

Quick Start for tM-R5

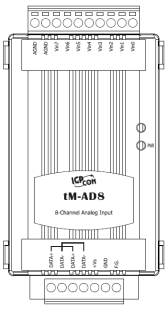
September 2014, Version 1.1

Congratulations!

Congratulations on purchasing the tM-R5 the most popular automation solution for remote monitoring and control applications. This Quick Start will provide information needed to get started with the tM-R5. Please also consult the User Manual for detailed information on the setup and use of the tM-R5.

What's in the shipping box?

In addition to this guide, the shipping box includes the following items:



tM-R5

Technical Support

- **ICP DAS Website**
  http://www.icpdas.com/

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2009 ICP DAS Co., Ltd. All Rights Reserved.. E-mail: service@icpdas.com

1 Understanding the Hardware Specifications and Wiring Diagrams

Before installing the hardware, you should have a basic understanding of hardware specification and the wiring diagrams.

System Specifications：

System Specifications

Communication	
Interface	RS-485
Format	(N, 8, 1), (N, 8, 2), (O, 8, 1), (E, 8, 1)
Baud Rate	1200 ~ 115200 bps
Protocol	DCON, Modbus/RTU, Modbus/ASCII
Dual Watchdog	Yes, Module (2.3 seconds), Communication (Programmable)
LED Indicators	
Power	1 LED as Power Indicator
Isolation	
Intra-module Isolation, Field-to-Logic	3750 V_{DC}
EMS Protection	
ESD (IEC 61000-4-2)	±4 kV Contact for Each Terminal
	±8 kV Air for Random Point
EFT (IEC 61000-4-4)	±4 kV for Power
Power Requirements	
Reverse Polarity Protection	Yes
Powered from Terminal Block	Yes, 10 ~ 30 V_{DC}
Consumption	1.0 W Max.
Mechanical	
Dimensions (W x L x H)	52 mm x 98 mm x 27 mm
Installation	DIN-Rail Mounting
Environment	
Operating Temperature	-25 ~ +75°C
Storage Temperature	-30 ~ +75°C
Humidity	10 ~ 95% RH, Non-condensing

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2009 ICP DAS Co., Ltd. All Rights Reserved.. E-mail: service@icpdas.com

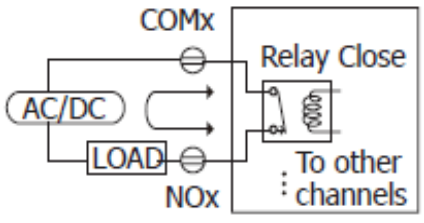
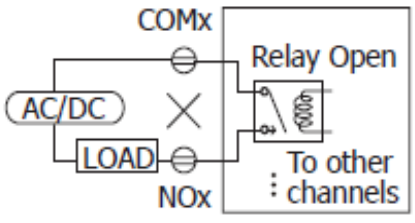
I/O Specifications：

I/O Specifications

Relay Output		
Output Channels		5
Type		Power Relay, Form A (SPST N.O.)
Operating Voltage		250 V_{AC} or 30 V_{DC}
Max. Load Current		5 A
Operating Time		6 ms
Release Time		3 ms
Electrical Life (Resistive load)	VDE	5 A @250 V_{AC} 30,000 ops (10 ops/minute) at 75°C
		5 A @30 V_{DC} 70,000 ops (10 ops/minute) at 75°C
	UL	5 A @250 V_{AC}/30 V_{DC} 6,000 ops
		3 A @250 V_{AC}/30 V_{DC} 100,000 ops
Mechanical Life		20,000,000 ops at no load (300 ops/minute)
Power-on Value		Yes, Programmable
Safe Value		Yes, Programmable

