°C to +70°C
- **BACKLIGHT OPTION**
  - E: EL type (Electroluminescent lamp)
  - P: LED Lightguide/Lightpipe (indirect light)
  - L: LED Lightbox (direct light)
- **BACKLIGHT COLOR**
  - Y: Yellow-Green A: Amber
  - G: Pure Green B: Blue
  - R: Red W: White
- **DISPLAY MODE**
  - Blank: Positive
  - N: Negative
- **VIEWING DIRECTION**
  - Blank: 6 o'clock
  - 12: 12 o'clock
- internal information

ALPHANUMERIC DOT MATRIX MODULES

MODEL	DISPLAY FORMAT	CHARACTER HEIGHT	VIEWING AREA	MODULE SIZE	TECHNOLOGY	TEMPERATURE RANGE	BACK-LIGHT	BACKLIGHT COLOR	IMAGE (POS/NEG)	REMARKS
DEM 08171 FGH-PW	8 x 1	7,93	44,0 x 13,0	60,0 x 33,0	FSTN - BLACK	-20°C ... +70°C	LED	WHITE	POS	-
DEM 08171 SBH-PW-N	8 x 1	7,93	44,0 x 13,0	60,0 x 33,0	STN - BLUE	-20°C ... +70°C	LED	WHITE	NEG	-
DEM 08171 SYH	8 x 1	7,93	44,0 x 13,0	60,0 x 33,0	STN - YELLOW/GREEN	-20°C ... +70°C	-	-	POS	-
DEM 08171 SYH-LY	8 x 1	7,93	44,0 x 13,0	60,0 x 33,0	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	-
DEM 08172 SBH-PW-N	8 x 1	10,75	61,0 x 15,8	84,0 x 44,0	STN - BLUE	-20°C ... +70°C	LED	WHITE	NEG	-
DEM 08172 SYH-PY	8 x 1	10,75	61,0 x 15,8	84,0 x 44,0	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	-
DEM 08172 SYH-PY-CYR22	8 x 1	10,75	61,0 x 15,8	84,0 x 44,0	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	CYRILLIC
DEM 08201 SGH-LY	8 x 2	4,35	31,0 x 14,5	40,0 x 30,5	STN - SILVERGREY	-20°C ... +70°C	LED	YELLOW/GREEN	POS	-
DEM 08202 SYH-LY	8 x 2	5,00	35,0 x 15,0	58,0 x 32,0	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	-
DEM 16101 SYH	16 x 1	5,95	63,5 x 13,8	80,0 x 36,0	STN - YELLOW/GREEN	-20°C ... +70°C	-	-	POS	-
DEM 16101 SYH-LY	16 x 1	5,95	63,5 x 13,8	80,0 x 36,0	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	-
DEM 16101 TGH	16 x 1	5,95	63,5 x 13,8	80,0 x 36,0	TN - SILVERGREY	-20°C ... +70°C	-	-	POS	-
DEM 16102 SBH-PW-N	16 x 1	7,90	61,0 x 15,8	80,0 x 36,0	STN - BLUE	-20°C ... +70°C	LED	WHITE	NEG	-
DEM 16102 SYH	16 x 1	7,90	61,0 x 15,8	80,0 x 36,0	STN - YELLOW/GREEN	-20°C ... +70°C	-	-	POS	-
DEM 16102 SYH-CYR22	16 x 1	7,90	61,0 x 15,8	80,0 x 36,0	STN - YELLOW/GREEN	-20°C ... +70°C	-	-	POS	CYRILLIC
DEM 16102 SYH-LY	16 x 1	7,90	61,0 x 15,8	80,0 x 36,0	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	-
DEM 16102 SYH-LY-CYR22	16 x 1	7,90	61,0 x 15,8	80,0 x 36,0	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	CYRILLIC
DEM 16102 SYH-PY	16 x 1	7,90	61,0 x 15,8	80,0 x 36,0	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	-
DEM 16102 TGH	16 x 1	7,90	61,0 x 15,8	80,0 x 36,0	TN - SILVERGREY	-20°C ... +70°C	-	-	POS	-
DEM 16102 TGH-CYR22	16 x 1	7,90	61,0 x 15,8	80,0 x 36,0	TN - SILVERGREY	-20°C ... +70°C	-	-	POS	CYRILLIC
DEM 16103 SYH-LY	16 x 1	9,68	99,0 x 13,0	122,0 x 33,0	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	-
DEM 16209 FGH-PW	16 x 2	5,15	61,0 x 15,7	76,0 x 28,7	FSTN - BLACK	-20°C ... +70°C	LED	WHITE	POS	-
DEM 16209 SBH-PW-N	16 x 2	5,15	61,0 x 15,7	76,0 x 28,7	STN - BLUE	-20°C ... +70°C	LED	WHITE	NEG	-
DEM 16210 SGH	16 x 2	4,35	64,5 x 15,0	69,8 x 30,5	STN - SILVERGREY	-20°C ... +70°C	-	-	POS	-
DEM 16211 SY-LY	16 x 2	5,63	61,0 x 19,0	84,0 x 40,0	STN - YELLOW/GREEN	-00°C ... +50°C	LED	YELLOW/GREEN	POS	-
DEM 16211 SY-PY	16 x 2	5,63	61,0 x 19,0	84,0 x 40,0	STN - YELLOW/GREEN	-00°C ... +50°C	LED	YELLOW/GREEN	POS	-
DEM 16212 SYH-LY	16 x 2	5,63	61,0 x 19,0	84,0 x 40,0	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	-
DEM 16212 SY-PY	16 x 2	5,63	61,0 x 19,0	84,0 x 40,0	STN - YELLOW/GREEN	-00°C ... +50°C	LED	YELLOW/GREEN	POS	-
DEM 16213 SYH	16 x 2	4,35	63,5 x 13,8	80,0 x 36,0	STN - YELLOW/GREEN	-20°C ... +70°C	-	-	POS	-
DEM 16214 FGH-PW	16 x 2	7,76	80,0 x 20,5	100,0 x 42,0	FSTN - BLACK	-20°C ... +70°C	LED	WHITE	POS	-
DEM 16214 SBH-PW-N	16 x 2	7,76	80,0 x 20,5	100,0 x 42,0	STN - BLUE	-20°C ... +70°C	LED	WHITE	NEG	-
DEM 16214 SYH-LY	16 x 2	7,76	80,0 x 20,5	100,0 x 42,0	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	-
DEM 16214 SYH-LY-CYR22	16 x 2	7,76	80,0 x 20,5	100,0 x 42,0	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	CYRILLIC
DEM 16215 FGH-PW	16 x 2	9,55	99,0 x 24,0	122,0 x 44,0	FSTN - BLACK	-20°C ... +70°C	LED	WHITE	POS	-
DEM 16215 SBH-PW-N	16 x 2	9,55	99,0 x 24,0	122,0 x 44,0	STN - BLUE	-20°C ... +70°C	LED	WHITE	NEG	-
DEM 16215 SYH-LY	16 x 2	9,55	99,0 x 24,0	122,0 x 44,0	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	-
DEM 16215 SYH-LY-CYR22	16 x 2	9,55	99,0 x 24,0	122,0 x 44,0	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	CYRILLIC
DEM 16216 FDH-LR-N	16 x 2	5,55	61,0 x 15,8	80,0 x 36,0	DARK - FSTN - BLACK	-20°C ... +70°C	LED	RED	NEG	-
DEM 16216 FDH-P(RGB)-N	16 x 2	5,55	61,0 x 15,8	80,0 x 36,0	DARK - FSTN - BLACK	-20°C ... +70°C	LED	RGB	NEG	RGB-LED
DEM 16216 FGH-LA	16 x 2	5,55	61,0 x 15,8	80,0 x 36,0	FSTN - BLACK	-20°C ... +70°C	LED	AMBER	POS	-
DEM 16216 FGH-LA-N	16 x 2	5,55	61,0 x 15,8	80,0 x 36,0	FSTN - BLACK	-20°C ... +70°C	LED	AMBER	NEG	-
DEM 16216 FGH-LR	16 x 2	5,55	61,0 x 15,8	80,0 x 36,0	FSTN - BLACK	-20°C ... +70°C	LED	RED	POS	-
DEM 16216 FGH-P(RGB)	16 x 2	5,55	61,0 x 15,8	80,0 x 36,0	FSTN - BLACK	-20°C ... +70°C	LED	RGB	POS	RGB-LED
DEM 16216 FGH-PB	16 x 2	5,55	61,0 x 15,8	80,0 x 36,0	FSTN - BLACK	-20°C ... +70°C	LED	BLUE	POS	-
DEM 16216 FGH-PB-N	16 x 2	5,55	61,0 x 15,8	80,0 x 36,0	FSTN - BLACK	-20°C ... +70°C	LED	BLUE	NEG	-
DEM 16216 FGH-PW	16 x 2	5,55	61,0 x 15,8	80,0 x 36,0	FSTN - BLACK	-20°C ... +70°C	LED	WHITE	POS	-
DEM 16216 SBH-PW-N	16 x 2	5,55	61,0 x 15,8	80,0 x 36,0	STN - BLUE	-20°C ... +70°C	LED	WHITE	NEG	-
DEM 16216 SGH	16 x 2	5,55	61,0 x 15,8	80,0 x 36,0	STN - SILVERGREY	-20°C ... +70°C	-	-	POS	-
DEM 16216 SYH-LY	16 x 2	5,55	61,0 x 15,8	80,0 x 36,0	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	-
DEM 16216 SYH-LY-CYR22	16 x 2	5,55	61,0 x 15,8	80,0 x 36,0	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	CYRILLIC
DEM 16216 SYH-PY	16 x 2	5,55	61,0 x 15,8	80,0 x 36,0	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	-
DEM 16216 SYH-PY-CYR22	16 x 2	5,55	61,0 x 15,8	80,0 x 36,0	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	CYRILLIC
DEM 16217 FDH-LR-N	16 x 2	5,55	61,0 x 15,8	84,0 x 44,0	DARK - FSTN - BLACK	-20°C ... +70°C	LED	RED	NEG	-
DEM 16217 FDH-P(RGB)-N	16 x 2	5,55	61,0 x 15,8	84,0 x 44,0	DARK - FSTN - BLACK	-20°C ... +70°C	LED	RGB	NEG	RGB-LED
DEM 16217 FGH-LA	16 x 2	5,55	61,0 x 15,8	84,0 x 44,0	FSTN - BLACK	-20°C ... +70°C	LED	AMBER	POS	-
DEM 16217 FGH-LA-N	16 x 2	5,55	61,0 x 15,8	84,0 x 44,0	FSTN - BLACK	-20°C ... +70°C	LED	AMBER	NEG	-
DEM 16217 FGH-LR	16 x 2	5,55	61,0 x 15,8	84,0 x 44,0	FSTN - BLACK	-20°C ... +70°C	LED	RED	POS	-
DEM 16217 FGH-P(RGB)	16 x 2	5,55	61,0 x 15,8	84,0 x 44,0	FSTN - BLACK	-20°C ... +70°C	LED	RGB	POS	RGB-LED
DEM 16217 FGH-PB	16 x 2	5,55	61,0 x 15,8	84,0 x 44,0	FSTN - BLACK	-20°C ... +70°C	LED	BLUE	POS	-
DEM 16217 FGH-PB-N	16 x 2	5,55	61,0 x 15,8	84,0 x 44,0	FSTN - BLACK	-20°C ... +70°C	LED	BLUE	NEG	-
DEM 16217 FGH-PW	16 x 2	5,55	61,0 x 15,8	84,0 x 44,0	FSTN - BLACK	-20°C ... +70°C	LED	WHITE	POS	-
DEM 16217 SBH-PW-N	16 x 2	5,55	61,0 x 15,8	84,0 x 44,0	STN - BLUE	-20°C ... +70°C	LED	WHITE	NEG	-
DEM 16217 SYH	16 x 2	5,55	61,0 x 15,8	84,0 x 44,0	STN - YELLOW/GREEN	-20°C ... +70°C	-	-	POS	-
DEM 16217 SYH-LY	16 x 2	5,55	61,0 x 15,8	84,0 x 44,0	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	-
DEM 16217 SYH-LY-CYR22	16 x 2	5,55	61,0 x 15,8	84,0 x 44,0	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	CYRILLIC
DEM 16217 SYH-PY	16 x 2	5,55	61,0 x 15,8	84,0 x 44,0	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	-
DEM 16217 SYH-PY-CYR22	16 x 2	5,55	61,0 x 15,8	84,0 x 44,0	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	CYRILLIC
DEM 16218 SGH	16 x 2	5,55	50,0 x 16,0	55,0 x 24,5	STN - SILVERGREY	-20°C ... +70°C	-	-	POS	-

