

# I-7018Z, M-7018Z Quick Start Guide

## ■ Warranty

All products manufactured by ICP DAS are under warranty regarding defective materials for a period of one year from the date of delivery to the original purchaser.

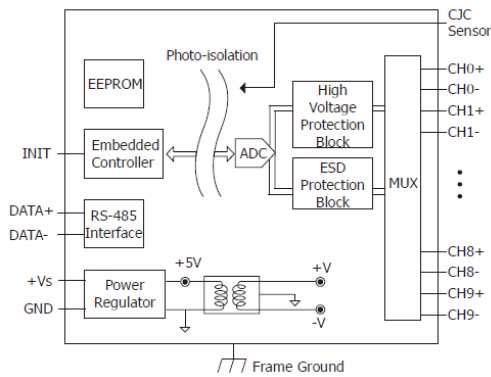
## ■ Warning

ICP DAS assumes no liability for damages resulting from the use of this product. ICP DAS reserves the right to change this manual at any time without notification. The information furnished by ICP DAS is believed to be accurate and reliable. However, no responsibility is assumed by ICP DAS for its use, or for any infringements of patents or other rights of third parties resulting from its use.

## ■ Packing List

|                              | I-7018Z<br>M-7018Z | DB-1820 | DN-1822 | CA-252518D | Plastic Rail | CD | Quick Start Guide |
|------------------------------|--------------------|---------|---------|------------|--------------|----|-------------------|
| I-7018Z-G/S<br>M-7018Z-G/S   | V                  | V       |         |            | V            | V  | V                 |
| I-7018Z-G/S2<br>M-7018Z-G/S2 | V                  |         | V       | V          | V            | V  | V                 |

## ■ Internal I/O Structure



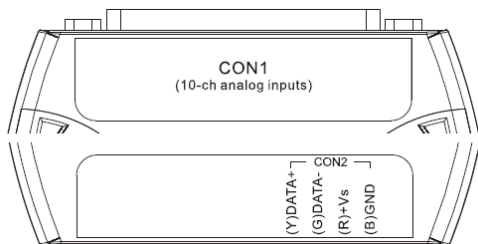
## ■ Pin Assignments (CON1)

| CON1           |          |        |                |
|----------------|----------|--------|----------------|
| Pin Assignment | Terminal | No.    | Pin Assignment |
| +5V            | 01       | 14     | AGND           |
| CJC            | 02       | 15     | CH 0+          |
| CH 0-          | 03       | 16     | CH 1+          |
| CH 1-          | 04       | 17     | CH 2+          |
| CH 2-          | 05       | 18     | CH 3+          |
| CH 3-          | 06       | 19     | CH 4+          |
| CH 4-          | 07       | 20     | CH 5+          |
| CH 5-          | 08       | 21     | CH 6+          |
| CH 6-          | 09       | 22     | CH 7+          |
| CH 7-          | 10       | 23     | CH 8+          |
| CH 8-          | 11       | 24     | CH 9+          |
| CH 9-          | 12       | 25     | N.C.           |
| N.C.           | 13       | Shield | F.G.           |