Wire Connection：

Wire Connections

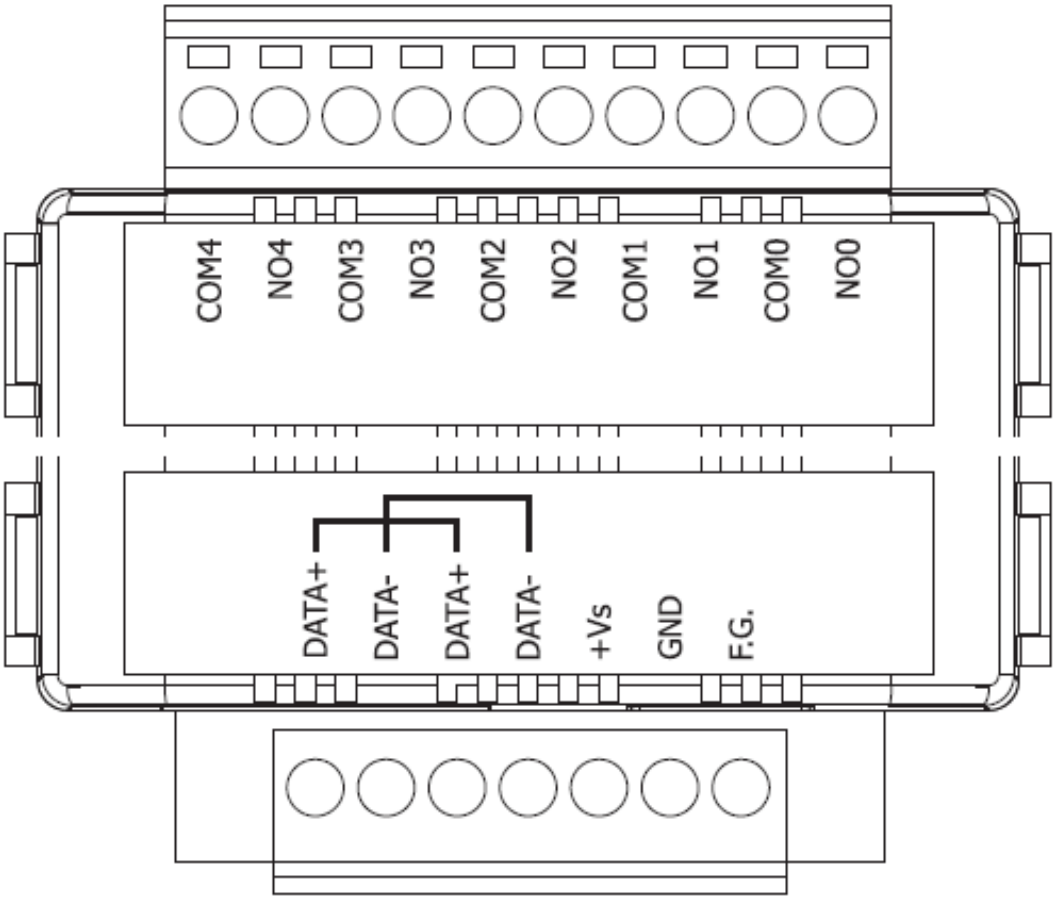
Power Relay	ON State Readback as 1	OFF State Readback as 0
Relay Output		

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2009 ICP DAS Co., Ltd. All Rights Reserved.. E-mail: service@icpdas.com

Pin Assignment：

Pin Assignments



---

2 Booting the tM-R5 in Init Mode

Make sure the switch placed in the "Init" position.