other models upon request

ALPHANUMERIC DOT MATRIX MODULES

MODEL	DISPLAY FORMAT	CHARACTER HEIGHT	VIEWING AREA	MODULE SIZE	TECHNOLOGY	TEMPERATURE RANGE	BACK-LIGHT	BACKLIGHT COLOR	IMAGE (POS/NEG)	REMARKS
DEM 16219 SYH-PY	16 x 2	5,55	61,0 x 15,8	85,0 x 32,5	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	-
DEM 16220 SYH-PY	16 x 2	5,55	61,0 x 15,8	80,0 x 36,0	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	-
DEM 16221 SYH	16 x 2	3,80	43,0 x 12,0	47,0 x 18,5	STN - YELLOW/GREEN	-20°C ... +70°C	-	-	POS	-
DEM 16222 SYH	16 x 2	5,55	61,0 x 15,8	84,0 x 44,0	STN - YELLOW/GREEN	-20°C ... +70°C	-	-	POS	-
DEM 16222 SYH-LY	16 x 2	5,55	61,0 x 15,8	84,0 x 44,0	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	-
DEM 16222 SYH-PY	16 x 2	5,55	61,0 x 15,8	84,0 x 44,0	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	-
DEM 16223 FGH-PW	16 x 2	3,15	36,0 x 10,0	53,0 x 20,0	FSTN - BLACK	-20°C ... +70°C	LED	WHITE	POS	-
DEM 16223 SBH-PW-N	16 x 2	3,15	36,0 x 10,0	53,0 x 20,0	STN - BLUE	-20°C ... +70°C	LED	WHITE	NEG	-
DEM 16223 SYH	16 x 2	3,15	36,0 x 10,0	53,0 x 20,0	STN - YELLOW/GREEN	-20°C ... +70°C	-	-	POS	-
DEM 16223 SYH-PY	16 x 2	3,15	36,0 x 10,0	53,0 x 20,0	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	-
DEM 16224 SYH	16 x 2	5,55	61,0 x 15,9	66,6 x 23,3	STN - YELLOW/GREEN	-20°C ... +70°C	-	-	POS	-
DEM 16226 SYH-LY	16 x 2	4,67	51,8 x 14,8	65,5 x 36,7	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	-
DEM 16227 SYH-LY	16 x 2	4,35	65,0 x 17,2	85,0 x 30,0	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	-
DEM 16228 FGH-PW	16 x 2	8,12	59,0 x 23,0	67,0 x 32,9	FSTN - BLACK	-20°C ... +70°C	LED	WHITE	POS	-
DEM 16228 SBH-PW-N	16 x 2	8,12	59,0 x 23,0	67,0 x 32,9	STN - BLUE	-20°C ... +70°C	LED	WHITE	NEG	-
DEM 16481 FGH-PW	16 x 4	4,75	61,8 x 25,2	87,0 x 60,0	FSTN - BLACK	-20°C ... +70°C	LED	WHITE	POS	-
DEM 16481 SBH-PW-N	16 x 4	4,75	61,8 x 25,2	87,0 x 60,0	STN - BLUE	-20°C ... +70°C	LED	WHITE	NEG	-
DEM 16481 SYH-LY	16 x 4	4,75	61,8 x 25,2	87,0 x 60,0	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	-
DEM 16481 SYH-LY-CYR22	16 x 4	4,75	61,8 x 25,2	87,0 x 60,0	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	CYRILLIC
DEM 20121 SY-LY	20 x 1	11,50	155,1 x 16,0	182,0 x 33,5	STN - YELLOW/GREEN	-00°C ... +50°C	LED	YELLOW/GREEN	POS	EXC. STOCK
DEM 20121 SYH-LY	20 x 1	11,50	155,1 x 16,0	182,0 x 33,5	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	-
DEM 20231 FGH-PW	20 x 2	5,55	83,0 x 18,6	116,0 x 37,0	FSTN - BLACK	-20°C ... +70°C	LED	WHITE	POS	-
DEM 20231 SBH-PW-N	20 x 2	5,55	83,0 x 18,6	116,0 x 37,0	STN - BLUE	-20°C ... +70°C	LED	WHITE	NEG	-
DEM 20231 SYH-PY	20 x 2	5,55	83,0 x 18,6	116,0 x 37,0	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	-
DEM 20231 SYH-PY-CYR22	20 x 2	5,55	83,0 x 18,6	116,0 x 37,0	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	CYRILLIC
DEM 20232 FGH-PW	20 x 2	8,30	123,2 x 23,0	146,0 x 43,0	FSTN - BLACK	-20°C ... +70°C	LED	WHITE	POS	-
DEM 20232 SBH-PW-N	20 x 2	8,30	123,2 x 23,0	146,0 x 43,0	STN - BLUE	-20°C ... +70°C	LED	WHITE	NEG	-
DEM 20232 SYH-LY	20 x 2	8,30	123,2 x 23,0	146,0 x 43,0	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	-
DEM 20232 SYH-LY-CYR22	20 x 2	8,30	123,2 x 23,0	146,0 x 43,0	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	CYRILLIC
DEM 20233 SYH-LY	20 x 2	9,66	149,0 x 23,0	180,0 x 40,0	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	-
DEM 20485 FGH-PW	20 x 4	4,75	76,3 x 25,0	98,0 x 60,0	FSTN - BLACK	-20°C ... +70°C	LED	WHITE	POS	-
DEM 20485 SBH-PW-N	20 x 4	4,75	76,3 x 25,0	98,0 x 60,0	STN - BLUE	-20°C ... +70°C	LED	WHITE	NEG	-
DEM 20485 SYH	20 x 4	4,75	76,3 x 25,0	98,0 x 60,0	STN - YELLOW/GREEN	-20°C ... +70°C	-	-	POS	-
DEM 20485 SYH-LY	20 x 4	4,75	76,3 x 25,0	98,0 x 60,0	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	-
DEM 20485 SYH-LY-CYR22	20 x 4	4,75	76,3 x 25,0	98,0 x 60,0	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	CYRILLIC
DEM 20486 FGH-PW	20 x 4	6,35	85,0 x 30,5	98,0 x 60,0	FSTN - BLACK	-20°C ... +70°C	LED	WHITE	POS	-
DEM 20486 SBH-PW-N	20 x 4	6,35	85,0 x 30,5	98,0 x 60,0	STN - BLUE	-20°C ... +70°C	LED	WHITE	NEG	-
DEM 20486 SYH-LY	20 x 4	6,35	85,0 x 30,5	98,0 x 60,0	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	-
DEM 20487 FGH-PW	20 x 4	9,23	123,0 x 42,5	146,0 x 62,5	FSTN - BLACK	-20°C ... +70°C	LED	WHITE	POS	-
DEM 20487 SBH-PW-N	20 x 4	9,23	123,0 x 42,5	146,0 x 62,5	STN - BLUE	-20°C ... +70°C	LED	WHITE	NEG	-
DEM 20487 SYH-LY	20 x 4	9,23	123,0 x 42,5	146,0 x 62,5	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	-
DEM 20487 SYH-LY-CYR22	20 x 4	9,23	123,0 x 42,5	146,0 x 62,5	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	CYRILLIC
DEM 20488 FGH-PW	20 x 4	4,03	60,0 x 22,0	77,0 x 47,0	FSTN - BLACK	-20°C ... +70°C	LED	WHITE	POS	-
DEM 20488 SBH-PW-N	20 x 4	4,03	60,0 x 22,0	77,0 x 47,0	STN - BLUE	-20°C ... +70°C	LED	WHITE	NEG	-
DEM 20488 SYH-PY	20 x 4	4,03	60,0 x 22,0	77,0 x 47,0	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	-
DEM 24251 SYH-PY	24 x 2	5,55	83,0 x 18,6	116,0 x 37,0	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	-
DEM 24252 SYH-LY	24 x 2	6,35	94,4 x 18,2	118,0 x 36,0	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	-
DEM 40271 SYH-LY	40 x 2	5,69	155,1 x 16,0	182,0 x 33,5	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	-
DEM 40271 SYH-LY-CYR22	40 x 2	5,69	155,1 x 16,0	182,0 x 33,5	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	CYRILLIC
DEM 40491 FGH-PW	40 x 4	4,89	143,8 x 26,7	190,0 x 54,0	STN - BLUE	-20°C ... +70°C	LED	WHITE	POS	-
DEM 40491 SBH-PW-N	40 x 4	4,89	143,8 x 26,7	190,0 x 54,0	FSTN - BLACK	-20°C ... +70°C	LED	WHITE	NEG	-
DEM 40491 SYH-LY	40 x 4	4,89	143,8 x 26,7	190,0 x 54,0	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	-
DEM 40492 SYH-PY	40 x 4	8,48	253,8 x 56,6	288,3 x 77,5	STN - YELLOW/GREEN	-20°C ... +70°C	LED	YELLOW/GREEN	POS	-

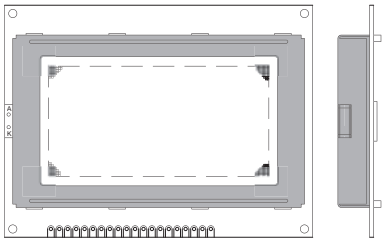
other models upon request

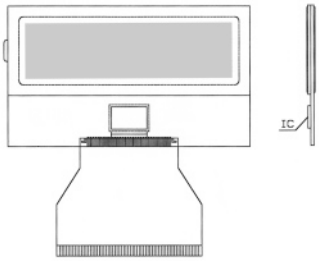
ORDERING INFORMATION

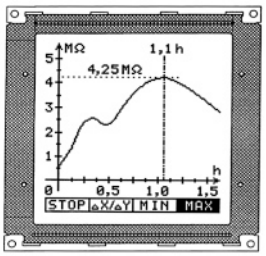
DEM 16 2 16 S Y H - P Y - ___ / ___

- 16 — Number of characters
- 2 — Number of character lines
- 16 — engineering number
- S — F: FSTN S: STN T: TN
- Y — **BACKGROUND MODE**: Y: Yellow-Green; G: Grey (pos.) / Dark (neg.); D: Extra-Dark (FSTN, neg.); B: Blue (STN, neg.)
- H — **OPERATING TEMPERATURE OPTION**: Blank: 0°C to +50°C; H: -20°C to +70°C
- P — **BACKLIGHT OPTION**: E: EL type (Electroluminescent lamp); P: LED Lightguide/Lightpipe (indirect light); L: LED Lightbox (direct light)
- Y — **BACKLIGHT COLOR**: Y: Yellow-Green A: Amber; G: Pure Green B: Blue; R: Red W: White
- ___ — **DISPLAY MODE**: Blank: Positive; N: Negative
- ___ — **VIEWING DIRECTION**: Blank: 6 o'clock; 12: 12 o'clock
- ___ — internal information

GRAPHIC MONOCHROME







MODEL	DISPLAY FORMAT	DOT SIZES	VIEWING AREA	MODULE SIZE	TECHNOLOGY	BACKLIGHT / COLOR	IMAGE (POS/NEG)	IC	REMARKS
DEM 120064A FGH	120 x 64	0,32 x 0,32	51,0 x 26,0	55,0 x 40,0	FSTN	- / -	POS	SSD1815Z	COG
DEM 120064A FGH-PW	120 x 64	0,32 x 0,32	51,0 x 26,0	55,0 x 42,0	FSTN	LED / WHITE	POS	SSD1815Z	COG
DEM 120064A SBH-PW-N	120 x 64	0,32 x 0,32	51,0 x 26,0	55,0 x 42,0	STN - BLUE	LED / WHITE	NEG	SSD1815Z	COG
DEM 122032A SBH-PW-N	122 x 32	0,40 x 0,45	60,5 x 18,5	80,0 x 36,0	STN - BLUE	LED / WHITE	NEG	PT6520	-
DEM 122032A SYH-LY	122 x 32	0,40 x 0,45	60,5 x 18,5	80,0 x 36,0	STN - YELLOW/GREEN	LED / YELLOW/GREEN	POS	PT6520	-
DEM 122032B SYH-LY	122 x 32	0,40 x 0,45	61,0 x 19,5	84,0 x 44,0	STN - YELLOW/GREEN	LED / YELLOW/GREEN	POS	PT6520	-
DEM 122032C FGH-PW-12	122 x 32	0,43 x 0,52	59,0 x 23,0	67,0 x 32,9	FSTN	LED / WHITE	POS	PT6520	-
DEM 122032C SBH-PW-N-12	122 x 32	0,43 x 0,52	59,0 x 23,0	67,0 x 32,9	STN - BLUE	LED / WHITE	NEG	PT6520	-
DEM 128032A FGH	128 x 32	0,37 x 0,37	54,8 x 16,6	57,8 x 27,8	FSTN	- / -	POS	ST7565R-G	COG
DEM 128032A FGH-PW	128 x 32	0,37 x 0,37	54,8 x 16,6	60,0 x 30,0	FSTN	LED / WHITE	POS	ST7565R-G	COG
DEM 128032A SBH-PW-N	128 x 32	0,37 x 0,37	54,8 x 16,6	60,0 x 30,0	STN - BLUE	LED / WHITE	NEG	ST7565R-G	COG
DEM 128044A FGH-PW	128 x 44	0,20 x 0,20	31,0 x 11,8	40,0 x 17,2	FSTN	LED / WHITE	POS	ST7565P	TAB
DEM 128044A SBH-PW-N	128 x 44	0,20 x 0,20	31,0 x 11,8	40,0 x 17,2	STN - BLUE	LED / WHITE	NEG	ST7565P	TAB
DEM 128064A FGH-P(RGB)	128 x 64	0,48 x 0,48	71,7 x 39,0	93,0 x 70,0	FSTN	LED / R-G-B	POS	SBN6400G	RGB BACKLIGHT
DEM 128064A FGH-P(RGB) (A-TOUCH)	128 x 64	0,48 x 0,48	71,7 x 39,0	93,0 x 70,0	FSTN	LED / R-G-B	POS	SBN6400G	TP (4-WIRE-ANALOG)
DEM 128064A FGH-PW	128 x 64	0,48 x 0,48	71,7 x 39,0	93,0 x 70,0	FSTN	LED / WHITE	POS	SBN6400G	-
DEM 128064A FGH-PW (A-TOUCH)	128 x 64	0,48 x 0,48	71,7 x 39,0	93,0 x 70,0	FSTN	LED / WHITE	POS	SBN6400G	TP (4-WIRE-ANALOG)
DEM 128064A SBH-PW-N	128 x 64	0,48 x 0,48	71,7 x 39,0	93,0 x 70,0	STN - BLUE	LED / WHITE	NEG	SBN6400G	-
DEM 128064A SBH-PW-N (A-TOUCH)	128 x 64	0,48 x 0,48	71,7 x 39,0	93,0 x 70,0	STN - BLUE	LED / WHITE	NEG	SBN6400G	TP (4-WIRE-ANALOG)
DEM 128064A SYH-LY	128 x 64	0,48 x 0,48	71,7 x 39,0	93,0 x 70,0	STN - YELLOW/GREEN	LED / YELLOW/GREEN	POS	SBN6400G	-
DEM 128064A SYH-LY (A-TOUCH)	128 x 64	0,48 x 0,48	71,7 x 39,0	93,0 x 70,0	STN - YELLOW/GREEN	LED / YELLOW/GREEN	POS	SBN6400G	TP (4-WIRE-ANALOG)
DEM 128064B FGH-PW	128 x 64	0,40 x 0,40	60,0 x 32,6	75,0 x 52,7	FSTN	LED / WHITE	POS	SBN6400G	-
DEM 128064B SBH-PW-N	128 x 64	0,40 x 0,40	60,0 x 32,6	75,0 x 52,7	STN - BLUE	LED / WHITE	NEG	SBN6400G	-
DEM 128064B SYH	128 x 64	0,40 x 0,40	60,0 x 32,6	75,0 x 52,7	STN - YELLOW/GREEN	- / -	POS	SBN6400G	-
DEM 128064B SYH-PY	128 x 64	0,40 x 0,40	60,0 x 32,6	75,0 x 52,7	STN - YELLOW/GREEN	LED / YELLOW/GREEN	POS	SBN6400G	-
DEM 128064C FGH	128 x 64	0,18 x 0,23	29,6 x 18,0	38,0 x 24,2	FSTN	- / -	POS	ST7565P	TAB
DEM 128064C FGH-PW	128 x 64	0,18 x 0,23	29,6 x 18,0	38,0 x 26,4	FSTN	LED / WHITE	POS	ST7565P	TAB
DEM 128064C SBH-PW-N	128 x 64	0,18 x 0,23	29,6 x 18,0	38,0 x 26,4	STN - BLUE	LED / WHITE	NEG	ST7565P	TAB
DEM 128064D FGH-EG	128 x 64	0,28 x 0,35	44,5 x 30,0	54,0 x 50,0	FSTN	EL / BLUE/GREEN	POS	SBN6400G	INVERTER ON BOARD
DEM 128064E FGH-PW	128 x 64	0,48 x 0,48	71,7 x 38,8	93,0 x 70,0	FSTN	LED / WHITE	POS	ST7565R	SERIAL INTERFACE
DEM 128064E SBH-PW-N	128 x 64	0,48 x 0,48	71,7 x 38,8	93,0 x 70,0	STN - BLUE	LED / WHITE	NEG	ST7565R	SERIAL INTERFACE
DEM 128064E SYH-PY	128 x 64	0,48 x 0,48	71,7 x 38,8	93,0 x 70,0	STN - YELLOW/GREEN	LED / YELLOW/GREEN	POS	ST7565R	SERIAL INTERFACE
DEM 128064F FGH	128 x 64	0,40 x 0,40	60,6 x 33,1	66,6 x 47,0	FSTN	- / -	POS	ST7565R-G	COG
DEM 128064F FGH-P(RGB)	128 x 64	0,40 x 0,40	60,6 x 33,1	68,8 x 49,2	FSTN	LED / R-G-B	POS	ST7565R-G	COG
DEM 128064F FGH-PW	128 x 64	0,40 x 0,40	60,6 x 33,1	68,8 x 49,2	FSTN	LED / WHITE	POS	ST7565R-G	COG
DEM 128064F SBH-PW-N	128 x 64	0,40 x 0,40	60,6 x 33,1	68,8 x 49,2	STN - BLUE	LED / WHITE	NEG	ST7565R-G	COG
DEM 128064G FGH	128 x 64	0,26 x 0,26	37,0 x 20,2	43,2 x 29,1	FSTN	- / -	POS	NT7534H	COG
DEM 128064G FGH-P(RGB)	128 x 64	0,26 x 0,26	37,0 x 20,2	45,2 x 29,1	FSTN	LED / R-G-B	POS	NT7534H	COG
DEM 128064G FGH-PW	128 x 64	0,26 x 0,26	37,0 x 20,2	45,2 x 29,1	FSTN	LED / WHITE	POS	NT7534H	COG
DEM 128064G SBH-PW-N	128 x 64	0,26 x 0,26	37,0 x 20,2	45,2 x 29,1	STN - BLUE	LED / WHITE	NEG	NT7534H	COG
DEM 128064H FGH-PW	128 x 64	0,39 x 0,55	62,0 x 44,0	78,0 x 70,0	FSTN	LED / WHITE	POS	T6963C	-
DEM 128064H SBH-PW-N	128 x 64	0,39 x 0,55	62,0 x 44,0	78,0 x 70,0	STN - BLUE	LED / WHITE	NEG	T6963C	-
DEM 128064H SYH-PY	128 x 64	0,39 x 0,55	62,0 x 44,0	78,0 x 70,0	STN - YELLOW/GREEN	LED / YELLOW/GREEN	POS	T6963C	-
DEM 128064I FGH	128 x 64	0,30 x 0,36	45,2 x 27,0	53,2 x 37,8	FSTN	- / -	POS	ST7565P	COG
DEM 128064I FGH-P(RGB)	128 x 64	0,30 x 0,36	45,2 x 27,0	55,2 x 39,8	FSTN	LED / R-G-B	POS	ST7565P	COG
DEM 128064I FGH-PW	128 x 64	0,30 x 0,36	45,2 x 27,0	55,2 x 39,8	FSTN	LED / WHITE	POS	ST7565P	COG
DEM 128064I SBH-PW-N	128 x 64	0,30 x 0,36	45,2 x 27,0	55,2 x 39,8	STN - BLUE	LED / WHITE	NEG	ST7565P	COG
DEM 128064J FGH	128 x 64	0,48 x 0,48	70,7 x 38,8	76,1 x 50,6	FSTN	- / -	POS	ST7565P	COG
DEM 128064J FGH-P(RGB)	128 x 64	0,48 x 0,48	70,7 x 38,8	80,0 x 54,0	FSTN	LED / R-G-B	POS	ST7565P	COG
DEM 128064J FGH-PW	128 x 64	0,48 x 0,48	70,7 x 38,8	80,0 x 54,0	FSTN	LED / WHITE	POS	ST7565P	COG
DEM 128064J SBH-PW-N	128 x 64	0,48 x 0,48	70,7 x 38,8	80,0 x 54,0	STN - BLUE	LED / WHITE	NEG	ST7565P	COG
DEM 128064K FGH-PW	128 x 64	0,45 x 0,49	65,5 x 38,0	77,3 x 51,7	FSTN	LED / WHITE	POS	ST7565R	COG
DEM 128064K SBH-PW-N	128 x 64	0,45 x 0,49	65,5 x 38,0	77,3 x 51,7	STN - BLUE	LED / WHITE	NEG	ST7565R	COG
DEM 128064L FGH-PW	128 x 64	0,25 x 0,33	37,0 x 28,0	45,0 x 40,0	FSTN	LED / WHITE	POS	ST7565R	COG
DEM 128064L SBH-PW-N	128 x 64	0,25 x 0,33	37,0 x 28,0	45,0 x 40,0	STN - BLUE	LED / WHITE	NEG	ST7565R	COG
DEM 128064M FGH-PW	128 x 64	0,20 x 0,23	31,4 x 20,3	37,0 x 30,3	FSTN	LED / WHITE	POS	TLS8201	COG

