

Description

PL-DTS is an I/O controller product with Serial Port on its data communication and makes data acquisition easier through Modbus Protocol of RTU mode on Serial Bus. PL-DTS uses the ARM Cortex-M3 microprocessor family for implementing the whole framework. Basically, it supports up to 10 inputs and 8 outputs or 18 inputs. Moreover, it equips the counter function in each input channels, and is also designed for friendly use and convenience concerns.

Features

- Support Modbus Protocol
 - Auto Detect ModBus RTU and ASCII Mode
 - Supported Modbus Function 01, 02, 03, 04, 05, 06, 0F, 10
- Configurable Parameters with Device ID Control
 - Configurable under Console Mode
 - Enable / Disable: When Device ID Control is enabled, it will reply the modbus requests only when the Device ID is correct
- Each Input will enable Counter Function simultaneously when DIP Switch select to enable Counter Function.

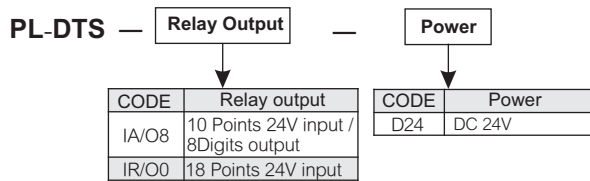


Application

It is easy to convert DI status and DO control to RS485 in IA, Factory Automation, Security or any other low data rate data transmission by using it as the intermediate converter.

- Security devices
- Warehouse terminals
- Access control
- Time recorders
- Parking automation

Ordering Information



Technical Specification

CPU: ARM Cortex-M3
 Communication interface: RS485 Modbus RTU Mode
 Baud Rate: 2400 ~ 115200 bps
 Data bits: 7 or 8 bits
 Parity: None, even or odd
 Stop Bit: 1 or 2 bits
 Protocol: Modbus/RTU, Modbus/ASCII, Console Mode
 Reset: Built-in reset key to restore the defaults
 Watch dog timer: Built-in hardware auto reset function

DI & DO
 10 DI & 8 DO or 18 DI available
 Digital input: photo-couple, 24V ± 10%, 7mA
 ON status: 12V/2.0mA or more
 OFF status: 4V/1.0mA or less
 Response time: 8 msec or less
 Digital output: Open collector, 24V ± 10%, 0.5A
 Type: NPN/Sink
 Voltage drop of ON: 1.5V or less
 Current leakage of OFF: 0.1mA or less

LED
 LED indication: SYS: Red high bright round LED
 RX: Green high bright round LED
 TX: Red high bright round LED
 DI/DO: Red high bright round LED

Setting
 Configuration: Configuration by Hardware DIP switch, Console or Modbus (When DIP Device ID=0)

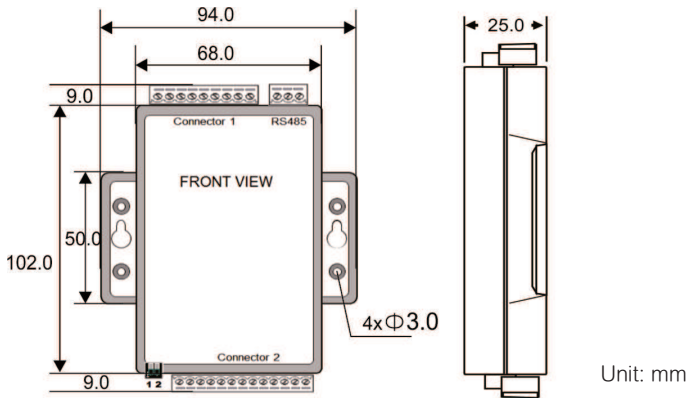
Power
 Power Supply: DC 24V
 Power consumption: ≤ 1W

Electrical
 Isolation: Isolated between Serial port/ DI / DO / Power
 Dielectric Strength: 3 KV, 1 minute; between Serial port/ DI / DO / Power
 Insulation resistance: ≥100MΩ @ 500Vdc, Between Serial port/ DI / DO / Power

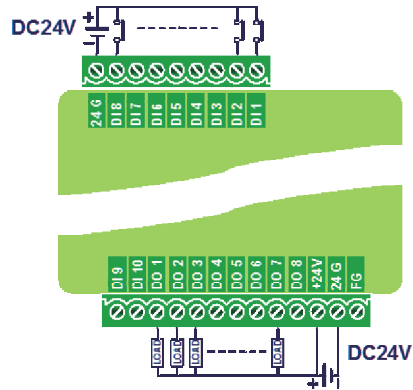
Environmental
 Operating temp.: 0~60 °C
 Operating humidity: 20~95 %RH, non-condensing
 Storage temperature: -10~70 °C

