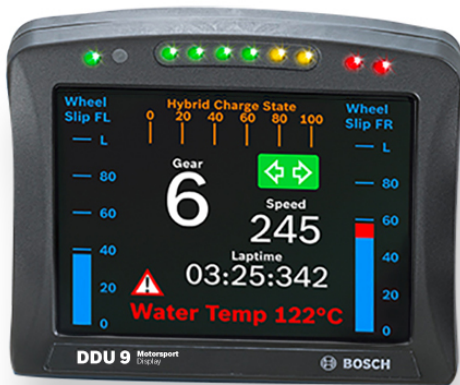


Display DDU 9



The display DDU 9 integrates a programmable full color dashboard display with a data logging system for motorsport applications for a very competitive price. Additional input devices can be connected via Ethernet and CAN buses.

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 (3 GB) is always included. The logger can be upgraded to full logging performance (max. 1 ms). In addition a 2nd logging partition of 1 GB (e.g. for long term recording) can be activated.

Customers can implement 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. The stick is connected to the wiring harness for the DDU 9.

The device comes with 4 analogue and 4 speed inputs as standard; further 12 analogue inputs are available as optional upgrade.

Application

| | |
|------------------------------|--|
| Display | <ul style="list-style-type: none"> • 5.7” graphic color display • 12 user configurable display pages • 10 multicolor freely configurable (RGB) LEDs |
| Resolution | 640 x 480 pixel |
| Supported image file formats | Bmp, gif, jpg, png, tif |
| Processor | 667 MHz Dual Core |
| Converters | 8 kHz AD converters with digital low pass filter |
| Internal power source | Li/Ion capacitor |
| Configurable math channels | |

- ▶ Cutting-edge 667 MHz Dual Core Processor
- ▶ Large trans-reflective color display
- ▶ Recording on USB flash drive (opt.)
- ▶ Supports GPS laptrigger, pre-dated lap time etc.
- ▶ Page change based on events possible

| | |
|--|---|
| User configurable CAN in/out messages | |
| Sampling rate | 50 ms (standard), max. 1 ms (optional) |
| Online data compression | |
| Logging rate | Max. 600 kB/s |
| Recording channels | 100 channels (standard), up to 1,040 in total (optional) |
| Logged data download speed | Max. 1,000 kB/s |
| Internal storage capacity | 3 GB (standard), plus 1 GB (optional) |
| LTE Ethernet telemetry support, GSM telemetry support | |
| RS232 for GPS and telemetry | |
| CCP-Master, data acquisition from ECU that support CAN calibration protocol (optional) | |

Technical Specifications

Mechanical Data

| | |
|--------------------------------|---|
| Size | 151 x 126 x 33.5 mm |
| Weight | 540 g |
| Protection Classification | IP54 to DIN 40050, Section 9, Issue 2008 |
| Operating temperature internal | -20 to 85°C |
| Operating temperature Display | -20 to 70°C |
| Max. vibration | Vibration profile 1 (see Appendix or www.bosch-motorsport.com) |

Electrical Data

| | |
|----------------|-----------|
| Supply voltage | 5 to 18 V |
|----------------|-----------|

Inputs

| | |
|-----------------------------|------------------------------------|
| Analog channels | 4 standard, additional 12 optional |
| Input range | 0 to 5 V |
| Resolution | 12 bit |
| Switchable pull up resistor | For all ANA_IN |
| 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 |

Optional Upgrades

| | |
|--|------------------|
| USB_DATA USB-Port unlocked (Rugged USB flash drive Bosch File System (BFS) format included, works with Bosch File System (BFS) preformatted USB Flash drive only) | F 02U V02 214-01 |
| Adapter cable to USB-Port (included in Upgrade USB_DATA) | F 02U V01 343-01 |
| Adapter for wiring harness (included in Upgrade USB_DATA) | F 02U 002 996-01 |
| CCP_MASTER CCP-Master (ASAP2 file from ECU manufacturer required) | F 02U V02 213-01 |
| ETHER_TELE LTE Ethernet Telemetry | F 02U V02 138-01 |
| FULL_LOG_1 Enable full logging performance of 3 GB partition 1 | F 02U V02 304-01 |
| FULL_LOG_2 Enable full logging performance of 1 GB partition 2 | F 02U V02 305-01 |
| I_O_EXTENS Enable additional 12 analog input channels | F 02U V02 205-01 |

Connectors and Wires

| | |
|---------------------------------|--------------|
| Motorsport connector on Display | AS-216-35 PN |
|---------------------------------|--------------|

| | |
|----------------------------------|------------------|
| Mating connector AS-616-35 SN | F 02U 000 466-01 |
|----------------------------------|------------------|