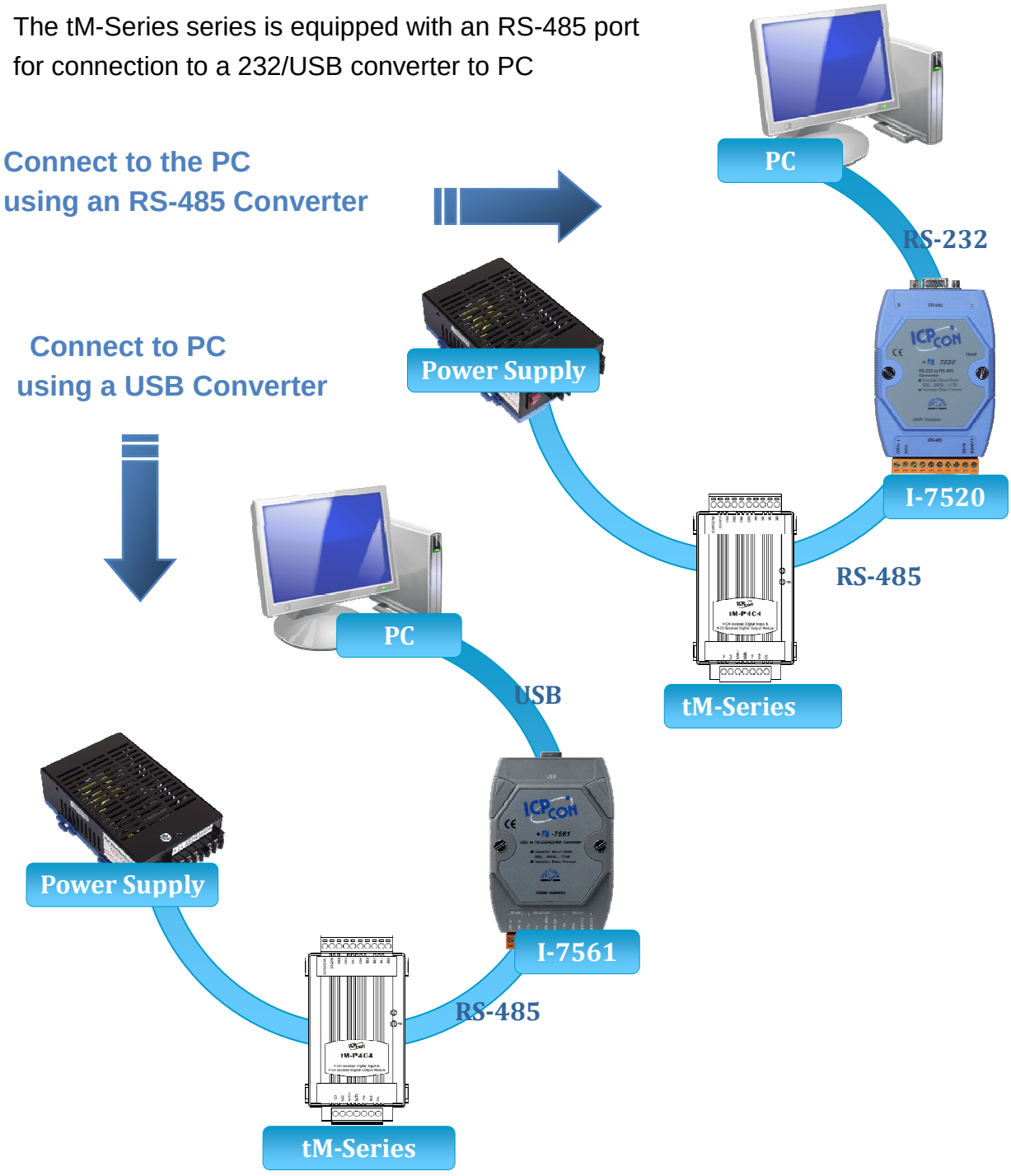


LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2009 ICP DAS Co., Ltd. All Rights Reserved.. E-mail: service@icpdas.com

3 Connecting to the PC and the Power Supply

The tM-Series series is equipped with an RS-485 port for connection to a 232/USB converter to PC



LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2009 ICP DAS Co., Ltd. All Rights Reserved.. E-mail: service@icpdas.com

4 Installing the DCON Utility

The DCON Utility is an easy-to-use tool designed to enable simple configuration of I/O modules that use the DCON protocol.

