

Display DDU 10



- ▶ Features new user interface menu
- ▶ All new display element design generator
- ▶ 10 additional LEDs on both sides of the device
- ▶ Supports GPS laptrigger, pre-dated lap time etc.
- ▶ Page change based on events possible

The display DDU 10 integrates a programmable full colour dashboard display with a data logging system for motorsport applications. Additional input devices can be connected via Ethernet, CAN buses and RS 232.

Data Analysis Software WinDarab is available free of charge as “WinDarab V7 free” on our website. A basic logging function of 100 channels with recording of 50 ms (4 GB) is always included. The logger can be upgraded to full logging performance (max. 1 ms). In addition, a 2nd logging partition of 4 GB can be activated.

With the DDU 10, a completely new library of graphical elements for the individual design of display pages was implemented and an all-new user interface menu has been developed for the device. A configurable input activates the menu structure and the user can reset for example laptimes, fuel consumption and many more, without having to connect a laptop to the DDU. The user can also install own graphics, pictures etc. on the 12 freely configurable display pages. For quick data transfer from the car, e.g. during pit stop, data copy to a USB stick is available as an option.

Application

| | |
|------------------------------|--|
| Display | <ul style="list-style-type: none"> • 7" graphic color display • 12 user configurable display pages • 20 multicolor freely configurable (RGB) LEDs |
| Resolution | 800 x 480 pixel |
| Supported image file formats | PNG, BMP, JPG, GIF |
| Processor | 667 MHz Dual Core |
| Converters | 10 kHz 12 bit AD converters with digital low pass filter |

| | |
|---------------------------------------|---|
| Internal power source | Li/Ion capacitor |
| Configurable math channels | |
| User configurable CAN in/out messages | Up to 256 IDs (128 in and out) |
| Online data compression | |
| Internal logger | |
| | <ul style="list-style-type: none"> • 4 GB memory (standard) • Plus 4 GB memory (optional) • 100 channels (standard) • Up to 1,500 channels (optional) • 50 ms Sampling rate (standard) • max. 1 ms Sampling rate (optional) |
| Logging rates | |
| | <ul style="list-style-type: none"> • Usage of all features: 600 kB/s • Primary logging use case: 800 kB/s • Logging data download rate: up to 4 MB/s |
| Ambient light sensor | |

Technical Specifications

Mechanical Data

| | |
|--------------------------------|---|
| Size | 198 x 134 x 35 mm |
| Weight | 875 g |
| Protection classification | IP67 |
| Operating temperature internal | -20 to 85°C |
| Max. vibration | Vibration profile 1 (see Appendix or www.bosch-motorsport.com) |

Electrical Data

| | |
|----------------|-----------|
| Supply voltage | 6 to 18 V |
|----------------|-----------|

| | |
|---|---------------|
| Current consumption (without sensor supply) | 2 A (at 12 V) |
|---|---------------|

Inputs

| | |
|-----------------------------|-----------------------------------|
| Analog channels | 4 standard, plus 12 optional |
| Input range | 0 to 5 V |
| Resolution | 12 bit |
| Switchable pull up resistor | For all analog inputs |
| Wheel speed inputs | 4 Hall-effect or DF11, switchable |

Outputs

| | |
|-----------------------------------|---|
| Sensor supply 5 V ± 1 % (250 mA) | 2 |
| Sensor supply 10 V ± 1 % (250 mA) | 1 |
| Sensor supply U_Bat (250 mA) | 1 |
| Sensor ground | 4 |

Environment

| | |
|--|------------------|
| External switch for page selection, 12 steps | B 261 209 658-01 |
| External switch for brightness adjustment or page selection, 6 steps | B 261 209 659-01 |

Connectors and Wires

| | |
|---|-----------------|
| LIFE connector on display AS216-35PN | |
| Mating connector AS616-35SN | F02U.000.466-01 |
| Auxiliary connector on display AS212-35PN | |
| Mating connector AS612-35SN | F02U.000.443-01 |