Mechanical
 Case Material: ABS fire-protection (UL 94V-0)
 Mounting: Surface mounting
 Terminal block: Plastic NYLON 66 (UL 94V-0)
 Weight: 110g

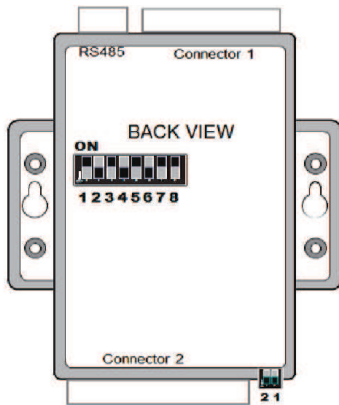
Dimension



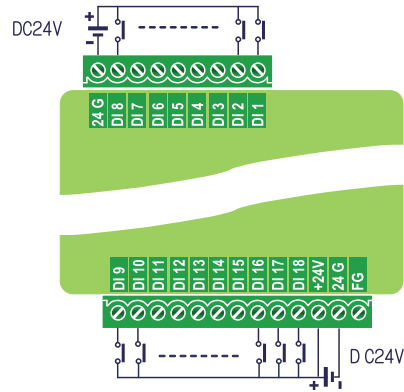
Digital Input / Output - 10DI & 8DO



Device ID Selection



Digital Input - 18DI



PIN Def.	PIN1 (MSB)	PIN2	PIN3	PIN4	PIN5	PIN6	PIN7	PIN8 (LSB)
Status Value	1	0	1	0	1	0	1	0
Exp. Value	2 ⁷	2 ⁶	2 ⁵	2 ⁴	2 ³	2 ²	2 ¹	2 ⁰

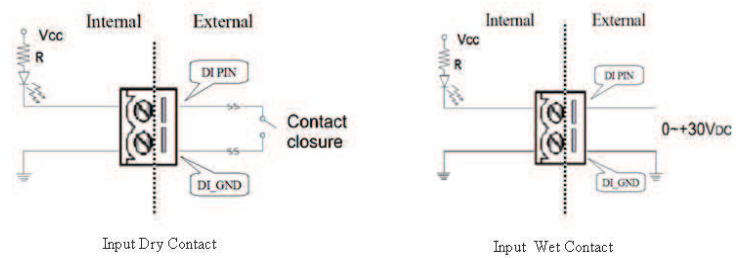
Device ID = Sum of corresponded Entry value (Status Value x Exp. Value)

SW8 is Device ID setting

SW option	ON	OFF
SW-1	Console Mode/ Set mode	Operation Mode/ Modbus
SW-2	Reserved	

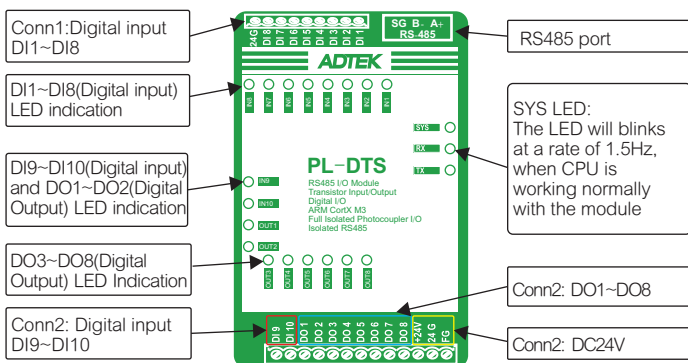
SW is function selection

Equivalent Digital Input Circuit

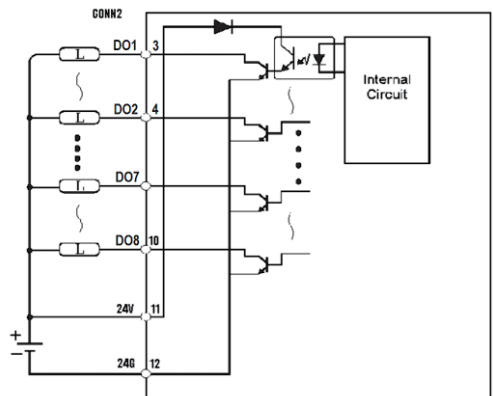


Front Panel

Please check the voltage of power supplied first, and then connect to the specified terminals.

