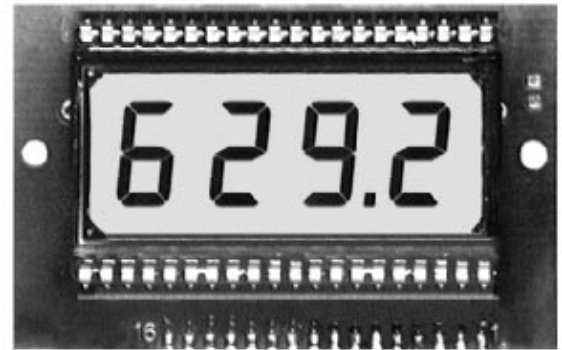


INTELLIGENT 7-SEG. LCD WITH MULTIPLEXED BCD OR μ P INPUT



FEATURES

- * HIGH CONTRAST 4 DIGIT 7-SEGMENT DISPLAY
- * 4 DIGIT HEIGHTS AVAILABLE: 13, 18, 25, 50mm
- * SUPPLY VOLTAGE RANGE FROM 3 TO 6V/TYP. 20 μ A
- * 4 BIT BCD DATA INPUT
- * 4 SEPARATED DIGIT SELECT INPUTS (VERSION -M)
- * 2 CHIP SELECT AND 2 DIGIT SELECT INPUTS (VERSION -P)
- * DECIMAL POINTS AND COLON SETTABLE BY LOGIC LEVELS
- * 2 DIFFERENT 7-SEG. CODES: HEXCODE (VERS. -A), CODE -B (VERS. -B)
- * OPERATING TEMPERATURE 0°C TO 55°C

OPTIONS

- * ELECTROLUMINESCENT BACKLIGHTING: OPTION -LF (EXCEPT 50MM DISPLAYS)
- * DISPLAY FOR EXTENDED TEMPERATURE RANGE -20°C TO +80°C: OPTION -ET
- * RS-232C ADAPTER EA 9717
- * EL-INVERTER

ORDERING INFORMATION

DISPLAYMODULES 13 mm HEIGHT

BCD-MUX, HEXCODE	EA 3100-13MA
BCD-MUX, CODE-B	EA 3100-13MB
BCD- μ P, HEXCODE	EA 3100-13PA
BCD- μ P, CODE-B	EA 3100-13PB
EL-INVERTER	EA PS32-45
EL-INVERTER(ALTERN.)	EA PS32-46

DISPLAYMODULES 25 mm HEIGHT

BCD-MUX, HEXCODE	EA 3100-25MA
BCD-MUX, CODE-B	EA 3100-25MB
BCD- μ P, HEXCODE	EA 3100-25PA
BCD- μ P, CODE-B	EA 3100-25PB
EL-INVERTER	EA PS32-48

DISPLAYMODULES 18 mm HEIGHT

BCD-MUX, HEXCODE	EA 3100-18MA
BCD-MUX, CODE-B	EA 3100-18MB
BCD- μ P, HEXCODE	EA 3100-18PA
BCD- μ P, CODE-B	EA 3100-18PB
EL-INVERTER	EA PS32-46

