Owner's manual

ENGLISH

MULTISTRADA V4



This manual forms an integral part of the motorcycle and must be kept with it for its whole service life. If the motorcycle is resold, the manual must always be handed over to the new owner. The quality standards and safety of Ducati motorcycles are steadily improved as new design solutions, equipment and accessories are developed. While the information contained in this manual is current at the time of going to print, Ducati Motor Holding S.p.A. reserves the right to make changes at any time without notice and without any obligations. For this reason, the illustrations in this manual might differ from your motorcycle. Any and all reproduction or spreading of the contents herein in whole or in part is forbidden. All rights reserved to Ducati Motor Holding S.p.A. Any request for written authorisation shall be addressed to this company, specifying the reasons for request. For any servicing or suggestions you might need, please contact our authorised service centres.

For further information, please contact us at: contact_us@ducati.com Our Advisors are available to give you suggestions and useful tips.

Important

The service is active only in the following countries:

Holland, Belgium, Luxembourg, France, Italy, Switzerland, United Kingdom, Ireland, Germany.

Enjoy your ride!

Table of contents

Instrument panel (Dashboard) 4 Instrument panel 4 Information statement on UF directive 2014/53/UE 7 Function buttons 9 Main screen 11 Available functions 16 Riding Mode 19 Engine rpm indication (RPM) 22 Gear 23 Motorcycle speed 24 Fuellevel 25 Clock 26 Air temperature 27 Engine Coolant temperature 28 Load Mode 29 Ducati Connect 32

Adaptive Cruise Control 33 Heated seat 35 Lap 36 ABS 39 Trip Master 40 Music 43 Phone 46 Setting menu 47 Setting menu - Bluetooth 51 Infotainment 55 Heated grips 59

Instrument panel (Dashboard)

Instrument panel

The instrument panel provides the rider with all the information regarding the trip data and the status of the vehicle, in order to ensure maximum safety and riding comfort.

This chapter describes the available warning lights.

- 1) Immobilizer (red)
- 2) Left turn indicator (green)
- 3) MIL (amber yellow)

4) High beam on (blue)

5) Malfunction of the Anti-lock Brake System (ABS) (amber yellow)

- 6) VHC (Vehicle Hold Control) (amber yellow)
- 7) Right turn indicator (green)

8) Generic error (amber yellow)

9) Low fuel light (amber yellow)

10) DAVC diagnostics (amber yellow)

11) Engine oil low pressure (red)

1mportant

If the ENGINE OIL light stays ON, stop the engine or it may suffer severe damage.

12) Adaptive Cruise Control distance setting (green)

13) Low battery charge level (red)

14) DRL – Daytime Running Lights (green) (not present in China, Canada and Japan versions)

15) Fog lights on (green)

16) Electronic suspension (DSS) diagnostics (amber yellow)

17) Active heated seat (white)

- 18) Active heated handgrips (white)
- 19) Neutral gear (green)
- 20) Adaptive Cruise Control on (green)
- 21) Side stand (red)

Important If the display shows the message "TRANSPORT MODE", immediately contact your Ducati Dealer that will delete this message and ensure the full operation of the motorcvcle.

Upon key-on, the instrument panel displays an introductory animation and carries out a sequential check of the LED warning lights.

At the end of the check, the instrument panel displays the main screen.

During this first check stage, if the motorcycle speed exceeds 5 km/h (3 mph), the instrument panel will stop:

- the display check routine and display the _ standard screen containing updated information:
- the warning light check routine and leave ON _ only the warning lights that are actually active at the moment



Information statement on UE directive 2014/53/UE

Table 1

Radio equip- ment instal- led in the ve- hicle	Frequency band	Max. transmission power
DSB (Connec- tivity Pack)	2.402 MHz ÷ 2.482 MHz	25 mW

Table 2

Radio equipment instal- led in the vehicle	Manufacturers' addresses
DSB (Connectivity Pack)	ROBERT BOSCH GmbH Robert-Bosch-Platz 1 70839 Gerlingen. Germany

EU Directive 2014/53/EU

Your vehicle is equipped with a range of radio equipment. The manufacturers of these radio equipment declare that equipment comply with Directive 2014/53/EU where required by law. The complete text of the EU declarations of conformity is available at the following web address: certifications.ducati.com

Addresses of radio component manufacturers

All radio components must carry the manufacturer's address according to the provisions of directive 2014/53/EU. For components that, due to their size or nature, cannot be furnished with a sticker, the respective manufacturers' addresses as required by law are listed in the table 2.



Only skilled person can access and install the device.

Function buttons

The right-hand switch is equipped with a joystick whose positions are:

- (1) UP 🔺
- (2) RH 🕨
- (3) DOWN 🔻
- (4) LH 🖪

(5) Enter menu (by pressing the central part of the joystick)

The remaining switches are:

- (6) Adaptive Cruise Control +
- (7) Adaptive Cruise Control -
- (8) 3-position turn indicator switch
- central OFF
- position (8a) left turn
- position (8b) right turn
- (9) warning horn



(10) light dip switch for low beam, high beam, highbeam flasher and "Start-Stop lap" function
(11) 4 turn indicators (Hazard) on/off
(12) Cruise control RES/+
(13) Cruise control On/Off
(14) Cruise control SET/(15) Riding Mode setup

(16) Load Mode setup



Main screen

Following is the information available on the main screen:

- 1) Interactive Menu
- 2) Info Display Menu
- 3) Riding Mode
- 4) RPM
- 5) Engaged gear
- 6) Speed
- 7) Fuel level (available in graduated bar mode or remaining km or miles)
- 8) Clock
- 9) Air temperature
- 10) Engine Coolant temperature
- 11) Load Mode



Interactive Menu

The Interactive Menu contains a series of functions that can be activated by the rider using the joystick. When a function is activated, a corresponding window is displayed with which you can interact (e.g. Trip Master, Fig 5).

