

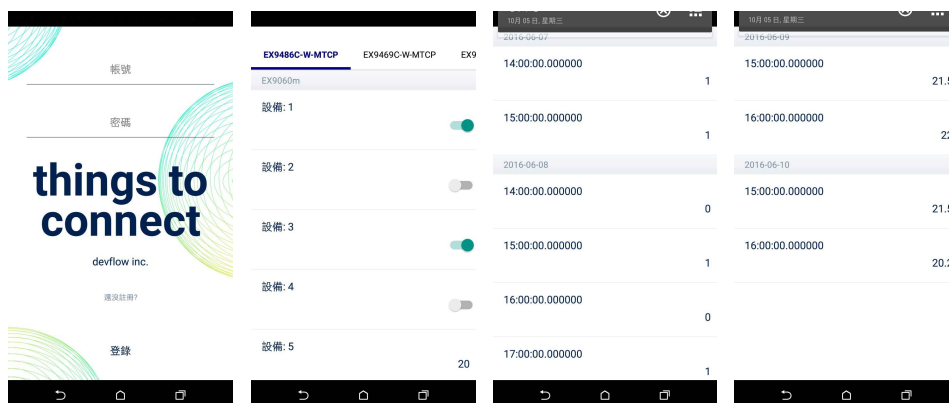


Central Monitoring/Control System  
(I IOT Cloud solution)

# Central Temperature Monitoring/Control System (I IOT Cloud solution)

Intelligent Central Monitoring/Control System by  
App with Cloud

User can easy to install the Remote I/O Controller in the Harsh environment .the Remote I/O Controller was one of engineering level devices. now we make User easy to install & control by App(i OS/Android) .



Application for sensor type:K Thermocouple between -270 ~ +1372 degree Celsius by App with Cloud control thru Wi-Fi & RS485 bus of EX9018-M .



## Central Monitoring/Control System (I IOT Cloud solution)

### The Cloud System functions:

1. Member management
2. Enable user to register local routers, modules and channels to private cloud database
3. Observe and record status for registered channels in each 3 mins(default).
4. Support for K type Thermocouple sensor.
5. Allow to set logical conditions to monitor and trigger alarm when sensor data shows unusual.

### The App functions:

1. Read/ set the status of registered digital relay output.
2. Read the status of registered sensors from server
3. History record for each channels.

### The Step of App operation:

1. Download the App
2. Creat a Account



## Central Monitoring/Control System (I IOT Cloud solution)

### Hardware Specification:

Certificate(optional) : ISPE's GAMP4(essential)、FDA's CFR 21 Part 11、domestic's cGMP、CE、ROHS meet FCC Part 15.

Maximum monitoring devices: 20+

Temperature measurement range : -100 ~100 (change the probe to extend the temperature measurement range as -200~200 ).

temperature accuracy :  $\pm 0.1\%$

Probe reaction time: Within 30 seconds Reaction at least 63% of temperature different .

Probe types: External thermocouple(K Type : Default) .

Probe length: At least 1.2 meters.

Number of probes: 1 ~ 8 probes can be connected.

Audible alarm: Sensor with buzzer alarm .

Alarm mute: The alarm mute button (optioal: automatically restart time).

Wireless transmission: Regularly detects temperature and sends the data back to the Server(Cloud).

Transmission mode: Through wireless (Wi-Fi), to transmute the refrigerator/devices temperature and conditions to the central monitoring system(Cloud).

Transmission range of Wireless : 100 meters (open area).

Data Capacity(optional): 32,000 T values above.

Wired Downloads: From Cloud by PC(Web Page)

Display: 1 x 2 inch"4 Digits LED

Installation options: Stand-alone or wall-mounted (there are keyhole)

Power Input : DC24V, 1.87A or above



## Central Monitoring/Control System (I IOT Cloud solution)

### Software Specification:

Software Language: English .

Personnel management: It can set the account password to management .

Eelectronic Approved(optional): To prevent data tampering, data movement need to have the record by FDA CFR21 PART 11.