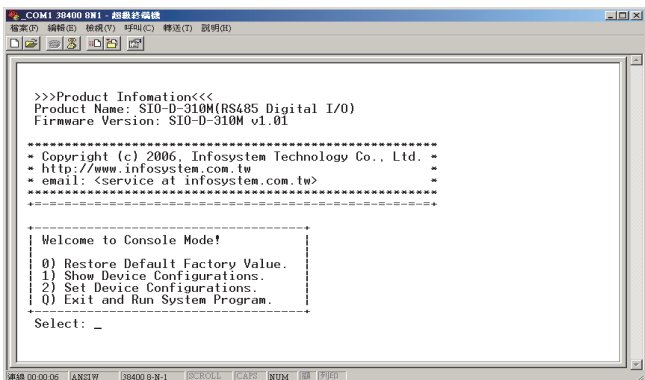


Equivalent Digital Output Circuit

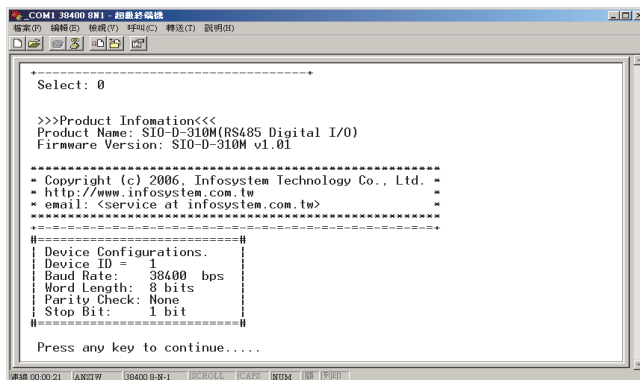


Console Mode Setting

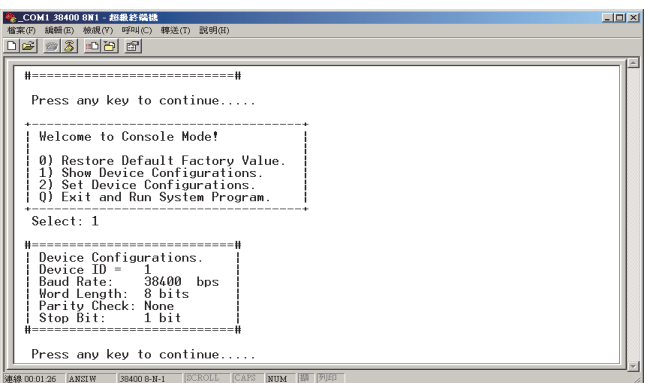
Baud Rate, Word Length, Parity Check, Stop Bit of Console Mode fix to 9600, 8, N, 1, Flow Control is none
Hyper Terminal connection as follow:



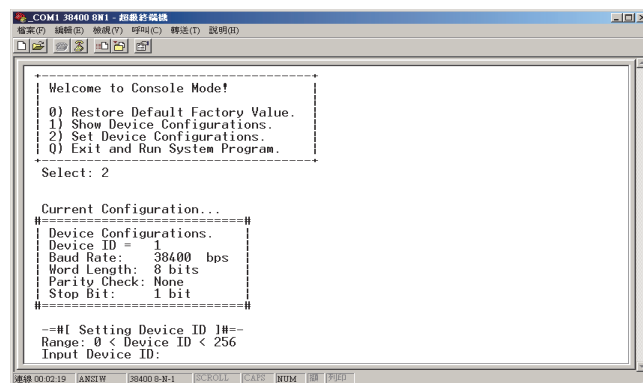
Four selections of main display



Reset default (9600, 8, N, 1)

