Cabiate, 12/06/2017

DoDash

Technical Specification

- Rev. 4 -

Dell'Orto S.p.A.
Sede Legale:
Via R. Sanzio, 2 – 20831 Seregno (MB) – Italia
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CF 00685940157 – PI 02830910960 – EORI IT02830910960
Registro delle imprese di Monza e Brianza n° 00685940157

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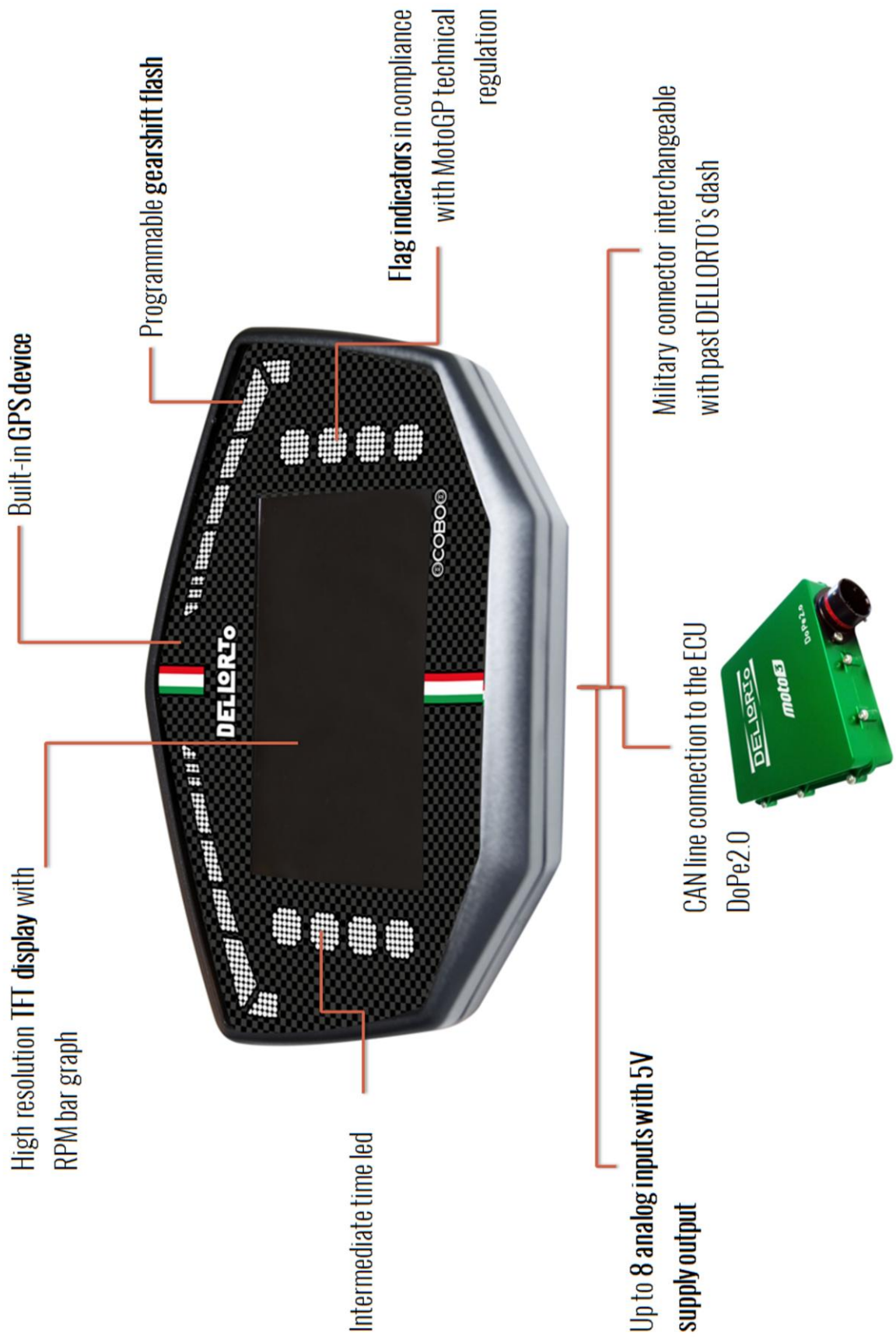

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Introduction:

DoDASH is based on latest TFT display technology, in a compact and lightweight package that fits for limited space constrain of typical Moto3 vehicles.