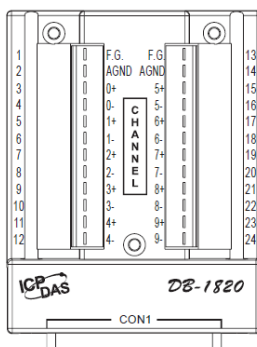
25-pin Female D-Sub Connector

## ■ Pin Assignments

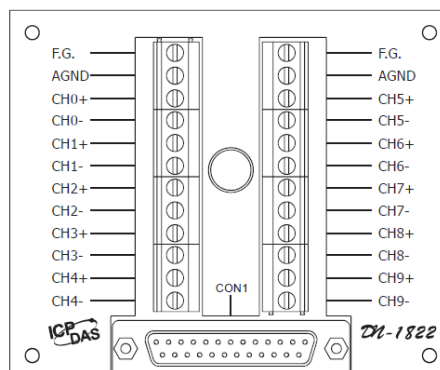
I-7018Z/M-7018Z



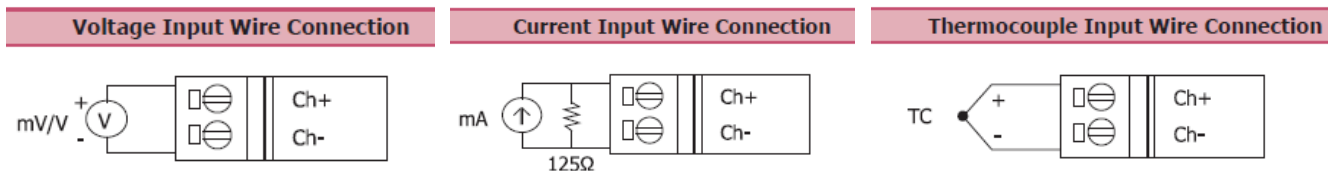
DB-1820



DN-1822



## ■ Wire Connections



## ■ Modbus Table (M-7018Z only)

| Address       | Description   | R/W   |       |        |      |      |      |      |      |      |      |      |      |      |      |      |      |       |       |       |        |     |
|---------------|---|-------|-------|--------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|--------|-----|
| 30001 ~ 30010 | Analog input value of channel 0 to 9  | R     |       |        |      |      |      |      |      |      |      |      |      |      |      |      |      |       |       |       |        |     |
| 40001 ~ 40010 |   |       |       |        |      |      |      |      |      |      |      |      |      |      |      |      |      |       |       |       |        |     |
| 30129         | CJC temperature in 0.01°C   | R     |       |        |      |      |      |      |      |      |      |      |      |      |      |      |      |       |       |       |        |     |
| 40129         |   |       |       |        |      |      |      |      |      |      |      |      |      |      |      |      |      |       |       |       |        |     |
| 40257 ~ 40266 | Type code of channel 0 to 9   | R/W   |       |        |      |      |      |      |      |      |      |      |      |      |      |      |      |       |       |       |        |     |
| 40353 ~ 40362 | CJC offset of channel 0 to 9 in 0.1°C. 1 for 0.1, 127 for 12.7, 255 for -0.1, 128 for -12.8   | R/W   |       |        |      |      |      |      |      |      |      |      |      |      |      |      |      |       |       |       |        |     |
| 40481         | Firmware version (low word)   | R     |       |        |      |      |      |      |      |      |      |      |      |      |      |      |      |       |       |       |        |     |
| 40482         | Firmware version (high word)  | R     |       |        |      |      |      |      |      |      |      |      |      |      |      |      |      |       |       |       |        |     |
| 40483         | Module name (low word)  | R     |       |        |      |      |      |      |      |      |      |      |      |      |      |      |      |       |       |       |        |     |
| 40484         | Module name (high word)   | R     |       |        |      |      |      |      |      |      |      |      |      |      |      |      |      |       |       |       |        |     |
| 40485         | Module address, valid range: 1 ~ 247  | R/W   |       |        |      |      |      |      |      |      |      |      |      |      |      |      |      |       |       |       |        |     |
| 40486         | Bits 5:0<br>Baud rate, 0x03 ~ 0x0A<br><table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Code</th> <th>0x03</th> <th>0x04</th> <th>0x05</th> <th>0x06</th> </tr> </thead> <tbody> <tr> <td>Baud</td> <td>1200</td> <td>2400</td> <td>4800</td> <td>9600</td> </tr> <tr> <th>Code</th> <th>0x07</th> <th>0x08</th> <th>0x09</th> <th>0x0A</th> </tr> <tr> <td>Baud</td> <td>19200</td> <td>38400</td> <td>57600</td> <td>115200</td> </tr> </tbody> </table> Bits 7:6<br>00: no parity, 1 stop bit<br>01: no parity, 2 stop bit<br>10: even parity, 1 stop bit<br>11: odd parity, 1 stop bit | Code  | 0x03  | 0x04   | 0x05 | 0x06 | Baud | 1200 | 2400 | 4800 | 9600 | Code | 0x07 | 0x08 | 0x09 | 0x0A | Baud | 19200 | 38400 | 57600 | 115200 | R/W |
| Code          | 0x03  | 0x04  | 0x05  | 0x06   |      |      |      |      |      |      |      |      |      |      |      |      |      |       |       |       |        |     |
| Baud          | 1200  | 2400  | 4800  | 9600   |      |      |      |      |      |      |      |      |      |      |      |      |      |       |       |       |        |     |
| Code          | 0x07  | 0x08  | 0x09  | 0x0A   |      |      |      |      |      |      |      |      |      |      |      |      |      |       |       |       |        |     |
| Baud          | 19200   | 38400 | 57600 | 115200 |      |      |      |      |      |      |      |      |      |      |      |      |      |       |       |       |        |     |