Pin Configuration

| LIFE connector | | | |
|----------------|----------------|-------------------------|--------|
| Pin | Name | Comment | Status |
| 1 | KL_31 | | Incl. |
| 2 | KL_15 | | Incl. |
| 3 | KL_30 | | Incl. |
| 4 | Rev_In_3 | Hall or DF11 switchable | Incl. |
| 5 | Rev_In_1 | Hall or DF11 switchable | Incl. |
| 6 | KL_31 | | Incl. |
| 7 | CAN_2_L | CAN speed selectable | Incl. |
| 8 | Ethernet_2_TXP | | Incl. |
| 9 | Ethernet_2_TXN | | Incl. |
| 10 | Sens_Power_12V | over current protected | Incl. |

| LIFE connector | | | |
|----------------|--------------------|-------------------------|-------|
| 11 | Rev_In_4 | Hall or DF11 switchable | Incl. |
| 12 | Rev_In_2 | Hall or DF11 switchable | Incl. |
| 13 | Laptrigger_In | | Incl. |
| 14 | CAN_2_H | CAN speed selectable | Incl. |
| 15 | CAN_1_H | CAN speed selectable | Incl. |
| 16 | Ethernet_2_RXP | | Incl. |
| 17 | Sens_Gnd_4 | fused | Incl. |
| 18 | Sens_Power 5V | over current protected | Incl. |
| 19 | ANA_IN_3 | 3.01 kOhm switchable | Incl. |
| 20 | ANA_IN_4 | 3.01 kOhm switchable | Incl. |
| 21 | Time_Sync | connection to Bosch ECU | Incl. |
| 22 | CAN_1_L | CAN speed selectable | Incl. |
| 23 | Ethernet_screen | | Incl. |
| 24 | Ethernet_2_RXN | | Incl. |
| 25 | Sens_Gnd_3 | fused | Incl. |
| 26 | Sens_Power 5V | over current protected | Incl. |
| 27 | ANA_IN_7 | 3.01 kOhm switchable | Opt. |
| 28 | ANA_IN_1 | 3.01 kOhm switchable | Incl. |
| 29 | USB_Device_DP | to Bosch USB stick | Opt. |
| 30 | RS232_TX_Telemetry | | Incl. |
| 31 | Ethernet_1_TXP | | Incl. |
| 32 | Sens_Gnd_2 | fused | Incl. |
| 33 | Sens_Power_10V | over current protected | Incl. |
| 34 | ANA_IN_8 | 3.01 kOhm switchable | Opt. |
| 35 | ANA_IN_10 | 3.01 kOhm switchable | Opt. |
| 36 | USB_Device_Gnd | to Bosch USB stick | Opt. |
| 37 | USB_Device_DN | to Bosch USB stick | Opt. |
| 38 | RS232_RX_Telemetry | e.g. GSM telemetry | Incl. |
| 39 | Ethernet_1_TXN | | Incl. |
| 40 | Sens_Gnd_1 | fused | Incl. |
| 41 | ANA_IN_11 | 3.01 kOhm switchable | Opt. |
| 42 | ANA_IN_9 | 3.01 kOhm switchable | Opt. |
| 43 | RS232_TX_GPS | | Incl. |
| 44 | ANA_IN_16 | 3.01 kOhm switchable | Opt. |
| 45 | USB_Device_Power | to Bosch USB stick | Opt. |
| 46 | Ethernet_1_RXP | | Incl. |
| 47 | ANA_IN_12 | 3.01 kOhm switchable | Opt. |
| 48 | ANA_IN_6 | 3.01 kOhm switchable | Opt. |
| 49 | ANA_IN_2 | 3.01 kOhm switchable | Incl. |
| 50 | ANA_IN_13 | 3.01 kOhm switchable | Opt. |
| 51 | ANA_IN_15 | 3.01 kOhm switchable | Opt. |

| LIFE connector | | | |
|----------------|----------------|----------------------|-------|
| 52 | Ethernet_1_RXN | | Incl. |
| 53 | ANA_IN_5 | 3.01 kOhm switchable | Opt. |
| 54 | RS232_RX_GPS | for GPS sensor input | Incl. |
| 55 | ANA_IN_14 | 3.01 kOhm switchable | Opt. |