DISPLAYMODULES 50 mm HEIGHT

BCD-MUX, HEXCODE	EA 3100-50MA
BCD-MUX, CODE-B	EA 3100-50MB
BCD- μ P, HEXCODE	EA 3100-50PA
BCD- μ P, CODE-B	EA 3100-50PB

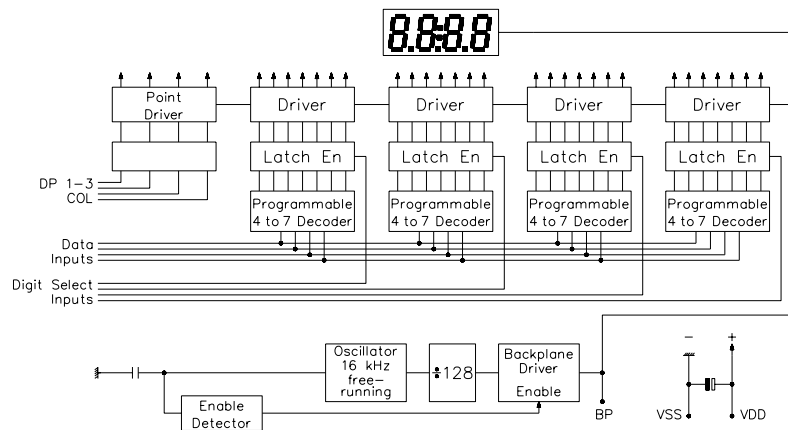
ABSOLUTE MAXIMUM RATINGS

Supply voltage	VDD-VSS	6,5V
Input voltages	either input	VSS to VDD
Operating temperature range	T _{op}	0°C to 55°C
Storage temperature range	T _{st}	-20°C to +70°C

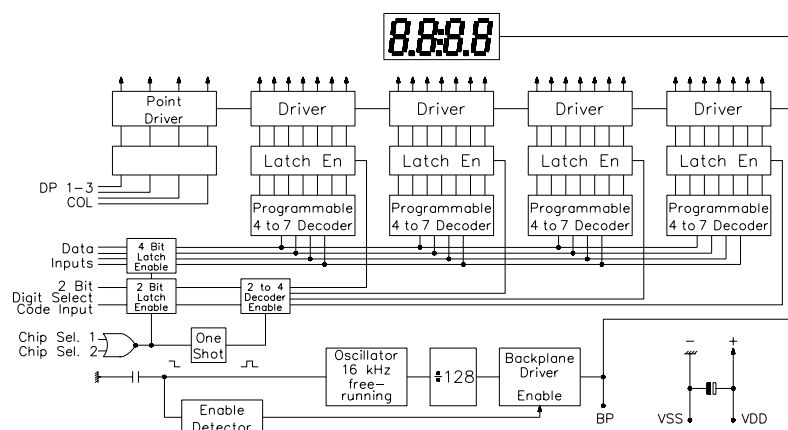
ELECTRICAL CHARACTERISTICS (TA=25°C, VDD=5V UNLESS OTHERWISE NOTED)

Parameter	Symbol	Condition	min	typ	max	Unit
Supply voltage	VDD		3	5	6	V
Supply current	I _{op}	without signal		15	60	µA
Input H-level	V _{IH}	either input	3			V
Input L-level	V _{IL}	either input			2	V
Input leakage current		IDL	either input			0,01 +1 µA
Digit select time	t _{SA}	see	1			µs
Data set time	t _{DS}	Input-	500			ns
Data hold time	t _{DH}	timing-	200			ns
Inter digit select	t _{IDS}	diagram	2			µs
Chip select	t	one chip select				
pulse width		or both	200			
Data setup time	t _{ds}		100			ns
Data hold time	t _{dh}		10	0		ns

BLOCK DIAGRAM EA 3100-M



BLOCK DIAGRAM EA 3100-P

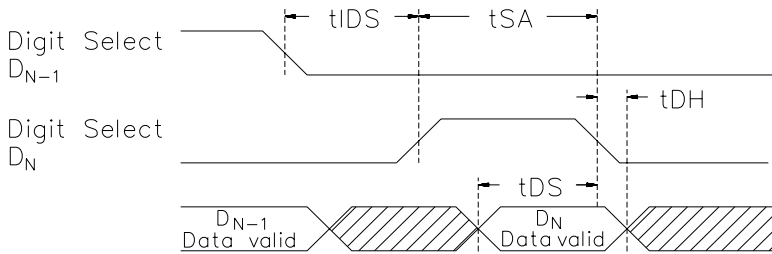


ELECTRONIC ASSEMBLY

MODULE DESCRIPTION EA 3100 WITH BCD-MUX INPUT (VERSION -M)

The information from the data inputs B0-B3 is written into the transparent output latch when the digit strobes D1-D4 are high. As long as a digit strobe is high the actual value is displayed. The binary coded data at the data inputs are stored with the negative-going edge of the digit strobe and displayed until either a new value is written into the output latches or the supply voltage is switched off.

