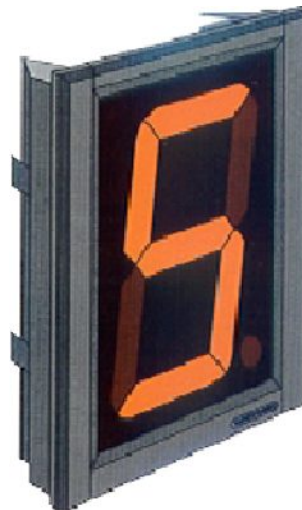


Features

- LED 7-segment-digit display
- Digit height 38/60/100 mm
- Reading distance up to 40 m
- Digit color red/yellow/green/blue/red-green
- Reading angle +/- 75°
- Integrated in a black plastic case
- Lateral closure shield available
- Type ZA:
 - SPS-compatible
 - data input in BCD-code
 - parallel- and multiplex operation possible
 - controll input for display test and fading out of all leading zero
 - possibility to line up any different display sizes
- Type ZS:
 - serial interface RS422
 - possibility to line up to 250 digits
 - simple data telegram



Application examples

- Displays for stations
- Displays for airports
- Call-up displays
- Displays for the stock
- Quantity
- Productivity
- Weight
- Temperature
- Running meters
- Speed
- Mounting instructions
- Displays for the fork lift truck
- Displays for fault signals
- Displays for the maintenance

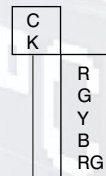
Advantage

- Maintenance free through total electrical design
- No additional driver electronic necessary
- Directly controlable from electrical devices
- Whole decode- and driver electronic integrated
- Contrasty and light intensive display
- High and even light intensity
- Very good readability also at greater distances
- Extremely wide reading angle of +/- 75° through the light-bar technology
- Practice oriented design in progressive technology
- Measures for the montage of the front panel according to DIN 43700
- Additional frame for the front panel is not necessary

Technical data

Order key

Controlling		BCD	ZA
		serial	ZS
Digit height	h in mm	38 mm	0 3 8
		60 mm	0 6 0
		100 mm	1 0 0
Reading distance	s in m	if 38 mm digit height: 12 m	
		if 60 mm digit height: 25 m	
		if 100 mm digit height: 40 m	
Reading angle	in degree	+/- 75	
Operation voltage	Vcc in V	24 (21...30)	
Plug connector		crimp connection	
		clip connection	
Digit colour	one-coloured	red	
		green	
		yellow	
		blue	
	two-coloured	red-green	
Data indicator type ZA	U _{High} in V	11...30	
	U _{Low} in V	0...4	
Input resistance type ZA	R _i in k	10	
Critical frequency if multiplex operation	fg in kHz	5	
Interface-parameter type ZS	baud rate	9600	
	data bit	8	
	parity	none	
	stop bit	1	
Segment power	I _{Segm.} in mA	20	
Temperature area	T _u in °C	0...+50	

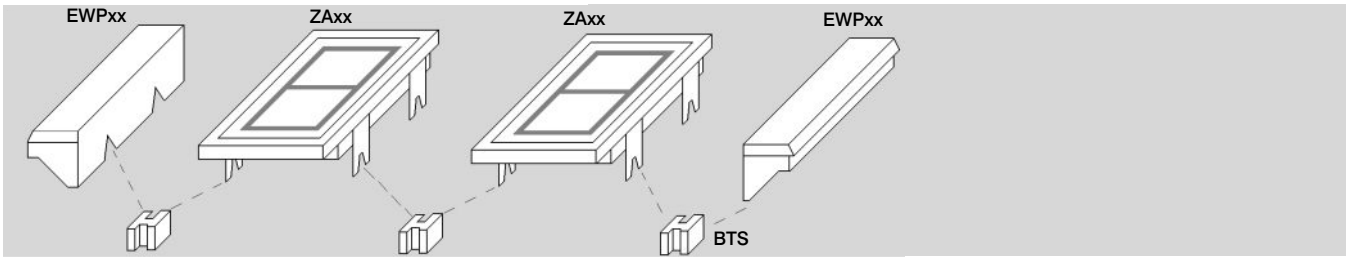


Your order number:

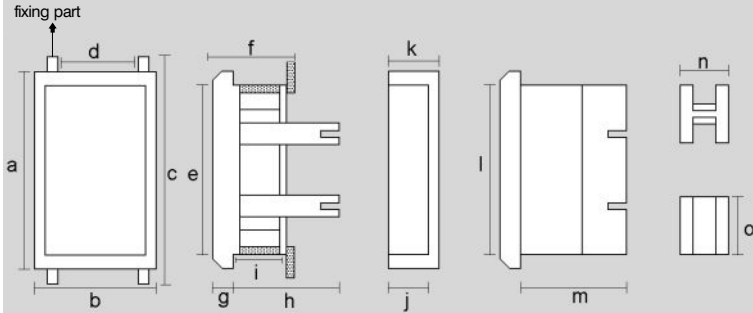
Plugs and mounting parts (BTS) are included in the delivery.
The finish-angle-pair (EWPxx) has to be ordered seperatly!