The list of functions in the Interactive Menu varies depending on the Riding Mode currently in use:

- Sport Riding Mode
 - Ducati Connect
 - Adaptive Cruise Control
 - Heated seat
 - Lap
 - Setting menu
- Enduro Riding Mode
 - Ducati Connect
 - Adaptive Cruise Control
 - Heated seat
 - ABS
 - Trip master
 - Setting menu
- Touring and Urban Riding Modes
 - Ducati Connect
 - Adaptive Cruise Control
 - Music
 - Heated seat



- Phone
- Setting menu

You can scroll through the functions in the list using the joystick (UP \blacktriangle and DOWN \checkmark). At each Key-On the Interactive Menu shows the last function displayed before the Key-Off.

Info Display Menu

The Info Display Menu contains a series of travel information:

- Total
- Range
- Trip 1
- Ø consumption 1
- Ø speed 1
- Trip 1 time
- Trip 2
- Inst. consumption
- Front tyre
- Rear tyre

Using the "Info Display" function in the Setting Menu, you can change the order of the trip information.

The units of measurement of the trip information can be changed using the "Measurement Units" function in the Setting Menu.

You can scroll through the list of information using the joystick (UP \blacktriangle and DOWN \checkmark).

Total

It displays the total distance covered by the motorcycle with the set unit of measurement (km or mi).



Range

It displays the range with the set unit of measurement (km or mi).

It is displayed in the list only if the fuel level indicator has been set to "Bargraph" using the "Fuel Indicator" function in the Setting Menu.

Trip 1

It displays the partial distance covered by the motorcycle with the set unit of measurement (km or mi).

It is possible to reset the meter by pressing the joystick in the middle:

- the window with "Reset Trip 1 info?" and the items "Yes" and "No" that can be selected using the joystick (LH ◀ and RH ►) is displayed (Fig 6);
- by selecting "Yes" and pressing the joystick in the middle, the window is closed and the meter is reset to zero;

By resetting Trip 1 all the meters connected to it are also reset: Ø consumption 1, Ø speed 1, Trip 1 time.

Ø consumption 1

It displays the average consumption of the motorcycle, calculated from the last reset of Trip 1. Value is expressed in the set unit of measurement (km/L, l/100 km, mpg UK, mpg US). By pressing the joystick in the middle you can reset Trip 1 (Fig 6).

Ø speed 1

It displays motorcycle average speed together with the set unit of measurement (km/h or mph), calculated from last reset of Trip 1. By pressing the joystick in the middle you can reset Trip 1 (Fig 6).

Trip 1 time

It displays trip time in "hours:minutes", calculated from the last reset of Trip 1. By pressing the joystick in the middle you can reset Trip 1 (Fig 6).

Trip 2

It displays the partial distance covered by the motorcycle with the set unit of measurement (km or mi).

It is possible to reset the meter by pressing the joystick in the middle:

- the window with "Reset Trip 2 info?" and the items "Yes" and "No" that can be selected using the joystick (LH ◀ and RH ►) is displayed;
- by selecting "Yes" and pressing the joystick in the middle, the window is closed and the meter is reset to zero;

Inst. consumption

It displays motorcycle instant fuel consumption. Value is expressed in the set unit of measurement (km/L, l/100 km, mpg UK, mpg US). Front tyre Displays the front tyre pressure in bar.

Rear tyre Displays the rear tyre pressure in bar.

Switch between Interactive Menu and Info Display Menu

At each Key-On, the Interactive Menu is selected by default: the joystick is used to manage the Interactive Menu.

To move the selection from the Interactive Menu to the Info Display Menu, press and hold the joystick in the DOWN ▼ position for a long time: in this way the joystick is used to manage the Info Display Menu.

Conversely, to move the selection from the Info Display Menu to the Interactive Menu, the joystick must be pressed and held down in the UP ▲ position for a long time: in this way the joystick is used again to manage the Interactive Menu.

The selection can be moved from the Interactive Menu to the Info Display Menu even when the Lap, Music and Trip Master function windows are open. If you are within a submenu of the Interactive Menu and you switch to the Info Display Menu selection, the submenu is closed with the exception of Lap, Music and Trip Master.

Available functions

The functions displayed in the Standard screen are the following:

Main information

- Interactive Menu
- Info Display Menu
- Riding Mode
- RPM
- Engaged gear
- Speed
- Fuel level (available in graduated bar mode or remaining km or miles)
- Clock

_

- Air temperature
- Engine Coolant temperature
 - Load Mode
- Interactive Menu
 - Ducati Connect
 - Adaptive Cruise Control
 - Heated seat
 - Lap (Sport Riding Mode only)
 - ABS (Enduro Riding Mode only)
 - Trip master (Enduro Riding Mode only)

- Music (Touring and Urban Riding Modes only)
- Phone (Touring and Urban Riding Modes only)
- Setting menu
- Info Display Menu
 - Total
 - Range
 - Trip1
 - Ø consumption 1
 - Ø speed 1
 - Trip1time
 - Trip 2
 - Inst. consumption
 - Front tyre
 - Rear tyre

The functions within the Setting menu that can be modified by the user are the following:

- Riding Mode

-

- Engine
- DTC
- ABS
- DWC
- DQS

- Suspension
- Load Mode
- Info Display
- Fuel Indicator
- DRL (visible only if the DRL lights are present)
- Backlight
- Pin Code
- Forward Collision (visible only if ARAS system is present)
- Blind Spot Detection (visible only if ARAS system is present)
- SOS Call (visible only if CCU system is present)
- Antitheft (visible only if CCU system is present)
- Date and time
- Service
- Lap
- Tyre Calibration
- Tyre Pressure (visible only if tyre pressure sensor is present)
- Bluetooth
- D-Air (visible only if D|Air system is present)
- Turn Indicators
- Language
- Measurement Units
- Info

Further functions available on the instrument panel are:

- Restoring motorcycle operation via the Pin Code
- Infotainment
- Heated grips
- Service indication (SERVICE)
- Warning/Alarm indication
- Side stand status
- Error indication
- Parking lights
- Steering Locked

Riding Mode

4 Riding Modes are available: Sport, Touring, Urban, Enduro.

The name of the active Riding Mode is displayed in the central part of the display, between the speed value and the rev counter.

Each Riding Mode is associated with a different colour for the name and rev counter box.