Step 1: Locate the DCON Utility



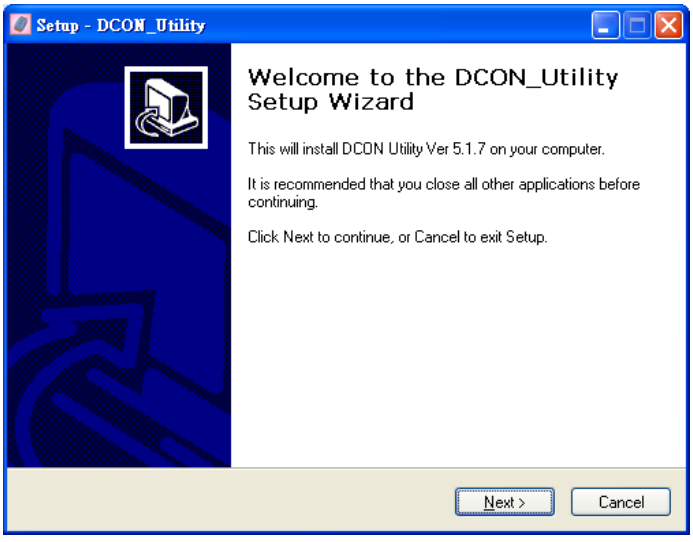
The DCON Utility can be obtained from the companion from the ICPDAS FTP site:http://ftp.icpdas.com/pub/cd/8000cd/napdos/driver/dcon_utility/DCON_Utili...

Step 2: Follow the prompts to complete the installation



dcon_utility...

After the installation has been completed, there will be a new shortcut to the DCON Utility on the desktop.



5 Using the DCON Utility to Initialize the tM-Series Module

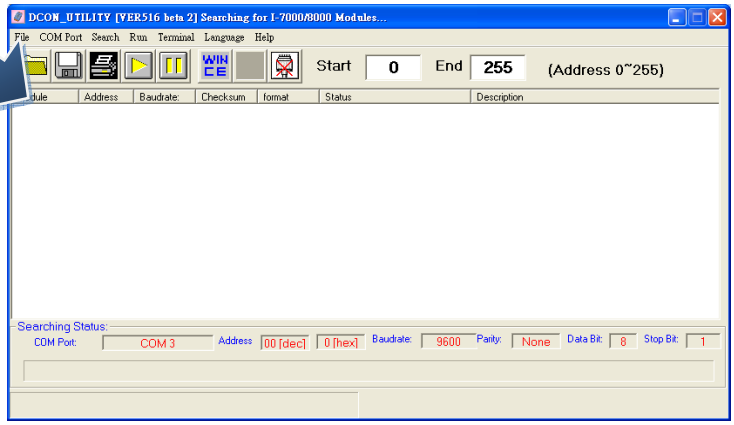
The tM-Series is an I/O module based on the DCON protocol, meaning that you can use the DCON Utility to easily initialize it.

Copyright © 2009 ICP DAS Co., Ltd. All Rights Reserved.. E-mail: service@icpdas.com