DISPLAY MODULES - TYPE ZA

Construction



Dimensions



size	ZA38	ZA60	ZA100
a	77 mm	96 mm	144 mm
b	40 mm	57 mm	94 mm
c	96 mm	105 mm	158 mm
d	25 mm	26 mm	65 mm
e	73 mm	91 mm	138 mm
f	23 mm	22 mm	25 mm
g	3 mm	4 mm	5 mm
h	28 mm	31 mm	30 mm
i	14 mm	13 mm	15 mm
j	4 mm	11 mm	13 mm
k	6 mm	13 mm	15 mm
l	73 mm	91 mm	138 mm
m	28 mm	31 mm	30 mm
n	8 mm	8 mm	8 mm
o	11 mm	11 mm	11 mm

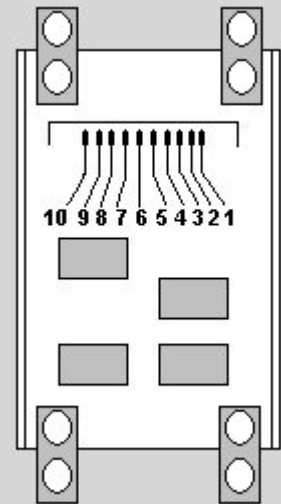
Truth table

input							output
LE	BI	LT	2 ³	2 ²	2 ¹	2 ⁰	display
X	X	0	X	X	X	X	8
X	0	1	X	X	X	X	none
0	1	1	0	0	0	0	0
0	1	1	0	0	0	1	1
0	1	1	0	0	1	0	2
0	1	1	0	0	1	1	3
0	1	1	0	1	0	0	4
0	1	1	0	1	0	1	5
0	1	1	0	1	1	0	6
0	1	1	0	1	1	1	7
0	1	1	1	0	0	0	8
0	1	1	1	0	0	1	9
0	1	1	1	0	1	0	none
0	1	1	1	0	1	1	none
0	1	1	1	1	0	0	none
0	1	1	1	1	0	1	none
0	1	1	1	1	1	0	none
0	1	1	1	1	1	1	none
1	1	1	1	X	X	X	*

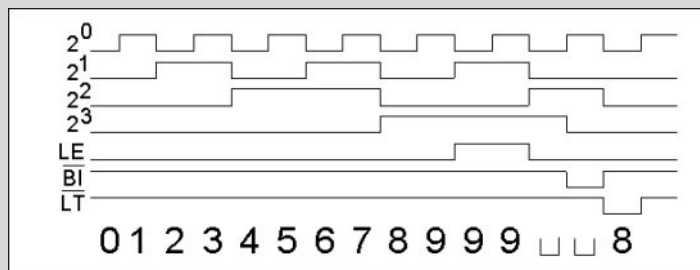
*Display depends on the data, which are fitting closely while increasing flank of LE!

Pin assignments

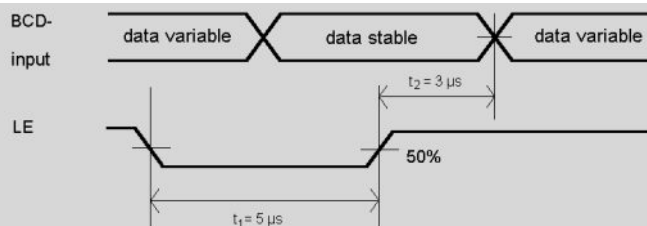
pin	assignment	meaning
1	GND	0V
2	DP	decimal point
3	Data 2 ⁰	BCD-data
4	Data 2 ³	BCD-data
5	LE	storage release
6	BI	fading out of leading zeros
7	LT	segment test
8	Data 2 ²	BCD-data
9	Data 2 ¹	BCD-data
10	Vcc	24V



