

CODISPLAY: BCD PARALLEL

ART. No. 190001

DIP SELECTABLE AS EITHER 4 OR 6 DISPLAYED LED DIGITS

14MM 7-SEGMENT LEDs

RED CONTRAST FILTER

BCD INTERFACE (PARALLEL)

PANEL MOUNTING

IP65F DEGREE OF PROTECTION



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1. DIP SWITCH SETTINGS:

SW1: FUNCTIONAL DIP SWITCH

SW1-1, SW1-2 , SW1-3
LED brightness control.

Brightness		SW1 -1	SW1-2	SW1-3
2 %	lowest	OFF	OFF	OFF
10 %		ON	OFF	OFF
15 %		OFF	ON	OFF
25 %		ON	ON	OFF
35%		OFF	OFF	ON
50 %		ON	OFF	ON
75 %		ON	ON	OFF
98%	highest	ON	ON	ON

Table 1

SW1-4 (Not Used)

SW1-5

4 or 6 displayed LED digits.

ON: 4 displayed digits

OFF: 6 displayed digits.

SW1-6

Display initial setting

ON: All digits display **0** after power up.

OFF: Blank display after power up.

Note: The DIP Switch settings must only be changed when the power to the device is turned off. The DIP Switch settings come into effect on power up.

2. INDICATOR NUMBERING

The following figure shows the numbering of indicators from left to right.

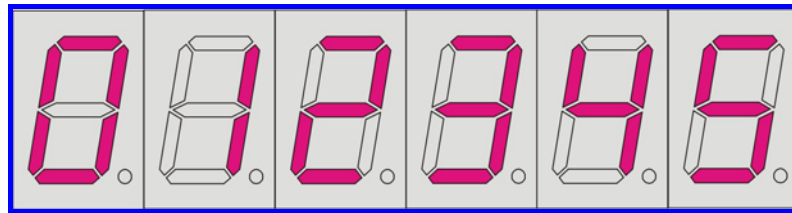


Figure 1

3. PARAMETRIC BYTE

The data at the input are displayed in decimal format. This requires the **CS** signal (Chip Select) to be activated. As soon as the data and the address signals are stable, the read and display cycle is triggered by the rising edge of the **RS** (Register Select) signal. Refer to figure below.

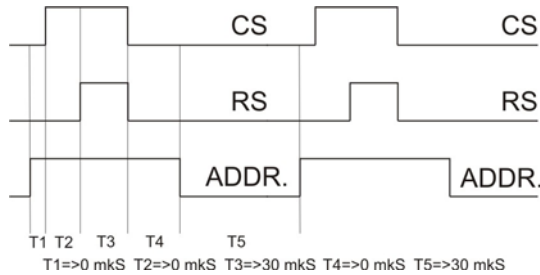


Figure 2

The Parametric Byte contains the information about the decimal point, the address and data . Figure 3 shows the structure of the Parametric Byte.

Dp	Address				Data		
7	6	5	4	3	2	1	0
Upper nibble					Lower nibble		

Figure 3

DECIMAL POINT: The decimal point is set with bit 3 of the upper nibble of the Parametric Byte.

ADDRESS RANGE: This is dependant on the mode selected with DIP Switch (SW1-5) for 4 or 6 displayed digits and is contained in the Bits 0, 1 and 2 of the upper nibble of the Parametric Byte. The address can be in the range from 0hex (1st indicator on left) to 5hex (last indicator on the right) for 6 displayed digits. In the 4 digit mode the address range is from 0hex (indicator 1) to 3hex (indicator 4).

Address Codes:

Upper nibble of parametric Byte for displaying character **without** decimal point

Indicator (6) (SW1-5 set to OFF)	0	1	2	3	4	5
Indicator (4) (SW1-5 set to ON)	1	2	3	4		
Address bit 0	0	1	0	1	0	1
Address bit 1	0	0	1	1	0	0
Address bit 2	0	0	0	0	1	1
Address in Hex.	0h	1h	2h	3h	4h	5h
Hex	0h	1h	2h	3h	4h	5h

Table 2a

Upper nibble of parametric Byte for displaying character **with** decimal point

Indicator (6) (SW1-5 set to OFF)	0	1	2	3	4	5
Indicator (4) (SW1-5 set to ON)	1	2	3	4		
Address bit 0	0	1	0	1	0	1
Address bit 1	0	0	1	1	0	0
Address bit 2	0	0	0	0	1	1
Address in Hex.	8h	9h	Ah	Bh	Ch	Dh

Table 2b

DATA: The data can be in range from 0hex to Fhex and occupies the lower nibble of Parametric Byte. Figure 4 shows all combinations from 0hex to Fhex.