The new Dashboard has been conceived as a plug-and-play device driven by Dellorto DoPE 2.0 ECU, without any specific Dashboard set-up from the user.

DoDASH employ the same connector of Dellorto previous dashboard Matrix 4.

The new Dashboard includes an integrated GPS as well as 8 analog input for ECU data acquisition by CAN line.

DoDASH shows all the relevant information received from the bi-directional transponder X2.

It features Race Direction warning lamp, display flag and messages function.

Pre-requisites

- ✓ 16.007 DoPe2 firmware version and onwards
- ✓ Transponder X2 (to visualize the messages and lights of this transponder)

Operating condition:

- ✓ Power supply voltage:10 - 16V
- ✓ Temperature range :- 20 °C ÷ + 65 °C
- ✓ Storage temperature: - 40 °C ÷ + 85 °C
- ✓ Sealing: IP66

Display

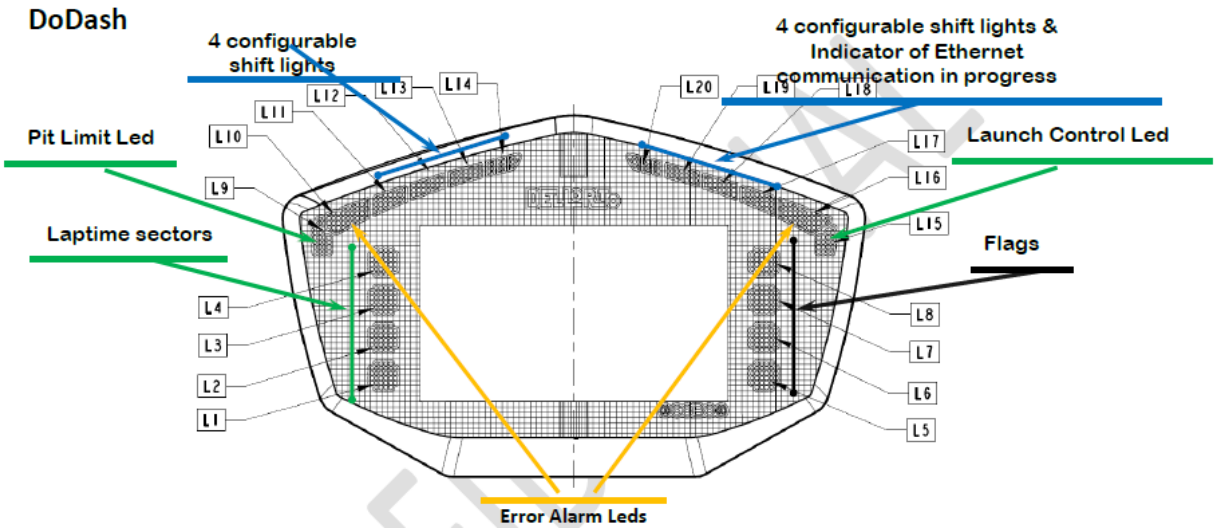
- ✓ 4,3” TFT Display WQVGA 480x272
- ✓ Brightness: 700 cd/m2
- ✓ Contrast ratio: 600
- ✓ Viewing Angle: 80/80/80/80°
- ✓ Backlight: white LEDs
- ✓ Screen: selectable day/night mode
- ✓ Day mode: white character on black background
- ✓ Night mode: black character on white background
- ✓ 4 different pages, 3 for rider (*Rider pages*) + 1 configurable for mechanics (*Mechanics page*).
- ✓ Automatic switch from mechanic page to rider page when the fron wheel speed reach 5 km/h.
- ✓ Lap time, intermediate time visualization and comparison with reference lap by dedicated lamps for each sector.
- ✓ Countdown visualization for practice sessions.
- ✓ 12 configurable channels for mechanical page.
- ✓ Programmable shift lights (RPM threshold, light flashing)
- ✓ New features under development for 2018 season

GPS:

- ✓ Integrated 10Hz GPS receiver with ceramic antenna.
- ✓ GPS signal sampling at 20Hz by DoPE ECU
- ✓ Lap trigger recognition without transponder, by finish line coordinates

Lights:

- ✓ high efficiency LEDs
- ✓ 8 TFT side lights (left side for flags, right side for intermediate time)
- ✓ 6 + 6 TFT upper side shift lights.
- ✓ 1 additional light (option)



Led number	*Led colour*	*Blinking/Fixed*	*Action*
1-4	Green	Fixed-Blinking	***Split time communication***
5 ***6*** ***7*** ***8***	Green Yellow Blue Red	*Fixed – Blinking*	***Warning Lights***
9	Green	Fixed	***Pit Limit Led***
15	Green	Fixed	***Launch Control***
10, 16	Orange	Fixed	***Error Alarm Leds***
11-14, 17-20	Blue	Blinking DASH_RPM_FLASH_PERIOD DASH_RPM_FLASH_ON_TIME	***Shift light***
17-20	Blue	Blinking	***Ethernet communication***

Warning lights function is performed by a red light (number 8) and a yellow one (number 6)

- ✓ Red Flag: both lights flashing (red flag is the most important signal and flashing lights are most likely to catch the riders attention).
- ✓ Black flag & black flag with orange disk: lights alternatively flashing
- ✓ Exceeding Track Limits, Ride Through & Go to Position: red light fixed on and yellow light flashing
- ✓ Moreover, blue light (number 7) and a green light (number 5) that are turned on in case of blue flag message and green flag message, respectively (for messages description see the section LCD and TFT Display Messages 0).

Race Direction Messages

- ✓ Here below are the messages currently shown
- ✓ Highlighted in yellow the modification implemented for race season 2017:

Signal	*LCD display*	*Dashboard Lights*	*Use*	*Notes*
Red Flag	**RED**	Warning lights flashing together	All bikes at all circuit parts	
Black / Orange Disk	**STOP**	Warning lights alternatively flashing	One bike at all circuit parts	
Black Flag	**BLACK**	Warning lights alternatively flashing	One bike at all circuit parts	
Go to position	**POS: #**	Warning lights one fixed, one flashing	One bike at all circuit parts	Include also the number of positions # to go back.
Ride through	**RIDETH**	Warning lights one fixed, one flashing	One bike at all circuit parts	
Exceeding track limits	**TRACK.L**	Warning lights one fixed, one flashing	One bike at all circuit parts	

- ✓ The following messages are also available

Signal	*LCD display*	*Dashboard Lights*	*Notes*
Yellow Flag	**YELLOW**	None	
Yellow Red Striped	**SLIP**	None	
White with Red Cross	**RAIN**	None	
Blue Flag	**BLUE**	Matrix 3 and 4: none DoDash: light number 7	
White Flag	**WHITE**	None	
Green Flag	**GREEN**	Matrix 3 and 4: none DoDash: light number 5	
Chequered black/white		None	
Text message	**TEXT**	None	Text message is showed in the display **during** SHOW_LAP_SECTOR_TIME seconds

Message with the highest priority will be shown in the bottom part of the display.
Signal can be displayed in black or in white with black surroundings, as above shown.
The dashboard is currently approved by the Race Direction.
New features for 2018 are under development.

Messages priority: flags and penalty are received by the ECU in a single CAN frame. More than one flag could be set as active in the CAN info but the ECU is showing only one. According to the last Race Direction requirement the following list shows all the messages by descending order of priority (Green flag has highest priority):

- ✓ Green flag
- ✓ Yellow and red striped flag
- ✓ White flag with diagonal red cross
- ✓ White flag
- ✓ Red flag
- ✓ Black flag
- ✓ Black flag with orange disk
- ✓ Blue flag
- ✓ Chequered black/white flag
- ✓ Ride trough
- ✓ Go to position
- ✓ Exceeding track limits

All the flags and penalty are removed from the dashboard when a CAN frame is received with no flags or penalty set. Only Exceeding track limits will be automatically removed in 10s.

