

DP C080.C Instrument Technical Documentation



Product Category: Intelligent Display Instrument

Product Series: DP C080

Product Model: DP C080.C

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1. Product Introduction

1.1 Name:

- Intelligent Display Instrument

1.2 Product Model:

- DP C080.C

1.3 Applicable Scope:

- EN15194 Electric Power-Assisted Bicycles.

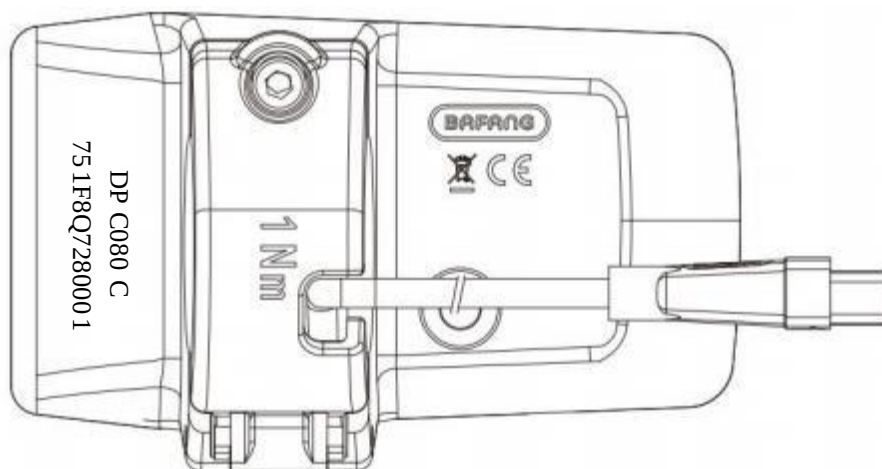
1.4 Appearance:

- The product housing material is PC/ABS, and the LCD transparent window is made of aluminosilicate glass. (As shown in the figure)



1.5 Instrument Backside Numbering Rules:

The backside of the instrument has a two-row numbering system in the middle.



A. Upper Row Numbering:

- DP C080.C
 - DP C080.C: Bafang instrument model.

B. Lower Row Numbering:

- 751F807280001
 - 751: Wire length connector code, button 300;
 - F8: Design code;
 - 07280001: Production date is July 28, 2016, serial number 0001.

For more detailed information, please refer to the document "Instrument Marking Rules" with document number BF-TS-753-C0-02II.

2. Product Description

2.1 Dimensions:

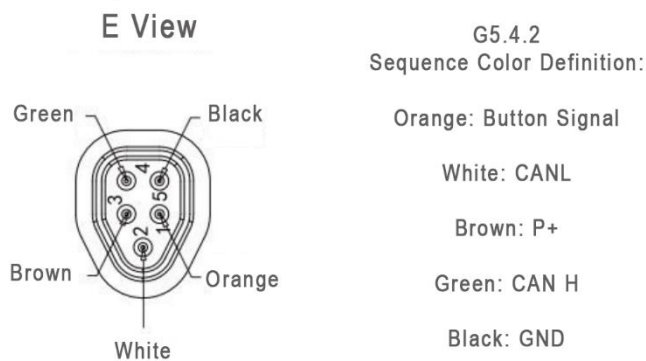
- (Refer to the diagram for specific dimensions)



2.2 Specifications:

1. 36V/48V/52V DC power supply;
2. Instrument rated power consumption: 0.29W;
3. Shutdown leakage current <1uA;
4. Operating temperature: -20°C to 45°C;
5. Storage temperature: -20°C to 60°C;
6. Waterproof rating: IPX7;
7. Storage environment humidity: 30%-70%.

2.3 Connector Definitions:



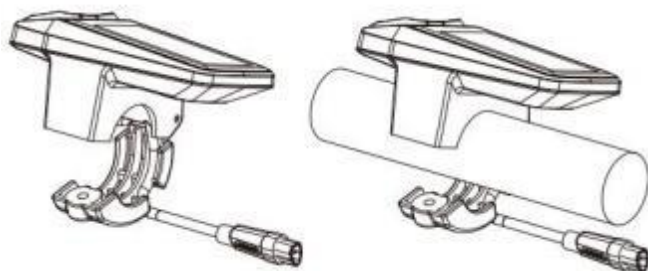
For the communication protocol, please refer to the Bafang CAN communication protocol section related to the instrument.