Temperature range for all models: -20°C...+70°C

TP = Touch-Panel

other models upon request

GRAPHIC MONOCHROME

MODEL	DISPLAY FORMAT	DOT SIZES	VIEWING AREA	MODULE SIZE	TECHNOLOGY	BACKLIGHT / COLOR	IMAGE (POS/NEG)	IC	REMARKS
DEM 128064M SBH-PW-N	128 x 64	0,20 x 0,23	31,4 x 20,3	37,0 x 30,3	STN - BLUE	LED / WHITE	NEG	TLS8201	COG
DEM 128064N FGH-PW	128 x 64	0,28 x 0,28	41,0 x 22,0	52,2 x 32,7	FSTN	LED / WHITE	POS	ST7565R	COG
DEM 128064N SBH-PW-N	128 x 64	0,28 x 0,28	41,0 x 22,0	52,2 x 32,7	STN - BLUE	LED / WHITE	NEG	ST7565R	COG
DEM 128064O FGH	128 x 64	0,34 x 0,34	50,0 x 25,0	56,0 x 39,0	FSTN	- / -	POS	ST7565R	COG
DEM 128064O FGH-PW	128 x 64	0,34 x 0,34	50,0 x 25,0	58,2 x 41,7	FSTN	LED / WHITE	POS	ST7565R	COG
DEM 128064O SBH-PW-N	128 x 64	0,34 x 0,34	50,0 x 25,0	58,2 x 41,7	STN - BLUE	LED / WHITE	NEG	ST7565R	COG
DEM 128128A SYH-LY	128 x 128	0,48 x 0,48	69,0 x 69,0	88,4 x 88,4	STN - YELLOW/GREEN	LED / YELLOW/GREEN	POS	T6963C	-
DEM 128128B FGH-PW	128 x 128	0,50 x 0,50	73,0 x 73,0	92,0 x 106,0	FSTN	LED / WHITE	POS	T6963C	-
DEM 128128B FGH-PW (A-TOUCH)	128 x 128	0,50 x 0,50	73,0 x 73,0	92,0 x 106,0	FSTN	LED / WHITE	POS	T6963C	TP (4-WIRE-ANALOG)
DEM 128128B FGH-PW (D-TOUCH)	128 x 128	0,50 x 0,50	73,0 x 73,0	92,0 x 106,0	FSTN	LED / WHITE	POS	T6963C	TP (DIGITAL)
DEM 128128B SBH-PW-N	128 x 128	0,50 x 0,50	73,0 x 73,0	92,0 x 106,0	STN - BLUE	LED / WHITE	NEG	T6963C	-
DEM 128128B SBH-PW-N (A-TOUCH)	128 x 128	0,50 x 0,50	73,0 x 73,0	92,0 x 106,0	STN - BLUE	LED / WHITE	NEG	T6963C	TP (4-WIRE-ANALOG)
DEM 128128B SBH-PW-N (D-TOUCH)	128 x 128	0,50 x 0,50	73,0 x 73,0	92,0 x 106,0	STN - BLUE	LED / WHITE	NEG	T6963C	TP (DIGITAL)
DEM 128128C FGH	128 x 128	0,28 x 0,28	44,0 x 40,5	48,0 x 52,8	FSTN	- / -	POS	UC1617	COG
DEM 128128C FGH-PW	128 x 128	0,28 x 0,28	44,0 x 40,5	48,0 x 52,8	FSTN	LED / WHITE	POS	UC1617	COG
DEM 128128C SBH-PW-N	128 x 128	0,28 x 0,28	44,0 x 40,5	48,0 x 52,8	STN - BLUE	LED / WHITE	NEG	UC1617	COG
DEM 128128D FGH	128 x 128	0,43 x 0,44	66,0 x 62,5	69,0 x 74,8	FSTN	- / -	POS	UC1617	COG
DEM 128128D FGH-PW	128 x 128	0,43 x 0,44	66,0 x 62,5	69,0 x 74,8	FSTN	LED / WHITE	POS	UC1617	COG
DEM 128128D SBH-PW-N	128 x 128	0,43 x 0,44	66,0 x 62,5	69,0 x 74,8	STN - BLUE	LED / WHITE	NEG	UC1617	COG
DEM 132038A FGH-PW	132 x 38	0,60 x 0,57	91,5 x 26,5	104,0 x 37,5	FSTN	LED / WHITE	POS	ST7565P	COG
DEM 132038A SBH-PW-N	132 x 38	0,60 x 0,57	91,5 x 26,5	104,0 x 37,5	STN – BLUE	LED / WHITE	NEG	ST7565P	COG
DEM 160032A FGH-PW	160 x 32	0,55 x 0,56	99,0 x 24,0	122,0 x 44,0	FSTN	LED / WHITE	POS	ST7921	-
DEM 160032A SBH-PW-N	160 x 32	0,55 x 0,56	99,0 x 24,0	122,0 x 44,0	STN - BLUE	LED / WHITE	NEG	ST7921	-
DEM 160032A SYH-LY	160 x 32	0,55 x 0,56	99,0 x 24,0	122,0 x 44,0	STN - YELLOW/GREEN	LED / YELLOW/GREEN	POS	ST7920	-
DEM 160080A SYH	160 x 80	0,41 x 0,41	76,0 x 40,0	108,5 x 56,0	STN - YELLOW/GREEN	- / -	POS	LC7981	EOL (EXCESS-STOCK)
DEM 160080A SYH-LY	160 x 80	0,41 x 0,41	76,0 x 40,0	108,5 x 56,0	STN - YELLOW/GREEN	LED / YELLOW/GREEN	POS	LC7981	EOL (EXCESS-STOCK)
DEM 160160A FGH-PW	160 x 160	0,34 x 0,34	61,5 x 61,5	76,5 x 71,5	FSTN	LED / WHITE	POS	NT7701	-
DEM 160160A SBH-PW-N	160 x 160	0,34 x 0,34	61,5 x 61,5	76,5 x 71,5	STN - BLUE	LED / WHITE	NEG	NT7701	-
DEM 160160B FGH-PW	160 x 160	0,34 x 0,34	63,4 x 63,3	71,0 x 74,0	FSTN	LED / WHITE	POS	S6B0794	-
DEM 240064B FGH-PW	240 x 64	0,50 x 0,50	132,6 x 39,0	144,9 x 56,4	FSTN	LED / WHITE	POS	ST7565P (2x)	COG
DEM 240064B FGH-P(RGB)	240 x 64	0,50 x 0,50	132,6 x 39,0	144,9 x 56,4	FSTN	LED / R-G-B	POS	ST7565P (2x)	COG
DEM 240064B SBH-PW-N	240 x 64	0,50 x 0,50	132,6 x 39,0	144,9 x 56,4	STN - BLUE	LED / WHITE	NEG	ST7565P (2x)	COG
DEM 240064C FGH-PW	240 x 64	0,49 x 0,49	135,0 x 40,0	180,0 x 65,0	FSTN	LED / WHITE	POS	T6963C	-
DEM 240064C SBH-PW-N	240 x 64	0,49 x 0,49	135,0 x 40,0	180,0 x 65,0	STN - BLUE	LED / WHITE	NEG	T6963C	-
DEM 240064C SYH-LY	240 x 64	0,49 x 0,49	135,0 x 40,0	180,0 x 65,0	STN - YELLOW/GREEN	LED / YELLOW/GREEN	POS	T6963C	-
DEM 240064D FGH	240 x 64	0,44 x 0,47	111,0 x 37,0	114,6 x 49,5	FSTN	- / -	POS	UC1608	COG
DEM 240064D FGH-PW	240 x 64	0,44 x 0,47	111,0 x 37,0	134,6 x 55,1	FSTN	LED / WHITE	POS	UC1608	COG
DEM 240064D SBH-PW-N	240 x 64	0,44 x 0,47	111,0 x 37,0	134,6 x 55,1	STN - BLUE	LED / WHITE	NEG	UC1608	COG
DEM 240128A FGH	240 x 128	0,32 x 0,32	92,0 x 53,0	96,0 x 65,0	FSTN	- / -	POS	ST7529-G	COG
DEM 240128A FGH-PB	240 x 128	0,32 x 0,32	92,0 x 53,0	98,7 x 67,7	FSTN	LED / BLUE	POS	ST7529-G	COG
DEM 240128A FGH-P(RGB)	240 x 128	0,32 x 0,32	92,0 x 53,0	98,7 x 67,7	FSTN	LED / R-G-B	POS	ST7529-G	COG
DEM 240128A FGH-PW	240 x 128	0,32 x 0,32	92,0 x 53,0	98,7 x 67,7	FSTN	LED / WHITE	POS	ST7529-G	COG
DEM 240128A SBH-PW-N	240 x 128	0,32 x 0,32	92,0 x 53,0	98,7 x 67,7	STN - BLUE	LED / WHITE	NEG	ST7529-G	COG
DEM 240128B FYH-LY	240 x 128	0,26 x 0,29	72,0 x 42,2	100,0 x 65,0	FSTN	LED / YELLOW/GREEN	POS	NT7086	-
DEM 240128C FGH-PW	240 x 128	0,26 x 0,29	78,0 x 45,0	100,0 x 65,0	FSTN	LED / WHITE	POS	T6963C	-
DEM 240128C SBH-PW-N	240 x 128	0,26 x 0,29	78,0 x 45,0	100,0 x 65,0	STN - BLUE	LED / WHITE	NEG	T6963C	-
DEM 240128D FGH-PW	240 x 128	0,40 x 0,40	114,0 x 64,0	144,0 x 104,0	FSTN	LED / WHITE	POS	T6963C	-
DEM 240128D FGH-PW (A-TOUCH)	240 x 128	0,40 x 0,40	114,0 x 64,0	144,0 x 104,0	FSTN	LED / WHITE	POS	T6963C	TP (4-WIRE-ANALOG)
DEM 240128D FGH-PW (D-TOUCH)	240 x 128	0,40 x 0,40	114,0 x 64,0	144,0 x 104,0	FSTN	LED / WHITE	POS	T6963C	TP (DIGITAL)
DEM 240128D SBH-PW-N	240 x 128	0,40 x 0,40	114,0 x 64,0	144,0 x 104,0	STN - BLUE	LED / WHITE	NEG	T6963C	-
DEM 240128D SBH-PW-N (A-TOUCH)	240 x 128	0,40 x 0,40	114,0 x 64,0	144,0 x 104,0	STN - BLUE	LED / WHITE	NEG	T6963C	TP (4-WIRE-ANALOG))
DEM 240128D SBH-PW-N (D-TOUCH)	240 x 128	0,40 x 0,40	114,0 x 64,0	144,0 x 104,0	STN - BLUE	LED / WHITE	NEG	T6963C	TP (DIGITAL)
DEM 240128E FGH-PW	240 x 128	0,33 x 0,37	92,0 x 60,5	101,3 x 92,3	FSTN	LED / WHITE	POS	UC1608	COG
DEM 240128E SBH-PW-N	240 x 128	0,33 x 0,37	92,0 x 60,5	101,3 x 92,3	STN - BLUE	LED / WHITE	NEG	UC1608	COG
DEM 240160A FGH-PW	240 x 160	0,20 x 0,20	56,0 x 38,7	60,0 x 51,7	FSTN	LED / WHITE	POS	UC1698u	COG
DEM 240160A SBH-PW-N	240 x 160	0,20 x 0,20	56,0 x 38,7	60,0 x 51,7	STN - BLUE	LED / WHITE	NEG	UC1698u	COG
DEM 240160B FGH-PW	240 x 160	0,33 x 0,30	99,0 x 57,5	105,5 x 67,2	FSTN	LED / WHITE	POS	UC1698u	COG
DEM 240160B SBH-PW-N	240 x 160	0,33 x 0,30	99,0 x 57,5	105,5 x 67,2	STN - BLUE	LED / WHITE	NEG	UC1698u	COG
DEM 320240A FGH-CW	320 x 240	0,33 x 0,33	123,0 x 92,0	160,0 x 109,0	FSTN	CCFL / WHITE	POS	RA8835	1/4-VGA - 5,7“
DEM 320240A SBH-CW-N	320 x 240	0,33 x 0,33	123,0 x 92,0	160,0 x 109,0	STN - BLUE	CCFL / WHITE	NEG	RA8835	1/4-VGA - 5,7“
DEM 320240B FGH-PW	320 x 240	0,23 x 0,23	81,8 x 63,0	94,7 x 73,3	FSTN	LED / WHITE	POS	NT7702	1/4-VGA - 3,8“
DEM 320240B FGH-PW-N	320 x 240	0,23 x 0,23	81,8 x 63,0	94,7 x 73,3	FSTN	LED / WHITE	NEG	NT7702	1/4-VGA - 3,8“
DEM 320240C FGH-PW	320 x 240	0,23 x 0,23	81,8 x 63,0	94,7 x 73,3	FSTN	LED / WHITE	POS	S1D13700	1/4-VGA - 3,8“
DEM 320240C FGH-PW (A-TOUCH)	320 x 240	0,23 x 0,23	81,8 x 63,0	94,7 x 73,3	FSTN	LED / WHITE	POS	S1D13700	TP (4-WIRE-ANALOG)
DEM 320240C SBH-PW-N	320 x 240	0,23 x 0,23	81,8 x 63,0	94,7 x 73,3	STN - BLUE	LED / WHITE	NEG	S1D13700	1/4-VGA - 3,8“
DEM 320240C SBH-PW-N (A-TOUCH)	320 x 240	0,23 x 0,23	81,8 x 63,0	94,7 x 73,3	STN - BLUE	LED / WHITE	NEG	S1D13700	TP (4-WIRE-ANALOG)
DEM 320240D FGH-CW	320 x 240	0,27 x 0,27	104,0 x 79,3	151,6 x 96,0	FSTN	CCFL / WHITE	POS	NT7086	1/4-VGA - 4,7“
DEM 320240D SBH-CW-N	320 x 240	0,27 x 0,27	104,0 x 79,3	151,6 x 96,0	STN - BLUE	CCFL / WHITE	NEG	NT7086	1/4-VGA - 4,7“