Interfacing

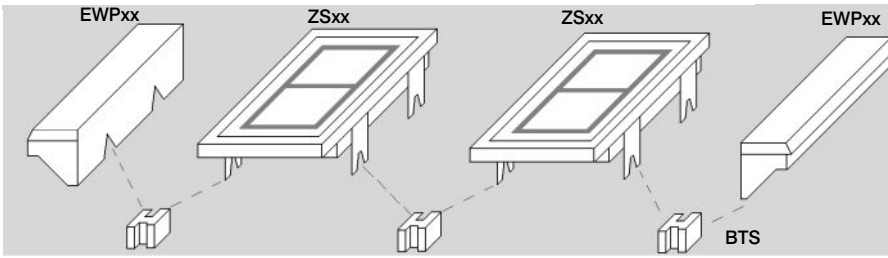


Impuls diagram if multiplex operation

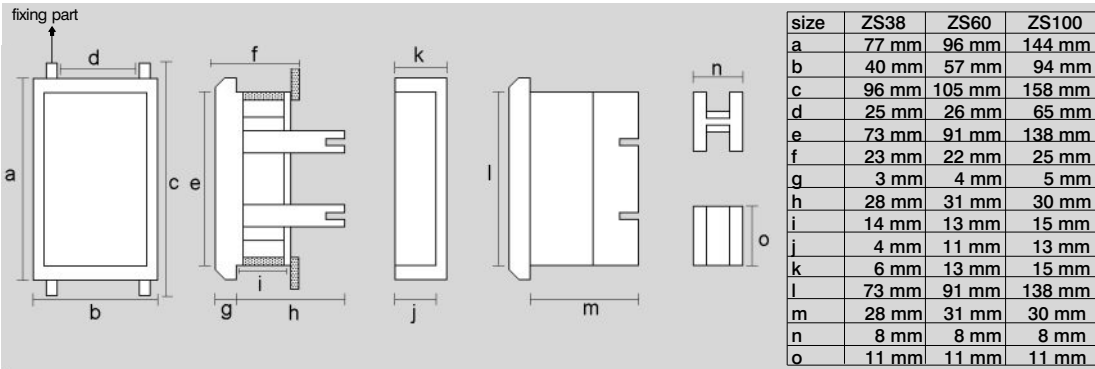


DISPLAY MODULES - TYPE ZS

Construction



Dimensions



Representable signs

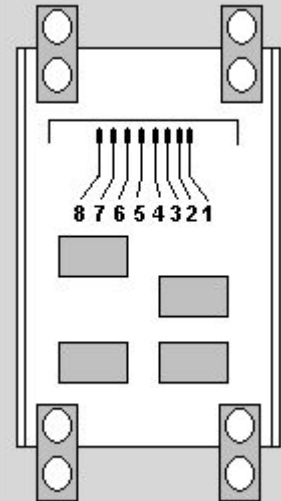
sign	red	green	yellow
space	20 hex	60 hex	E0 hex
"	21 hex	61 hex	E1 hex
"	22 hex	62 hex	E2 hex
H	23 hex	63 hex	E3 hex
I	24 hex	64 hex	E4 hex
J	25 hex	65 hex	E5 hex
L	26 hex	66 hex	E6 hex
n	27 hex	67 hex	E7 hex
o	28 hex	68 hex	E8 hex
P	29 hex	69 hex	E9 hex
r	2A hex	6A hex	EA hex
U	2B hex	6B hex	EB hex
=	2C hex	6C hex	EC hex
-	2D hex	6D hex	ED hex
. *	2E hex	2E hex	2E hex
0	30 hex	70 hex	F0 hex
1	31 hex	71 hex	F1 hex
2	32 hex	72 hex	F2 hex
3	33 hex	73 hex	F3 hex
4	34 hex	74 hex	F4 hex
5	35 hex	75 hex	F5 hex
6	36 hex	76 hex	F6 hex
7	37 hex	77 hex	F7 hex
8	38 hex	78 hex	F8 hex
9	39 hex	79 hex	F9 hex
A	3A hex	7A hex	FA hex
b	3B hex	7B hex	FB hex
C	3C hex	7C hex	FC hex
d	3D hex	7D hex	FD hex
E	3E hex	7E hex	FE hex
F	3F hex	7F hex	FF hex

* decimal point:
note:

- The decimal point has no colour informations. He will be represented in the same colour like the previous sign.
- If the decimal point is the first sign, it will be changed in "Space"

Pin assignment

pin	assignment	meaning
1	RxD + (RS422)	receiver A
2	RxD - (RS422)	receiver B
3	TxD + (RS422)	transmitter A
4	TxD - (RS422)	transmitter B
5	Vcc	24V
6	GND	0V
7	Vcc	24V
8	GND	0V



Data telegram

data telegram:

start sign / number of digits / data 1 ... data n / stop sign

start sign:	"STX"	=	02hex
number of digits:	1 to 250	=	06hex to FFhex (number of digits + 05hex)
data:	" " to "F"	=	20hex to 3Fhex (red, see "representable signs")
	" " to "F"	=	60hex to 7Fhex (green, see "representable signs")
	" " to "F"	=	E0hex to FFhex (yellow, see "representable signs")
stop sign:	"ETX"	=	03hex

answer telegram:

start sign / <05hex> / stop sign

Example of a 5-digit display
The value "A2-3.4" should be represented in the digit colour red.

data input	meaning
02hex	start sign
0Ahex	number of digits ("5") + 05hex
3Ahex	data digit 1 ("A")
32hex	data digit 2 ("2")
2Dhex	data digit 3 (".")
33hex	data digit 4 ("3")
2Ehex	decimal point
34hex	data digit 5 ("4")
03hex	stop sign