Electrical interfaces

- ✓ Connector: 13 ways Souriau 8STA6 1035SN (same as previous Dellorto Matrix 4 dashboard for interchangeability with existing wiring harness)
- ✓ CAN line compatible with DoPE 2.0 ECU
- ✓ Pin assignment (under bracket the Matrix 4 pin-assignment)
  1. + Battery (same)
  2. CAN H (same)
  3. CAN L (same)
  4. GND (same)
  5. AN1 (same)
  6. AN2 (same)
  7. AN3 (same)
  8. +5V Output for sensor power supply (K line)
  9. AN4 (same)
  10. AN5 (not assigned)
  11. AN6 (not assigned)
  12. AN7 (not assigned)
  13. AN8 (not assigned)

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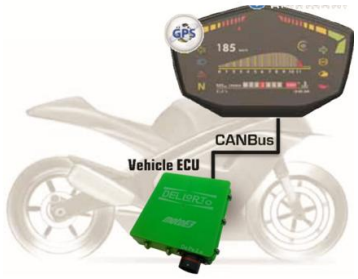
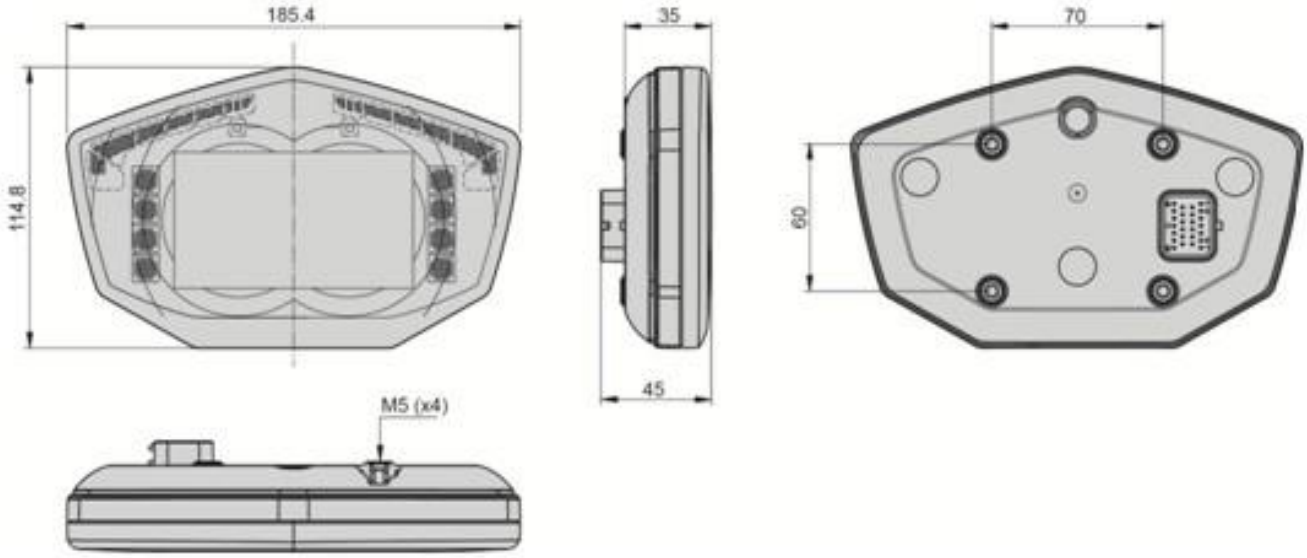
Packaging

- ✓ Dashboard size:185 x 115 x 35mm
- ✓ Mass:340 g
- ✓ Fixing: 4 x M5 thread insert (see below drawings)
- ✓ Delivery package 320 x 280 x 85mm
- ✓ Delivery mass 800g





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Price and lead time

- ✓ Component code: **16003**
- ✓ Price per unit: **Euro 995,00** **VAT excluded**
- ✓ Special condition:

≥ 3 pieces	4%
≥ 6 pieces	8%
≥ 10 pieces	12%

- ✓ Delivery ex work, charged in the invoice
  From payment to shipment: 2 working days

- ✓ Advance payment, through bank transfer to:
  BANCA INTESA SANPAOLO *Fil. CANTU'*
  IBAN *IT94 T 03069 51062 1000 000 03017*
  SWIFT (BIC) BCITITMMJ26

Important: Replacement of parts for defects can be accepted within 15 days from delivery of goods. After this period, any claim would be charged.

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