Sensor settings: It can set the time intervals of temperature record, alert type, high and low temperature threshold.

Data information: Data can be distinguished between normal and abnormal.

Alert types: Temperature anomalies, lack of electricity, the correction maturity & signal interruption.

Software Alert: Central monitoring system(Web Page) will pop up a warning with an alarm sound on Windows and send Email (required) to the administrator for notify why.

Email Alert: It can set multiple sets of accounts (> 4) to send and incidental cause of the alarm.

Chart features: Historical data and real-time data displays by Graphical and automatical corresponding to monitoring device.

Create groups: Simultaneously monitoring all devices and device groups.

Historical data query: It can query historical data by graphic and reading by listing.

Report Output: Need to report a variety of formats as PDF from Web Page(optioal: Excel,Html will soon).

Print function: Historical data printing or instant printing.

Data Backup: Data Backup by automatic or manual (optional year / month / week / day).

Data Acquisition: A minimum sampling rate is 1 minute and a maximum is 30 Minutes.

Remote monitoring: Can be wireless LAN (Wi-Fi) by a Web Page monitoring the devices.(optioal: wired) .



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Password protection: Central monitoring system can set different levels of user password (local and remote).

Temperature Calibration: It included internal calibration features to ensure the temperature are correct.

Operating System: Windows 7 or Windows 10 (including the above) .

## Wire Connection of EX9018-M & EX9486CW-MTCP :

Drawing of Wire Connection :