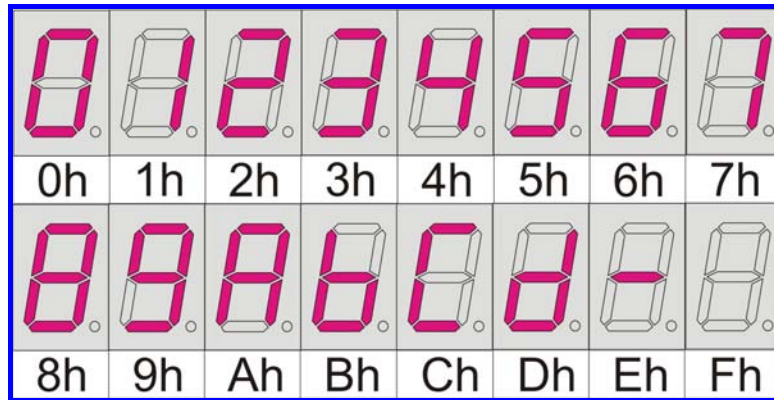


Figure 4

Data Bit Codes:

Data bit 0	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
Data bit 1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
Data bit 2	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
Data bit 3	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1
Hex.	0h	1h	2h	3h	4h	5h	6h	7h	8h	9h	Ah	Bh	Ch	Dh	Eh	Fh

Table 3

Character displayed:

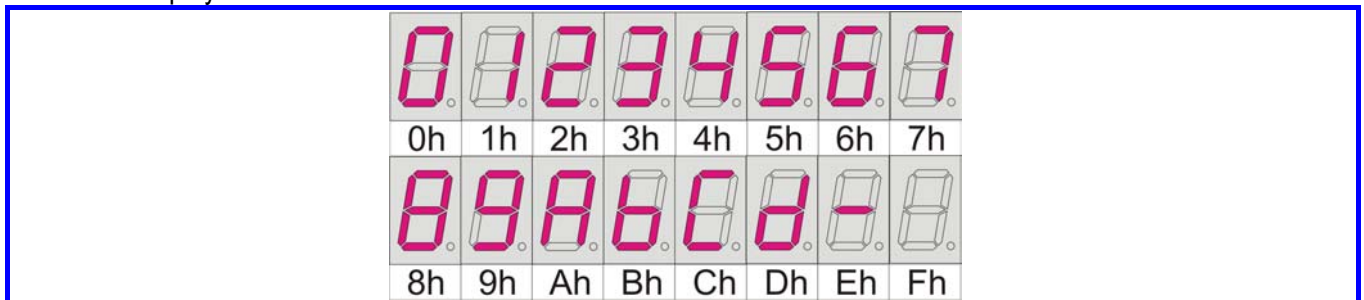


Figure 5

DATA AND COMMAND SEQUENCE:

Each digit has to be set separately with the following sequence:

- Apply signals Data at the inputs D0 to D3, the address at AD0 to AD2 and the decimal point at AD3.
 - Hold signals D and AD stable and apply the control signals CS and RS as described in figure 2.
- Repeat this sequence for each digit.

EXAMPLE 1:

Display “1234.56” in 6 digit mode:

- Turn power off, set SW1-5 to OFF, set SW1-6 to OFF, turn power on.
 - Apply sequence: 01 “%” 12 “%” 23 “%” B4 “%” 45 “%” 56 “%” at the inputs.
- “%” = apply control signals CS and RS as described in figure 2.

For details see table 4

Signal	Control			DP	Address				Data				Hex				
	RS	CS	R/W	AD3	AD2	AD1	AD0	D3	D2	D1	D0						
Terminal No	12	11	10	9	8	7	6	5	4	3	2						
Step																	
1	0	0	0	0	0	0	0	0	0	0	1	01					
2	“%”	“%”	0	stable state								1					
3	0	0	0	0	0	0	1	0	0	1	0	12					
4	“%”	“%”	0	stable state								1	2				
5	0	0	0	0	0	1	0	0	0	1	1	23					
6	“%”	“%”	0	stable state								1	2	3			
7	0	0	0	1	0	1	1	0	1	0	0	B4					
8	“%”	“%”	0	stable state								1	2	3	4.		
9	0	0	0	0	1	0	0	0	1	0	1	45					
10	“%”	“%”	0	stable state								1	2	3	4.	5	
11	0	0	0	0	1	1	0	0	1	1	0	56					
12	“%”	“%”	0	stable state								1	2	3	4.	5	6

0 = signal of <8 VDC

1 = signal of >12 VDC

“%” = apply control signals CS and RS as described in figure 2

Table 4

EXAMPLE 2:

Change Display “1234.56” to “123.-- “ in 6 digit mode:

- Apply sequence: A5 “%” 3E “%” 4E “%” 5F “%” at the inputs.