Step 1: Run the DCON Utility

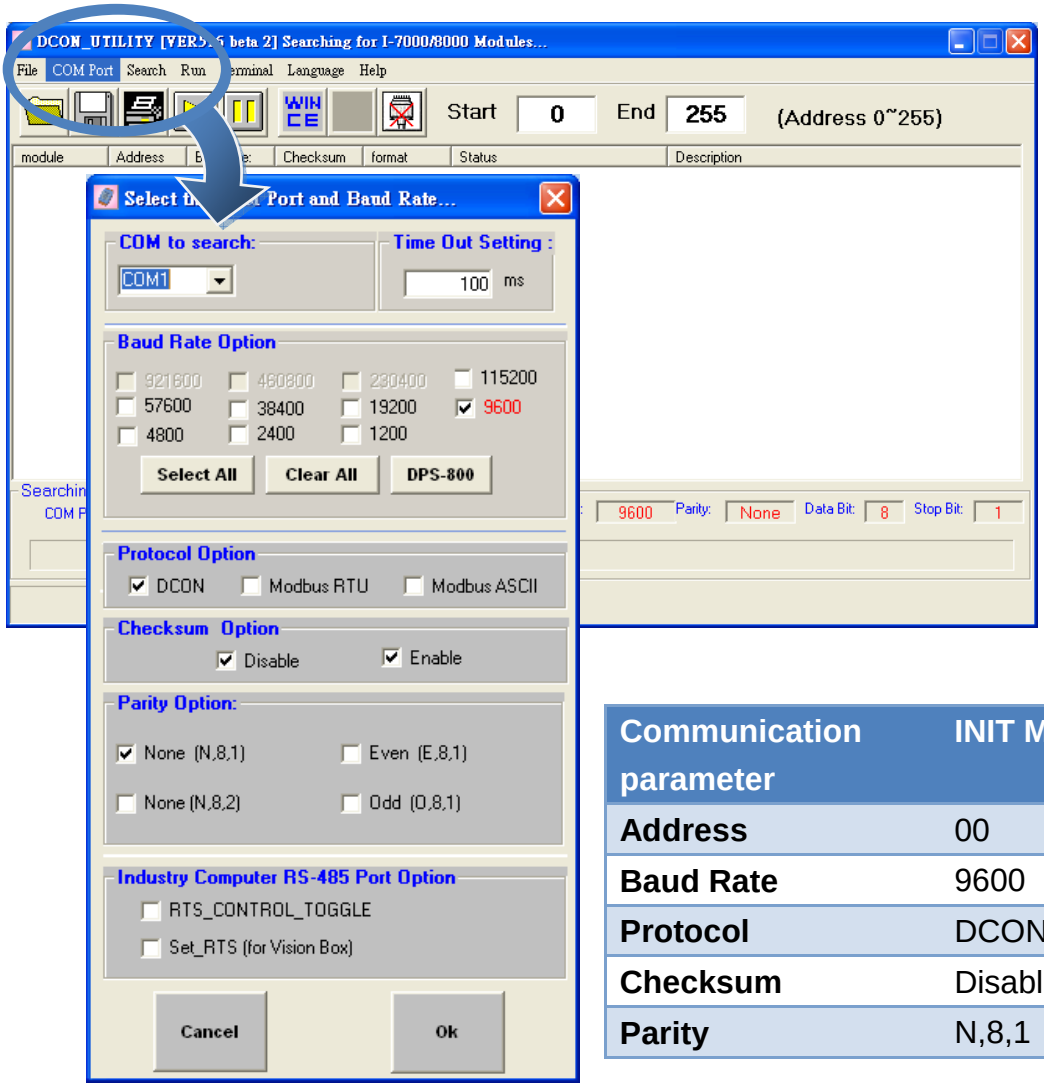


Double-click the DCON Utility shortcut on your desktop.



Step 2: Use the COM1 port to communicate with the tM-Series

Click the “COM Port” option from the menu and a dialog box will be displayed that will allow you to set the communication parameters as described in the table below.