Temperature range for all models: -20°C...+70°C

TP = Touch-Panel

other models upon request

GRAPHIC MONOCHROME

MODEL	DISPLAY FORMAT	DOT SIZES	VIEWING AREA	MODULE SIZE	TECHNOLOGY	BACKLIGHT / COLOR	IMAGE (POS/NEG)	IC	REMARKS
DEM 320240E FGH-PW	320 x 240	0,27 x 0,27	104,0 x 79,3	142,0 x 96,0	FSTN	LED / WHITE	POS	S1D13700	1/4-VGA - 4,7"
DEM 320240E SBH-PW-N	320 x 240	0,27 x 0,27	104,0 x 79,3	142,0 x 96,0	STN - BLUE	LED / WHITE	NEG	S1D13700	1/4-VGA - 4,7"
DEM 320240F FGH-CW	320 x 240	0,33 x 0,33	122,0 x 92,0	163,0 x 109,0	FSTN	CCFL / WHITE	POS	S1D13700	1/4-VGA - 5,7"
DEM 320240F SBH-CW-N	320 x 240	0,33 x 0,33	122,0 x 92,0	163,0 x 109,0	STN - BLUE	CCFL / WHITE	NEG	S1D13700	1/4-VGA - 5,7"
DEM 320240G FGH-PW	320 x 240	0,23 x 0,23	81,8 x 62,0	93,3 x 73,0	FSTN	LED / WHITE	POS	RA8835	1/4-VGA - 3,8"
DEM 320240G FGH-PW (A-TOUCH)	320 x 240	0,23 x 0,23	81,8 x 62,0	93,3 x 73,0	FSTN	LED / WHITE	POS	RA8335	TP (4-WIRE-ANALOG)
DEM 320240I FGH-PW	320 x 240	0,33 x 0,33	122,0 x 92,0	156,5 x 109,0	FSTN	LED / WHITE	POS	S1D13700	1/4-VGA - 5,7"
DEM 320240I FGH-PW (A-TOUCH)	320 x 240	0,33 x 0,33	122,0 x 92,0	156,5 x 109,0	FSTN	LED / WHITE	POS	S1D13700	TP (4-WIRE-ANALOG)
DEM 320240I SBH-PW-N	320 x 240	0,33 x 0,33	122,0 x 92,0	156,5 x 109,0	STN - BLUE	LED / WHITE	NEG	S1D13700	1/4-VGA - 5,7"
DEM 320240I SBH-PW-N (A-TOUCH)	320 x 240	0,33 x 0,33	122,0 x 92,0	156,5 x 109,0	STN - BLUE	LED / WHITE	NEG	S1D13700	TP (4-WIRE-ANALOG)

Temperature range for all models: -20°C...+70°C TP = Touch-Panel other models upon request

ORDERING INFORMATION GRAPHIC MONOCHROME

DEM 128 064 A S Y H - L Y - _ _ /

- x-row: 128
- y-row: 064
- version: A
  - A: Automotive
  - C: CSTN S: STN
  - F: FSTN T: TN
- BACKGROUND MODE: Y
  - Y: Yellow-Green
  - G: Grey (neutral)
  - B: Blue (STN neg.)
  - C: CSTN
  - D: Extra-Dark (FFSTN, DSTN, ASTN)
- OPERATING TEMPERATURE OPTION: H
  - Blank: 0°C to +50°C
  - H: -20°C to +70°C
- BACKLIGHT OPTION: L
  - E: EL type (Electroluminescent lamp)
  - C: CCFL (Cold cathode fluorescent lamp)
  - P: LED Lightguide/Lightpipe (indirect light)
  - L: LED Lightbox (direct light)
- BACKLIGHT COLOR: Y
  - Y: Yellow-Green
  - G: Pure Green
  - R: Red
  - A: Amber
  - B: Blue
  - W: White
- DISPLAY MODE: Blank
  - Blank: Positive
  - N: Negative
- ADDITIONAL INFORMATION: Blank
  - Blank: 6 o'clock
  - 12: 12 o'clock
  - A-Touch: 4WR-Analog TP
  - D-Touch: Digital TP
- internal information: /

GRAPHIC COLOR CSTN

MODEL	SIZE	DISPLAY FORMAT	DOT SIZES	VIEWING AREA	MODULE SIZE	BACKLIGHT	TECHNOLOGY	COLORS	IC CONTROLLER DRIVER
DEM 128160A CCH-PW-N	1,9"	128(RGB) x 160	0,079 x 0,225	34,50 x 38,90	38,5 x 49,5	LED (WHITE)	C-STN	65k	S6B33BF
DEM 128160B CCH-PW-N	1,7"	128(RGB) x 160	0,062 x 0,209	30,54 x 35,93	35,9 x 48,2	LED (WHITE)	C-STN	65k	ST7669A
DEM 320240B CCH-PW-N	3,8"	320(RGB) x 240	0,067 x 0,225	79,55 x 60,45	94,7 x 73,3	LED (WHITE)	C-STN	65k	SSD1706 + SSD1702

ORDERING INFORMATION GRAPHIC COLOR CSTN

DEM 128 160 A C C H - P W - N _ /_

- x-row: 128
- y-row: 160
- version: A
  - A: Automotive C: CSTN
  - F: FSTN S: STN T: TFT
- BACKGROUND MODE: C
  - Y: Yellow-Green
  - G: Grey (neutral)
  - B: Blue (STN neg.)
  - C: CSTN
  - M: TFT (Transmissive)
  - T: TFT (Transflective)
- OPERATING TEMPERATURE OPTION: H
  - Blank: 0°C to +60°C*
  - H: -20°C to +70°C*
  - *Typ (please refer to specification)
- BACKLIGHT OPTION: P
  - E: EL type (Electroluminescent lamp)
  - C: CCFL (Cold cathode fluorescent lamp)
  - P: LED Lightguide/Lightpipe (indirect light)
  - L: LED Lightbox (direct light)
- BACKLIGHT COLOR: W
  - Y: Yellow-Green A: Amber
  - G: Pure Green B: Blue
  - R: Red W: White
- DISPLAY MODE: N
  - Blank: Positive
  - N: Negative
- ADDITIONAL INFORMATION: Blank
  - Blank: 6 o'clock
  - 12: 12 o'clock
  - A-Touch: 4WR-Analog TP
  - D-Touch: Digital TP
- internal information: /

OLED ALPHANUMERIC MODULES

MODEL	DISPLAY FORMAT	DOT COLOR	CHARACTER HEIGHT	VIEWING AREA	MODULE SIZE	TECHNOLOGY	IC CONTROLLER DRIVER	REMARKS
DEP 16103-Y	16 x 1	YELLOW	8,60	99,00 x 13,00	122,00 x 33,00	PLED	HD44780/KS0066 compatible	Under development
DEP 16216-Y	16 x 2	YELLOW	5,57	62,00 x 16,00	80,00 x 36,00	PLED	HD44780/KS0066 compatible	Available
DEP 16217-Y	16 x 2	YELLOW	5,01	62,00 x 16,00	84,00 x 44,00	PLED	HD44780/KS0066 compatible	Available
DEP 16215-Y	16 x 2	YELLOW	9,17	99,00 x 24,00	122,00 x 44,00	PLED	HD44780/KS0066 compatible	Under development
DEP 20231-Y	20 x 2	YELLOW	5,57	76,00 x 14,52	116,00 x 37,00	PLED	HD44780/KS0066 compatible	Available
DEP 20485-Y	20 x 4	YELLOW	4,75	76,00 x 25,20	98,00 x 60,00	PLED	HD44780/KS0066 compatible	Under development

ORDERING INFORMATION OLED ALPHANUMERIC

DEP 16 2 16 - Y / _

- Number of characters
- Number of character lines
- engineering number
- internal information
- **DOT COLOR**
  - Y: Yellow
  - B: Blue
  - W: White
  - G: Green
  - R: Red

OLED GRAPHIC MODULES

MODEL	DISPLAY FORMAT	SIZE	DOT COLOR	ACTIVE AREA	MODULE SIZE	TECHNOLOGY	IC CONTROLLER DRIVER	INTERFACE (DEFAULT/OPTION)	REMARKS
DEP 096032B - W	96 x 32	0,8"	WHITE	19,18 x 6,38	28,50 x 11,50	OLED	SSD1307	4-Wire SPI	-
DEP 096064A - Y	96 x 64	1,1"	YELLOW	23,49 x 15,65	29,00 x 21,00	OLED	SSD1325	Parallel	-
DEP 128032C - W	128 x 32	1,0"	WHITE	25,58 x 6,38	29,80 x 15,40	OLED	LD7032	Parallel	-
DEP 128064B - Y	128 x 64	2,4"	YELLOW	55,01 x 27,49	75,00 x 52,70	OLED	SSD1305	Parallel (SPI/I2C)	-
DEP 128064G - Y	128 x 64	2,4"	YELLOW	55,01 x 27,49	75,00 x 52,70	OLED	SSD1303	Parallel	-
DEP 128064H - Y	128 x 64	2,4"	YELLOW	55,01 x 27,49	89,70 x 47,20	OLED	SSD1303	Parallel	-
DEP 128064J - Y	128 x 64	1,6"	YELLOW	36,45 x 18,21	41,90 x 28,00	OLED	SSD1325	Parallel (SPI)	-
DEP 128064K - Y	128 x 64	2,7"	YELLOW	61,41 x 30,69	70,90 x 41,86	OLED	SSD1305	Parallel (SPI/I2C)	-
DEP 128096A - B	128 x 96	1,3"	BLUE	26,86 x 20,14	33,00 x 26,80	OLED	SSD1329	Parallel (SPI)	-
DEP 128096A - W	128 x 96	1,3"	WHITE	26,86 x 20,14	33,00 x 26,80	OLED	SSD1329	Parallel (SPI)	-
DEP 128128C3 - RGB	128 x 128	1,5"	RGB	26,29 x 26,84	33,50 x 33,50	OLED	SSD1351	Parallel	-
DEP 128128D - W	128 x 128	1,5"	WHITE	26,86 x 26,86	33,80 x 36,50	OLED	SSD1327	Parallel	-
DEP 128128D - Y	128 x 128	1,5"	YELLOW	26,86 x 26,86	33,80 x 36,50	OLED	SSD1327	Parallel	-
DEP 160128A - RGB	160 x 128	1,8"	RGB	35,02 x 28,01	42,70 x 33,40	OLED	SSD1353	Parallel (SPI)	-
DEP 256064B - W	256 x 64	3,2"	WHITE	79,09 x 19,76	87,40 x 28,50	OLED	SSD1322	Parallel (SPI)	-
DEP 256064B - Y	256 x 64	3,2"	YELLOW	79,09 x 19,76	87,40 x 28,50	OLED	SSD1322	Parallel (SPI)	-

