

Universal Converter KA301

USB to RS-232 / 422 / 485 / TTL

Multi Function Serial Signal Converter Ver 1.1

KA301 can transfer the RS232/422/485 or TTL serial interface signal to USB signal in order to reach the high speed communication between serial equipments and computers. Besides, KA301 can use by PC USB interface to connect several of Factory Automation Equipments like PLC, HMI, Inverter, and various meters to reach the function of monitor and control, which provides free and various software for communicating test easily.

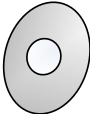
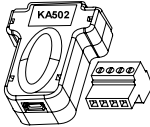


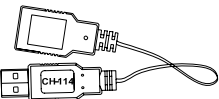
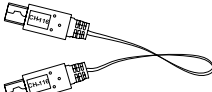
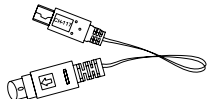
A USB converter is specially designed for industrial communication control and provides 4 serial communication functions, which is the best choice for automatic program design and engineering application.

Features

1. Compact outline · streamline design · elegant style · convenient hand carry
2. Provided 3 kinds of converting connectors. Suitable for kinds of the communication interface shift.
3. It directly uses DC power that supplied by PC USB port without external powers avoid the inconvenient of connecting external power supply.
4. Speedy · simple · Plug-in and Using at once, without setting I/O site & IRQ.
5. Provided 3 kinds LED light of Link · TX · RX and can display the act situation.
6. Adopt separated and plug-in-out design to connect RS422/485.
7. Provided the protection of hardware device short circuit and circuit overload.
8. Provided round terminal cable to connect PLC (Mitsubishi FX Series) directly, reducing the complication of wiring.



Accessories :

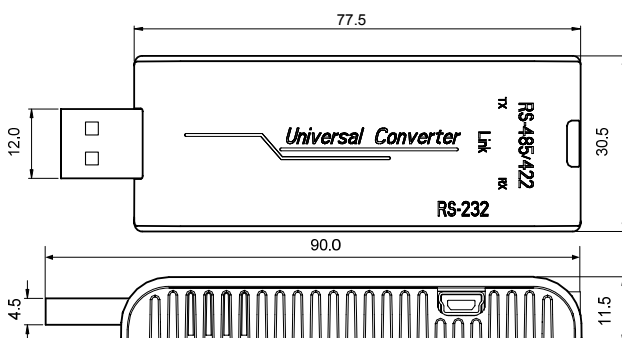
Driver CD	Connectors	CABLE
	  	  
USB driver CD KA301 for installation	KA502 For RS-422/485/TTL	CH-114 Extending use for USB
	KA503 Extending use	CH-116 Extending use for RS-232/422/485
	KA504 For RS-232	CH-117 (Round terminal) cable for PLC RS-422/485/TTL

Specifications

Power	Supply DC 5V via USB port	Baud rate	300~120K bps
USB Interface	USB 2.0	Data bit	7 · 8 bit
Serial Interface	RS-232/422/485/TTL	Stop bit	1 · 2 bit
Flow Rate Control	None · Xon/Xoff	Appositive bit	None · Even · Odd · Mark · Space
The utmost transmitting distance	RS-422/485 : 1200 m RS-232 : 15 m	Operating temperature	0~55°C(32~131°F)
		Humidity	5~95% RH
		Reserved	-20~85°C(-4~185°F)
Transmitting Mode	RS-232/422/TTL : Full Duplex RS-485 : Half Duplex	Net weight	KA301 : 19.8 g KA502 : 12.2 g KA503 : 4.2 g KA504 : 11.0 g
Serial Protection	Fuse · 15KV ESD		Approvals
Serial Signal	RS-232 : TXD · RXD · SG	Drive program support	Windows98/ME/2000/XP/VISTA, MacOS8/9/OS-X, and Linux
	RS-422 : T+ · T- · R+ · R- RS-485 : DX+ · DX- TTL : 5V · 5G · DX+ · DX-		

※ Before connect KA301 with PC, please install the USB driver at first.

