



MtM+ Technology

Data Collection Station V1 (DCS V1) Product Specification

(Preliminary)



Revision History

Ver.	Date	Status	Owner	Description
1.0	Feb. 23, 2018	Draft	Kirov Chen	Initial release
1.1	Mar. 1, 2018	Approving	Kirov Chen	Update BLE spec.
1.2	Mar. 8, 2018	Approving	Shawn Lin	Update Sensor spec



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1. INTRODUCTION

This **Data Collection Center** is a programmable IoT controller supports a wide range of equipment with interfaces for analog and digital signal input and output.

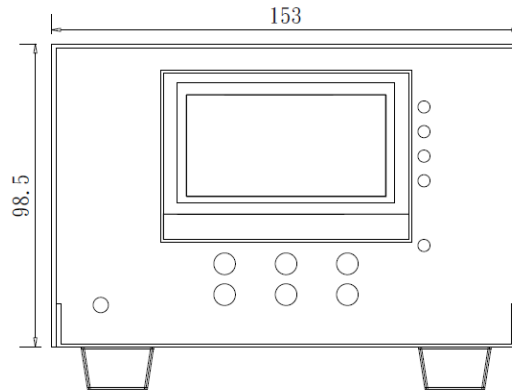


Figure 1: Outlook of DCS V1

GENERAL

DCS is a smart console with variant interface to manage every application and connect to IOT device. DCS is an independent device that includes the following major features and/or modules.

- **LCD Display:** A 144x64 Dot-Matrix LCD
 - STN negative blue transmissive.
 - Backlight type is LED white.
- **Button & Switch**
 - Button
 - ◆ Esc button: Back toward to previous page or exit current menu.
 - ◆ Mute button: Turn off buzzer.
 - ◆ Page Up button: Move to previous menu.
 - ◆ Page Down button: Move to next menu.
 - ◆ ENT (Enter) button: Access sensor calibration page.
 - ◆ Backlight button: Turn off backlight.
 - ◆ Reset button: System software reset.
 - Switch
 - ◆ Power switch: Cut off main power
- **LED Indicators**
 - Output1: General AC Output 1 On/Off Status (Nitrogen valve on/off.)
 - Output2: General AC Output 2 On/Off Status (Buzzer)
 - Output3: General AC Output 3 On/Off Status (Warning light)
 - Output4: General AC Output 4 On/Off Status (N/A)
 - POWER: Power

● I/O definition

- RS-485 communication interface
- I2C interface
- USB 2.0 port x 2 (BLE firmware download, Debug port)
- ST-Link interface for MCU STM32F429 firmware download
- 4 AC outputs with AC-Neutral common
- 4 DC inputs

● Power system

- AC Power Input: 100 – 240 VAC, 0.12A
 - ◆ Power source from AC adapter.

2. DESIGN RELATED DOCUMENTATION

MAJOR PART LIST

Item	Description	Type	Qty
1	DCS	Version 1	1
2	Power Cable	3-pins Socket	1
3	2.4GHz Antenna	Female Connector	1
4	European Terminal Connector	6.25mm 4 ports	2
5	European Terminal Connector	5mm 8 port	1

3. TECHNICAL REQUIREMENTS

MECHANICAL CHARACTERISTICS

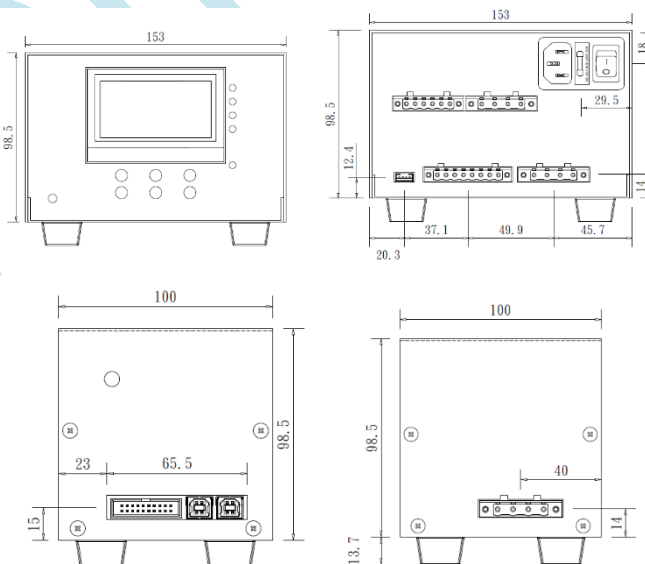


Figure 2: Outlook of DCS V1



MCU & MEMORY

- Processor STM32F429 (256KB SRAM, 512Kbytes Flash, 180MHz)
- BLE TLSR8269F512 (32KB SRAM, 512KB internal FLASH)

LCD DISPLAY

- 144x64 Dot-Matrix LCD
- STN negative blue transmissive.
- Backlight type is LED white.