2.4 Functional Overview:

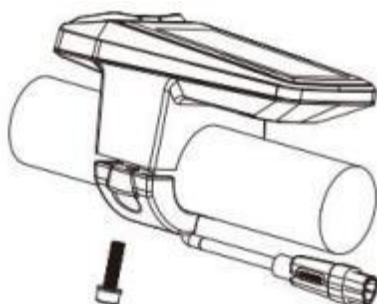
1. Uses CAN communication protocol with three buttons for convenient and quick customer operation.
2. Speed display: Includes real-time speed, maximum speed (MAX), and average speed (AVG).
3. KM/Mile selection: Allows users to set the display in kilometers or miles based on preference.
4. Intelligent battery level indication: Provides stable battery percentage indication through optimized algorithms.
5. Light-sensing automatic headlight control: Automatically turns the instrument backlight and headlight on/off based on external light changes.
6. Backlight brightness adjustment in 4 levels: Allows users to set backlight brightness from 25% (darkest) to 100% (brightest).
7. Total gear control: 6 modes.
8. Mileage display: Maximum mileage display of 99999, with options for single trip mileage (TRIP) and total mileage (ODO).
9. Intelligent display: Remaining range (RANGE), energy consumption (Calories).
10. Fault code prompts.
11. Assisted push mode.
12. Maintenance reminder function.
13. 6 language options: English, German, Dutch, French, Italian, Czech.

2.5 Instrument Installation:

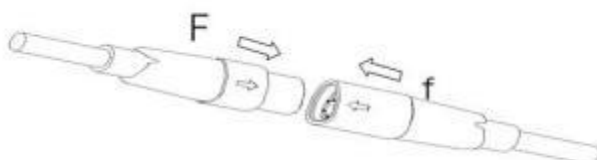
1. Open the handlebar clamp, place the instrument wire into the handlebar groove, and then fit the instrument onto the handlebar at a suitable operating position. (Suitable for handlebars with an outer diameter of $\Phi 22.2\text{mm}$)



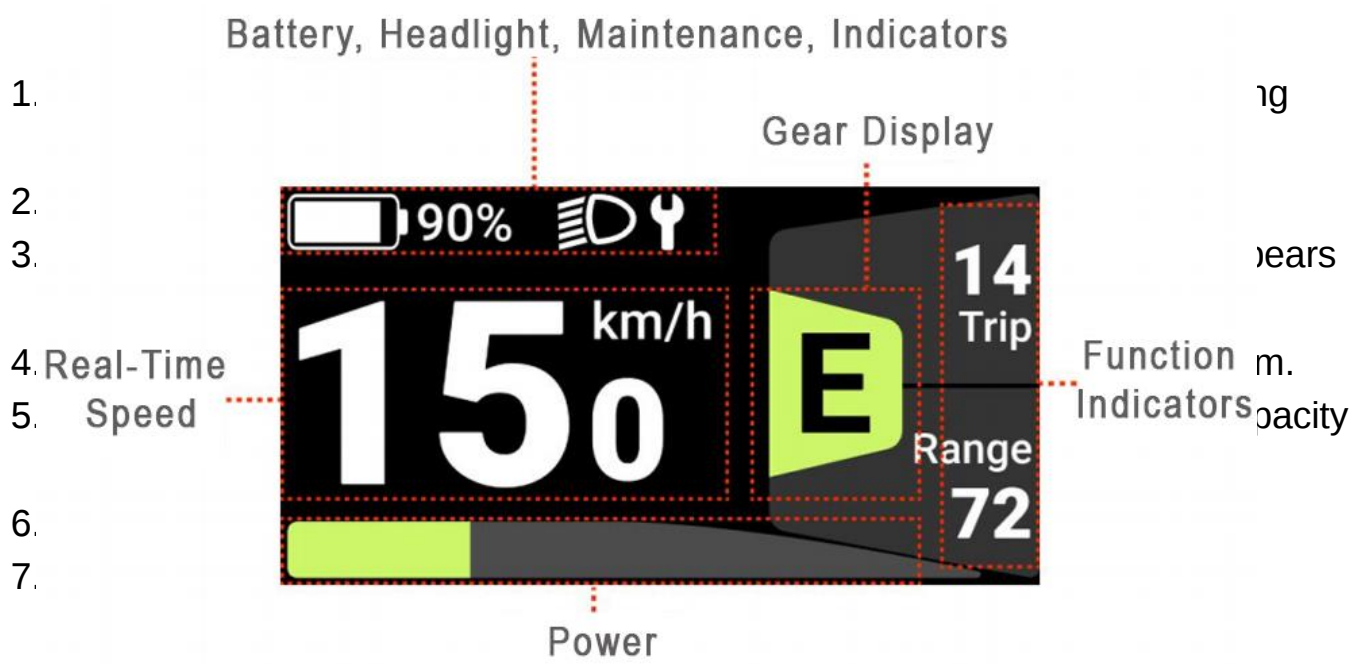
2. Adjust the instrument angle for easier viewing while riding, and use an M3 hex wrench to tighten the handlebar fixing screw (screw specification: M3*12). Tightening torque: 1N.m.