The parameters associated to each Riding Mode are: ENGINE, DTC, ABS, DWC, DSS (Front Suspension, Rear Suspension, Pre-Load) if present, DQS if present.

For each Riding Mode it is possible to customise the parameters using the "Riding Mode" function in the Setting menu.

If a performance engine control is fitted to the motorcycle, "EVO" is added to the name of the riding mode.

At each Key-On, the window (A) is displayed with the values of the DQS, DTC, ABS, and DWC parameters set for the active Riding Mode.

The window disappears when the motorcycle speed exceeds 5 km/h (3 mph).



Change Riding Mode as follows:

- Press the Riding Mode setup button (15, Fig 3). The display shows the screen where you can scroll through the available Riding Modes and view their parameters, with their currently set values and current speed.
- Using the UP ▲ and DOWN ▼ positions of the joystick it is possible to scroll through and select the desired Riding Mode.
- Press the joystick in the middle to confirm.

To exit the Riding Mode change function without making any changes, press and hold the joystick in the LH ◀ position.

As soon as the new Riding Mode is confirmed, the instrument panel checks the following conditions:

- If speed is lower than or equal to 5 km/h (3 mph) and throttle control is open, the message "Close throttle" is displayed; the new Riding Mode is confirmed and stored only when throttle control is closed and the main screen is displayed.
- If speed is lower than or equal to 5 km/h (3 mph), throttle control is closed but brakes are actuated, the message "Release brakes" is displayed; the new Riding Mode is confirmed



and stored only when brakes are released and the main screen is displayed.

If both the previously specified conditions are true, message "Close throttle and release brakes" is displayed; the new Riding Mode is confirmed and stored only when the 2 conditions are as required and the main screen is displayed.

If either of the conditions required to validate the change of Riding Mode are not true within 5 seconds from activation of one of the above-described conditions, the procedure will be aborted, the

instrument panel will go back to displaying the main page and no settings will be changed.

Attention Ducati recommends changing the Riding mode when the motorcycle is stopped. If the riding mode is changed while riding, be very careful (it is recommended to change the Riding mode at a low speed).

Engine rpm indication (RPM)

The engine rpm is displayed using a rev counter featuring a grey wake (A).

When the wake becomes amber yellow (B), the instrument panel is warning the rider to shift up. The wake becomes flashing red (C) when the rev limiter trips (Over-rev).

If the number of rpm is lower than 1,000 RPM, the wake is not displayed.



Gear

The gear engaged (1–6) is displayed at the centre of the rev counter.

If gear is in neutral, the letter "N" is displayed.

In case of gear sensor error, a dash "-" will be displayed.



If the display shows "-" steady on, then the gearbox could be in a mechanically unstable position; in such a case, up/downshift until the correct gear is indicated.

Note

shift up.

When the rpm indicator becomes amber yellow, the instrument panel is warning the rider to



Motorcycle speed

Speed indication is displayed increased by 5% and together with the set unit of measurement (km/h or mph).

It is possible to change unit of measurement through the "Measurement Units" function in the "Setting menu".

A string of three dashes "- - -" is displayed with the set unit of measurement if:

- speed is above 299 km/h (186 mph);
- the speed sensor is in fault (flashing).



Fuel level

The fuel level is shown in the top left corner and can be displayed in 2 modes: graduated bar (Fig 12) or remaining km or miles (Fig 13).

To set the preferred mode, refer to the chapter "Setting menu – Fuel Indicator".

To change the measurement unit, refer to the chapter "Setting menu – Measurement Units".





Clock

The clock is displayed in the upper right corner in the 12 or 24 hour format.

To set the clock or change its format, refer to the chapter "Setting menu – Date and Clock".

If there is a power failure (battery disconnection), the instrument panel will display dashes "--" instead of hours and minutes upon the next key-on, therefore, the clock must be set.



Air temperature

The ambient temperature is displayed in the lower left corner. The value is displayed with the "Air" message and indication of the unit of measurement (°C or °F).

To change the measurement unit, refer to the chapter "Setting menu – Measurement Units".

The temperature value is displayed when ranging from -39°C (-38°F) to +125°C (+257°F).

For different temperature values, lower than $-39^{\circ}C$ ($-38^{\circ}F$) or higher than $+125^{\circ}C$ ($+257^{\circ}F$) a string of three dashes "- - -" is displayed.

O Note

When the motorcycle is stopped, the engine heat could influence the displayed temperature.



Engine Coolant temperature

The engine coolant temperature is displayed in the lower right corner. The value is displayed together with the set unit of measurement (°C or °F). To change the measurement unit, refer to the chapter "Setting menu – Measurement Units".

The temperature display range goes from +40°C (+104°F) to +150°C (+302°F).

If the temperature is below +40°C (+104°F), "LOW" is displayed, whereas if it is above +150°C (+302°F), "HIGH" is displayed flashing red. In case of a temperature sensor error or a temperature below -40°C (-40°F), 3 blinking dashes

"- - -" are displayed.

Attention

In case of overheating, if possible, it is recommended to ride at reduced speed to allow the cooling system to lower the engine temperature. If this is not possible due to traffic conditions, stop and turn the engine off.

If the motorcycle continues to be used when the engine is overheated, severe damage may occur.



When the engine temperature returns to normal, continue riding by frequently checking the instrument panel indication.

Load Mode

This function allows changing the motorcycle setup according to DSS (Ducati Skyhook Suspension) electronic suspension setup.

It is possible to associate any of the five available setups with a specific riding mode:

- Rider 🛆 ;
- Rider with luggage 🕭 🖨 ;
- Rider and passenger **D** ;
- Rider and passenger with luggage 🧕
- Self-levelling

If the symbols are flashing, the system is checking the pre-load.

Every load setup is associated with a specific rebound and compression damping of the (front and rear) shock absorbers and a specific rear shock absorber spring preload that changes according to the Riding Mode.

Attention

In case of system malfunction, contact a Ducati Dealer or Authorised Service Centre.



Ducati recommends changing the load mode when the motorcycle is stopped.

Pay extra care if changing the load mode of the motorcycle while riding.

Load Mode Setup

This function allows changing the motorcycle load setup at any time, thereby modifying the suspension setup within the current Riding Mode.