ORDERING INFORMATION OLED GRAPHIC

DEP 160 128 A - RGB / _

- x-row
- y-row
- version
- internal information
- **DOT COLOR**
  - Y: Yellow
  - G: Green
  - B: Blue
  - R: Red
  - W: White
  - AREA: AREA-Color
  - RGB: RGB-Full-Color

GRAPHIC COLOR TFT

MODEL	SIZE	DISPLAY FORMAT	ACTIVE AREA	MODULE SIZE	BRIGHTNESS	MPU INTERFACE	IC CONTROLLER DRIVER	COLORS
DEM 128160A TMH-PW-N	1,8“	128(RGB) x 160	28,0 x 35,0	34,7 x 47,3	310 cd/m²	8080 System 16-Bit Parallel	ST7735R (SITRONIX)	262k Colors
DEM 240320A TMH-PW-N	2,2“	240(RGB) x 320	33,5 x 44,6	40,3 x 58,1	250 cd/m²	8080 System 16-Bit Parallel	HX8347-D (HIMAX)	262k Colors
DEM 240320B TMH-PW-N	2,4“	240(RGB) x 320	36,7 x 48,9	42,7 x 60,3	280 cd/m²	8080 System 8/16-Bit-Parallel + SPI	ILI9325C (ILITEK)	262kColors
DEM 240320B TMH-PW-N (A-TOUCH)	2,4“	240(RGB) x 320	36,7 x 48,9	42,7 x 60,3	250 cd/m²	8080 System 8/16-Bit-Parallel + SPI	ILI9325C (ILITEK)	262kColors 4WR-TOUCH-PANEL
DEM 240320E TMH-PW-N (A-TOUCH)	2,4“	240(RGB) x 320	36,7 x 48,9	42,7 x 60,3	250 cd/m²	8080 System 8/16-Bit-Parallel + SPI	R61580 (RENESAS)	262kColors 4WR-TOUCH-PANEL
DEM 240320C TMH-PW-N	2,6“	240(RGB) x 320	39,6 x 52,8	46,0 x 64,0	300 cd/m²	8080 System 8/16-Bit-Parallel + SPI	R61580 (RENESAS)	262kColors
DEM 240320C TMH-PW-N (A-TOUCH)	2,6“	240(RGB) x 320	39,6 x 52,8	46,0 x 64,0	270 cd/m²	8080 System 8/16-Bit-Parallel + SPI	R61580 (RENESAS)	262kColors 4WR-TOUCH-PANEL
DEM 240320D TMH-PW-N	2,8“	240(RGB) x 320	43,2 x 57,6	49,6 x 68,8	280 cd/m²	8080 System SPI + RGB	HX8347-D (HIMAX)	262kColors
DEM 240320D TMH-PW-N (A-TOUCH)	2,8“	240(RGB) x 320	43,2 x 57,6	50,0 x 69,2	250 cd/m²	8080 System SPI + RGB	HX8347-D (HIMAX)	262kColors 4WR-TOUCH-PANEL
DEM 240400A TMH-PW-N	3,0“	240(RGB) x 400	38,9 x 64,8	45,0 x 77,0	320 cd/m²	8080 System 16-Bit Parallel	ILI9327 (ILITEK)	262kColors
DEM 240320H TMH-PW-N	3,2“	240(RGB) x 320	48,6 x 64,8	57,5 x 79,2	360 cd/m²	8080 System 16-Bit Parallel	HX8347-A (HIMAX)	262kColors
DEM 240320H TMH-PW-N (A-TOUCH)	3,2“	240(RGB) x 320	48,6 x 64,8	57,5 x 79,2	300 cd/m²	8080 System 16-Bit Parallel	HX8347-A (HIMAX)	262k Colors 4WR-TOUCH-PANEL
DEM 320240A TMH-PW-N	3,5“	320(RGB) x 240	70,1 x 52,6	77,0 x 64,0	300 cd/m²	8080 System 8-Bit-Parallel	SSD2119Z7 (Solomon)	262k Colors
DEM 320240A TMH-PW-N (A-TOUCH)	3,5“	320(RGB) x 240	70,1 x 52,6	77,0 x 64,0	250 cd/m²	8080 System 8-Bit-Parallel	SSD2119Z7 (Solomon)	262 Colors 4WR-TOUCH-PANEL
DEM 320240B TMH-PW-N	3,5“	320(RGB) x 240	70,1 x 52,6	76,9 x 63,9	350 cd/m²	Digital-24-Bit-RGB	HX8238 (HIMAX)	262k Colors
DEM 320240B TMH-PW-N (A-TOUCH)	3,5“	320(RGB) x 240	70,1 x 52,6	76,9 x 63,9	280 cd/m²	Digital-24-Bit-RGB	HX8238A (HIMAX)	262k Colors 4WR-TOUCH-PANEL
DEM 320240C TMH-PW-N	3,5“	320(RGB) x 240	70,1 x 52,6	76,9 x 63,9	800 cd/m²	Digital-24-Bit-RGB	HX8238 (HIMAX)	262k Colors
DEM 320240C TTH-PW-N	3,5“	320(RGB) x 240	70,1 x 52,6	76,9 x 63,9	800 cd/m²	Digital-24-Bit-RGB	HX8238 (HIMAX)	262k Colors LOW REFLECTIVE
DEM 320240C TMH-PW-N (A-TOUCH)	3,5“	320(RGB) x 240	70,1 x 52,6	76,9 x 63,9	640 cd/m²	Digital-24-Bit-RGB	HX8238A (HIMAX)	262k Colors 4WR-TOUCH-PANEL
DEM 320240J TMH-PW-N	3,5“	320(RGB) x 240	70,1 x 52,6	92,0 x 78,4	200 cd/m²	8080 System 8-Bit-Parallel	Timing Controller on Board FPGA on Board	256 Colors
DEM 320240J TMH-PW-N (A-TOUCH)	3,5“	320(RGB) x 240	70,1 x 52,6	92,0 x 78,4	200 cd/m²	8080 System 8-Bit-Parallel	Timing Controller on Board FPGA on Board	256 Colors 4WR-TOUCH-PANEL
DEM 320480A TMH-PW-N	3,5“	320(RGB) x 480	48,9 x 73,4	57,3 x 86,7	390 cd/m²	8080 System 8/9/16/18-Bit-Parallel + SPI	ILI9481 (ILITEK)	262k Colors
DEM 480272A TMH-PW-N	4,3“	480(RGB) x 272	95,0 x 53,9	105,5 x 67,2	500 cd/m²	8080 System 8-Bit-Parallel	SSD1963 (SOLOMON SYSTECH)	16,7 Mio. Colors
DEM 480272A TMH-PW-N (A-TOUCH)	4,3“	480(RGB) x 272	95,0 x 53,9	105,5 x 67,2	400 cd/m²	8080 System 8-Bit-Parallel	SSD1963 (SOLOMON SYSTECH)	16,7 Mio. Colors 4WR-TOUCH-PANEL

For all TFT-models Temperature range: -20°C to +70°C (op.) / -30° to +80°C (stor.) Technology: TFT-Transmissive, White LED other models upon request

GRAPHIC COLOR TFT

MODEL	SIZE	DISPLAY FORMAT	ACTIVE AREA	MODULE SIZE	BRIGHTNESS	MPU INTERFACE	IC CONTROLLER DRIVER	COLORS
DEM 480272B TMH-PW-N	4,3“	480(RGB) x 272	95,0 x 53,9	105,5 x 67,2	700 cd/m²	Digital-24-Bit-RGB	t.b.d.	16,7 Mio. Colors MVA (Multi-Domain Vertical-Alignment)
DEM 480272C TMH-PW-N	4,3“	480(RGB) x 272	95,0 x 53,9	120,0 x 85,0	200 cd/m²	8080 System 8-Bit-Parallel	Timing Controller on Board FPGA on Board	256 Colors
DEM 480272C TMH-PW-N (A-TOUCH)	4,3“	480(RGB) x 272	95,0 x 53,9	120,0 x 85,0	200 cd/m²	8080 System 8-Bit-Parallel	Timing Controller on Board FPGA on Board	256 Colors
DEM 480272D TMH-PW-N	4,3“	480(RGB) x 272	95,0 x 53,9	105,5 x 67,2	1000 cd/m²	Digital-24-Bit-RGB	OTA5180A-C3 (ORISE)	16,7 Mio. Colors
DEM 480272D TMH-PW-N (A-TOUCH)	4,3“	480(RGB) x 272	95,0 x 53,9	105,5 x 67,2	800 cd/m²	Digital-24-Bit-RGB	OTA5180A-C3 (ORISE)	16,7 Mio. Colors 4WR-TOUCH-PANEL
DEM 480272D TTH-PW-N	4,3“	480(RGB) x 272	95,0 x 53,9	105,5 x 67,2	1000 cd/m²	Digital-24-Bit-RGB	OTA5180A-C3 (ORISE)	16,7 Mio. Colors LOW REFLECTIVE
DEM 800480D TMH-PW-N	5,0“	800(RGB) x 480	108,0 x 64,8	118,5 x 77,5	250 cd/m²	Digital-24-Bit-RGB	OTA7000 (Source) SPFD6048A (Gate) (ORISE)	16,7 Mio. Colors
DEM 800480D TMH-PW-N (A-TOUCH)	5,0“	800(RGB) x 480	108,0 x 64,8	118,5 x 77,5	200 cd/m²	Digital-24-Bit-RGB	OTA7000 (Source) SPFD6048A (Gate) (ORISE)	16,7 Mio. Colors 4-WR-TOUCH-PANEL
DEM 800480E TMH-PW-N	5,0“	800(RGB) x 480	108,0 x 64,8	118,5 x 77,5	500 cd/m²	Digital-24-Bit-RGB	OTA7000 (Source) SPFD6048A (Gate) (ORISE)	16,7 Mio. Colors
DEM 800480E TMH-PW-N (A-TOUCH)	5,0“	800(RGB) x 480	108,0 x 64,8	118,5 x 77,5	400 cd/m²	Digital-24-Bit-RGB	OTA7000 (Source) SPFD6048A (Gate) (ORISE)	16,7 Mio. Colors 4-WR-TOUCH-PANEL
DEM 320240D TMH-PW-N	5,7“	320(RGB) x 240	115,2 x 86,4	144,0 x 104,6	700 cd/m²	Digital-18-Bit-RGB	HX8218A (Source) HX8615A (Gate) (HIMAX)	262k Colors
DEM 320240D TMH-PW-N (A-TOUCH)	5,7“	320(RGB) x 240	115,2 x 86,4	144,0 x 104,6	560 cd/m²	Digital-18-Bit-RGB	HX8218A (Source) HX8615A (Gate) (HIMAX)	262k Colors 4WR-TOUCH-PANEL
DEM 320240E TMH-PW-N	5,7“	320(RGB) x 240	115,2 x 86,4	144,0 x 104,6	1200 cd/m²	Digital-18-Bit-RGB	HX8218A (Source) HX8615A (Gate) (HIMAX)	262k Colors
DEM 320240I TMH-PW-N	5,7“	320(RGB) x 240	115,2 x 86,4	144,0 x 104,6	450 cd/m²	8080 System 8-Bit-Parallel	SSD1963 (Solomon Systech)	16,7 Mio. Colors
DEM 320240I TMH-PW-N (A-TOUCH)	5,7“	320(RGB) x 240	115,2 x 86,4	144,0 x 104,6	360 cd/m²	8080 System 8-Bit-Parallel	SSD1963 (Solomon Systech)	16,7 Mio. Colors 4WR-TOUCH-PANEL
DEM 640480A TMH-PW-N	5,7“	640(RGB) x 480	112,9 x 84,7	160,0 x 109,0	200 cd/m²	8080 System 8-Bit-Parallel	Timing Controller on Board FPGA on Board	256 Colors
DEM 640480B TMH-PW-N (MONO-BLACK)	5,7“	640(RGB) x 480	112,9 x 84,7	160,0 x 109,0	200 cd/m²	8080 System 8-Bit-Parallel	Timing Controller on Board FPGA on Board	MONO TFT (BLACK)
DEM 640480C TMH-PW-N	5,7“	640(RGB) x 480	115,2 x 86,4	144,0 x 104,6	380 cd/m²	Digital-18-Bit-RGB	HX8250A (Source) HX8678A (Gate) (HIMAX)	262k Colors
DEM 640480C TMH-PW-N (A-TOUCH)	5,7“	640(RGB) x 480	115,2 x 86,4	144,0 x 104,6	290 cd/m²	Digital-18-Bit-RGB	HX8250A (Source) HX8678A (Gate) (HIMAX)	262k Colors 4WR-TOUCH-PANEL
DEM 640480D TMH-PW-N	5,7“	640(RGB) x 480	115,2 x 86,4	144,0 x 104,6	900 cd/m²	LVDS	HX8250A (Source) HX8678A (Gate) (HIMAX)	262k Colors
DEM 640480D TMH-PW-N (A-TOUCH)	5,7“	640(RGB) x 480	115,2 x 86,4	144,0 x 104,6	700 cd/m²	LVDS	HX8250A (Source) HX8678A (Gate) (HIMAX)	262k Colors 4WR-TOUCH-PANEL
DEM 800480A TMH-PW-N	7,0“	800(RGB) x 480	152,4 x 91,4	166,6 x 109,4	500 cd/m²	Digital-18-Bit-RGB	HX8262A (Source) HX8615C (Gate) (HIMAX)	262k Colors
DEM 800480A TMH-PW-N (A-TOUCH)	7,0“	800(RGB) x 480	152,4 x 91,4	166,6 x 109,4	400 cd/m²	Digital-18-Bit-RGB	HX8262A (Source) HX8615C (Gate) (HIMAX)	262k Colors 4WR-TOUCH-PANEL
DEM 800480B TMH-PW-N	7,0“	800(RGB) x 480	152,4 x 91,4	166,6 x 109,4	500 cd/m²	LVDS	HX8262A (Source) HX8615C (Gate) (HIMAX)	262k Colors

For all TFT-models Temperature range: -20°C to +70°C (op.) / -30° to +80°C (stor.) Technology: TFT-Transmissive, White LED other models upon request