3. Connect the instrument plug to the EB-BUS plug according to the labels: F. Instrument male connector; f. EB-BUS female connector.



2.6 Normal Display Area:



2.7 Button Definitions:



2.8 Normal Operations:

1. Power On/Off:

- Power On: Long press the power button ($\geq 2s$) when the instrument is off. The instrument will fully display and start working, showing the Bafang logo on the startup screen.
- Power Off: Long press the power button ($\geq 2s$) when the instrument is on. The instrument will turn off. If the rider does not perform any operation for more than 5 minutes (user-configurable), the instrument will automatically turn off.



Power-On Interface

2. Assist Gear Selection:

- In manual gear shift mode, short press "+" or "-" to switch assist gears, changing the motor assist power. The lowest gear is E, and the highest is B (user-configurable). The instrument defaults to E gear when powered on, with 0 indicating neutral.

By default, it is set to E gear, and when the number is 0, it is in neutral. (As shown in the figure below)

E (Eco): Green - Economy Mode

T (Tour): Blue - Comfort Mode

S (Sport): Indigo - Sport Mode

S+ (Sport+): Orange - Enhanced Sport Mode

B (Boost): Purple - Maximum Power Mode



Assist Gear Selection Interface

3. Data Summary Interface:

- On the main interface, short press the power button to enter the quick interface. In this interface, riding data is displayed simply and clearly. Short press the power button to switch data displays.



Data Summary Switching Interface

4. Headlight/Backlight Switch:

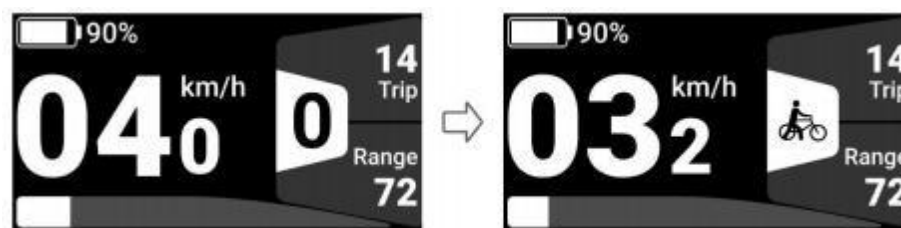
- Long press ($\geq 2s$) the "+" button to turn on the headlight and reduce the backlight brightness. The screen light indicator will appear. Long press the "+" button again to turn off the headlight and increase the backlight brightness. The screen light indicator will disappear.



Headlight Switch Interface

5. Assist Push Mode:

- When the system is stationary, short press "-" to 0 gear, then short press "-" again. The instrument will show the push assist symbol " " lit. Long press "-" to make the push assist symbol " " flash (500ms frequency), entering push assist mode (if no speed signal is detected, the instrument will display 2.5km/h). Release the "-" button to exit push assist mode, and the push assist symbol " " will stop flashing and remain lit. If no button is pressed within 5 seconds, the gear will automatically drop to 0.



Assist Push Mode Switching Interface

2.9 Information Viewing and Settings:

- Simultaneously long press "+" and "-" to enter the information setting list ("Setting"). Short press "+" or "-" to select "HMI Setting", "Information", "Themes", "Language", or "EXIT", and short press the power button to enter.



Setting Interface



HMI Setting Interface



Information Interface



Language Interface



Themes Interface

1. Unit Conversion (Metric/Imperial):

- Enter the "Setting" menu, short press "+" or "-" to select "Unit", and short press the power button to enter the setting. Short press "+" or "-" to select "Metric" or "Imperial", and short press the power button to save and exit to "Unit". Simultaneously long press "+" and "-" to save and exit to the main interface, or use "BACK" → "EXIT" to return to the main interface.