- Briefly press button (16, Fig 3)to activate the Load Mode Setup menu.
- Using the UP ▲ and DOWN ▼ positions of the joystick it is possible to scroll through and select the desired load mode.
- Press the joystick in the middle to confirm.

To exit the function without making any changes, press and hold the joystick in the LH \triangleleft position.



Load Mode Setup – minimum preload

This function allows setting the motorcycle's setup to the minimum height.

- Press and hold button (16, Fig 3).
- The motorcycle setup is brought to the minimum height and the corresponding icon is displayed.
- Press and hold button (16, Fig 3)again for a long time to reset the motorcycle to the previously set height.

If this function is not available, a warning popup will be displayed.



Ducati Connect

This function allows activating the mirroring of the special apps (provided by Ducati) on the smartphone previously connected to the instrument panel. The apps must be properly configured on the smartphone.

The smartphone must have been previously connected to the instrument panel, using the Bluetooth function in the Setting menu. page 51 To perform the mirroring, the instrument panel interfaces with the smartphone via Bluetooth and Wi-Fi: therefore, in addition to Bluetooth, Wi-Fi must also be active on the smartphone.

From the Interactive Menu select the "Ducati Connect" item and press the joystick in the middle. The Ducati Connect screen is displayed with the activated mirroring, (example of the "Sygic GPS Navigation" app in mirroring

To exit, press and hold the joystick in LH ◀ position for a long time.





Adaptive Cruise Control

This function allows you to activate and set the activation distance of the adaptive cruise control.

From the Interactive Menu select the "Adaptive Cruise Control" item and press the joystick in the middle. The screen with the currently set level is then displayed.

The currently set speed is displayed on the right side of the screen and the available levels are listed on the left side: Very Far, Far, Medium, Near. Use the joystick (UP \blacktriangle and DOWN \checkmark) to scroll through the available levels. Press the joystick in the middle to set the selected level: the instrument panel then returns to the previous screen, showing the icon corresponding to adaptive cruise control (12, Fig 1), located above the engine coolant temperature.

While displaying the adaptive cruise control screen, you can exit without changing the level by pressing and holding the joystick in the LH < position for a long time.

Once the adaptive cruise control is activated, you can increase and decrease the trip distance using





buttons (6 and 7, Fig 2). The corresponding icon is updated according to the change made.

Heated seat

This function allows the user to activate and set the seat heating.

From the Interactive Menu select the "Heated seat" item and press the joystick in the middle. The corresponding window is then displayed where the currently set level is shown.

There are 3 levels available: High, Low, Off. Using the joystick (UP \blacktriangle and DOWN \checkmark) you can select the desired level, to activate it press the joystick in the middle.

The instrument panel then returns to the previous screen: if the set level is different from "Off", the seat heating icon and the set level (17, Fig 1) are activated on the display.(Fig 1)

During level selection:

- press and hold the joystick in the LH ◀ position for a long time, the instrument panel will return to the previous screen closing the window without changing the current level;
- press and hold the joystick in the DOWN ▼ position for a long time to switch to the trip info menu selection closing the window without changing the current level.





Lap

This function allows recording lap times and is only available in the Sport Riding Mode.

From the Interactive Menu select the "Lap" item and press the joystick in the middle, the corresponding window (Fig 27) will be displayed.

The function is set to "Off" by default, unless you have previously activated it:

- If it is Off, the word "ON" is displayed in white with a grey stopwatch (Fig 27), press the joystick in the middle to activate the function.
- If it is ON, the word "OFF" is displayed with the stopwatch both in white; press the joystick in the middle to deactivate the function.





Below the stopwatch is the current lap number. It is possible to record maximum 30 laps.

Once the function is activated, flash button

(10, Fig 3) must be used to start/stop the stopwatch: the first time the flash button is pressed, the stopwatch flashes for a few seconds.

Each time the flash button is pressed again, the stopwatch displays the time of the just finished lap for a few seconds, after which it returns to the current LAP time.

When the thirtieth lap is reached, "FULL" is displayed and it is not possible to proceed with the time recording.

The recorded lap times can be consulted and deleted using the "Lap" function in the Setting menu.

If a lap recording is interrupted, the stopwatch will start from zero and the time will not be recorded.

Press and hold the joystick in the DOWN \checkmark position for a long time to switch to the trip info menu selection while keeping the Lap window active. In this case you can go back to the Lap window by pressing and holding the joystick in the UP \blacktriangle position for a long time.

Press and hold the joystick in the LH ◀ position for a long time, the instrument panel will return to the





previous screen closing the Lap window. If the function has been activated, "LAP" is displayed near the indication of the engaged gear (Fig 29).

The following data is recorded for each lap:

- Time
- Maximum reached speed
- Maximum reached RPM

ABS

This function allows disabling and enabling the ABS system and is only available in the Enduro Riding Mode.

From the Interactive Menu select the "ABS" item and press the joystick in the middle. The corresponding window is then displayed in which the current status of the function is displayed: "ABS ON" or "ABS OFF".

Press the joystick in the middle to change the function status: "WAIT..." is displayed for a few seconds, then the function status is updated. In case of an error on the ABS, "ERROR" is displayed during deactivation (OFF).

Press and hold the joystick in the DOWN ▼ position for a long time to switch to the trip info menu selection while keeping the ABS window active. In this case you can go back to the ABS window by pressing and holding the joystick in the UP ▲ position for a long time.

Press and hold the joystick in the LH \triangleleft position for a long time, the instrument panel will return to the previous screen closing the ABS window.





Trip Master

This function calculates and shows the partial distance (in km/h or mph) travelled by the bike and is only available in the Enduro Riding Mode.

The Trip master calculation can be set in incremental or differential mode and can also be temporarily stopped and reset to zero.

It is possible to change unit of measurement through the "Measurement Units" function in the "Setting menu".



Trip Master Controls

From the Interactive Menu select the "Trip Master" item and press the joystick in the middle. The corresponding window is then displayed with the following controls available:

- "ON" or "OFF"
- II pause or ▶ play to interrupt and resume Trip Master's calculation. When paused, the calculated distance flashes.
- • reset to reset the meter.
- ≜ incremental or ♥ differential to change the partial distance calculation mode.