GRAPHIC COLOR TFT

MODEL	SIZE	DISPLAY FORMAT	ACTIVE AREA	MODULE SIZE	BRIGHTNESS	MPU INTERFACE	IC CONTROLLER DRIVER	COLORS
DEM 800480B TMH-PW-N (A-TOUCH)	7,0“	800(RGB) x 480	152,4 x 91,4	166,6 x 109,4	400 cd/m²	LVDS	HX8262A (Source) HX8615C (Gate) (HIMAX)	262k Colors 4WR-TOUCH-PANEL
DEM 800480C TMH-PW-N	7,0“	800(RGB) x 480	152,4 x 91,4	166,6 x 109,4	1000 cd/m²	LVDS	HX8262A (Source) HX8615C (Gate) (HIMAX)	262k Colors
DEM 800480C TMH-PW-N (A-TOUCH)	7,0“	800(RGB) x 480	152,4 x 91,4	166,6 x 109,4	800 cd/m²	LVDS	HX8262A (Source) HX8615C (Gate) (HIMAX)	262k Colors 4WR-TOUCH-PANEL
DEM 800480F TMH-PW-N	7,0“	800(RGB) x 480	153,6 x 86,6	165,0 x 104,0	350 cd/m²	Digital-18-Bit-RGB	t.b.d.	262k Colors
DEM 800480F TMH-PW-N (A-TOUCH)	7,0“	800(RGB) x 480	153,6 x 86,6	165,0 x 104,0	280 cd/m²	Digital-18-Bit-RGB	t.b.d.	262k Colors
DEM 800480G TMH-PW-N (C-TOUCH)	7,0“	800(RGB) x 480	152,4 x 91,4	174,4 x 113,4	450 cd/m²	LVDS	t.b.d.	262k Colors PROJ. CAPACITIVE TOUCH-PANEL
DEM 800480H TMH-PW-N (C-TOUCH)	7,0“	800(RGB) x 480	152,4 x 91,4	174,4 x 113,4	850 cd/m²	LVDS	t.b.d.	262k Colors PROJ. CAPACITIVE TOUCH-PANEL
DEM 800600A TMH-PW-N	8,0“	800(RGB) x 600	162,0 x 121,5	183,0 x 141,0	400 cd/m²	Digital-18-Bit-RGB	t.b.d.	262k Colors
DEM 800600A TMH-PW-N (A-TOUCH)	8,0“	800(RGB) x 600	162,0 x 121,5	183,0 x 141,0	320 cd/m²	Digital-18-Bit-RGB	t.b.d.	262k Colors
DEM 800600B TMH-PW-N	8,0“	800(RGB) x 600	162,0 x 121,5	176,3 x 138,2	1300 cd/m²	Digital-18-Bit-RGB	t.b.d.	262k Colors
DEM 800600C TMH-PW-N	8,0“	800(RGB) x 600	162,0 x 121,5	183,0 x 141,0	400 cd/m²	LVDS	t.b.d.	262k Colors
DEM 800600C TMH-PW-N (A-TOUCH)	8,0“	800(RGB) x 600	162,0 x 121,5	183,0 x 141,0	320 cd/m²	LVDS	t.b.d.	262k Colors 4WR-TOUCH-PANEL
DEM 800600D TMH-PW-N	8,0“	800(RGB) x 600	162,0 x 121,5	176,3 x 138,2	1300 cd/m²	LVDS	t.b.d.	262k Colors
DEM 800600E TMH-PW-N	10,4“	800(RGB) x 600	211,2 x 158,4	243,0 x 185,6	500 cd/m²	Digital-24-Bit-RGB	t.b.d.	16,2 Mio. Colors
DEM 800600F TMH-PW-N	10,4“	800(RGB) x 600	211,2 x 158,4	243,0 x 185,6	1300 cd/m²	Digital-24-Bit-RGB	t.b.d.	16,2 Mio. Colors
DEM 800600G TMH-PW-N	10,4“	800(RGB) x 600	211,2 x 158,4	243,0 x 185,6	500 cd/m²	LVDS	t.b.d.	262k Colors
DEM 800600H TMH-PW-N	10,4“	800(RGB) x 600	211,2 x 158,4	243,0 x 185,6	1300 cd/m²	LVDS	t.b.d.	262k Colors

For all TFT-models Temperature range: -20°C to +70°C (op.) / -30° to +80°C (stor.) Technology: TFT-Transmissive, White LED other models upon request

ORDERING INFORMATION TFT

DEM 320 240 A T M H - P W - N _ /_

- 320: x-row
- 240: y-row
- A: version
- T: C: CSTN F: FSTN S: STN T: TFT
- M: **BACKGROUND MODE**
  - Y: Yellow-Green
  - G: Grey (neutral)
  - B: Blue (STN neg.)
  - C: CSTN
  - M: TFT (Transmissive)
  - T: TFT (Transflective)
- H: **OPERATING TEMPERATURE OPTION**
  - Blank: 0°C to +60°C*
  - H: -20°C to +70°C*
  - *Typ (please refer to specification)
- P: **BACKLIGHT OPTION**
  - E: EL type (Electroluminescent lamp)
  - C: CCFL (Cold cathode fluorescent lamp)
  - P: LED Lightguide/Lightpipe (indirect light)
  - L: LED Lightbox (direct light)
- W: **BACKLIGHT COLOR**
  - Y: Yellow-Green A: Amber
  - G: Pure Green B: Blue
  - R: Red W: White
- N: **DISPLAY MODE**
  - Blank: Positive
  - N: Negative
- _: **ADDITIONAL INFORMATION**
  - Blank: 6 o’clock
  - 12: 12 o’clock
  - A-Touch: 4WR-Analog TP
  - C-Touch: Capacitive TP
  - D-Touch: Digital TP
- /_: internal information

TOUCH-PANEL

TOUCH-PANELS 4-WIRE RESISTIVE

MODEL	SIZE	EXTERNAL DIMENSION		ACTIVE AREA	
		[X]	[Y]	[X]	[Y]
DE TP-W4R-019(33,8x46,5)	1,9"	33,80	46,50	30,20	39,00
DE TP-W4R-019(34,3x46,1)	1,9"	34,30	46,10	30,70	37,70
DE TP-W4R-020(40,0x50,0)	2,0"	40,00	50,00	31,60	41,00
DE TP-W4R-020(35,6x47,7)	2,0"	35,60	47,70	31,60	38,70
DE TP-W4R-021(37,5x51,0)	2,1"	37,48	51,01	33,49	41,70
DE TP-W4R-022(38,6x53,0)	2,2"	38,60	53,00	33,00	45,80
DE TP-W4R-022(37,4x51,0)	2,2"	37,40	51,00	34,70	42,60
DE TP-W4R-022(38,5x50,5)	2,2"	38,50	50,50	34,20	44,40
DE TP-W4R-023(40,2x53,6)	2,3"	40,20	53,60	35,80	47,60
DE TP-W4R-023(40,1x53,5)	2,3"	40,06	53,51	35,00	46,50
DE TP-W4R-023(43,7x53,5)	2,3"	43,70	53,50	37,90	45,40
DE TP-W4R-023(40,8x54,2)	2,3"	40,80	54,20	35,00	46,30
DE TP-W4R-023(38,2x52,1)	2,3"	38,20	52,10	33,20	45,40
DE TP-W4R-023(39,9x54,1)	2,3"	39,90	54,10	35,90	45,40
DE TP-W4R-024(40,7x57,4)	2,4"	40,70	57,40	35,80	48,60
DE TP-W4R-024(43,0x54,7)	2,4"	43,00	54,70	37,60	46,70
DE TP-W4R-024(41,9x55,7)	2,4"	41,90	55,70	37,90	47,00
DE TP-W4R-024(39,5x58,5)	2,4"	39,50	58,50	36,70	48,60
DE TP-W4R-025(44,6x59,7)	2,5"	44,60	59,70	38,60	51,20
DE TP-W4R-025(44,7x59,8)	2,5"	44,70	59,75	39,60	51,85
DE TP-W4R-025(43,5x60,2)	2,5"	43,50	66,20	39,00	51,00
DE TP-W4R-026(60,0x51,5)	2,6"	60,00	51,50	53,00	40,00
DE TP-W4R-026(45,8x61,2)	2,6"	45,80	61,20	40,20	53,90
DE TP-W4R-027(69,1x50,4)	2,7"	69,10	50,40	57,58	38,38
DE TP-W4R-027(43,0x58,5)	2,7"	43,00	58,50	41,00	54,00
DE TP-W4R-027(43,0x71,0)	2,7"	43,00	71,00	33,00	61,00
DE TP-W4R-028(54,8x69,8)	2,8"	54,80	69,80	45,00	57,80
DE TP-W4R-029(50,0x68,0)	2,9"	50,00	68,00	45,00	49,00
DE TP-W4R-030(49,2x74,6)	3,0"	49,20	74,60	41,70	63,30
DE TP-W4R-030(51,0x76,8)	3,0"	51,00	76,80	42,00	64,80
DE TP-W4R-030(52,2x70,0)	3,0"	52,20	70,00	45,20	60,00
DE TP-W4R-030(79,2x49,7)	3,0"	79,20	49,65	66,52	33,24
DE TP-W4R-030(50,9x67,3)	3,0"	50,90	67,30	46,50	60,30
DE TP-W4R-030(49,5x66,3)	3,0"	49,50	66,30	46,70	61,40
DE TP-W4R-031(49,2x74,6)	3,1"	49,20	74,60	45,00	66,40
DE TP-W4R-032(44,5x84,1)	3,2"	44,50	84,10	34,50	72,20
DE TP-W4R-032(77,4x60,5)	3,2"	77,42	60,50	67,42	44,94
DE TP-W4R-033(55,0x86,5)	3,3"	55,00	86,50	45,00	72,50
DE TP-W4R-033(54,7x76,4)	3,3"	54,74	76,40	49,80	66,00
DE TP-W4R-033(74,8x60,5)	3,3"	74,80	60,50	68,00	47,00
DE TP-W4R-033(55,1x72,2)	3,3"	55,10	72,20	50,10	66,80
DE TP-W4R-034(76,6x63,6)	3,4"	76,60	63,60	70,08	52,56
DE TP-W4R-034(55,0x86,5)	3,4"	55,00	86,50	46,90	74,00
DE TP-W4R-035(76,9x63,9)	3,5"	76,90	63,90	69,88	52,36
DE TP-W4R-035(63,9x76,9)	3,5"	63,90	76,90	57,90	67,90
DE TP-W4R-035(62,2x85,7)	3,5"	62,20	85,70	53,00	74,20
DE TP-W4R-036(82,0x66,0)	3,6"	82,00	66,00	73,00	54,50
DE TP-W4R-036(49,3x91,2)	3,6"	49,30	91,20	42,30	82,20
DE TP-W4R-036(70,1x90,3)	3,6"	77,10	90,30	55,60	74,00
DE TP-W4R-036(71,5x91,5)	3,6"	71,50	91,50	55,50	77,00
DE TP-W4R-037(83,1x66,4)	3,7"	83,10	66,40	72,10	53,70
DE TP-W4R-037(62,8x84,1)	3,7"	62,80	84,10	56,70	74,50
DE TP-W4R-037(62,7x83,3)	3,7"	62,70	83,30	57,70	76,30
DE TP-W4R-038(87,5x71,0)	3,8"	87,50	71,00	77,50	57,50
DE TP-W4R-038(62,7x84,8)	3,8"	62,70	84,80	58,30	76,80
DE TP-W4R-038(67,0x90,0)	3,8"	67,00	90,00	57,00	78,00
DE TP-W4R-039(70,4x89,8)	3,9"	70,40	89,80	59,80	79,40
DE TP-W4R-040(68,4x92,4)	4,0"	68,40	92,40	66,00	82,00
DE TP-W4R-040(97,9x64,9)	4,0"	97,90	64,90	86,00	51,00
DE TP-W4R-040(63,3x97,9)	4,0"	63,30	97,90	56,00	84,00
DE TP-W4R-040(98,3x62,6)	4,0"	98,30	62,60	87,30	49,00
DE TP-W4R-040(72,4x93,2)	4,0"	72,40	93,20	61,60	80,60
DE TP-W4R-041(87,0x73,0)	4,1"	87,00	73,00	81,00	65,00

MODEL	SIZE	EXTERNAL DIMENSION		ACTIVE AREA	
		[X]	[Y]	[X]	[Y]
DE TP-W4R-041(64,2x91,7)	4,1"	64,20	91,74	58,80	85,34
DE TP-W4R-043(50,0x113,0)	4,3"	50,00	113,00	38,00	103,00
DE TP-W4R-044(64,2x102,8)	4,4"	64,20	102,80	58,70	92,50
DE TP-W4R-047(93,3x111,0)	4,7"	93,30	111,00	74,20	92,76
DE TP-W4R-048(78,0x131,0)	4,8"	78,00	131,00	58,00	108,00
DE TP-W4R-050(119,2x90,8)	5,0"	119,20	90,80	101,00	73,00
DE TP-W4R-050(94,0x117,0)	5,0"	94,00	117,00	78,00	101,00
DE TP-W4R-052(115,0x93,8)	5,2"	115,00	93,80	106,00	77,80
DE TP-W4R-052(93,2x118,5)	5,2"	93,20	118,53	79,20	105,60
DE TP-W4R-053(128,8x78,5)	5,3"	128,80	78,50	117,90	66,80
DE TP-W4R-055(48,7x142,8)	5,5"	48,70	142,80	40,00	133,00
DE TP-W4R-057(104,7x132,5)	5,7"	104,70	132,50	87,70	116,00
DE TP-W4R-057(103,0x133,0)	5,7"	103,00	133,00	86,37	115,17
DE TP-W4R-057(61,0x161,0)	5,7"	61,00	161,00	40,00	140,00
DE TP-W4R-058(103,0x135,5)	5,8"	103,00	135,50	89,00	119,00
DE TP-W4R-058(145,0x89,0)	5,8"	145,00	89,00	126,80	71,20
DE TP-W4R-058(104,6x132,3)	5,8"	104,60	132,30	89,00	117,20
DE TP-W4R-060(105,0x140,0)	6,0"	105,00	140,00	94,00	122,00
DE TP-W4R-060(104,7x135,1)	6,0"	104,70	135,10	90,70	119,60
DE TP-W4R-060(108,0x135,5)	6,0"	108,00	135,50	94,00	122,00
DE TP-W4R-062(154,8x89,2)	6,2"	154,80	89,20	139,30	75,40
DE TP-W4R-062(92,6x154,4)	6,2"	92,60	154,40	77,20	137,52
DE TP-W4R-062(132,0x115,0)	6,2"	132,00	115,00	122,00	99,00
DE TP-W4R-062(150,0x90,0)	6,2"	150,00	90,00	137,50	77,20
DE TP-W4R-062(154,4x92,6)	6,2"	154,40	92,60	137,52	77,20
DE TP-W4R-063(157,2x89,8)	6,3"	157,20	89,80	140,40	76,50
DE TP-W4R-064(120,0x152,9)	6,4"	120,00	152,90	97,40	129,60
DE TP-W4R-065(89,3x156,6)	6,5"	89,30	156,60	80,00	142,80
DE TP-W4R-065(155,0x89,3)	6,5"	155,00	089,30	142,80	80,00
DE TP-W4R-065(89,3x155,5)	6,5"	89,30	155,50	80,00	142,80
DE TP-W4R-065(100,0x150,0)	6,5"	100,00	150,00	88,00	137,00
DE TP-W4R-068(166,0x100,0)	6,8"	166,00	100,00	153,00	85,50
DE TP-W4R-070(99,8x165,0)	7,0"	99,80	165,00	88,50	156,00
DE TP-W4R-070(164,9x100,0)	7,0"	164,90	100,00	155,00	88,00
DE TP-W4R-075(99,0x190,8)	7,5"	99,00	190,80	83,00	173,00
DE TP-W4R-081(183,0x141,0)	8,1"	183,00	141,00	164,20	123,70
DE TP-W4R-083(184,8x149,0)	8,3"	184,30	149,00	168,80	126,50
DE TP-W4R-090(183,0x141,0)	9,0"	97,00	244,00	81,00	215,00
DE TP-W4R-104(248,0x160,0)	10,4"	248,00	160,00	225,00	137,00
DE TP-W4R-104(178,0x234,0)	10,4"	178,00	234,00	159,40	212,00
DE TP-W4R-104(226,6x177,5)	10,4"	226,60	177,50	158,20	212,20
DE TP-W4R-105(180,0x236,5)	10,5"	180,00	236,50	160,00	212,00
DE TP-W4R-121(206,0x271,0)	12,1"	206,00	271,00	186,00	248,00
DE TP-W4R-121(208,0x265,0)	12,1"	208,00	265,00	185,00	246,00

Other Touch Panel technologies like 5-Wire Resistive, 8-Wire Resistive, Matrix, Capacitive, Surface Acoustic Wave and Infrared upon request, as well as Controler Boards and Accessories. For Custom Designed Touch Panels, please contact us.