"Metric" for Metric Units / "Imperial" for Imperial Units

2. Auto Power Off Time:

- Enter the "Setting" menu, short press "+" or "-" to select "Auto Off", and short press the power button to enter the setting. Short press "+" or "-" to select "OFF" / "1Min" / "2Min" / "3Min" / "4Min" / "5Min" / "6Min" / "7Min" / "8Min" / "9Min" / "10Min", and short press the power button to save and exit to "Auto Off". Simultaneously long press "+" and "-" to save and exit to the main interface, or use "BACK" → "EXIT" to return to the main interface. "OFF" means the auto power off function is disabled.



Auto Shutdown Time Setting Interface

3. Backlight Setting:

- Enter the "Setting" menu, short press "+" or "-" to select "Brightness", and short press the power button to enter the setting. Short press "+" or "-" to select "100%" / "75%" / "50%" / "25%", and short press the power button to save and exit to "Brightness". Simultaneously long press "+" and "-" to save and exit to the main interface, or use "BACK" → "EXIT" to return to the main interface.



Backlight Level Display Interface

4. Light Sensor Sensitivity:

- Enter the "Setting" menu, short press "+" or "-" to select "AL sensitivity", and short press the power button to enter the setting. Short press "+" or "-" to switch light sensor sensitivity levels "OFF" / "1" / "2" / "3" / "4" / "5". "OFF" means the function is disabled, and levels "1" to "5" correspond to increasing sensitivity. Short press the power button to save and exit to "AL sensitivity". Simultaneously long press "+" and "-" to save and exit to the main interface, or use "BACK" → "EXIT" to return to the main interface.



Light Sensitivity Setting Interface

5. Single Trip Mileage Reset (Also Clears TIME Data):

- Enter the "Setting" menu, short press "+" or "-" to select "Trip reset", and short press the power button to enter the setting. Short press "+" or "-" to select "NO" / "YES" ("YES" means reset, "NO" means no reset), and short press the power button to save and exit to "Trip reset". Simultaneously long press "+" and "-" to save and exit to the main interface, or use "BACK" → "EXIT" to return to the main interface.



Single Trip Mileage Reset Selection Interface

6. Maintenance Reminder:

- Enter the "Setting" menu, short press "+" or "-" to select "Service", and short press the power button to enter the setting. Short press "+" or "-" to select "OFF" / "ON". "OFF" means the maintenance reminder function is disabled, and "ON" means it is enabled. Short press the power button to save and exit to "Service". Simultaneously long press "+" and "-" to save and exit to the main interface, or use "BACK" → "EXIT" to return to the main interface. (Note: The maintenance reminder function is disabled by default. When enabled, the instrument will display the "Service" symbol when the total mileage exceeds 5,000 km.)



Maintenance Reminder Setting Interface

7. Wheel Size and Speed Limit Viewing:

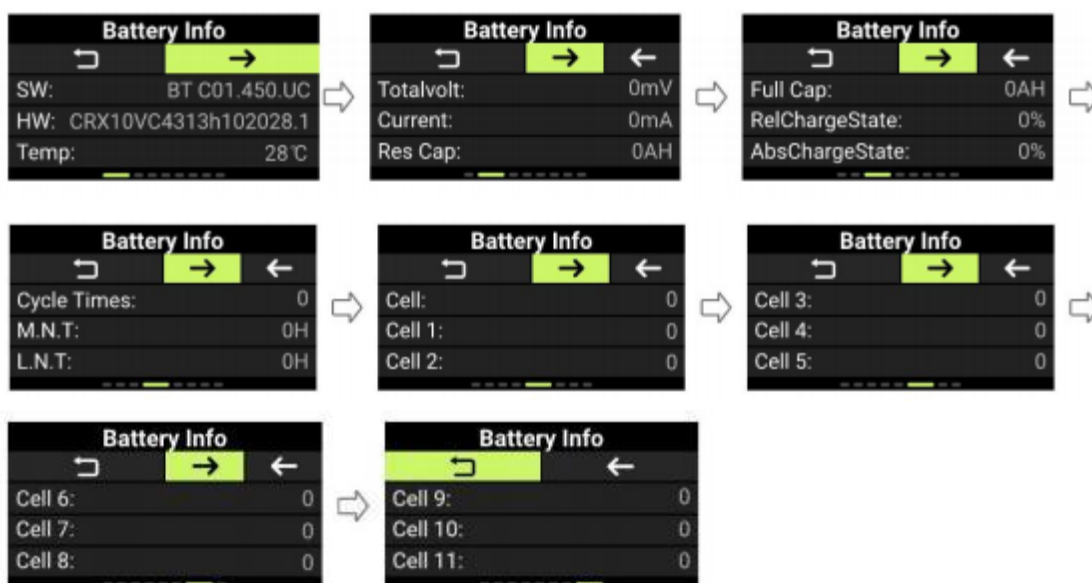
Enter the "Information" menu, select "Controller Info", and short press the power button to enter. In the "Controller Info" interface, select the "→" icon and short press the power button to view "Wheel Size" and "Speed Limit" information. Simultaneously long press "+" and "-" to save and exit to the main interface, or use "BACK" → "EXIT" to return to the main interface.