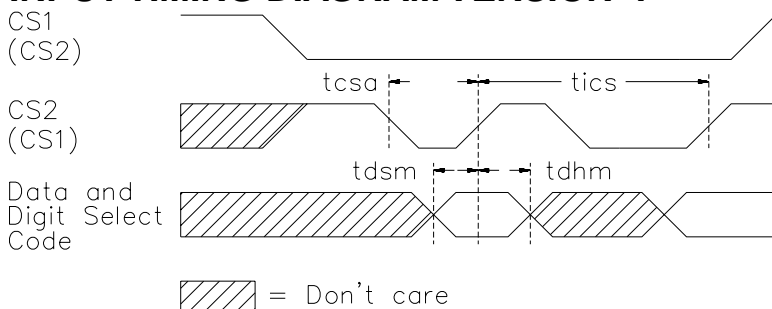
INPUT TIMING DIAGRAM VERSION -M



MODULE DESCRIPTION EA 3100 WITH MICROPROCESSOR INPUT (VERSION -P)

The module allows direct memory-mapped usage in microprocessor applications (with or without additional address decoding). The display is selected as long as both chip select inputs are low. On the rising edge of either chip select input, the contents of the input latches is stored in the output latches of the digit according to the digit select code (see timing diagram and table).

INPUT TIMING DIAGRAM VERSION -P



= Don't care

Chip select

CS1	CS2	Function
L	L	sets input latches
L	H	sets output latches
H	L	sets output latches
H	H	disables inp. latches

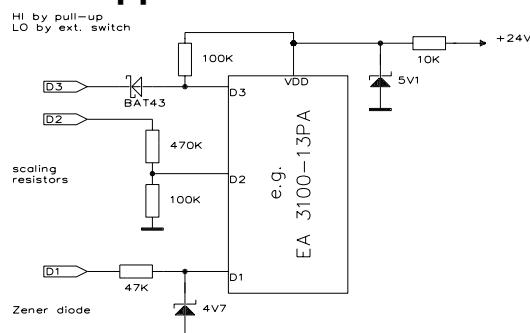
Digit select

DS1	DS2	Digit
L	L	D1
L	H	D2
H	L	D3
H	H	D4

7-SEGMENT CODE

Binary input				version -A	version -B
B3	B2	B1	B0	Hexadecimal	code -B
0	0	0	0	0	0
0	0	0	1	1	1
0	0	1	0	2	2
0	0	1	1	3	3
0	1	0	0	4	4
0	1	0	1	5	5
0	1	1	0	6	6
0	1	1	1	7	7
1	0	0	0	8	8
1	0	0	1	9	9
1	0	1	0	A	-
1	0	1	1	b	E
1	1	0	0	c	H
1	1	0	1	d	L
1	1	1	0	e	P
1	1	1	1	f	(Blank)

24V Applications



For use in 24V applications, there are 3 possibilities to ensure that the input voltage at any input pin does not exceed the maximum value. These possibilities (Zener diode stabilization, scaling resistors, Schottky diode and pull-up) are shown in the figure above.

