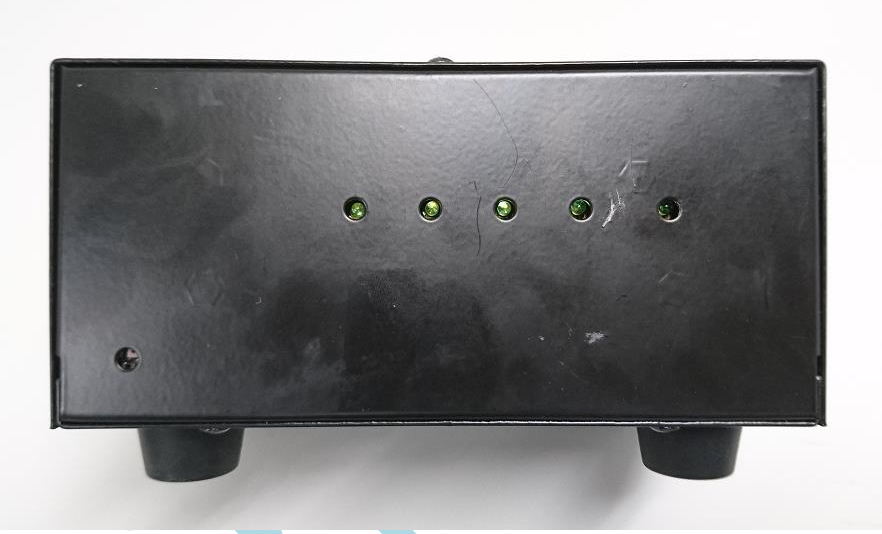
MtM+ Technology

Data Collection Station V2 (DCS V2)
Product Specification
(Preliminary)



Revision History

Ver.	Date	Status	Owner	Description
1.0	Mar. 21, 2018	Draft	Kirov Chen	Initial release

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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.

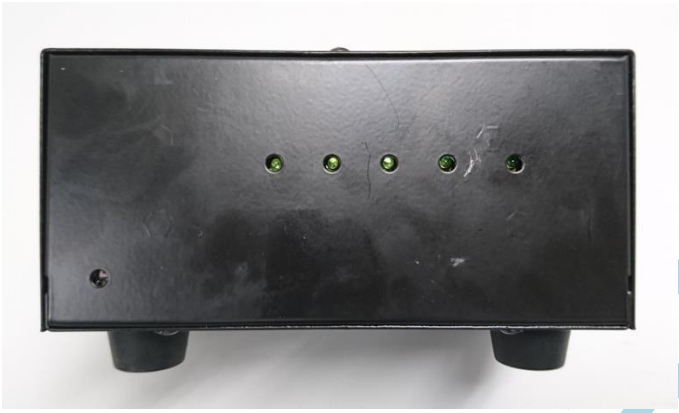

Figure 1: Outlook of DCS V2

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.

- **Button**
  - 1 Reset button: System software reset.
- **LED Indicators**
  - 5 LED indicator, one for power normal indicator, four for output indicator
    - Output1: General AC output 1 On/Off status
    - Output2: General AC output 2 On/Off status
    - Output3: General AC output 3 On/Off status
    - Output4: General AC output 4 On/Off status
    - POWER: Power normal
- **I/O definition**
  - 1 RS-485 communication interface
  - 2 I2C interface (Humidity / Temperature / Thermal couple / Motion sensor)
  - 16 digital inputs
  - 10 analog inputs
  - 4 PWM outputs
  - 2 SPI interface with 16 chip select output
  - ST-Link F/W download interface
  - 1 RS-485 communication interface
  - 2 IIC interface for external sensor module
  - 2 USB type B interface, 1 for debug console, the other for Telink module F/W download
  - 1 Micro USB type B interface for USB OTG function

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 V2

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

- **Power system**
  - DC Power Input: 12VDC (±10%), 3A

- **USB**
  - Connector: Type B
    - USB 2.0 compliant
  - Micro USB Type B:
    - USB 2.0 compliant
    - OTG function support

- **SPI**
  - Voltage Output: DC 3.3V, 700mA
  - VIH (High-level input voltage): 2.31VDC
  - VIL (Low-level input voltage): 0.99VDC
  - VOH (High-level output voltage): 3.2VDC
  - VOL (Low-level output voltage): 0.1VDC

- **I2C Interface**
  - Voltage Output: DC 3.3V / 700mA
  - Data Rate: 100Kbit/s ~ 1Mbits/s (depend on connecting wire length)