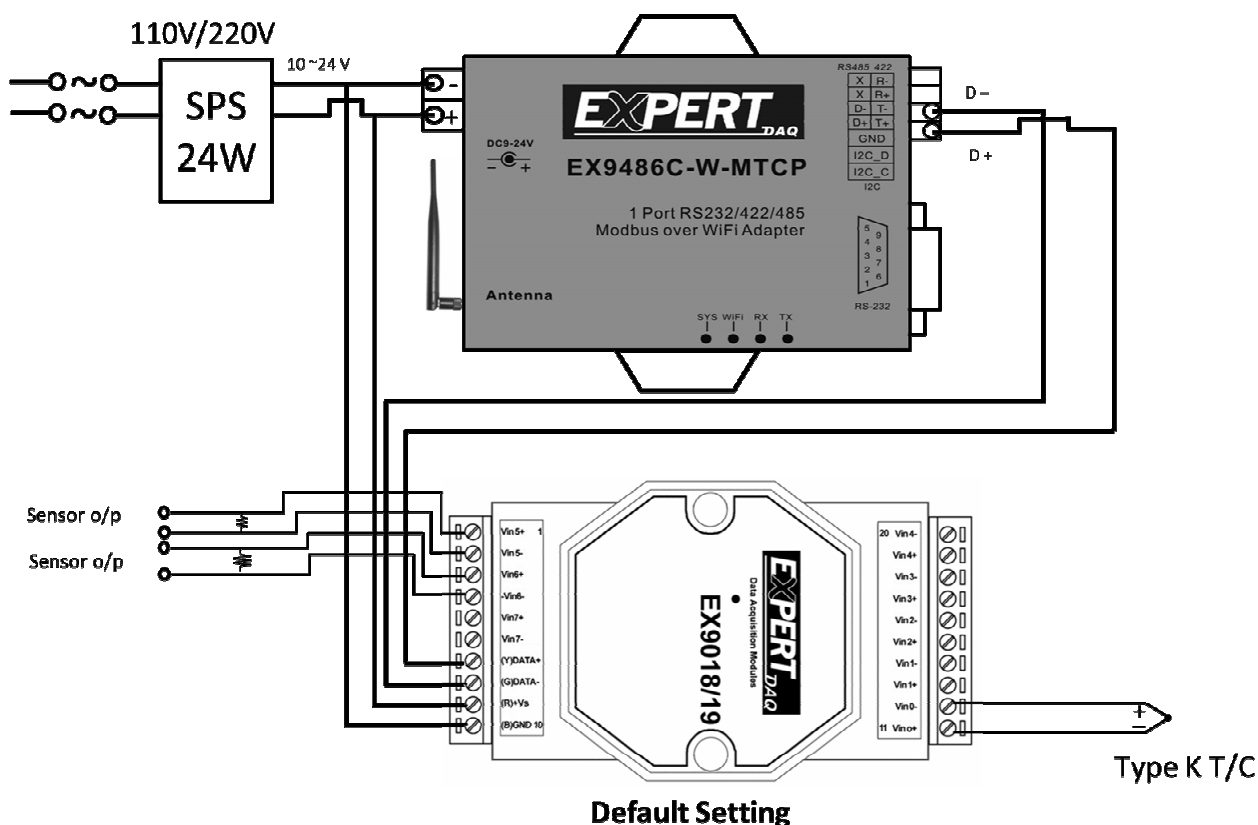


Fig. 1-1

### Note:

1. Default setting of EX9018-M: Baud Rate: 9600bps ; CheckSum: Non; 8, N , 1; Address: 1; Modbus Mode; Type: K ( -270 ~ +1372 degree Celsius) please refer the individual Manual of EX9018-M series.
2. Default Setting of EX9486CW-MTCP: Router IP Setting & Cloud Server Setting ... that please ref. Fig. 2-2; 3-3 ; 4-4



## Central Monitoring/Control System (I IOT Cloud solution)

### Wiring Recommendations:

1. It is recommended to  
use shielded wire and connect the shielding to the  
Execution current of channel.
2. For RS-485, use insulated and twisted pair 24 AWG wire, e.g.  
Belden 9841
3. Use 26-12 AWG wire for signal connections.



**Brush Finished Housing w/ Display & Flash Alarm & Expandable Connector**

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The Default Setting of EX9486CW-MTCP: Router IP Setting & Cloud Server Setting ... that please ref. Fig. 2-2; 3-3 ; 4-4



System Network GateWay

**Wi-Fi**

Network Type : Infrastructure

SSID :  Gxi0306

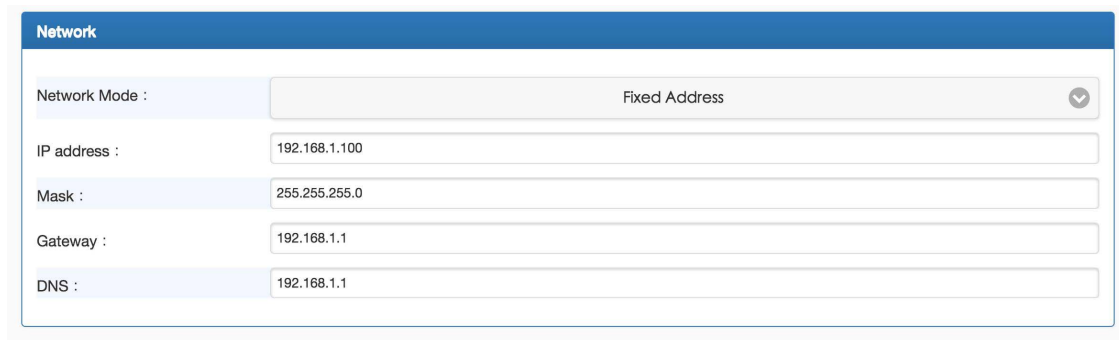
Auth Mode : WPA2-PSK

Auth Password : stephy1222

Encrypt : AES

Choose Network -> change SSID and password for local wifi

Fig.2-2



System Network GateWay

**Network**

Network Mode : Fixed Address

IP address : 192.168.1.100

Mask : 255.255.255.0

Gateway : 192.168.1.1

DNS : 192.168.1.1

Choose Network -> change IP address and mask and Gateway for local wifi

Fig. 3-3



## Central Monitoring/Control System (I IOT Cloud solution)

Modbus Gateway Log out  
ver : 1.0.11

System Network **GateWay**

**Gateway**

Mode : TCP Client to RTU Slave

Message Timeouts(ms) : 500

**TCP SERVER PROPERTIES**

Destination IP : 218.161.2.177

Destination Port : 12345

Choose Gateway -> change mode to **TCP Client to RTU slave** -> change Destination IP to **218.161.2.177** and port to **12345**

Fig. 4-4

### Relative Information:

Wire Connection of EX9018-M & EX9486C-W-MTCP refer the Quick Manual of Central Temperature Monitoring/ Control System .