| Address | Description  | R/W |
|---------|--|-----|
| 40488   | Modbus response delay time in ms, valid range: 0 ~ 30  | R/W |
| 40489   | Host watchdog timeout value, 0 ~ 255, in 0.1s  | R/W |
| 40490   | Channel enable/disable, 00h ~ 3FFh   | R/W |
| 40491   | Module CJC offset in 0.01°C  | R/W |
| 40492   | Host watchdog timeout count, write 0 to clear  | R/W |
| 00257   | Protocol, 0: DCON, 1: Modbus RTU   | R/W |
| 00259   | Filter setting, 0: 60Hz rejection, 1: 50Hz rejection   | R/W |
| 00260   | Modbus host watchdog mode<br>0: same as I-7000<br>1: can use AO and DO command to clear host watchdog timeout status |     |
| 00261   | 1: enable, 0: disable host watchdog  | R/W |
| 00268   | 1: enable, 0: disable CJC  | R/W |
| 00269   | Modbus data format, 0: hex, 1: engineering   | R/W |
| 00270   | Host watch dog timeout status, write 1 to clear host watch dog timeout status  | R/W |
| 00273   | Reset status, 1: first read after powered on, 0: not the first read after powered on                                 | R   |

## ■ DCON Protocol

| Functions   | Command | Response  | Notes                    |
|---|---------|-----------|--------------------------|
| Read module name                                      | \$AAM   | !AA(Data) | AA: address number       |
| Read module firmware version                          | \$AAF   | !AA(Data) |                          |
| Read all analog input data                            | #aa     | >(data)   |                          |
| Read analog input data of each channel (<=16 channel) | #aai    | >(data)   | i: channel number (Hex)  |
| Read analog input data of each channel (>16 channel)  | #aaii   | >(data)   | ii: channel number (Hex) |

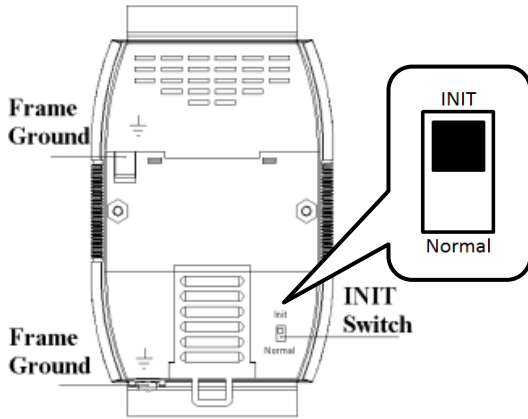
If you want to know the detail DCON protocol, please check it from CD or web

CD path: \\napdos\7000>manual\

Web: <ftp://ftp.icpdas.com/pub/cd/8000cd/napdos/7000/manual/>

## Module test and configuration

### Step 1: INIT switch Operation



1. Find out the INIT switch( back of the module), and turn to INIT.
2. Reboot the module

### Step 2: Install & Run DCON Utility

1. Please Install DCON Utility first  
You can find the software in the CD.

CD path:

<Driver>:\napdos\driver\dcon\_utility\

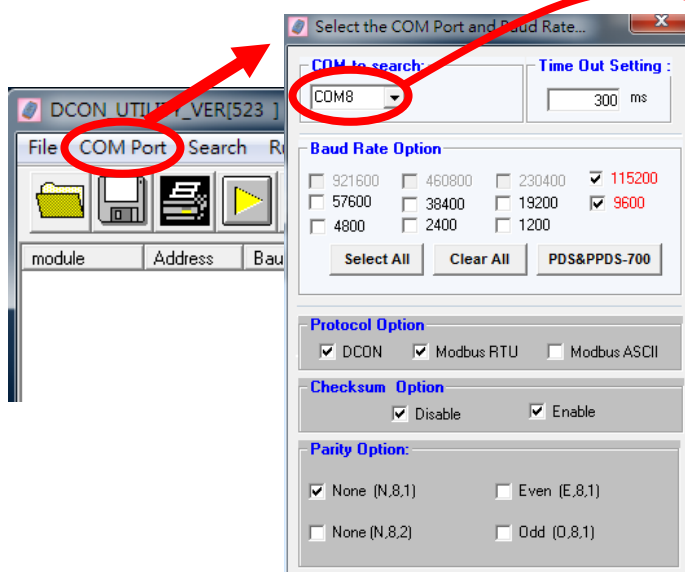
Web link:

[http://ftp.icpdas.com/pub/cd/8000cd/napdos/driver/dcon\\_utility/](http://ftp.icpdas.com/pub/cd/8000cd/napdos/driver/dcon_utility/)