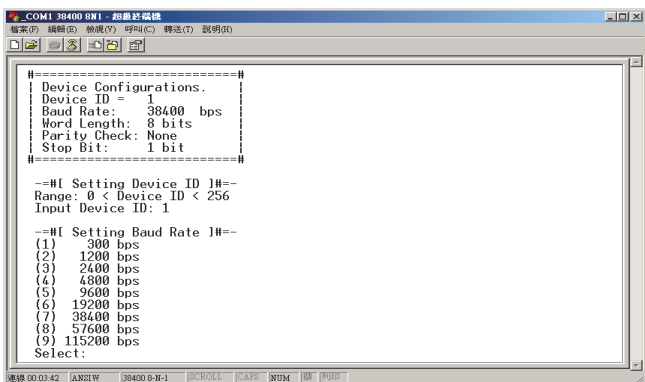


Display PL-DTS Setting

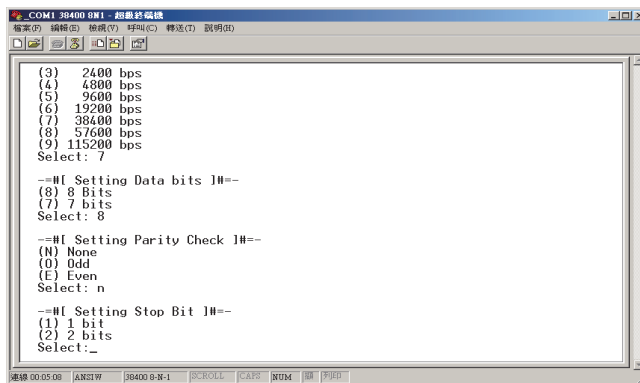


Setting Device ID

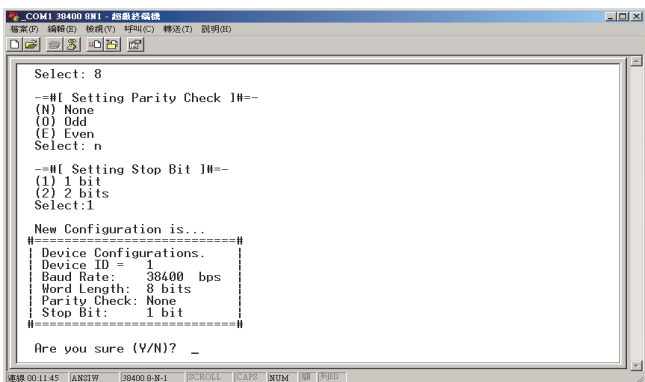
This setting does not display when Device ID≠0



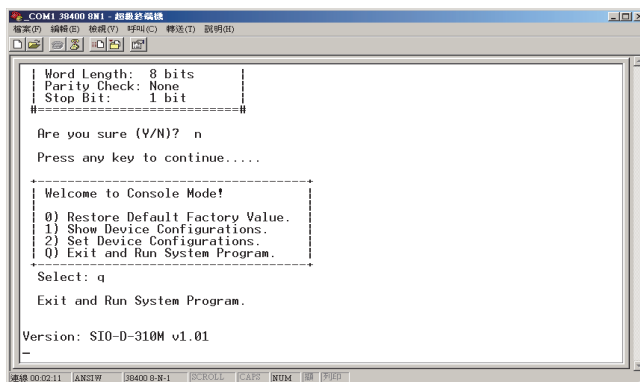
Setting Baud Rate



Setting Word Length (Data bit), Parity Check, Stop Bit



Confirm Setting



Close Console back to Operation Mode

Modbus Address for I/O

PL-DTS

Digital Output Status & Control

ADDRESS	EXPLAN	R/W
00001	DO1,OUT1 Status; 0=off 1=on	0x01 Read Coil Status 0x05 Force Single Coil 0x0F Force Multiple Coil
00002	DO2,OUT2 Status; 0=off 1=on	
00003	DO3,OUT3 Status; 0=off 1=on	
00004	DO4,OUT4 Status; 0=off 1=on	
00005	DO5,OUT5 Status; 0=off 1=on	
00006	DO6,OUT6 Status; 0=off 1=on	
00007	DO7,OUT7 Status; 0=off 1=on	
00008	DO8,OUT8 Status; 0=off 1=on	

Digital Output mode setting

ADDRESS	EXPLAN	R/W
02001	1=OUT1 Pulse output mode (Output OFF after ON 3 sec) 0=No action	0x01 Read Coil Status 0x05 Force Single Coil
02002	2=OUT2 Pulse output mode (Output OFF after ON 3 sec) 0=No action	
02003	3=OUT3 Pulse output mode (Output OFF after ON 3 sec) 0=No action	
02004	4=OUT4 Pulse output mode (Output OFF after ON 3 sec) 0=No action	
02005	5=OUT5 Pulse output mode (Output OFF after ON 3 sec) 0=No action	
02006	6=OUT6 Pulse output mode (Output OFF after ON 3 sec) 0=No action	
02007	7=OUT7 Pulse output mode (Output OFF after ON 3 sec) 0=No action	
02008	8=OUT8 Pulse output mode (Output OFF after ON 3 sec) 0=No action	

Digital Output initialize setting

ADDRESS	EXPLAN	R/W
03001	1=Recover output to last time status when the power on 0= No action	0x01 Read Coil Status 0x05 Force Single Coil

Digital Input Status

ADDRESS	EXPLAN	R/W
10001	DI1,IN1 Status; 0=Low 1=High	0x02 Read Input Status
10001	DI2,IN2 Status; 0=Low 1=High	
10002	DI3,IN3 Status; 0=Low 1=High	
10003	DI4,IN4 Status; 0=Low 1=High	
10004	DI5,IN5 Status; 0=Low 1=High	
10005	DI6,IN6 Status; 0=Low 1=High	
10006	DI7,IN7 Status; 0=Low 1=High	
10007	DI8,IN8 Status; 0=Low 1=High	
10008	DI9,IN9 Status; 0=Low 1=High	
10009	DI10,IN10 Status; 0=Low 1=High	

Holding Register

ADDRESS	EXPLAN	R/W
40001	Output Register	0x03 Read Holding Registers 0x06 Preset Single Registers 0x10 Preset Multiple Registers
40002	Input Register DI1~DI10 High /Low Status BIT0=DI1,.....BIT9=DI10 ON=1,OFF=0	Read only 0x03 Read Holding Registers