# The Codisplay 190001A was redesigned. The new Codisplays are 190001 and 190001B. They differ in the character sets, see below.

## Content



## 1 General

Remark: In this document, "190001(B)" means both types of the new Codisplay, 190001 and 190001B.
- Product #: 190001 with the character set "0123456789AbCd– "
- Product #: 190001B with the character set "0123456789–EHLP "

The Codisplays 190001 and 190001B was designed to replace the Codisplay 190001A in most applications with BCD coding. In Terms of outer dimensions and electronic packaging, old and new Codisplays are fully identical. In terms of functional scope and electronics, there are some differences. The information below shows:
- how to check whether the Codisplay 190001A can be replaced by Codisplay 190001(B)
- what needs to be done to replace an old Codisplay 190001A with the new types 190001(B)
- information re differences in the functions and the hardware.

For details please refer to the data sheets.
- Codisplay 190001A: "Codisplay-D-061122.pdf"
- Codisplay 190001: "CD-190001-DS-E.pdf"
- Codisplay 190001B: "CD-190001B-DS-E.pdf"

**Codisplay 190001A**


**Codisplay 190001(B)**


**Figure 1 Location of DIP switches and terminals**

## 2 Can my Codisplay 190001A application be migrated to Codisplay 190001(B) ?

### 2.1 Checks

Your answers to the following questions show whether the key features used until now will also be performed by the new device.

#### 2.1.1 Used data mode

Check whether switch SW1/1 of the old device is set to "OFF". If not, the Codisplay is used in binary mode and cannot be replaced.

#### 2.1.2 Character set

Check whether the characters -, E, H, L, P are displayed. In case you require these characters for your application use Codisplay type 190001B.

#### 2.1.3 Control signals

Check whether switch SW1/3 of the old device is set to "OFF". If not, the data flow is triggered by the falling edge of the strobe signal and the Codisplay cannot be replaced 1:1.
Please contact Crameda for support.

#### 2.1.4 Leading zeros

Check whether switch SW1/6 of the old device is set to "OFF". If not, the leading zeros will not be displayed. The new Codisplay will show leading zeros and may not be used for a 1:1 replacement.
Please contact Crameda for support.

#### 2.1.5 Control sequence

Check whether the duration of the strobe signal is at least 30 µs. If not, the data transfer into the new Codisplay may not work correct. A 1:1 replacement might not be possible. For details see chapter 4.2 and the data sheets 190001(B), chapter 3 and figure 2.
Please contact Crameda for support.