2. Run DCON utility



### Step 3: Set search configuration & search module

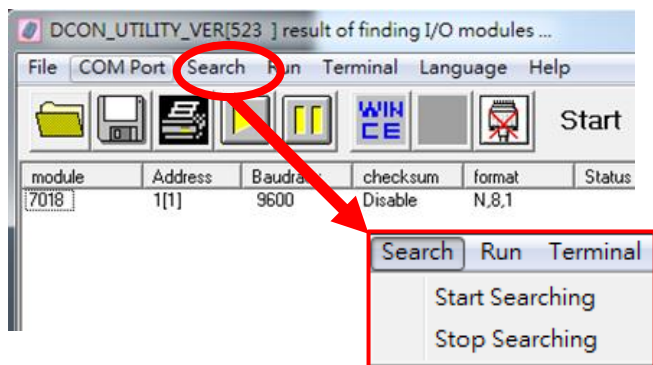


Select COM Port Number

1. Click "COM Port"
2. Assign the communication information and click "OK"

#### Module Default Setting

| COM Port      | Refer converter Port Number              |
|---------------|--|
| Baud Rate     | 9600                                     |
| Protocol      | DCON for I-7000<br>Modbus RTU for M-7000 |
| Parity Option | N,8,1                                    |

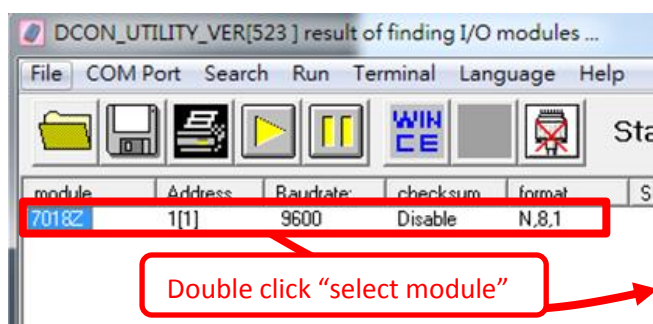


3. Click "Search" and select "Start Searching"  
Software will search the modules from COM Port
4. Click "Search" and select "stop searching"  
Manual stop when the modules searched

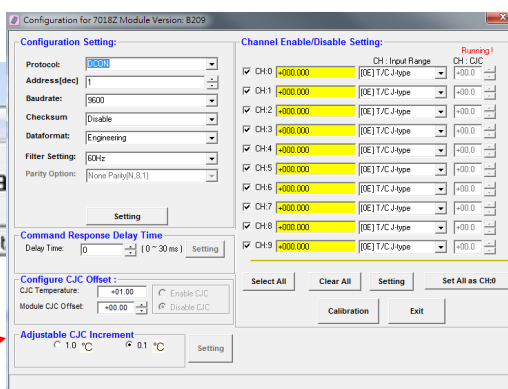
Note:

When no module can be searched, please check the wire and communication information

### Step 4: Select Module for testing and configuration



Double click "select module"



## Step 5: Configuration Settings & Channel Settings

| Module Settings |                |
|-----------------|----------------|
| Protocol        | DCON / Modbus  |
| Address         | 1~255 (0:INIT) |
| Baud rate       | 1200~115200    |
| Parity option   | N,8,1          |

Channel Status  
Input Range Settings  
CJC offset

Temperature Offset Settings

## Step 6: Change to normal mode and keep the settings

1. Turn the INIT Switch to Normal.
2. Reboot the module



## Trouble Shooting

### Q1. How to do when forgot module address or baud rate?

Please turn to INIT mode, and run DCON Utility to search.  
The module supports DCON protocol at the INIT mode.  
And the address is 0. The communication setting is "9600,N,8,1".

### Q2. How to configure the I-7000 and M-7000 modules?

ICP DAS provide DCON Utility to configure I-7000 and M-7000 modules.  
Please download the last version from: [http://ftp.icpdas.com/pub/cd/8000cd/napdos/driver/dcon\\_utility/](http://ftp.icpdas.com/pub/cd/8000cd/napdos/driver/dcon_utility/)

### Q3. What is individual channel configuration?

I-7018Z and M-7018Z provide the "individual channel configuration".  
"Individual channel configuration" means the different settings of the input ranges for each channel.  
You can configure the modules by DCON utility

### Q4. What is the CJC function?

CJC (Cold-Junction Compensation) offset is for the temperature measurement.  
You can set a CJC offset for all channels or different channel in DCON Utility,

### Q5. How to programming with I-7000 or M-7000 by C#, VB, VC?

ICP DAS I-7000 and M-7000 series both support DCON protocol. And Only M-7000 series supports Modbus protocol.  
For DCON protocol, please download SDK and Demo from:  
[http://ftp.icpdas.com/pub/cd/8000cd/napdos/driver/dcon\\_dll\\_new/](http://ftp.icpdas.com/pub/cd/8000cd/napdos/driver/dcon_dll_new/)  
For Modbus protocol, please refer this web link:  
<http://www.icpdas.com/products/PAC/i-8000/modbus.htm>

If there is any other question, please feel free to contact us. Email: [service@icpdas.com](mailto:service@icpdas.com)  
Website: [http://www.icpdas.com.tw/contact\\_us/contact\\_us.html](http://www.icpdas.com.tw/contact_us/contact_us.html)