Using the LH \triangleleft and RH \triangleright positions of the joystick you can select the available controls, which can be activated by pressing the joystick in the middle.

Trip Master activation and deactivation If the Trip Master has not been previously activated, the relevant window is displayed with "ON" selected: press the joystick in the middle to activate the Trip Master. Then "OFF" is displayed and the Trip Master controls are activated.



If the Trip Master has been previously activated, the relevant window is displayed with "OFF" selected: press the joystick in the middle to deactivate the Trip Master. The Trip Master controls are then deactivated.

Press and hold the joystick in the DOWN \checkmark position for a long time to switch to the trip info menu selection while keeping the Trip Master window active. In this case you can go back to the Trip Master window by pressing and holding the joystick in the UP \blacktriangle position for a long time. Press and hold the joystick in the LH ◀ position for a long time, the instrument panel will return to the previous screen closing the Trip Master window.

Music

This function allows activating, deactivating and managing the music player.

It is only available in the Touring and Urban Riding Modes and is only visible if a smartphone has been connected via Bluetooth

Important

If the smartphone connected to the instrument panel via Bluetooth is disconnected or switched off, this function will not be listed. It appears again only when the smartphone is connected again to the instrument panel via Bluetooth



If the rider helmet/intercom is connected in addition to the smartphone, the tracks will be listened through the helmet headphones.



Music player enabling and controls

To activate the music player, from the Interactive Menu select the "Music" item and press the joystick in the middle.

The display shows the title of the song currently playing on the connected smartphone (A), along with the available controls (B).

Once the music player is activated, the joystick is used exclusively to control its functions:

- UP ▲ and DOWN ▼ to increase and decrease the volume
- LH ◄ and RH ► to select the available controls which can be activated by pressing the joystick in the middle:
 - A previous track
 - 🔹 Þ þlay / 🛿 þause
 - stop
 - next track

Press and hold the joystick in the DOWN \checkmark position for a long time to switch to the trip info menu selection while keeping the music player active. In this case you can reactivate the music player controls by pressing and holding the joystick in the UP \blacktriangle position for a long time.



Press and hold the joystick in the LH ◀ position for a long time, the instrument panel will return to the previous screen closing the music player but still playing the selected track.

By pressing the joystick in the centre with the ■ stop control selected, the instrument panel returns to the previous screen, stopping the current track and closing the music player.



Phone

This function is only available in the Touring and Urban Riding Modes and displays the list of the last missed, made or received calls and is only available if a smartphone has been connected.

Only the last 7 made, received or missed calls are displayed. If a number or contact is present several times among the last calls, this is displayed only once.

From the Interactive Menu select the "Phone" item and press the joystick in the middle. The relevant window is displayed where the name or number of the last call is shown.

Use the joystick (UP \blacktriangle and DOWN \checkmark) to scroll through the calls in the list. To make a call to the number/name selected from the list, press the joystick in the middle. For more information about the outgoing calls, refer to the chapter "Infotainment" page 55.

If the list of calls is empty, "EMPTY" will be displayed: in this case it is only possible to quit the function. Press and hold the joystick in the LH ◀ position for a long time, the instrument panel will return to the previous screen closing the Phone window.





Setting menu

This menu allows enabling, disabling and setting some motorcycle functions.

For safety reasons, you can enter this Menu only when the motorcycle speed is lower than or equal to 5 km/h (3 mph).

If you are inside the Setting menu and the speed exceeds 5 km/h (3 mph) the instrument panel automatically displays the main screen.

To access, select the "Setting menu" item from the Interactive Menu and press the joystick in the middle.

Important

For safety reasons, it is recommended to use this menu with the motorcycle at a standstill.



Once entered in the Setting menu the display changes the display mode.

The options available inside the menu are:

- Riding Mode
- Info Display
- Fuel Indicator
- DRL (visible only if the DRL lights are present)
- Backlight
- Pin Code
- Forward Collision (visible only if ARAS system is present)
- Blind Spot Detection (visible only if ARAS system is present)
- SOS Call (visible only if CCU system is present)
- Antitheft (visible only if CCU system is present)
- Date and time
- Service
- Lap
- Tyre Calibration
- Tyre Pressure (visible only if tyre pressure sensor is present)
- Bluetooth
- D-Air (visible only if D|Air system is present)
- Turn Indicators
- Language



- Measurement Units
- Info

Using the joystick in the UP \blacktriangle DOWN \checkmark positions you can scroll through the available items. After displaying the required function, press the joystick in the middle or in the RH \blacktriangleright position to view the corresponding sub-menu.

To exit any submenu, press the joystick in the LH \blacktriangleleft position.

To exit the Setting menu, press and hold the joystick in LH \triangleleft position for a long time.

Riding Mode

This function allows customising the 4 Riding Modes: Sport, Touring, Urban, Enduro. The parameters that can be customised for each Riding Mode are:

- Engine
- DTC
- ABS
- DWC
- DQS
- Suspension
- Load Mode

For each parameter there is a submenu to customise it.

You can restore the default values for a single Riding Mode or for all 4 Riding Modes through the Default function.

Info Display

This function allows changing the order of the list of trip information in the Info Display Menu.

Fuel Indicator

This function allows changing the display mode of the fuel level: graduated bar or remaining km or miles. DRL (visible only if the DRL lights are present) This function allows setting the DRL lights in automatic or manual mode.

Backlight

This function allows changing the instrument panel backlighting setting.

Pin Code

This function allows activating or modifying the Pin Code.

Forward Collision (visible only if ARAS system is present)

This function allows activating, deactivating and setting the Forward Collision Warning.

Blind Spot Detection (visible only if ARAS system is present)

This function allows activating, deactivating and setting the Blind Spot Detection.

SOS Call (visible only if CCU system is present) This function allows starting the SOS Call.

Antitheft (visible only if CCU system is present) This function allows enabling or disabling the antitheft system.

Date and time

This function allows setting date and time on the instrument panel.

Service

This function allows displaying the next due Services:

- Oil Service (remaining km or mi)
- Desmo Service (remaining km or mi)
- Annual Service (date)

Lap

This function allows enabling or disabling the LAP function and view and delete the recorded LAPs.