- **Digital Input**
  - Input Voltage Range: 0 ~ 3.3VDC
- **Analog Input**
  - Input Voltage Range: 0 ~ 24VDC
- **RS-485 Interface**
  - Data Rate: 4800 bps ~ 115200 bps
  - Receiver Input Sensitivity ±200 mV
- **IIC Interface:**
  - Voltage supply: 3.3VDC, 700mA
  - Extend bus support: yes
  - Data Rate: ~1Mbits/s (depend on connecting device and wire length)
- **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)
    - Pressure sensor (Accuracy ±0.12 hPa)
    - Thermal couple
    - Motion
    - 3-axis accelerometer (Sensitivity 2g ~ 16g)
    - RS-485 MODBUS sensor
  - Embedded 32-bit high performance MCU with clock up to 48MHz
  - One quadrature decoder
  - Embedded hardware AES.
  - Operating temperature: 0℃ to 60℃ industrial temperature range
  - +8dBm output power
  - -86dBm sensitivity, Bluetooth low energy

MISCELLANEOUS

Specification		DCS V2
Dimension	**L x W x H (mm)**	150 x 100 x 55
Connectivity Options	**Bluetooth**	BLE & Mesh (Default)
	Wi-Fi	Option
	LoRa	Option
Power	**Adapter**	DC12V / 1A
I/O port	**GPIO**	ADC 10P x1 PWM 4P x1 GPIO 16P x1
	SPI	SPI x16
	I2C	2.0mm 4P x2
	UART	USB Type-B x1, Micro USB Type-B x1
	RS232/RS485	2P Euroblock x1

Certifications and OS Support		
Certifications	**CE**	V
	FCC	V
OS Support	**Windows**	V
	Linux	V

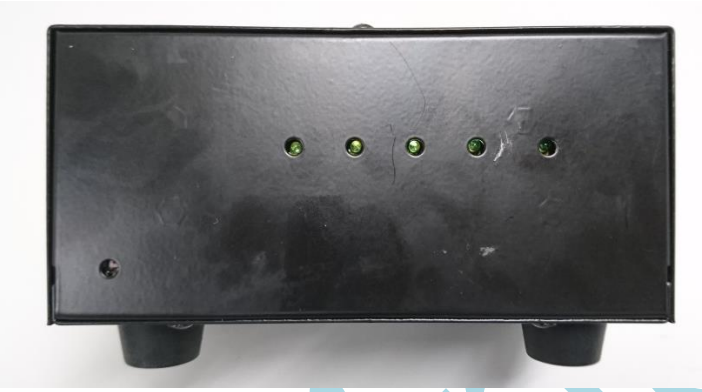

Figure 3: Front view

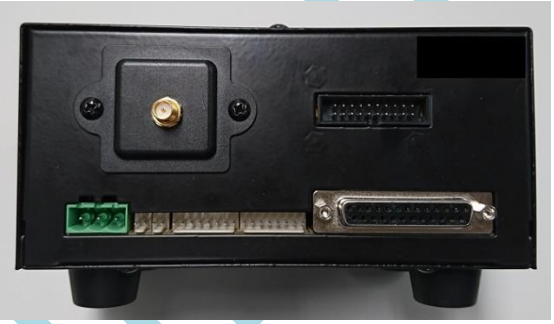

Figure 4: Rear view

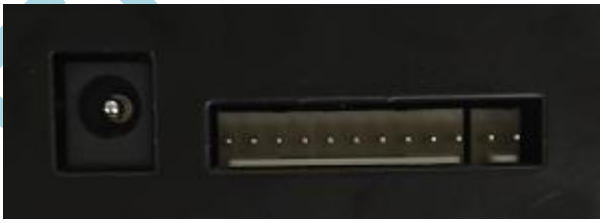

Figure 5: Input (Right side)

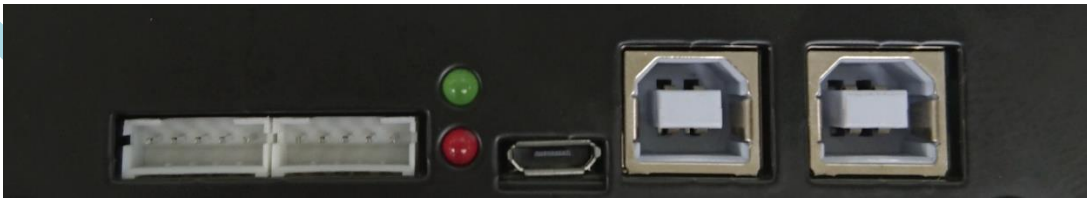

Figure 6: Input (Left side)