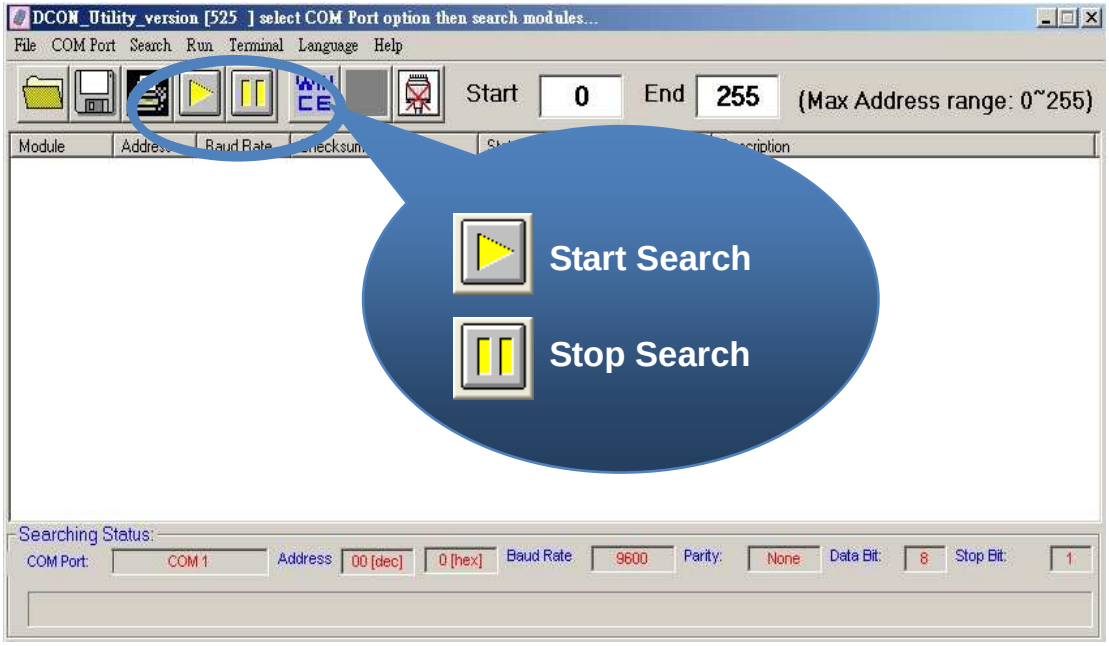


Communication parameter	INIT Mode
Address	00
Baud Rate	9600
Protocol	DCON
Checksum	Disabled
Parity	N,8,1

Copyright © 2009 ICP DAS Co., Ltd. All Rights Reserved.. E-mail: service@icpdas.com

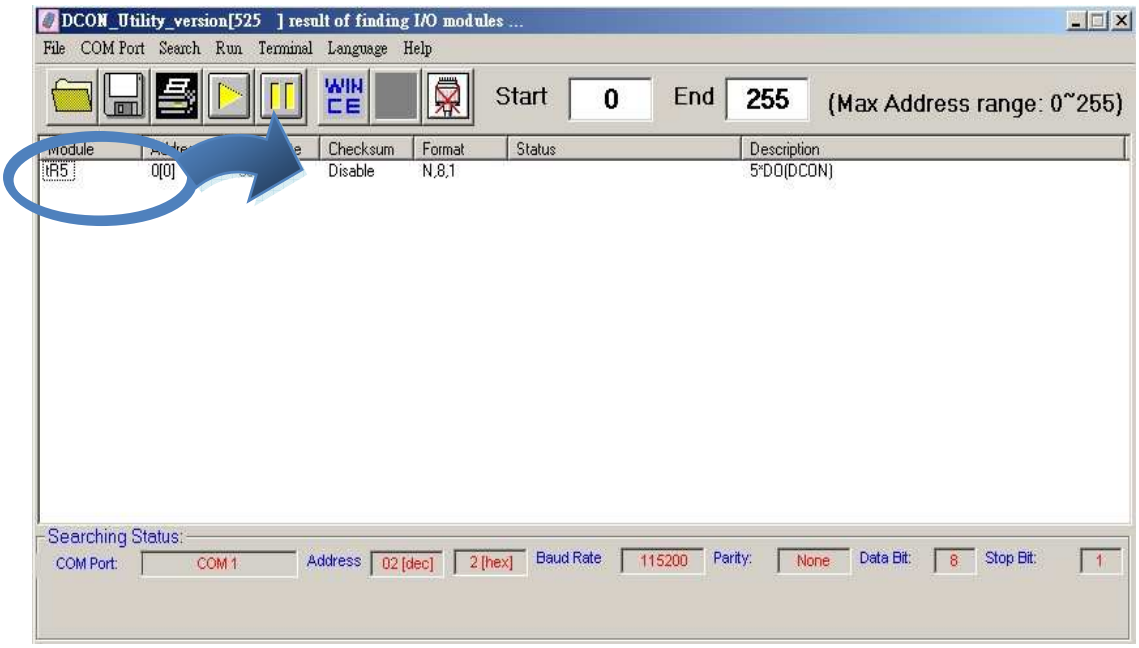
Step 3: Search for the tM-Series module

Click “Start Search” button from the toolbox to search for the tM-Series module. After the tM-Series module is displayed in the list, click “Stop Search” button.



Step 4: Connect to the tM-Series

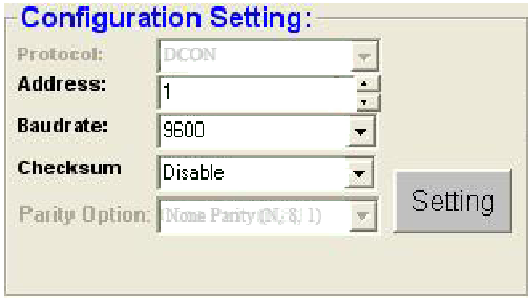
After clicking on the name of the module in the list, a dialog box will be displayed.