Tyre Calibration

This function allows the user to run the procedure for calibrating and teaching in the tyre rolling circumference and final drive ratio.

Tyre Pressure (visible only if tyre pressure sensor is present) This function allows customising the reference

pressure values of the front and rear tyres.

Bluetooth

This function allows adding new Bluetooth devices and delete those already previously paired.

D-Air (visible only if D|Air system is present) This function allows checking the D-Air kit number, the battery status of the rider jacket and the battery status of the passenger jacket.

Turn Indicators

This function allows user to set the turn indicators to automatic mode or manual mode.

Language

This function allows setting the language of all the displayed indications.

Measurement Units

This function allows setting the units of measurement used by the instrument panel.

Info

This function allows viewing the vehicle battery voltage and the engine rpm digital indication.

Setting menu - Bluetooth

This function allows adding new Bluetooth devices and delete those already previously paired.

- Enter the Setting menu.
- Use the joystick (UP ▲ and DOWN ▼) to select "Bluetooth" and press the joystick in the middle or in the RH ▶ position.

This menu shows "Pairing" - to pair a new device and "Associated Devices" - to view and delete previously paired devices.

Select the desired item and press the joystick in the middle or in the RH $\blacktriangleright\,$ position.





Pairing

This function allows pairing a new Bluetooth device. The instrument panel manages 3 types of Bluetooth devices and a maximum of 4 devices paired and/or connected: 2 smartphones, 1 rider earphone and 1 passenger earphone.



ORANGE Before pairing a new device, make sure that its Bluetooth connection is active and that it can be detected by other Bluetooth devices. Always refer to the provisions under the device instructions.

Note

During the pairing procedure user may be required to confirm it directly on the device (e.g. smartphone). Refer to the device messages.

- Enter the Setting menu. _
- Use the joystick (UP ▲ and DOWN ▼) to select _ "Bluetooth" and press the joystick in the middle or in the RH ▶ position.
- Select "Pairing" (Fig 41) and press the joystick in _ the middle or in the RH ▶ position.
- The types of devices that can be managed by the instrument panel (Fig 42) are displayed. Select





the type of device you want to pair and press the joystick in the middle or in RH \blacktriangleright position.

- The instrument panel starts searching for nearby Bluetooth devices, and displays the message "Wait..." followed by a list of detected devices.
- As soon as the search stage is over, the display shows a list of all detected devices (Fig 43). Use the joystick (UP ▲ and DOWN ▼) to select the desired device and press the joystick in the middle or in the RH ▶ position.
- The display shows the message "Pairing..." on the right, while waiting validation by the Bluetooth device.

If device pairing is successful, the display will show previous menu page. If not, the message "Pairing Error" is displayed and user is allowed to repeat the pairing procedure.

If no Bluetooth devices are detected during the pairing phase, the instrument panel displays "No device".

Associated Devices

This function allows viewing and erasing paired devices.

- Enter the Setting menu.
- Use the joystick (UP ▲ and DOWN ▼) to select "Bluetooth" and press the joystick in the middle or in the RH ▶ position.
- Select "Associated Devices" (Fig 44) and press the joystick in the middle or in the RH ► position.
- All paired devices (Fig 45) are listed. Select the desired device and press the joystick in the middle or in the RH ▶ position.
- The message "Delete?" is displayed; press the joystick in the middle or in the RH ► position.
- The message "Wait..." is displayed for a few seconds, then the instrument panel displays the previous menu and updates the list of associated devices.





Infotainment

The top of the display shows the symbols of Bluetooth devices connected to the instrument panel:

- 1) Smartphone;
- 2) Smartphone battery level;
- 3) Smartphone signal reception level;
- 4) Intercom

4a) rider connected;

4b) passenger connected;

4c) rider connected and passenger paired;4d) rider paired and passenger connected;

- 4e) rider and passenger connected;
- 5) Ducati Link.

Icons are light blue if the corresponding device is connected. They are grey if the corresponding device is paired but not connected.

To pair a new Bluetooth device and to manage devices already paired, refer to the chapter "Setting Menu – Bluetooth".

If a smartphone is connected to the instrument panel, the system allows managing the music player and the list of the last calls. Refer to the chapters "Music" and "Phone".



Below is a description of what the instrument panel will do in the following cases:

- Incoming call
- Call in progress
- Recall last number

O Note

The on-going call window is displayed in the foreground and the joystick controls are used exclusively to manage the call.

After the call has ended, the instrument panel returns to the previous screen.

Incoming call

When there is an incoming call, the display shows the dedicated window:

- the name/number of the person calling (A)
- the message "ACCEPT" (B)
- the message "DECLINE" (C)

To answer the call, press the joystick in the middle. To reject the call, press the joystick in the RH \blacktriangleright position to select "DECLINE" and then press the joystick in the middle.



Call in progress

During a call, the instrument panel will display:

- the name/number (A)
- the volume control indication (B)
- the message "END CALL" (C)

During the call, you can increase and decrease the volume via the UP \blacktriangle and DOWN \checkmark positions of the joystick.

To end the call press the joystick in the middle.

Note

If the rider helmet/intercom is connected in addition to the smartphone, the phone call will take place through the helmet headphones and microphone.



Recall last number

When a phone call is ended or rejected, the instrument panel activates the function for 5 seconds that allows recalling the last number. The display shows:

- the name/number of the person calling (A)
- the message "RECALL" (B)

Press the joystick in the middle to start the call to the displayed name/number.



Heated grips

This function allows the user to activate and set the handgrip heating.

Press the dedicated button on the right switch, then the relevant window is displayed where the currently set level is shown.

There are 4 levels available: High, Medium, Low, Off. Using the joystick (UP \blacktriangle and DOWN \checkmark) you can select the desired level, to activate it press the joystick in the middle.

The instrument panel then returns to the previous screen: if the set level is different from "Off", the heated handgrip icon and the set level (18, Fig 1) are activated on the display.(Fig 1)

During level selection:

- press and hold the joystick in the LH ◀ position for a long time, the instrument panel will return to the previous screen closing the window without changing the current level;
- press and hold the joystick in the DOWN ▼ position for a long time to switch to the trip info menu selection closing the window without changing the current level.