| Auxiliary connector | | | |
|---------------------|-----------------|---------|--------|
| Pin | Name | Comment | Status |
| 1 | | Unused | |
| 2 | | Unused | |
| 3 | | Unused | |
| 4 | | Unused | |
| 5 | | Unused | |
| 6 | | Unused | |
| 7 | | Unused | |
| 8 | | Unused | |
| 9 | Ethernet_3_TXP | | Incl. |
| 10 | Ethernet_3_RXP | | Incl. |
| 11 | Ethernet_3_RXN | | Incl. |
| 12 | CAN_4_H | | Opt. |
| 13 | | Unused | |
| 14 | | Unused | |
| 15 | | Unused | |
| 16 | | Unused | |
| 17 | | Unused | |
| 18 | Ethernet_screen | | Incl. |
| 19 | Ethernet_3_TXN | | Incl. |
| 20 | CAN_4_L | | Opt. |
| 21 | CAN_3_H | | Opt. |
| 22 | CAN_3_L | | Opt. |

Communication

| | |
|--|--------------------------------|
| CAN interfaces | 2 standard, plus 2 optional |
| Ethernet 100BaseT | 3 |
| Laptrigger input | 1 |
| RS232 | Telemetry, GPS |
| Configuration via RaceCon | Over Ethernet or MSA-Box II |
| CCP-Master, data acquisition from ECU that support CAN calibration protocol (optional) | |

Installation Notes

Maintenance Interval: 220 h or a maximum of two years

This product may contain open source software. Information about license terms and other obligations is given in the manual.

Upgrades

CCP/XCP_MASTER

CCP/XCP-Master (ASAP2 file from ECU manufacturer required)

FULL_LOG_1

Extension for Partition 1

- 1,500 channels
- fastest sampling 1,000 Hz or 1 syncro

FULL_LOG_2

Enable full logging performance of 4 GB Partition 2

IO_EXTENS

Enable additional 12 analog inputs and 2 CAN channels

USB_DATA

Rugged USB flash drive Bosch File System (BFS) format included, works with Bosch File System (BFS) preformatted USB Flash drive only