Copyright © 2009 ICP DAS Co., Ltd. All Rights Reserved.. E-mail: service@icpdas.com

Step 5: Initialize the tM-Series module

Set the “Address” field in the dialog box to 1 and then click “Setting” button to save the settings.



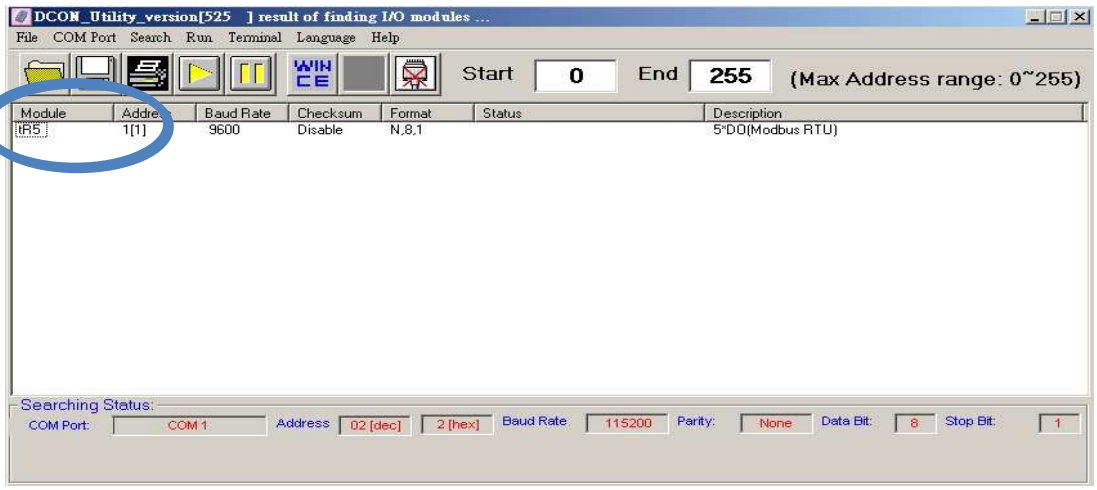
6 Rebooting the tM-Series Module in RUN Mode

Make sure the INIT switch is placed in the“RUN” position.



7 Starting the Module Operation

After rebooting the tM-Series module, search for the module to make sure the settings have been changed. You can double click on the name of the module in the list to open the configuration dialog box.



LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2009 ICP DAS Co., Ltd. All Rights Reserved.. E-mail: service@icpdas.com

8 Modbus Address Mapping

Address	Description	Attribute
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 Baud rate, valid range: 3 ~ 10 Bits 7:6 00: no parity, 1 stop bit 01: no parity, 2 stop bit 10: even parity, 1 stop bit 11: odd parity, 1 stop bit	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
40492	Host watchdog timeout count, write 0 to clear	R/W
10073 ~ 10077	High latched values of DO	R
10105 ~ 10109	Low latched values of DO	R
00001 ~ 00005	Digital output value of channel 0 ~ 4	R/W
00129 ~ 00133	Safe value of digital output channel 0 ~ 4	R/W
00161 ~ 00165	Power on value of digital output channel 0 ~ 4	R/W
00257	Protocol selection, 0: DCON, 1: Modbus	R/W
00258	1: Modbus ASCII, 0: Modbus RTU	R/W
00260	Modbus host watchdog mode 0: same as I-7000 1: can use AO and DO command to clear host watchdog timeout status	R/W
00261	1: enable, 0: disable host watchdog	R/W
00264	Write 1 to clear latched DIO	W
00266	DO active state, 0: normal, 1:inverse	R/W
00270	Host watchdog timeout status, write 1 to clear host watchdog timeout status	R/W
00273	Reset status, 1: first read after powered on, 0: not the first read after powered on	R

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Copyright © 2009 ICP DAS Co., Ltd. All Rights Reserved.. E-mail: service@icpdas.com