ORDERING INFORMATION

DE TP - W4R - 019 (33,8 x 46,5) /

TOUCH PANEL

TECHNOLOGY
W4R: 4-Wire resistive
W5R: 5-Wire resistive
W8R: 8-Wire resistive
CAP: Capacitive
MTX: Matrix
SAW: Sound Acoustic Wave
IR: Infrared

Size
in inch
(for example:
019 means 1,9"
104 means 10,4")

EXTERNAL DIMENSION (X)
in mm

EXTERNAL DIMENSION (Y)
in mm

internal information

Display Elektronik GmbH has most standard LED-products available at attractive prices.

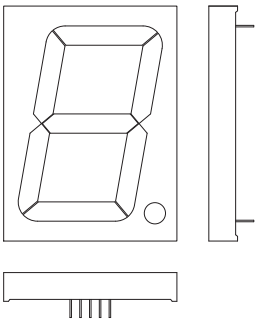
Display Elektronik GmbH offers the following LED-products:
- 7-SEGMENT-MODULES (monochrome)
- 7-SEGMENT-MODULES (multi-color)
- ALPHANUMERIC-MODULES (monochrome)
- DOT-MATRIX (monochrome)
- DOT-MATRIX (multi-color)
- DOT-MATRIX (full-color-RGB)
- SMD-LEDs and LED-lamps
- LED-BACKLIGHT FOR LCD-DISPLAYS

In general we offer the following colors:
- CB-BLUE (λ_p/λ_D=428nm/466nm)
- GU-BRIGHT GREEN (λ_p/λ_D=568nm/573nm)
- HY-YELLOW (λ_p/λ_D=589nm/590nm)
- HO-ORANGE (λ_p/λ_D=632nm/622nm)
- HR-HIGH EFF. RED (λ_p/λ_D=655nm/637nm)
- SR-SUPER RED (λ_p/λ_D=660nm/643nm)
- FULL-COLOR: RGB
- ... others on request

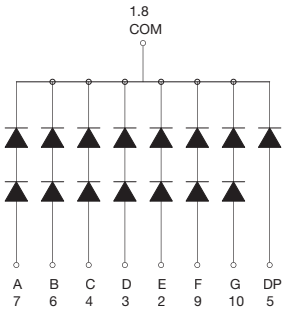
LED-modules
- Partially available with black or grey surface
- High intensity and high reliability
- High quality and low cost
- Low power requirements
- I.C. compatibility
- Easy assembly
- Long lifetime

Customized LED-modules can be manufactured in low volume at economic prices.

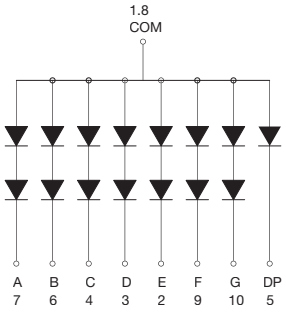
7-SEGMENT-MODULES (monochrome)



COMMON CATHODES



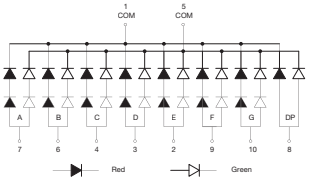
COMMON ANODES



BASE MODEL	DISPLAY FORMAT	CHAR. SIZE (mm)	CHARACTER SIZE (Inch)	COLORS	EXTERNAL DIMENSIONS	COMMON ANODE COMMON CATHODE
DEL LD1-BW30xx-x11T	1-digit	7,6	0,30"	SR, HO, GU, HY, HR	10,10 x 19,00	ANODE + CATHODE
DEL LD1-BW30xx-A21T	1-digit	7,6	0,30"	SR, HO, GU, HY, HR	10,10 x 19,00	ANODE
DEL LD1-BW30xx-A31T	1-digit	7,6	0,30"	SR, HO, GU, HY, HR	10,10 x 19,00	ANODE
DEL LD1-BW31xx-x11U	1-digit	8,0	0,31"	SR, HO, GU, HY, HR	7,00 x 11,00	ANODE + CATHODE
DEL LD1-BW36xx-x11U	1-digit	9,1	0,36"	SR, HO, GU, HY, HR	7,60 x 14,00	ANODE + CATHODE
DEL LD1-BW39xx-x11	1-digit	10,0	0,39"	SR, HO, GU, HY, HR	9,90 x 12,90	ANODE + CATHODE
DEL LD1-BW39xx-x21	1-digit	10,0	0,39"	SR, HO, GU, HY, HR	9,90 x 12,90	ANODE + CATHODE
DEL LD1-BW40xx-x11R	1-digit	10,0	0,40"	SR, HO, GU, HY, HR	9,80 x 18,75	ANODE + CATHODE
DEL LD1-BW43xx-x11T	1-digit	10,8	0,43"	SR, HO, GU, HY, HR	12,60 x 19,00	ANODE + CATHODE
DEL LD1-BW50xx-x11	1-digit	12,6	0,50"	SR, HO, GU, HY, HR	12,80 x 19,00	ANODE + CATHODE
DEL LD1-BW50xx-x21	1-digit	12,6	0,50"	SR, HO, GU, HY, HR	12,80 x 19,00	ANODE + CATHODE
DEL LD1-BW52xx-x11	1-digit	13,1	0,52"	SR, HO, GU, HY, HR	12,40 x 17,50	ANODE + CATHODE
DEL LD1-BW56xx-x11R	1-digit	14,2	0,56"	SR, HO, GU, HY, HR	12,50 x 19,00	ANODE + CATHODE
DEL LD1-BW56xx-x11	1-digit	14,2	0,56"	SR, HO, GU, HY, HR	12,70 x 19,00	ANODE + CATHODE
DEL LD1-BW80xx-x11	1-digit	20,4	0,80"	SR, HO, GU	20,00 x 29,00	ANODE + CATHODE
DEL LD1-BW80xx-x21	1-digit	20,3	0,80"	SR, HO, GU	20,00 x 29,00	ANODE + CATHODE
DEL LD1-BW80xx-x31	1-digit	20,4	0,80"	SR, HO, GU	19,90 x 27,70	ANODE + CATHODE
DEL LD1-BW80xx-A11R	1-digit	20,3	0,80"	SR, HO, GU	18,60 x 25,00	ANODE
DEL LD1-BW80xx-A21R	1-digit	20,3	0,80"	SR, HO, GU	18,60 x 25,00	ANODE
DEL LD1-BWA0xx-x11	1-digit	25,4	1,00"	SR, GU	24,00 x 33,90	ANODE + CATHODE
DEL LD1-BWA2xx-x11S	1-digit	30,4	1,20"	SR, GU	28,80 x 40,70	ANODE + CATHODE
DEL LD1-BWA5xx-x11S	1-digit	38,0	1,50"	SR, GU	30,60 x 44,10	ANODE + CATHODE
DEL LD1-BWA8xx-x11S	1-digit	45,0	1,80"	SR, GU	37,80 x 55,80	ANODE + CATHODE
DEL LD1-BWB3xx-X11s	1-digit	56,9	2,30"	SR, GU	47,70 x 69,70	ANODE + CATHODE
DEL LD1-BWC0xx-x11	1-digit	76,0	3,00"	SR, GU	69,80 x 109,80	ANODE + CATHODE
DEL LD1-BWD0xx-x11S	1-digit	101,2	4,00"	SR, GU	89,80 x 121,80	ANODE + CATHODE
DEL LD1-BWE0xx-x11	1-digit	127,0	5,00"	SR, GU	108,00 x 180,00	ANODE + CATHODE
DEL LD2-BW30xx-x11	2-digit	7,6	0,30"	SR, HO, GU, HY, HR	15,50 x 15,00	ANODE + CATHODE
DEL LD2-BW36xx-x11	2-digit	9,2	0,36"	SR, HO, GU, HY, HR	15,00 x 14,00	ANODE + CATHODE
DEL LD2-BW40xx-x11	2-digit	10,2	0,40"	SR, HO, GU, HY, HR	20,20 x 16,00	ANODE + CATHODE
DEL LD2-BW40xx-A21	2-digit	10,2	0,40"	SR, HO, GU, HY, HR	20,20 x 16,00	ANODE
DEL LD2-BW43xx-x11	2-digit	11,0	0,43"	SR, HO, GU, HY, HR	23,80 x 18,80	ANODE + CATHODE
DEL LD2-BW50xx-x11	2-digit	12,7	0,50"	SR, HO, GU, HY, HR	25,00 x 19,00	ANODE + CATHODE
DEL LD2-BW52xx-x11	2-digit	13,2	0,52"	SR, HO, GU, HY, HR	25,00 x 17,50	ANODE + CATHODE
DEL LD2-BW56xx-x11R	2-digit	14,2	0,56"	SR, HO, GU, HY, HR	25,00 x 19,00	ANODE + CATHODE
DEL LD2-BW56xx-x11	2-digit	14,2	0,56"	SR, HO, GU, HY, HR	25,00 x 19,00	ANODE + CATHODE
DEL LD2-BW80xx-x11	2-digit	20,1	0,80"	SR, HO, GU	35,60 x 25,70	ANODE + CATHODE
DEL LD3-BW36xx-x11	3-digit	9,2	0,36"	SR, HO, GU, HY, HR	22,60 x 14,10	ANODE + CATHODE
DEL LD3-BW40xx-x11	3-digit	10,2	0,40"	SR, HO, GU, HY, HR	30,20 x 15,90	ANODE + CATHODE
DEL LD3-BW52xx-x11	3-digit	13,2	0,52"	SR, HO, GU, HY, HR	37,80 x 17,50	ANODE + CATHODE
DEL LD3-BW56xx-x11R	3-digit	14,2	0,56"	SR, HO, GU, HY, HR	37,50 x 18,90	ANODE + CATHODE
DEL LD3-BW80xx-x11	3-digit	20,1	0,80"	SR, HO, GU	59,30 x 27,50	ANODE + CATHODE
DEL LD4-BW24xx-x11	4-digit	6,2	0,24"	SR, HO, GU, HR	36,00 x 11,00	ANODE + CATHODE
DEL LD4-BW24xx-A21	4-digit	6,2	0,24"	SR, HO, GU, HR	36,00 x 11,00	ANODE
DEL LD4-BW28xx-x11T	4-digit	6,2	0,24"	SR, HO, GU, HR	32,10 x 10,00	ANODE + CATHODE
DEL LD4-BW36xx-x11	4-digit	9,2	0,36"	SR, HO, GU, HY, HR	29,50 x 14,00	ANODE + CATHODE
DEL LD4-BW52xx-x11	4-digit	13,2	0,52"	SR, HO, GU, HY, HR	50,80 x 17,50	ANODE + CATHODE
DEL LD4-BW56xx-x11R	4-digit	14,2	0,56"	SR, HO, GU, HY, HR	50,40 x 19,00	ANODE + CATHODE
DEL LD4-BW56xx-x21R	4-digit	14,2	0,56"	SR, HO, GU, HY, HR	50,40 x 19,00	ANODE + CATHODE
DEL V-TECH5xx-A11	5-digit	13,2	0,52"	SR, HO, GU, HR	63,36 x 17,75	ANODE
DEL V-TECH5xx-A21	5-digit	13,2	0,52"	SR, HO, GU, HR	63,36 x 17,75	ANODE

other models upon request

7-SEGMENT-MODULES (multi-color)

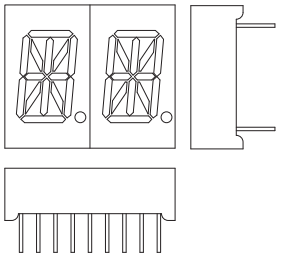


BASE MODEL	DISPLAY FORMAT	CHAR. SIZE (mm)	CHARACTER SIZE (Inch)	COLORS	EXTERNAL DIMENSIONS	COMMON ANODE COMMON CATHODE
DEL LD1-BW80D3-C11R	1-digit	20,3	0,80"	SR, GU	18,60 x 25,00	CATHODE
DEL LD1-BW80D4-C11R	1-digit	20,3	0,80"	GU, CB	18,60 x 25,00	CATHODE
DEL LD1-BWA5D3-A11S	1-digit	38,0	1,50"	SR, GU	30,60 x 44,10	ANODE
DEL LD1-BWA5D3-C11S	1-digit	38,1	1,50"	SR, GU	30,60 x 44,11	CATHODE

other models upon request

ALPHANUMERIC MODULES (monochrome)

