

Display DDU 9

www.bosch-motorsport.com



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

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

- 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	
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
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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	F 02U V02 214-01
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(BFS) format included, works with Bosch File System (BFS) preformatted USB Flash drive only)

Adapter cable to USB-Port (included in Upgrade USB_DATA)	F 02U V01 343-01
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Adapter for wiring harness (included in Upgrade USB_DATA)	F 02U 002 996-01
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CCP_MASTER CCP-Master (ASAP2 file from ECU manufacturer required)	F 02U V02 213-01
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ETHER_TELE LTE Ethernet Telemetry	F 02U V02 138-01
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FULL_LOG_1 Enable full logging performance of 3 GB partition 1	F 02U V02 304-01
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FULL_LOG_2 Enable full logging performance of 1 GB partition 2	F 02U V02 305-01
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I_O_EXTENS Enable additional 12 analog input channels	F 02U V02 205-01
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Connectors and Wires

Motorsport connector on Display AS-216-35 PN	F 02U E01 659-01
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Mating connector AS-616-35 SN	F 02U 000 466-01
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Pin Configuration

Name	Pin	Comment	Status
ANA_IN_1	28	3.01 kOhm switchable	Incl.
ANA_IN_2	49	3.01 kOhm switchable	Incl.
ANA_IN_3	19	3.01 kOhm switchable	Incl.
ANA_IN_4	20	3.01 kOhm switchable	Incl.
ANA_IN_5	53	3.01 kOhm switchable	Opt.
ANA_IN_6	48	3.01 kOhm switchable	Opt.
ANA_IN_7	27	3.01 kOhm switchable	Opt.
ANA_IN_8	34	3.01 kOhm switchable	Opt.
ANA_IN_9	42	3.01 kOhm switchable	Opt.
ANA_IN_10	35	3.01 kOhm switchable	Opt.
ANA_IN_11	41	3.01 kOhm switchable	Opt.
ANA_IN_12	47	3.01 kOhm switchable	Opt.
ANA_IN_13	50	3.01 kOhm switchable	Opt.
ANA_IN_14	55	3.01 kOhm switchable	Opt.
ANA_IN_15	51	3.01 kOhm switchable	Opt.

Name	Pin	Comment	Status
ANA_IN_16	44	3.01 kOhm switchable	Opt.
CAN_1_H	15	CAN speed selectable	Incl.
CAN_1_L	22	CAN speed selectable	Incl.
CAN_2_H	14	CAN speed selectable	Incl.
CAN_2_L	7	CAN speed selectable	Incl.
Ethernet_1_RXN	52		Incl.
Ethernet_1_RXP	46		Incl.
Ethernet_1_TXN	39		Incl.
Ethernet_1_TXP	31		Incl.
Ethernet_2_RXN	24		Incl.
Ethernet_2_RXP	16		Incl.
Ethernet_2_TXN	9		Incl.
Ethernet_2_TXP	8		Incl.
Ethernet_screen	23		Incl.
KL_15	2		Incl.
KL_30	3		Incl.
KL_31	1		Incl.
KL_31	6		Incl.
Laptrigger_In	13		Incl.
Rev_In_1	5	Hall or DF11 switchable	Incl.
Rev_In_2	12	Hall or DF11 switchable	Incl.
Rev_In_3	4	Hall or DF11 switchable	Incl.
Rev_In_4	11	Hall or DF11 switchable	Incl.
RS232_RX_Telemetry	38	e.g. GSM telemetry	Incl.
RS232_TX_Telemetry	30		Incl.
RS232_RX_GPS	54	for GPS sensor input	Incl.
RS232_TX_GPS	43		Incl.
Sens_Gnd_1	40	fused	Incl.
Sens_Gnd_2	32	fused	Incl.
Sens_Gnd_3	25	fused	Incl.
Sens_Gnd_4	17	fused	Incl.
Sens_Power_10V	33	over current protected	Incl.
Sens_Power_5V	18	over current protected	Incl.
Sens_Power_5V	26	over current protected	Incl.
Time_Sync	21	connection to Bosch ECU	Incl.
Sens_Power_12V	10	over current protected	Incl.

Name	Pin	Comment	Status
USB_Device_DN	37	to Bosch USB stick	Opt.
USB_Device_DP	29	to Bosch USB stick	Opt.
USB_Device_Gnd	36	to Bosch USB stick	Opt.
USB_Device_Power	45	to Bosch USB stick	Opt.

Communication

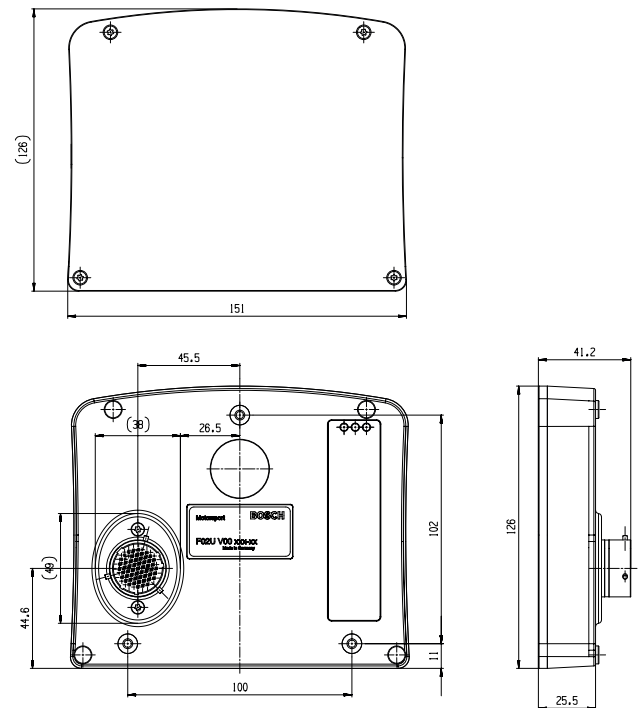
CAN interfaces	2
Ethernet 100BaseT	2
Laptrigger input	1
RS232	Telemetry, GPS
Configuration via RaceCon	Over Ethernet or MSA-Box II

Ordering Information

Display DDU 9

Order number **F 02U V02 300-01**

Dimensions



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