Pin Configuration

| 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. |
| 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. |

| Pin | Name | Comment | Status |
|-----|--------------------|----------------------|--------|
| 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. |
| 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. |

Installation Notes

| | |
|---------------------|--|
| Inspection services | Recommended after 220 h or 2 years, no components to replace |
|---------------------|--|

Communication

| | |
|---------------------------|-----------------------------|
| CAN interfaces | 2 |
| Ethernet 100BaseT | 2 |
| Laptrigger input | 1 |
| RS232 | Telemetry, GPS |
| Configuration via RaceCon | Over Ethernet or MSA-Box II |

Ordering Information

Display DDU 9

Order number **F 02U V02 300-02**

CAN Keypad CK-M12

Order number **F 02U V0U 328-02**

Accessories

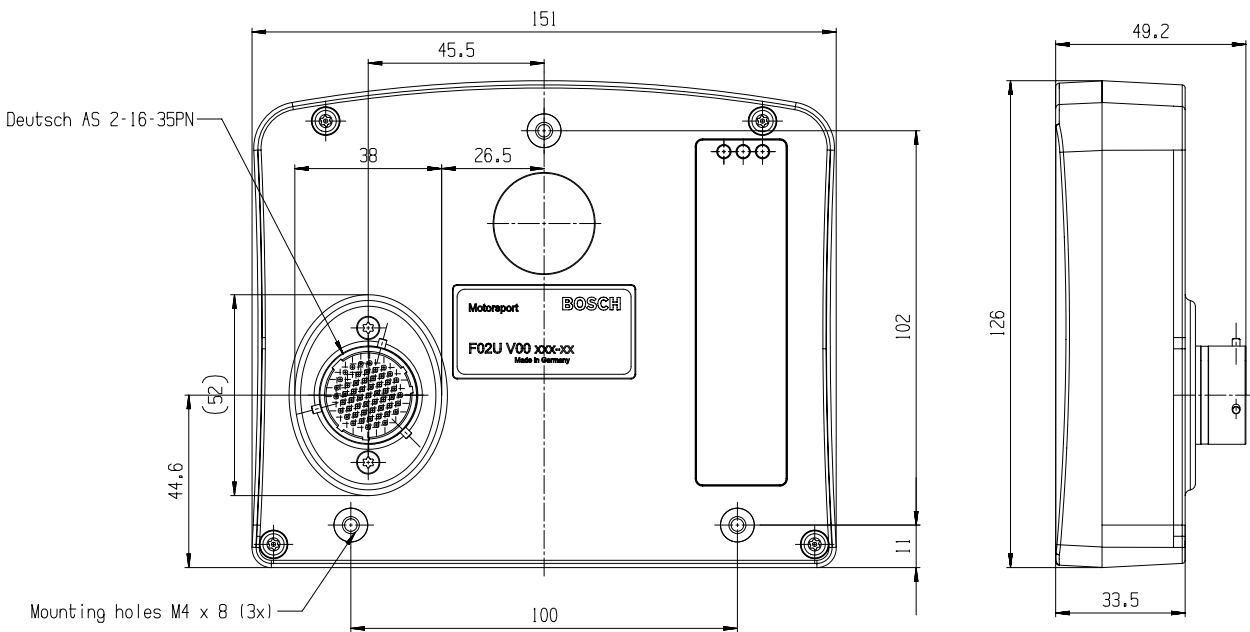
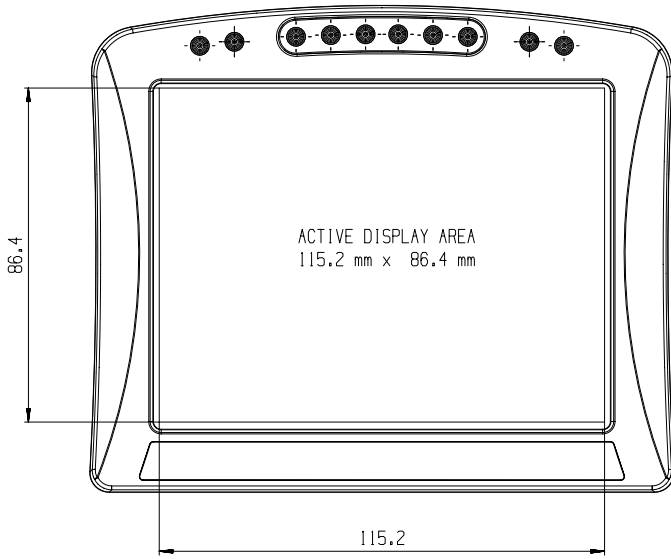
Vehicle Loom Basic

Order number **F 02U V02 735-01**

Bench Loom

Order number **F 02U V02 349-01**

Dimensions



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