BLUETOOTH CHARACTERISTICS

- Multi-protocol with Bluetooth low energy 4.2/ ANT / 2.4G RF
- Support BLE mesh protocol
- Support sensor data hopping transmission (BLE mesh)
 - Temperature & humidity sensor (Accuracy $\pm 0.5^{\circ}\text{C}$, $\pm 1.5\%$)
 - Pressure sensor (Accuracy ± 0.12 hPa)
 - 3-axis accelerometer (Sensitivity 2g ~ 16g)
 - RS-485 MODBUS sensor
- Embedded 32-bit high performance MCU with clock up to 48MHz.
- A rich set of I/Os:
 - 4 Digital I/O output
 - 4 Digital I/O input
 - I2C Sensor interface
- One quadrature decoder.
- Embedded hardware AES.
- Operating temperature: 0°C to 60°C industrial temperature range.
- +8dBm output power
- -86dBm sensitivity, Bluetooth low energy

MISCELLANEOUS

Specification		DCS V1
Dimension	L x W x H (mm)	150 x 100 x 98
Connectivity Options	Bluetooth	BLE & Mesh (Default)
	Wi-Fi	Option
	LoRa	Option
Power	Adapter	AC C41110/230V/ 0.12A
I/O port	GPIO	DC output 4P Euroblock x1 AC output 4P Euroblock x1
	SPI	N/A
	I2C	2.0mm 4P x1
	UART	USB type-B x1
	RS232/RS485	2P Euroblock x1
Certifications and OS Support		
Certifications	CE	V
	FCC	V
OS Support	Windows	V
	Linux	V



Figure 3: Outlook of DCS V1



Figure 4: LCD Display

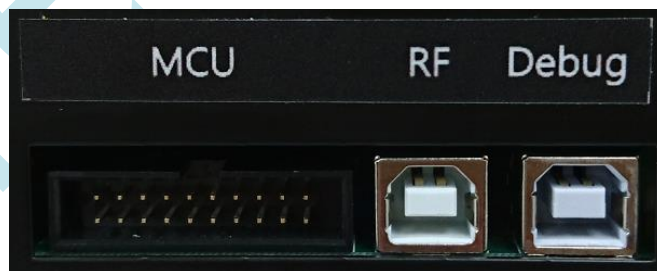


Figure 5: Input 1

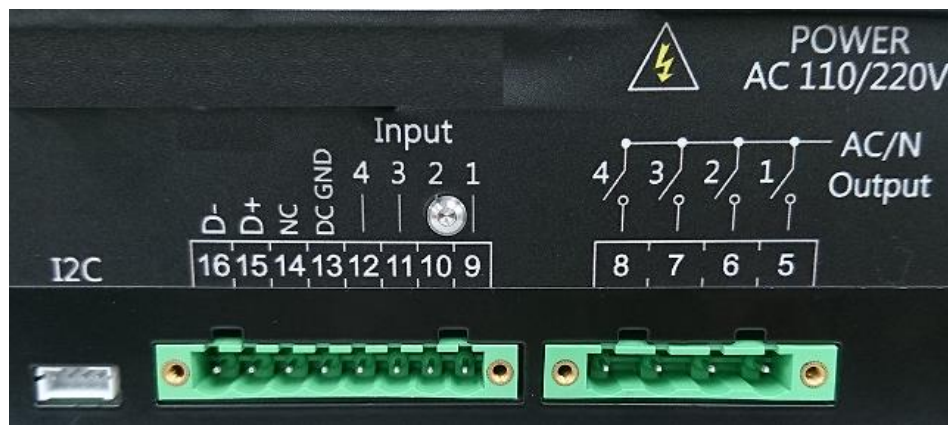


Figure 6: Input 2

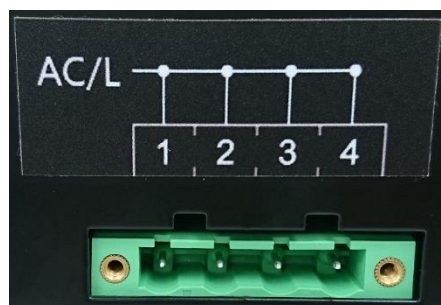


Figure 7: Input 3