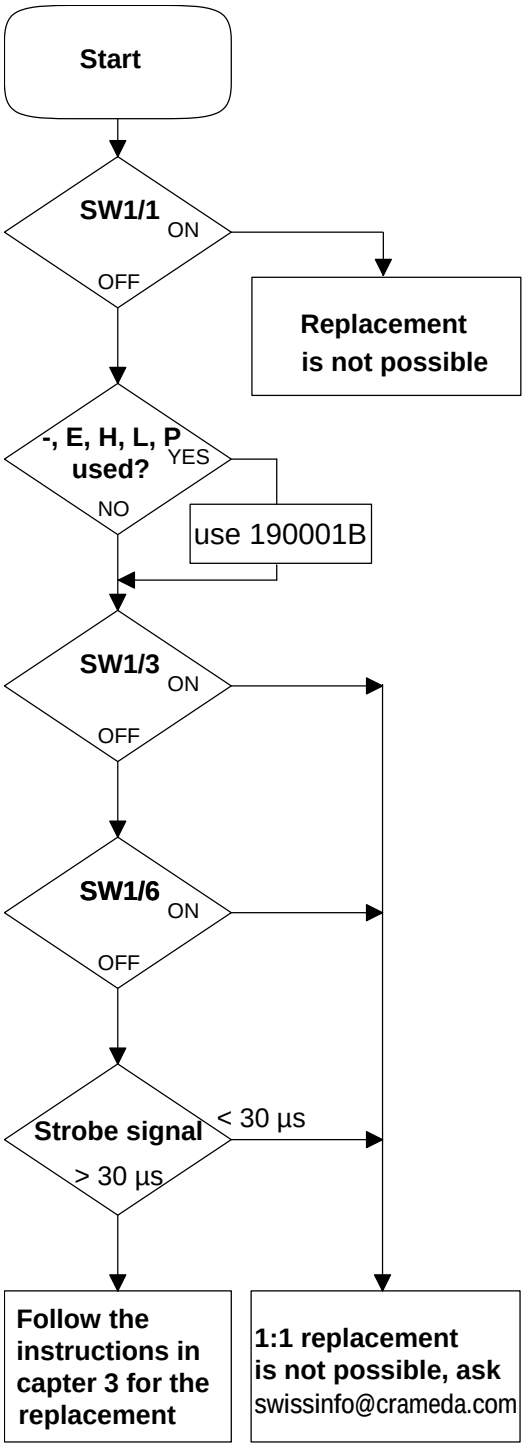



**Figure 2** Flow cart for checking the replacement

### 2.2 Replacement and further information

If due to the checks carried out, a 1:1 replacement **is possible**, follow the instruction in chapter 3.

If due to the checks carried out, a 1:1 replacement **is not possible**, the operation may still be enabled by using simple measures. Please contact Crameda for support. E-Mail: swissinfo@crameda.com.

# 3 Instruction for technical migration

## 3.1 Selection of the corresponding type

Use the Codisplay type with the character set you need for your application:

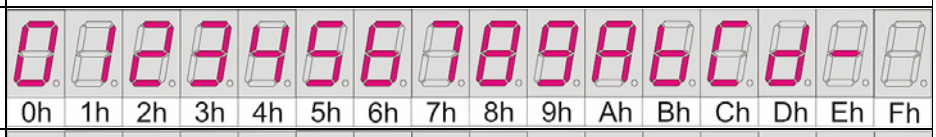
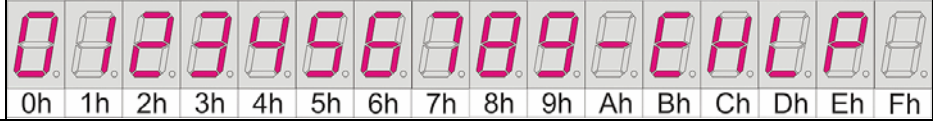
| Product # | Character set |
|---|---|
| **190001** |  |
| **190001B** |  |

**Figure 3 Character sets of Codisplay**

## 3.2 DIP switch settings

The setting of DIP switches of Codisplay 190001(B) is different to 190001A. Use the table 1 below for the
setting of the DIP switches on new Codisplay. For details see data sheet 190001(B), chapter 1.

| | **Codisplay 190001A** discontinued late 2010 | | | **Codisplay 190001(B)** introduced 2011 and 2012 | |
|---|---|---|---|---|---|
| **DIP Switch** | **Switch is set to** | **Function** | **Remark** | **Set switch to** | **Function** See chapter 1 in data sheet 190001(B) |
| **SW1/1** | OFF | Coding of data BCD | | desired brightness | ON, OFF, ON (50 % Brightness)<br>ON, ON, ON (98 % Brightness)<br>See table 1 in data sheet 190001(B) |
| | ON | Coding of data Binary | not supported | | |
| **SW1/2** | - - - | not used | | | |
| **SW1/3** | OFF | pos. control | | | |
| | ON | neg. control | not supported | | |
| **SW1/4** | OFF | binary | not supported | **ON** | OFF: Data Entry mode: left to right |
| | ON | on two complement | not supported | | ON: Data Entry mode: right to left |
| **SW1/5** | OFF | 6 digits | | same setting as 190001A | OFF: 6 digits |
| | ON | 4 digits | | | ON: 4 digits |
| **SW1/6** | OFF | Display setting: with leading zeros | | desired display after power up | OFF: Display is blank after power up |
| | ON | Display setting: without leading zeros | not supported see 3) in 4.1 | | ON: Display shows 000000 after power up |

**Table 1 DIP switch setting**

green: Function fully supported by Codisplay 190001(B)

blue: New Function of Codisplay 190001(B)

red: Function not supported by Codisplay 190001(B)

### 3.3 Terminal connections

The terminal connections of Codisplay 190001(B) differ from 190001A. Use the checklist below to rewire the new Codisplay.

