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 color 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 (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 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 laptime, 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	• 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	8 kHz 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)
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 1,080 in total optional
Logged data download speed	Max. 1,000 kB/s
Internal storage capacity	3 GB standard, plus 1 GB optional
Ambient light sensor	
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	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

Optional Upgrades

USB Kit	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
CCP_MASTER	CCP-Master (ASAP2 file from ECU manufacturer required)
FULL_LOG_1	Enable full logging performance of 3 GB partition 1
FULL_LOG_2	Enable full logging performance of 1 GB partition 2
I_O EXTENS	Enable additional 12 analog inputs and 2 CAN channels

Connectors and Wires

Live connector on display AS216-35PN	
Mating connector AS616-35SN	F 02U 000 466-01
Auxiliary connector on display AS212-35PN	
Mating connector AS612-35SN	F 02U 000 443-01

Pin Configuration

Live 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.
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.

Live connector			
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_Tele-metry	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.

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.

Auxiliary connector			
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.

Installation Notes

Inspection services recommended after 220 h or 2 years, no components to replace.

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

Ordering Information

Display DDU 10
Order number **F 02U V02 659-01**

CAN Keypad CK-M12
Order number **F 02U V0U 328-02**

Accessories

USB Kit for C 70, DDU 9, DDU 10 and VCU
Order number **F 02U V02 214-01**

Vehicle Loom Basic
Order number **F 02U V02 735-01**

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

Software Options

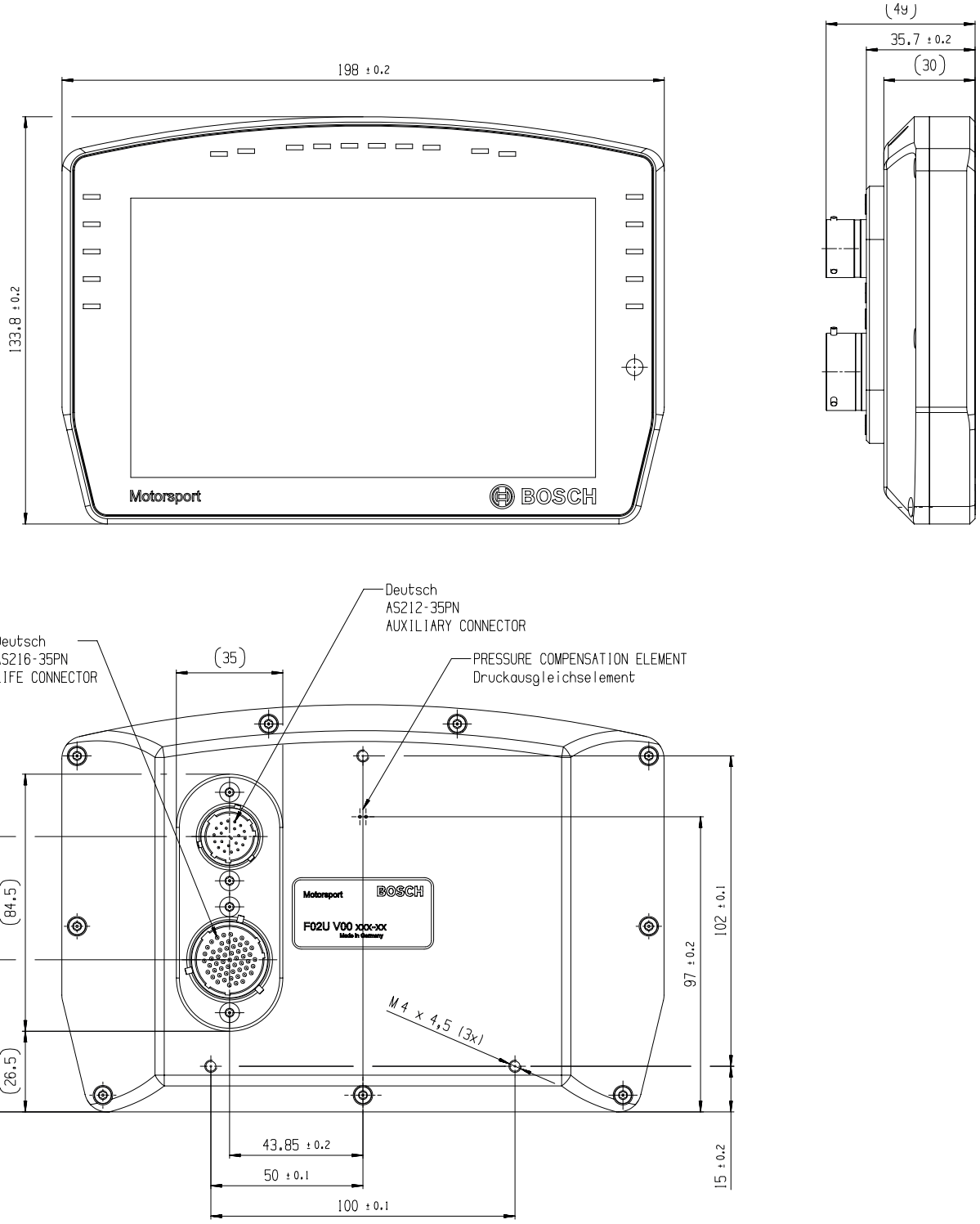
CCP_MASTER
Order number **F 02U V02 213-01**

FULL_LOG_1
Order number **F 02U V02 304-01**

FULL_LOG_2
Order number **F 02U V02 305-01**

I_O EXTENS
Order number **F 02U V02 205-01**

Dimensions



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