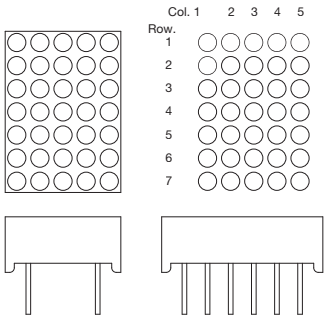
BASE MODEL	DISPLAY FORMAT	CHAR. SIZE (mm)	CHARACTER SIZE (Inch)	COLORS	EXTERNAL DIMENSIONS	COMMON ANODE COMMON CATHODE
DEL LDW-BW50xx-x11	1-digit	12,7	0,50"	SR, GU	16,00 x 25,00	ANODE + CATHODE
DEL LDW-BW80xx-x11	1-digit	20,2	0,80"	GU, UR	20,00 x 27,70	ANODE + CATHODE
DEL LDX-BW54xx-x11	1-digit	13,6	0,54"	SR, GU	25,10 x 21,12	ANODE + CATHODE



DOT-MATRIX (monochrome)

BASE MODEL	DISPLAY FORMAT	LED PITCH (mm)	LED DIAMETER	COLORS	EXTERNAL DIMENSIONS	ROW ANODE ROW CATHODE
DEL DM2-5707xx-Dx01	5 x 7	2,54	2,0	SR, HO, GU	12,70 x 17,70	ANODE + CATHODE
DEL DM3-5712xx-Dx01	5 x 7	4,57	3,0	SR, HO, GU	22,55 x 31,99	ANODE + CATHODE
DEL DM3-5713xx-Dx01	5 x 7	4,57	3,0	SR, HO, GU	22,65 x 31,80	ANODE + CATHODE
DEL DM3-5715xx-Dx01	5 x 7	4,55	3,0	SR, HO, GU	22,30 x 38,10	ANODE + CATHODE
DEL DM5-5721xx-Dx01	5 x 7	7,62	5,0	SR, HO, GU	38,50 x 53,20	ANODE + CATHODE
DEL DM3-5815xx-Dx01	5 x 8	4,70	3,0	SR, HO, GU	23,40 x 37,50	ANODE + CATHODE
DEL DM3-8813xx-Dx01	8 x 8	4,00	3,0	SR, HO, GU	32,00 x 32,00	ANODE + CATHODE
DEL DM4-8815xx-Dx01	8 x 8	4,76	3,7	SR, HO, GU	37,90 x 37,90	ANODE + CATHODE
DEL DM5-8824xx-Dx01	8 x 8	7,62	5,0	SR, HO, GU	60,20 x 60,20	ANODE + CATHODE

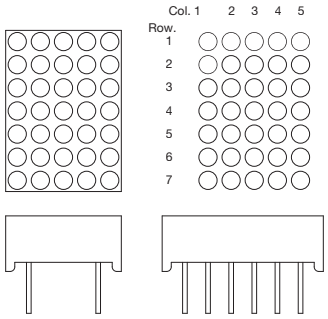
other models upon request



DOT-MATRIX (multi-color)

BASE MODEL	DISPLAY FORMAT	LED PITCH (mm)	LED DIAMETER	COLORS	EXTERNAL DIMENSIONS	ROW ANODE ROW CATHODE
DEL DM5-5721D1-Cx01	5 x 7	7,62	5,0	HO & GU	38,50 x 53,20	ANODE + CATHODE
DEL DM5-5824D1-Dx01	5 x 8	7,62	5,0	HO & GU	38,40 x 60,80	ANODE + CATHODE
DEL DM8-5836D3-Dx01	5 x 8	11,43	8,0	SR & GU	56,60 x 90,50	ANODE + CATHODE
DEL DM0-5848D3-Dx01	5 x 8	15,16	10,0	SR & GU	75,80 x 121,50	ANODE + CATHODE
DEL DM2-5808D1-Dx01	5 x 8	2,48	2,0	HO & GU	20,00 x 20,00	ANODE + CATHODE
DEL DM3-8813D1-Dx01	8 x 8	4,00	3,0	HO & GU	32,00 x 32,00	ANODE + CATHODE
DEL DM4-8815D1-Dx01	8 x 8	4,76	3,7	HO & GU	37,90 x 37,90	ANODE + CATHODE
DEL DM4-8815D3-Dx01	8 x 8	4,76	3,7	SR & GU	37,90 x 37,90	ANODE + CATHODE
DEL DM5-8819D1-Dx01	8 x 8	6,00	5,0	HO & GU	47,80 x 47,80	ANODE + CATHODE
DEL DM5-8819D3-Dx01	8 x 8	6,00	5,0	SR & GU	47,80 x 47,80	ANODE + CATHODE
DEL DM5-8824D1-Dx01	8 x 8	7,62	5,0	HO & GU	60,20 x 60,20	ANODE + CATHODE
DEL DM5-8824D3-Dx01	5 x 8	7,62	5,0	SR & GU	60,20 x 60,20	ANODE + CATHODE

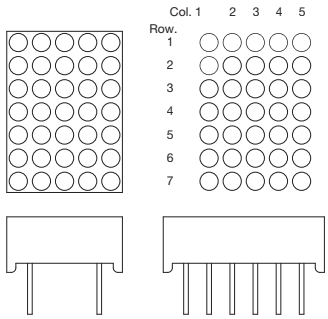
other models upon request



DOT-MATRIX (full-color-R/G/B)

BASE MODEL	DISPLAY FORMAT	LED PITCH (mm)	LED DIAMETER	COLORS	EXTERNAL DIMENSIONS	ROW ANODE ROW CATHODE
DEL DM8-4831F4-Cx01	4 x 8	10,00	7,5	R-G-B	40,00 x 80,00	ANODE + CATHODE
DEL DM5-5819F4-Cx01	5 x 8	6,00	5,0	R-G-B	29,60 x 47,50	ANODE + CATHODE
DEL DM5-8819F4-Cx01	8 x 8	6,00	5,0	R-G-B	47,70 x 47,70	ANODE + CATHODE

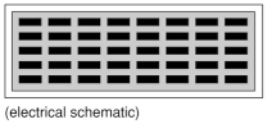
other models upon request



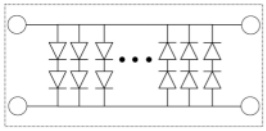
LED-BACKLIGHTS

We offer a wide standard range of LED-Backlights. We offer Lightguide (indirect, guided light) or Lightbox (direct light) depending on the requirement of the application. On demand we also supply EL or CCFL backlights or any lightguide materials.
Anyway if we do not find any standard solution we also can supply a customized solution at low volume and economical prices. Please contact us for further information.

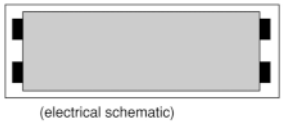
LED-LIGHTBOX: (example)
(mechanical schematic)



(electrical schematic)



LED-LIGHTPIPE (lightguide): (example)
(mechanical schematic)



(electrical schematic)

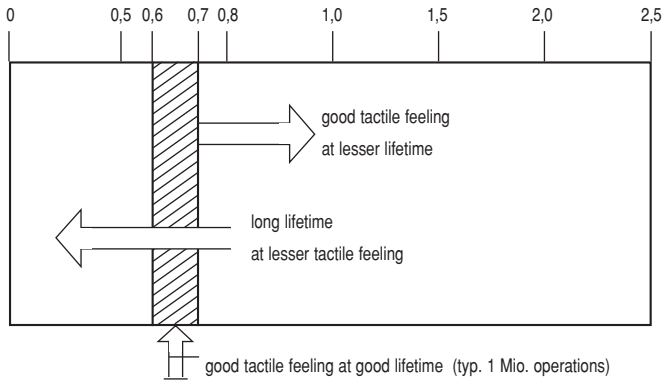


RUBBER KEYPADS

GENERAL FEATURES OF SILICONE RUBBER KEYPADS

The flexibility of silicone material allows a wide variety of shapes. Low pricing for mass production is an additional advantage of this technology.

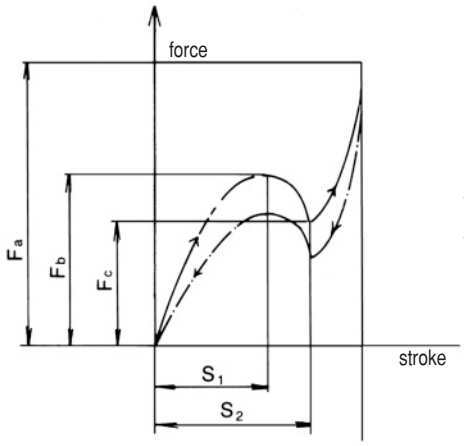
TACTILE FEELING



actuation force	tactile feeling	lifetime (operations)
50 g	very good	1 Mio.
70 g		1 Mio.
90 g		1 Mio.
100 g		1 Mio.
120 g	good	1 Mio.
150 g		560 K
170 g		450 K
200 g	less good	50K Typ (100 K Max)

This table shows typical data

DIAGRAM

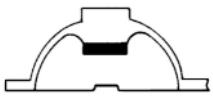
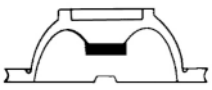
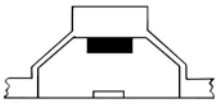
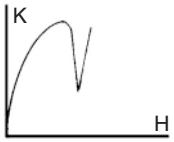
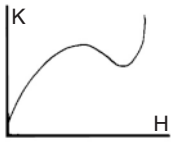
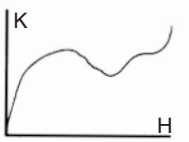
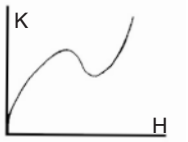
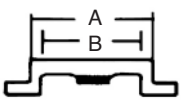
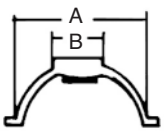
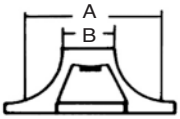


Fa: overall force
Fb: switching force
Fc: tactile feeling
S_1: point of return
S_2: switching stroke

GENERAL PARAMETER

stroke:	0,2 mm ..... 5 mm
switching current:	30 mA bei 12 VDC / 0,5 sek.
operating temperature:	-25°C + 250°C
switching force:	10 g ..... 200 g
lifetime (operations):	1 Mio.
contact resistance:	< 100 Ω
bouncing:	< 5 m sek.
insulation resistance:	100 MΩ at 500 VDC

DIRECTIONS FOR KEYS

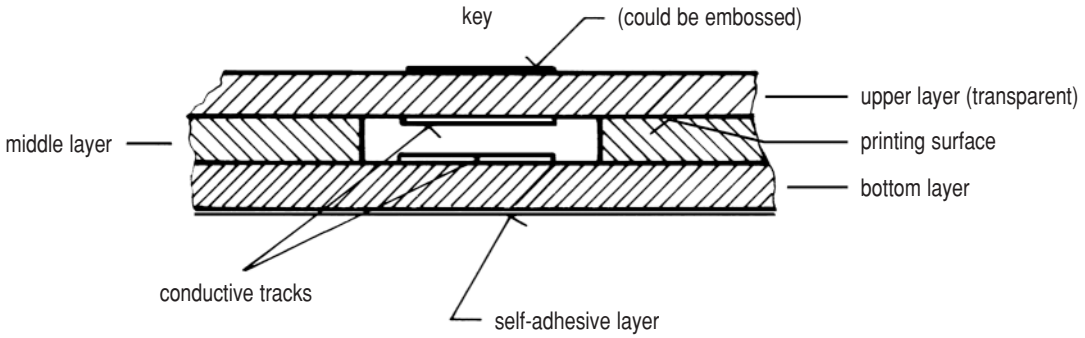
KEYTYPE	**A** - flat type	**B** - bell type	**C** - double bell type	**D** - cone type
				
pressure/stroke curve				
relation between pressure (g) and stroke (mm)	pressure (g) 30 - 200 stroke (mm) 0,3 - 7	pressure (g) 30 - 80 80 - 160 160 - 250	stroke (mm) 1,0 - 1,8 1,6 - 2,8 2,6 - 3,5	pressure (g) 30 - 200 stroke (mm) 0,3 - 7
outer dimensions (A) at a defined key head diameter (B)	 A ≥ B + 1,0 mm		A ≥ B + 2,0 mm	 A ≥ B ± 2,0 mm

MEMBRANE SWITCHES

GENERAL DESCRIPTION OF MEMBRANE SWITCHES

Membrane switches are keypads with an integrated (mainly flexible) PCB. In principle, they consist of three layers. The upper, transparent layer, which faces the viewer, has the printing on the bottom side according to customer's design. This results in a high protection. The keys themselves can be embossed to achieve a good tactile feeling. The bottom side of the keys will be conductive. The middle layer allows distance between the upper and lower layer. Open areas of the middle layer allow a switching process by pressing the key. The tracks on the surface of the lower layer lead to the connector. On request we can supply the finished keyboard ready for assembly. For easy mounting the rear-side is usually self-adhesive.

CONSTRUCTION



GENERAL FEATURES

- high reliability at a long lifetime
- flexible design (size, colors, printing, embossing)
- flat and flexible
- compact construction with integrated functions (e.g. LEDs)
- easy to connect
- applicable wherever data have to be entered manually

ELECTRICAL AND PHYSICAL PARAMETERS *

	Parameter	Data
Electrical data	contact resistance	100 Ohm or less
	insulation resistance	100 MOhm or more at 100 V DC
	operating voltage	< 24 V
	max. current	10 mA
	min. current	50 µA
	max. power	1 W
	bouncing	15 ms or less
Mechanical data	operating force	1 - 5 N
	stroke	ca. 0,2 - 0,7 mm
	lifetime	> 1.000.000 operations
	protection level	IP65
	operating temperature	-20°C to +70°C / 50-80% RH
	storage temperature	-40°C to +80°C / 10-85% RH

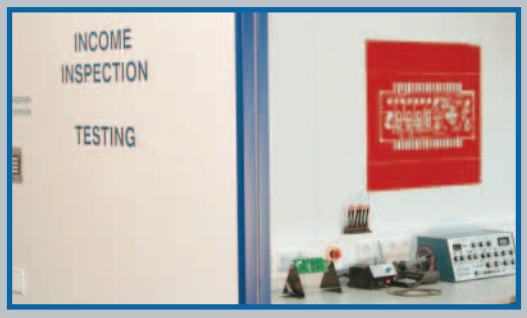
* depending on construction

...Welcome!

As a display and customized keypad specialized partner of the European manufacturing industry, we have our strength in custom-designed LCD-solutions. Customized products can be produced also in low volumes at economical prices. We offer a full custom design service, from a simple segment display panel to a complete graphic display solution including interface, backlight and additional components like buttons.
The extensive exchange of information with our customers leads to an optimum result, if we can take part in the development at an early stage. For some customers we keep interim stock, so that we can deliver parts immediately, in case unforeseen urgent requirements occur.



In Frankfurt we evaluate and validate our products in our own well equipped laboratory. The validation may include electrical, optical, temperature and humidity tests.



In accordance to our philosophy and as a result of the ISO9001 certification we do additional income inspections to ensure reliable deliveries to our customers.



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Please contact us – we will make sure that the first step will lead to a successful long lasting reliable partnership.

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01/2013

COMPANY PROFILE