| **Codisplay 190001A in BCD-Mode** | | **Codisplay 190001(B)** See table 5 in data sheet 190001(B) | |
|---|---|---|---|
| **Terminal** | **Function** | **Terminal** | **Function** |
| | | X3 / 10 | R/W (not used) |
| | | X3 / 1 | Signal GND |
| | | | |
| X1 / 13 | Data D | X3 / 5 | D3 Data bit 3 |
| X1 / 12 | Data C | X3 / 4 | D2 Data bit 2 |
| X1 / 11 | Data B | X3 / 3 | D1 Data bit 1 |
| X1 / 10 | Data A | X3 / 2 | D0 Data bit 0 |
| X1 / 9 | Decimal Point DP | X3 / 9 | DP Decimal point |
| X1 / 8 | Address A2 | X3 / 8 | AD2 Address bit 2 |
| X1 / 7 | Address A1 | X3 / 7 | AD1 Address bit 1 |
| X1 / 6 | Address A0 | X3 / 6 | AD0 Address bit 0 |
| X1 / 5 | Strobe | X3 / 12 | RS Register select signal 1) |
| | | X3 / 11 | CS Chip select signal 1) |
| X1 / 4 | CS | -- | -- |
| | | | |
| X1 / 3 | Lamp Test LT 2) | JP3 | Indicator Test 3) |
| | | | |
| X1 / 2 | VCC | X1 / 1 | VCC (typical 15 – 24V) |
| X1 / 1 | GND | X1 / 2 | GND |

**Table 2 Terminal assignments, listed by function** (Crosscomparison)

1) Codisplay 190001(B) For the function "Strobe" connect RS and CS together

2) Codisplay 190001A For Lamp Test connect log "1" ($U \geq 18$ V) to X1/3
3) Codisplay 190001(B) For Lamp Test connect JP3/1 and JP3/2 together

## 4 Comparison of Codisplay 190001A and Codisplay 190001(B)

The following tables and figures provide additional information re differences in function and hardware of Codisplay 190001A and Codisplay 190001(B).

### 4.1 Functions

| Function | Codisplay 190001A<br>discontinued by the end of 2010 | Codisplay 190001(B)<br>available since 2011 and 2012 | Remark |
|---|---|---|---|
| Dimensions panel cut out and mounting dept | 92.5 x 21.5 x 108 mm | 92.5 x 21.5 x 108 mm | |
| | | | |
| Supply voltage | 18 – 30 VDC | 8 – 30 VDC, typical 15 – 24V | |
| Supply current | 150 mADC @ 24 VDC | 15 – 65 mADC @ 24 VDC | |
| Signal Input Logic 0 level | <3 VDC, typical <5 VDC | <8 VDC | |
| Signal Input Logic 1 level | ≥18 VDC, typical >9 VDC | >12 VDC | |
| | | | |
| Data coding | BCD | BCD | Function set by SW1/1 |
| | Binary | not supported | |
| Character set 0 - 9 | 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 | 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 | |
| Character set A - F | -, E, H, L, P, blank | -, E, H, L, P, blank | 190001B 3) |
| | | A, b, C, d, -, blank | 190001 3) |
| | | | |
| Control sequence | See figure 4 | See figure 4<br>See figure 2 in data sheet 190001(B) | |
| | | | |
| Terminal assignments | See tables 2 and 4 | See tables 2 and 4<br>See table 5 in data sheet 190001(B) | |
| **DIP switch settings** | | | |
| SW1/1 | Coding of data BCD/Binary | Brightness control in 8 steps<br>See table 1 in data sheet 190001(B) | |
| SW1/2 | not used | | |
| SW1/3 | pos./neg. control | | |
| SW1/4 | binary / on two complement | Data Entry mode:<br>left to right / right to left | |
| SW1/5 | 6 / 4 digits | 6 / 4 digits | |
| SW1/6 | Display setting:<br>with /without leading zeros | Display initial setting:<br>blank/000000 after power up | 4) |

**Table 3 Overview of functions**

green: Function fully supported by Codisplay 190001(B)

grey: Function different in Codisplay 190001(B)

blue: New Function of Codisplay 190001(B)

red: Function not supported by Codisplay 190001(B)

3) See figure 3 in chapter 3.1 and figure 4 and table 3 in data sheet 190001(B)

4) Blank digits have to be set by data "1111" / Hex "F".