EU Directive 2014/53/EU

[English]

"Hereby, Robert Bosch GmbH declares that the radio equipment type 6.5inch Instrument Cluster is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: certifications.ducati.com"

[Austria]

"Hiermit erklärt Robert Bosch GmbH, dass der Funkanlagentyp 6.5inchCluster der Richtlinie 2014/53/EU entspricht. Der vollständige Text der EU-Konformitätserklärung ist unter der folgenden Internetadresse verfügbar: certifications ducati com"

[Belgium]

"Le soussigné, Robert Bosch GmbH, déclare que l'équipement radioélectrique du type 6.5inchCluster est conforme à la directive 2014/53/UE. Le texte complet de la déclaration UE de conformité est disponible à l'adresse internet suivante: certifications.ducati.com"

[Bulgaria]

"С настоящото Robert Bosch GmbH декларира, че този тип радиосъоръжение 6.5inchCluster е в съответствие с Директива 2014/53/ЕС.Цялостният текст на ЕС декларацията за съответствие може да се намери на следния интернет адрес: certifications.ducati.com

[Cyprus]

"Με την παρούσα ο/η Robert Bosch GmbH, δηλώνει ότι ο ραδιοεξοπλισμός 6.5inchCluster πληροί την οδηγία 2014/53/ΕΕ. Το πλήρες κείμενο της δήλωσης συμμόρφωσης ΕΕ διατίθεται στην ακόλουθη ιστοσελίδα στο διαδίκτυο: certifications.ducati.com"

[Czech Republic]

"Tímto Robert Bosch GmbH prohlašuje, že typ rádiového zařízení 6.5inchCluster je v souladu se směrnicí 2014/53/EU. Úplné znění EU prohlášení o shodě je k dispozici na této internetové adrese: certifications.ducati.com"

[Germany]

"Hiermit erklärt Robert Bosch GmbH, dass der Funkanlagentyp 6.5inchCluster der Richtlinie 2014/53/EU entspricht. Der vollständige Text der EU-Konformitätserklärung ist unter der folgenden Internetadresse verfügbar: certifications.ducati.com"

[Denmark]

"Hermed erklærer Robert Bosch GmbH, at radioudstyrstypen 6.5inchCluster er i overensstemmelse med direktiv 2014/53/EU. EUoverensstemmelseserklæringens fulde tekst kan findes på følgende internetadresse: certifications.ducati.com"

[Estonia]

"Käesolevaga deklareerib Robert Bosch GmbH, et käesolev raadioseadme tüüp 6.5inchCluster vastab direktiivi 2014/53/EL nõuetele. ELi

vastavusdeklaratsiooni täielik tekst on kättesaadav järgmisei internetiaadressil:

certifications.ducati.com"

[Spain]

"Por la presente, Robert Bosch GmbH declara que el tipo de equipo radioeléctrico 6.5inchCluster es conforme con la Directiva 2014/53/UE.El texto completo de la declaración UE de conformidad está disponible en la dirección Internet siguiente: certifications.ducati.com"

[Finland]

"Robert Bosch GmbH vakuuttaa, että radiolaitetyyppi 6.5inchCluster on direktiivin 2014/53/EU mukainen. EUvaatimustenmukaisuusvakuutuksen täysimittainen teksti on saatavilla seuraavassa internetosoitteessa certifications ducati com"

[France]

"Le soussigné, Robert Bosch GmbH, déclare que l'équipement radioélectrique du type 6.5inchCluster est conforme à la directive 2014/53/UE. Le texte complet de la déclaration UE de conformité est disponible à l'adresse internet suivante: certifications.ducati.com"

[United Kingdom]

"Hereby, Robert Bosch GmbH declares that the

radio equipment type 6.5inchCluster is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: certifications.ducati.com"

[Greece]

"Με την παρούσα ο/η Robert Bosch GmbH, δηλώνει ότι ο ραδιοεξοπλισμός 6.5inchCluster πληροί την οδηγία 2014/53/ΕΕ. Το πλήρες κείμενο της δήλωσης συμμόρφωσης ΕΕ διατίθεται στην ακόλουθη ιστοσελίδα στο διαδίκτυο:

certifications.ducati.com"

[Croatia]

"Robert Bosch GmbH ovime izjavljuje da je radijska oprema tipa 6.5inchCluster u skladu s Direktivom 2014/53/EU. Cjeloviti tekst EU izjave o sukladnosti dostupan je na sljedećoj internetskoj adresi: certifications.ducati.com"

[Hungary]

"Robert Bosch GmbH igazolja, hogy a 6.5inchCluster típusú rádióberendezés megfelel a 2014/53/EU irányelvnek. Az EU-megfelelőségi nyilatkozat teljes szövege elérhető a következő internetes címen: certifications.ducati.com

[Ireland]

"Hereby, Robert Bosch GmbH declares that the radio equipment type 6.5inchCluster is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: certifications.ducati.com"

[Italy]

"Il fabbricante, Robert Bosch GmbH, dichiara che il tipo di apparecchiatura radio 6.5inchCluster è conforme alla direttiva 2014/53/UE.Il testo completo della dichiarazione di conformità UE è disponibile al seguente indirizzo Internet: certifications.ducati.com

[Lithuania]

"Aš, Robert Bosch GmbH, patvirtinu, kad radijo įrenginių tipas 6.5inchCluster atitinka Direktyvą 2014/53/ES. Visas ES atitikties deklaracijos tekstas prieinamas šiuo interneto adresu: certifications.ducati.com"

[Luxembourg]

"Le soussigné, Robert Bosch GmbH, déclare que l'équipement radioélectrique du type 6.5inchCluster est conforme à la directive 2014/53/UE. Le texte complet de la déclaration UE de conformité est disponible à l'adresse internet suivante: certifications.ducati.com"

[Latvia]

["]Ar šo Robert Bosch GmbH deklarē, ka radioiekārta 6.5inchCluster atbilst Direktīvai 2014/53/ES. Pilns ES atbilstības deklarācijas teksts ir pieejams šādā interneta vietnē: certifications.ducati.com"