**Default setting of EX9018-M:** Baud Rate: 9600bps ; CheckSum: Non; 8, N , 1; Address: 1; Modbus Mode; Type: K please refer the individual Manual of EX9018-M series.

**Default Setting of EX9486-MTCP:** Router IP Setting & Cloud Server Setting ... refer Manual of EX9486CW-MTCP

**Sensor Spec. & Type :** K Thermocouple between -270 ~ +1372 degree Celsius all was Thermocouple Measure to Input of EX9018-M.

Also refer the Manual of Central Temperature Monitoring/ Control System .

## Wire Connection of Thermocouple:

EX9018-M

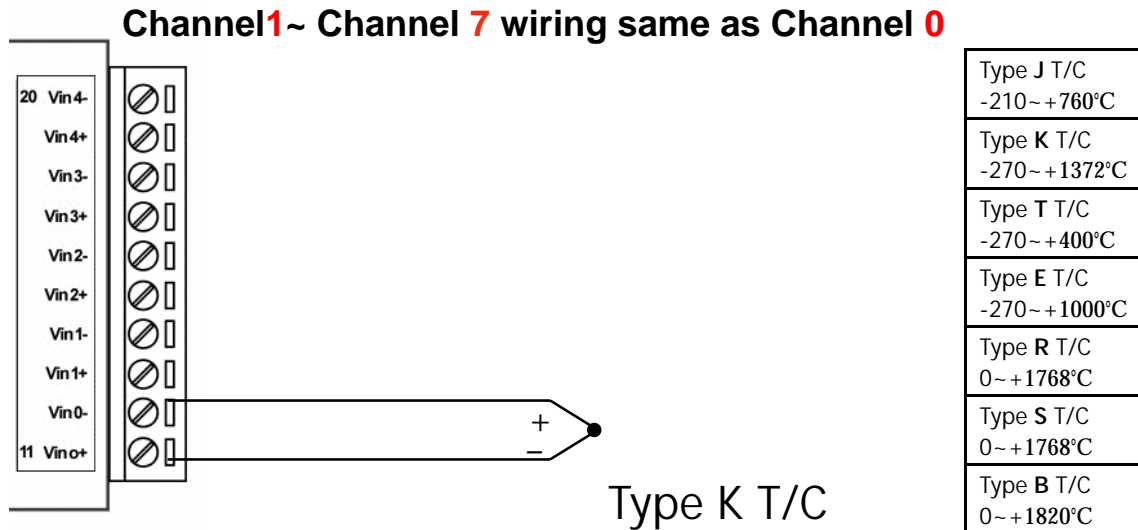


Fig. 5-5

**Reference of some Sensors: Thermocouple sensor with Cement-On Surface**

- Styles 1 and 2 are made from 0.0005" thermocouple alloy foil by a special process where the butt welded thermocouple junction is 0.0005" in thickness. Styles 1 and 2 are flat, extremely low inertia construction and are an ideal means of measuring the temperature of both flat and curved metals, plastic and ceramic surfaces where very fast response is desired.

Style 1 and 2 thermocouples are fabricated from ANSI "Special Limits of Error" grade thermocouple materials in "K", "E" and "T" calibrations and yield accurate temperature indication when used with standard thermocouple instrumentation. Styles 1 and 2 have the fastest response. Style 3 is an economy version

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constructed from 0.010" diameter bead welded standard limit of error thermocouple wire. It should be used where extremely fast response is not essential. Response Time in Milliseconds.