Adapter cable to USB-Port

Adapter for wiring harness

SW license USB-Port unlocked

Ordering Information

Display DDU 10

Order number **F02U.V02.659-02**

Software Options

CCP/XCP_MASTER

Order number **F02U.V02.213-01**

FULL_LOG_1

Order number **F02U.V02.304-01**

FULL_LOG_2

Order number **F02U.V02.305-01**

IO_EXTENS

Order number **F02U.V02.205-01**

Accessories

USB_DATA

Order number **F02U.V02.214-01**

CAN Keypad CK-M12

Order number **F02U.V0U.328-02**

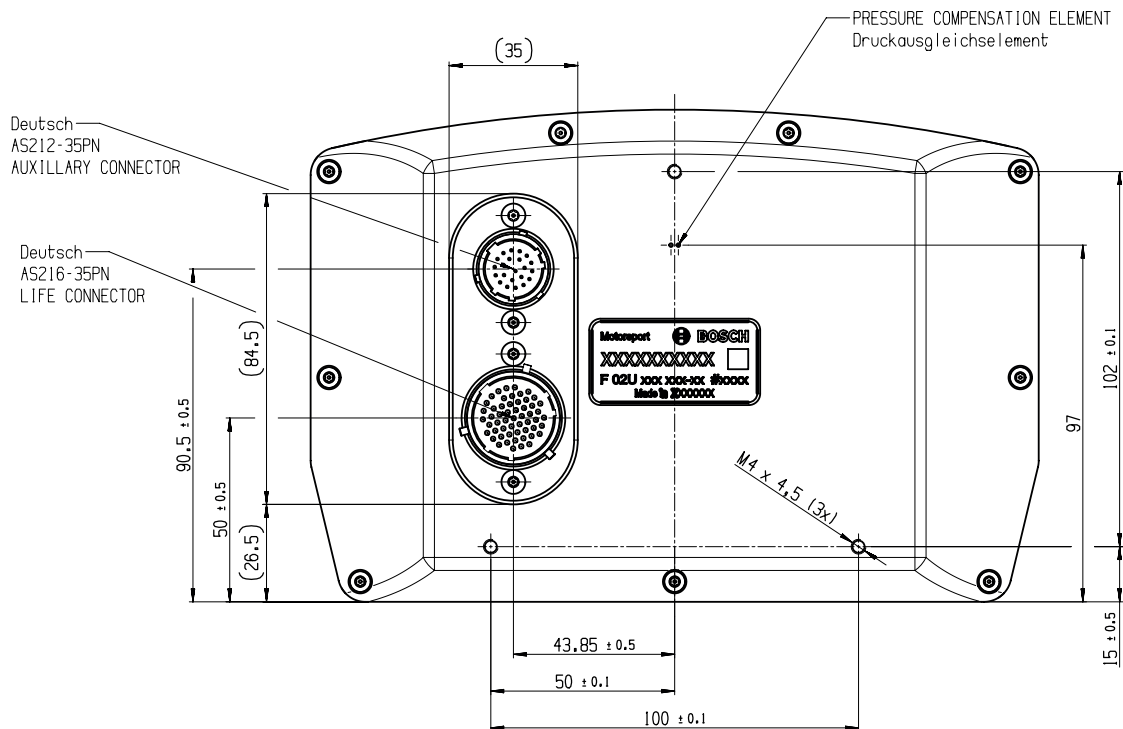
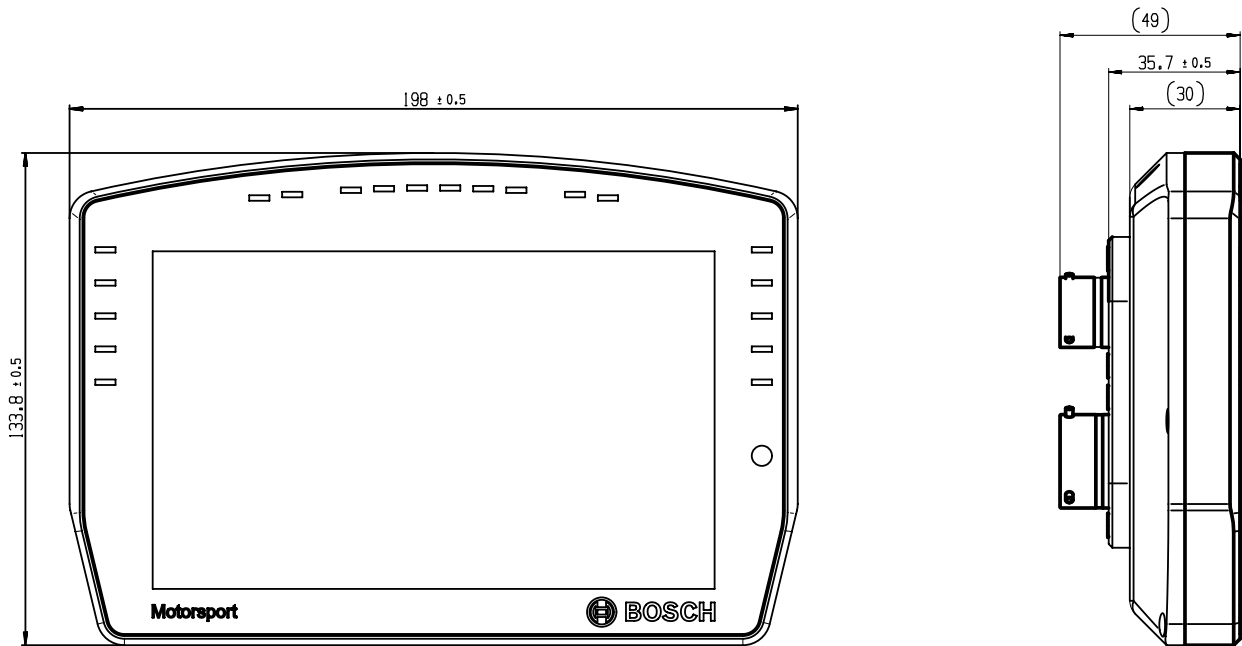
Vehicle Loom Basic

Order number **F02U.V02.735-01**

Bench Loom

Order number **F02U.V02.349-01**

Dimensions



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