Wheel Diameter and Speed Limit Viewing Interface

8. Battery Information Viewing:

- Enter the "Information" menu, short press "+" or "-" to select "Battery Info", and short press the power button to enter. Short press the power button to view battery information. After viewing, select the return icon and short press the power button to exit to "Battery Info". Simultaneously long press "+" and "-" to save and exit to the main interface, or use "BACK" → "EXIT" to return to the main interface.



Battery Software and Hardware Version Viewing Interface / Battery Information Viewing Interface

show code	battery information	Unit
Temp	Current Temperature	°C
Totalvolt	Total Voltage	mV
Current	Average Current	mA
Res Cap	Remaining Capacity	Ah
Full Cap	Full Charge Capacity	Ah
RelChargeState	Relative State of Charge	%
AbsChargeState	Absolute State of Charge	%
CycleTimes	Cycle Count	次
M.N.T	Maximum Time Without Charging	Hour
L.N.T	Recent Time Without Charging	Hour
Cell	Number of Battery Cells	
Cell 1	Cell 1 Voltage	mV
Cell 2	Cell 2 Voltage	mV
.....		mV
Cell n	Cell n Voltage	mV

9. Instrument Information Viewing:

- Enter the "Information" menu, short press "+" or "-" to select "HMI Info", and short press the power button to enter. The sequence is SW: → HW:. Short press the power button to exit to "HMI Info". Simultaneously long press "+" and "-" to exit to the main interface, or use "BACK" → "EXIT" to return to the main interface.



Meter Information Viewing Interface

10. Controller Information Viewing:

- Enter the "Information" menu, short press "+" or "-" to select "Controller Info", and short press the power button to enter. Short press the "+" button to view the sequence SW: → HW:. Short press the power button to exit to "Controller Info". Simultaneously long press "+" and "-" to exit to the main interface, or use "BACK" → "EXIT" to return to the main interface.

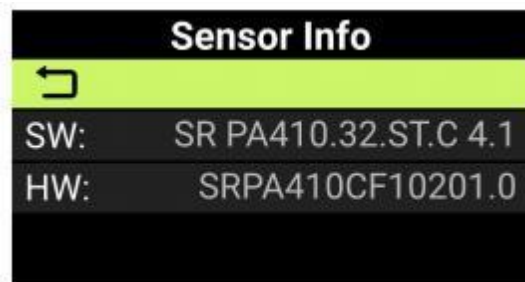


Controller Information Viewing Interface

11. Torque Sensor Information Viewing:

- Enter the "Information" menu, short press "+" or "-" to select "Sensor Info", and short press the power button to enter. The sequence is SW: → HW:. Short press the power button to exit to "Sensor Info". Simultaneously long press

"+" and "-" to exit to the main interface, or use "BACK" → "EXIT" to return to the main interface.



Torque Sensor Information Viewing Interface

12. UI Settings:

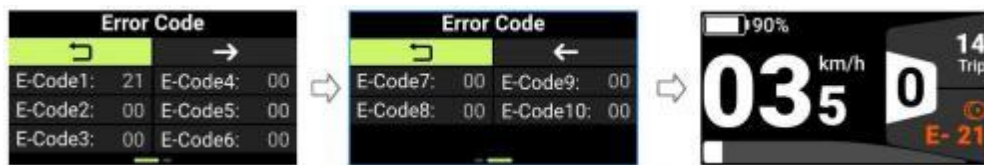
- Enter the "Setting" menu, short press "+" or "-" to select "Themes", and short press the power button to enter the setting. Select the desired UI theme and short press the power button to save. The instrument will reset and restart. If no theme is selected, long press "+" and "-" to exit to the main interface.



UI Settings Interface

13. Viewing Historical Fault Codes:

- Enter the "Information" menu, short press "+" or "-" to select "Error Code", and short press the power button to enter. Short press "+" to switch and view the last 10 error messages, from "E-Code1" to "E-Code10". Short press the power button to exit to "Information", or simultaneously long press "+" and "-" to exit to the main interface. (Note: For fault code definitions, refer to the relevant manual.)



Error Code Query Interface / Malfunction