- Made from 0.0005" Foil and 0.010" Diameter Thermocouple Wire
- Very Low Thermal Inertia
- Four Calibrations "K", "E", "J" and "T"
- Lead lengths: Style 1 and 3 are 1m (40") long. Style 2 is 150mm (6") long, standard. Additional lengths are available on request.



**Brush Finished Housing w/ Display & Flash Alarm & Expandable Connector**



## Central Monitoring/Control System (I IOT Cloud solution)

### **Appendix A(optional): Functions Expandable of Central Temperature Monitoring/ Control System**

Users bought EX9018-M of Central Temperature Monitoring/ Control System for sensor K Thermocouple between -270 ~ +1372 degree Celsius to measuring in first step. After some time User hope to expandable the functions to output control the Harsh environment.

Users can select EX9060D-M to output control the Alarm warning or turn-off the Switch/ Valve/ Breaker for Safety situation during the Sensors sense value Higher/ Lower the setting value.

Also, EX9018-M have 8 channels for Input value by Sensors that's mean EX9060D-M can output control 4\* Alarm or turn-off the Switch/ Valve/ Breaker for safety situation during the Sensors sense value Higher/ Lower the setting value.

Note:

1. The App(Android) of Central Monitoring/ Control System will bundle the App w/ Control functions of EX9060D-M for Users' Expandable requirement when Users buy EX9060D-M .



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### Wire Connection & Pin Assignment of functions

Expandable :

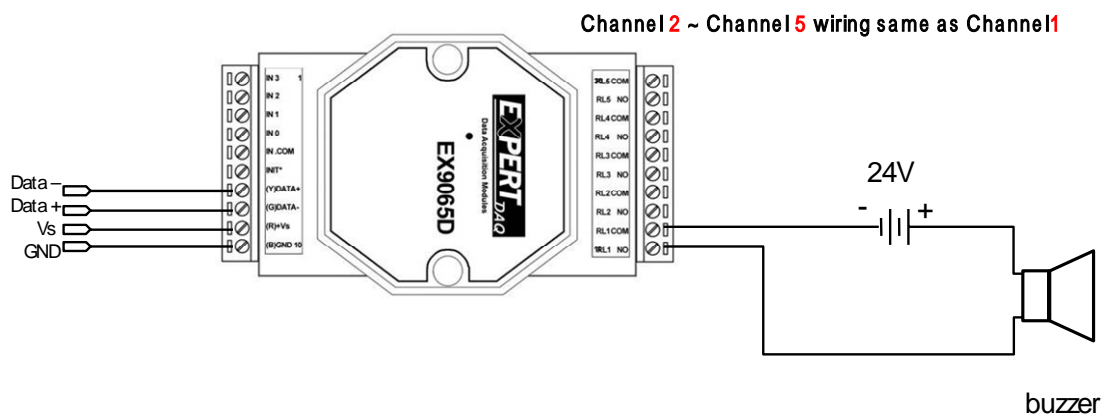


Fig. 6-6

(EX9018-M + EX9486CW-MTCP+ EX9060D-M)



Brush Finished Housing w/ Display & Flash Alarm & Expandable Connector



## Central Monitoring/Control System (I IOT Cloud solution)

### **The Expandble functions of App**(Central Monitoring/ Control System):

1. Read/ set the status of registered digital relay output.

(EX9018M Input Channel 1~4 for EX9060D-M Output Channel 1~4)

(EX9018M Input Channel 5~8 for new one of EX9060D-M Output Channel 1~4 to expandable)

2. Read the status of registered sensors from server.

(EX9018M Input Channel 1~8)

3. History record for each channels.

(EX9018M Input Channel 1~8)

#### Note :

1. User should be download the App of Expandble Functions for Expandble and the step & operations same as above mentions

2. User can select the Module name for Expandble after you download the App with Expandble func.

3. User can select different Remote I/O Modules of EX9000-M

to expandable the applications by Cloud System with

<http://topsgcc.com.tw> ; <http://DevDAQ.com.tw>