EXAMPLE 3:

Display “C1.09” in 4 digit mode:

- Turn power off, set SW1-5 to ON, set SW1-6 to OFF, turn power on.
- Apply sequence: 0C “%” 91 “%” 20 “%” 39 “%” at the inputs.

4. SIGNAL INPUTS

Terminal	Symbol	Description	Signal
1	GND	Signal Earth	0 VDC
2	D0	data bit 0	24 VDC
3	D1	data bit 1	24 VDC
4	D2	data bit 2	24 VDC
5	D3	data bit 3	24 VDC
6	AD0	address bit 0	24 VDC
7	AD1	address bit 1	24 VDC
8	AD2	address bit 2	24 VDC
9	AD3	decimal point	24 VDC
10	R/W	Read/write signal	24 VDC
11	CS	Chip select signal	24 VDC
12	RS	Register select signal	24 VDC

Table 5

NOTE: The presentation of a signal >12 VDC on any of the signal terminals is converted to a binary 1 (ON), signals of <8 VDC are converted to binary 0 (OFF)

5. POWER SUPPLY

The power supply must be in range from 16V up to 30V/1A DC. Codisplay is protected from improper power supply connection.

1= Vin +ve of DC source (square pad) marked on PCB as "+8..24V"

2= GND -ve of DC source (round pad) marked on PCB as "GND"

Power supply consumption Codisplay			
	PWM 0%	PWM 50%	PWM 98%
Voltage 24V	15 mA	38 mA	60 mA

Table 6

Measurements were made with all LED segments and decimal points switched on.

6. INDICATOR TEST

The Indicator test can be performed at any time using jumper **JP3**.

7. CE CONFORMITY AND ROHS COMPLIANCE

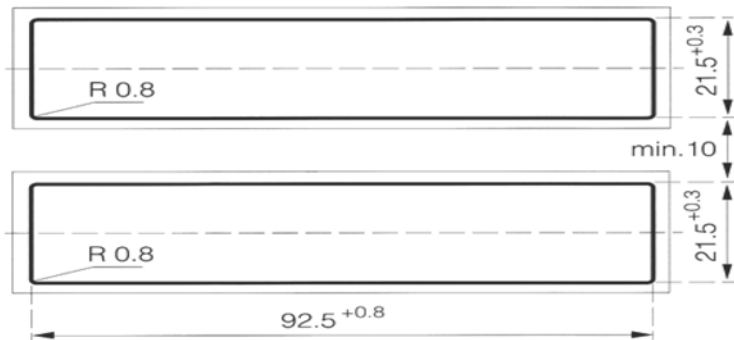
Crameda Intersys AG declares that Codisplay 190001 complies with the requirements for CE conformity. However this can only be maintained by complying with the following installation instructions:

1. The signal cable must not exceed 1 meter.
2. The signal cable must be supplied via a current compensating single-aperture core filter to the Codisplay . Signal lines must be wound with the same alignment (angular) with at least 2 windings on the filter.

All PCB boards, components and solder paste are manufactured with leadless technology and meet the requirements for RoHS Environment friendly fabrication.

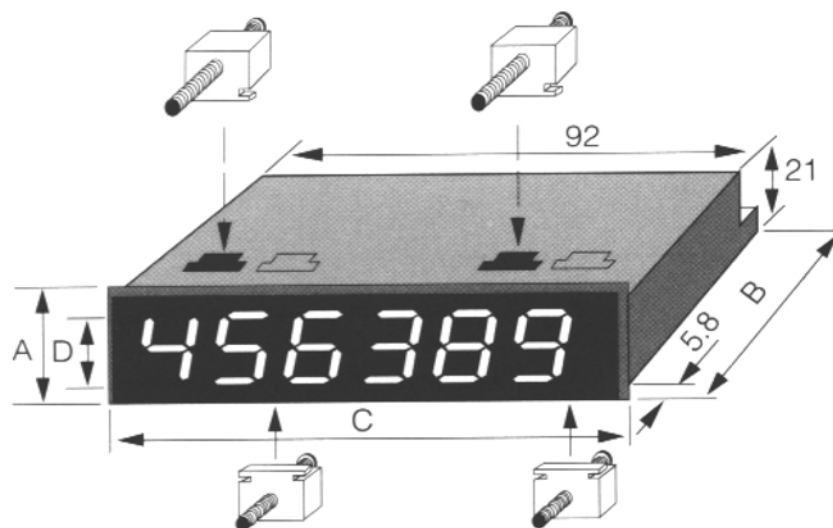
8. PANEL MOUNTING

PANEL CUTOUT:



Millimetres	Inches
92.5	3.642
21.5	0.846

DIMENSIONS:



Dimension	Description	Millimetres	Inches
A	Height	24	0.945
B	Depth	108	4.252
C	Width	96	3.780
D	LED	14	0.551

Weight approx. 130 grams