EA 3100

PIN DESCRIPTION

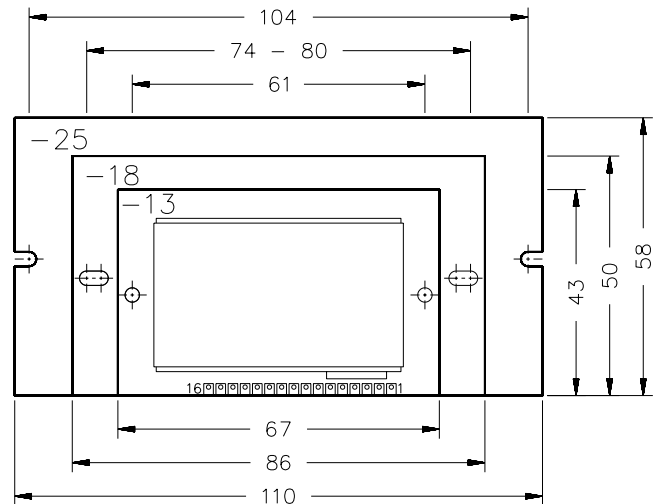
Pin	Symbol	Function
1	VDD	positive supply voltage
2	VSS	negative supply voltage
3	DP3	L = DP3 off; H = DP3 on (intern. pull-down)
4	DP4	L = DP4 off; H = DP4 on (intern. pull-down)
5	COL	L = Colon off; H = Colon on (intern. pull-down)
6	DP1	L = DP1 off; H = DP1 on (intern. pull-down)
7	VDD	internally connected with pin 1
8	D3 [CS1*]	digit strobe 3 (H-active), [chip select 1, L-active]
9	D4 [CS2*]	digit strobe 4 (H-active), [chip select 2, L-active]
10	D2 [DS2*]	digit strobe 2 (H-active), [digit select 2]
11	D1 [DS1*]	digit strobe 1 (H-active), [digit select 1]
12	B2	BCD input, value 2 ²
13	B1	BCD input, value 2 ¹
14	B0	BCD input, value 2 ⁰
15	NC	do not connect
16	B3	BCD input, value 2 ³

* [EA 3100-xxPx]

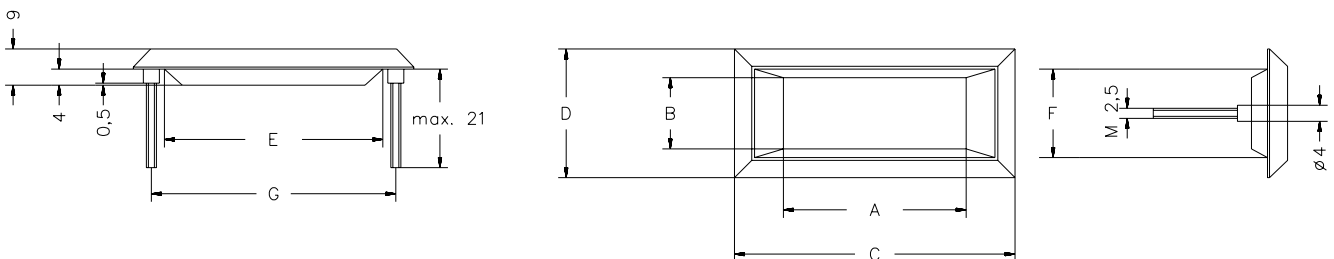


MODULE DIMENSIONS

EA 3100-13, -18, -25.
Dimensions EA 3100-50:
188 x 89 x 15 mm



MOUNTING BEZELS: (dimensions in mm) Mount. bezel EA 050-N with 4 screw pins M 2,5



Type	Window A x B	Overall Dim. C x D	Panel Cutout E x F	Mounting Hole G / Ø	Suitable for Module
EA 03	45,7 x 17,7	70,0 x 32,0	54,5 x 22,0	61 / M2,5	EA 3100-13
EA 08-N	62,2 x 22,6	87,0 x 36,6	74,0 x 28,8	80 / M2,5	EA 3100-18
EA 011-N	86,0 x 30,3	110,8 x 44,3	99,0 x 36,5	104 / M2,5	EA 3100-25
EA 050-N	160,0 x 56,0	189,0 x 73,0	173,2 x 63,0	180,3 x 61,0	EA 3100-50