[Malta]

"B'dan, Robert Bosch GmbH, niddikjara li dan it-tip ta' tagħmir tar-radju 6.5inchCluster huwa konformi mad-Direttiva 2014/53/UE. It-test kollu taddikjarazzjoni ta' konformità tal-UE huwa disponibbli fdan l-indirizz tal-Internet li ġej: certifications.ducati.com"

[Netherlands]

"Hierbij verklaar ik, Robert Bosch GmbH, dat het type radioapparatuur 6.5inchCluster conform is met Richtlijn 2014/53/EU. De volledige tekst van de EUconformiteitsverklaring kan worden geraadpleegd op het volgende internetadres: certifications.ducati.com"

[Poland]

"Robert Bosch GmbH niniejszym oświadcza, że typ urządzenia radiowego 6.5inchCluster jest zgodny z dyrektywą 2014/53/UE.Pełny tekst deklaracji zgodności UE jest dostępny pod następującym adresem internetowym:

certifications.ducati.com"

[Portugal]

"O(a) abaixo assinado(a) Robert Bosch GmbH declara que o presente tipo de equipamento de rádio 6.5inchCluster está em conformidade com a Diretiva 2014/53/UE.O texto integral da declaração de conformidade está disponível no seguinte endereço de Internet:

certifications.ducati.com

[Romania]

"Prin prezenta, Robert Bosch GmbH declară că tipul de echipamente radio 6.5inchCluster este în conformitate cu Directiva 2014/53/UE.Textul integral al declarației UE de conformitate este disponibil la următoarea adresă internet: certifications.ducati.com" [Sweden]

"Härmed försäkrar Robert Bosch GmbH att denna typ av radioutrustning 6.5inchCluster överensstämmer med direktiv 2014/53/EU.Den fullständiga texten till EU-försäkran om överensstämmelse finns på följande webbadress: certifications.ducati.com"

[Slovenia]

"Robert Bosch GmbH potrjuje, da je tip radijske opreme 6.5inchCluster skladen z Direktivo 2014/53/EU. Celotno besedilo izjave EU o skladnosti je na voljo na naslednjem spletnem naslovu: certifications.ducati.com"

[Slovakia]

"Robert Bosch GmbH týmto vyhlasuje, že rádiové zariadenie typu 6.5inchCluster je v súlade so smernicou 2014/53/EÚ. Úplné EÚ vyhlásenie o zhode je k dispozícii na tejto internetovej adrese: certifications.ducati.com" United States (USA)

"This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation."

"Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment." "NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment gene rates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interfere nee to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

· Reorient or relocate the receiving antenna.

• Increase the separation between the equipment and receiver.

• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

• Consult the dealer or an experienced radio/TV technician for help."

- RF exposure Information according 2.1091/2.1093 / OET bulletin 65:

Radiofrequency radiation exposure Information: This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20 cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

The manufacturers of these radio equipment declare that devices comply with the FCC FCC ID: 2AUXS-6P5CLUSTER

Canada

This device contains licence-exempt transmitter(s)/ receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

(1) This device may not cause interference.

(2) This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

(1) L'appareil ne doit pas produire de brouillage;

(2) L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

RF Exposure Information:

This equipment complies with Canada radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20 cm between the radiator and your body.

Déclaration d'exposition aux radiations: Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de

distance entre la source de rayonnement et votre corps.

IC: 25847-6P5CLUSTER

CE

Technical Information BT operating frg. Range: 2402 – 2480 MHz BT version: 4.2 (no BTLE) BT output power: < +4 dBm WLAN operating frg. Range: 2412 – 2462 MHz WLAN standards: IEEE 802.11 blg/n WLAN output power: < +14 dBm

ANATEL certification

"Este produto está homologado pela Anatel, de acordo com os procedimentos regulamentados pela Resolução nº 242/2000 e atende aos requisitos técnicos aplicados."



This device should not be modified (otherwise the granted designation number will become invalid)



JAPAN certification Aproval ID: 電波法 (RL): xyx-xxxxxx 電気通信事業法(TBL): D yy-xxxx xxx

BBBBBBBBBB T X JJ-SNNN AAA

This device is granted pursuant to the Japanese Radio Law (電波法) and the Japanese Telecommunications Business Law (電気通信事業法) 本製品は、電波法と電気通信事業法に基づく適合証明 本製品の改造は禁止されています。(適合証明番号 などが無効となります。)

MALAYSIA certification



MEXICO certification

La operación de este equipo está sujeta a las siguientes dos condiciones: (1) es posible que este equipo o dispositivo no cause interferencia perjudicial y (2) este equipo o dispositivo debe aceptar cualquier interferencia, incluyendo la que pueda causar su operación no deseada.



IFT: xxxxxxxxxx Marca: Bosch Modelo: xxxxxxxx

RUSSIAN certification



SERBIA certification

 SOUTH
 KOREA
 Certification

 해당 무선설비는 전파혼신 가능성이 있으므로 인명안
 전과 관련된 서비스는 할 수 없습니다



R-C-R8Rx00000000000

UKRAINE Certification





TAIWAN Certification

經型式認證合格之低功率射頻電機,非經許可,公司、 商號或使用者均不得擅自變更頻率、加大功率或變更原 設計之特性及功能。

低功率射頻電機之使用不得影響飛航安全及干擾合法通 信;經發現有干擾現象時,應立即停用,並改善至無干 擾時方得繼續使用。前項合法通信,指依電信法規定作 業之無線電通信。低功率射頻電機須忍受合法通信或工 業、科學及醫療用電波輻射性電機設備之干擾。

Thailand Certification

เครื่องโทรคมนาคมและอุปกรณ์นี้ **ธ**ทช. Type 2: Radiocommunication eguipment that is license exempted (e.g. WWAN, WLAN, NFC, WLAN, Bluetooth):



English Translation of content: This radiocommunication equipment is exempted from a possess license, user license, or radiocommunication station license as per NBTC notification regarding radiocommunication equipment and radiocommunication station exempted from licensing in accordance with radio communication act B.E.2498