## 4.2 Control signals

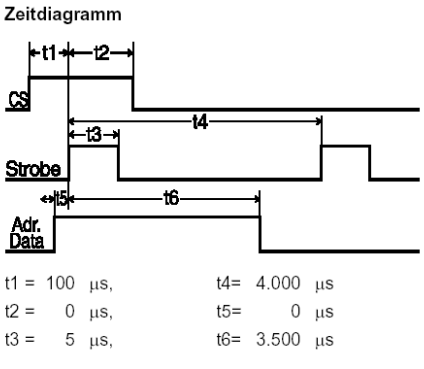
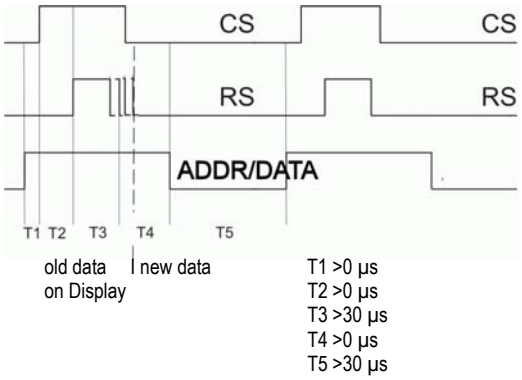
| | Codisplay 190001A | Codisplay 190001(B)<br>See chapter 3 and figure 2 in data sheet 190001(B) |
|---|---|---|
| |  |  |
| essential differences | t1 = 100 µs | T2 ≥ 0 µs |
| | t2 = 0 µs, t3 = 5 µs | T3 ≥ 30 µs |

**Figure 4 Control signals**

Examples of control signals sequences see chapter A.

## 4.3 Terminal assignments

| Codisplay 190001A | |
|---|---|
| **Terminal** | **Function** |
| X1 / 13 | Data D |
| X1 / 12 | Data C |
| X1 / 11 | Data B |
| X1 / 10 | Data A |
| X1 / 9 | Decimal point DP |
| X1 / 8 | Address A2 |
| X1 / 7 | Address A1 |
| X1 / 6 | Address A0 |
| X1 / 5 | Strobe |
| X1 / 4 | CS |
| X1 / 3 | Lamp Test LT 1) |
| X1 / 2 | VCC |
| X1 / 1 | GND |

| Codisplay 190001(B)<br>See table 5 in data sheet 190001(B) | | |
|---|---|---|
| **Terminal** | **Function** | |
| | | |
| X3 / 12 | RS | Register select signal |
| X3 / 11 | CS | Chip select signal |
| X3 / 10 | R/W | (not used) |
| X3 / 9 | DP | Decimal point |
| X3 / 8 | AD2 | Address bit 2 |
| X3 / 7 | AD1 | Address bit 1 |
| X3 / 6 | AD0 | Address bit 0 |
| X3 / 5 | D3 | Data bit 3 |
| X3 / 4 | D2 | Data bit 2 |
| X3 / 3 | D1 | Data bit 1 |
| X3 / 2 | D0 | Data bit 0 |
| X3 / 1 | Signal GND | |

| | |
|---|---|
| JP3 / 1 | Signal / Indicator Test 2) |
| JP3 / 2 | GND / Indicator Test |

| | |
|---|---|
| X1 / 2 | GND |
| X1 / 1 | VCC (+8..24V) |

**Table 4 Terminal assignments**

1) Codisplay 190001A For Lamp Test connect log "1" (U ≥ 18 V) to X1/3
2) Codisplay 190001(B) For Lamp Test connect JP3/1 and JP3/2 together

Specifications are subject to change without notice.

## A Examples of control signal sequences

EXAMPLE 1:

Display “1234.56” in 6 digit mode:
- Turn power off, set SW1-1 to SW1-3 to ON, SW1-4 to 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 the figure 4.

For details see table 4

| Signal | Control | | | DP | Address | | | Data | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 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 | | | | | | | | | | | | Hex | | | | | | |
| 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 the figure 4

Table 4

EXAMPLE 2:

Change Display “1234.56” to “123.-- “ in 6 digit mode:
- For CODISPLAY 190001 apply sequence: A3 “%” 3E “%” 4E “%” 5F “%” at the inputs.
- For CODISPLAY 190001B apply sequence: A3 “%” 3A “%” 4A “%” 5F “%” at the inputs.

EXAMPLE 3:

Display “ -1.09 ” in 4 digit mode:
- Turn power off, set SW1-1 to SW1-3 and SW1-5 to ON, SW1-4 and SW1-6 to OFF, turn power on.
- For CODISPLAY 190001 apply sequence: 0E “%” 91 “%” 20 “%” 39 “%” at the inputs.
- For CODISPLAY 190001B apply sequence: 0A “%” 91 “%” 20 “%” 39 “%” at the inputs.