Dimensions



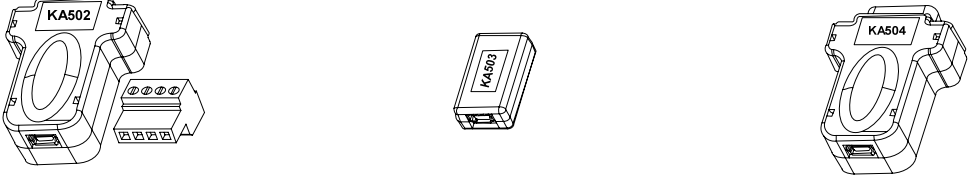
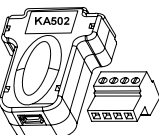

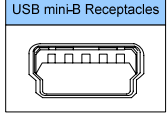

Packing list of USB Converter :

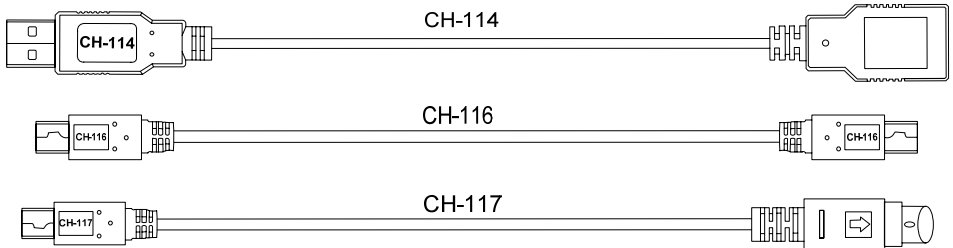
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<input type="checkbox"/> KA502 Connector ×1	<input type="checkbox"/> CH-116 CABLE×1
<input type="checkbox"/> KA503 Connector ×1	<input type="checkbox"/> CH-117 CABLE×1
<input type="checkbox"/> KA504 Connector ×1	<input type="checkbox"/> USB Driver CD×1
<input type="checkbox"/> User Manual ×1	

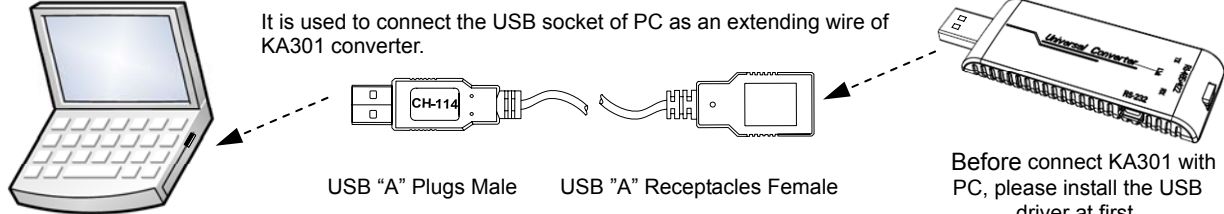


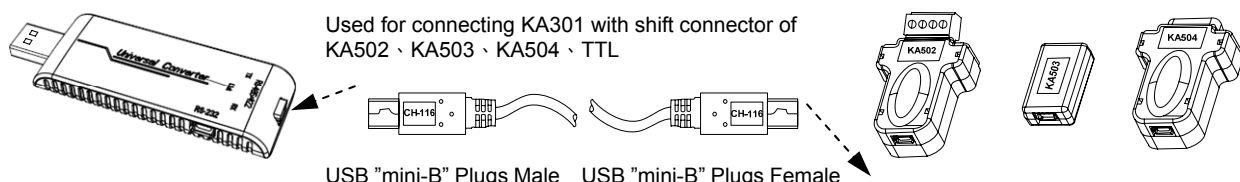
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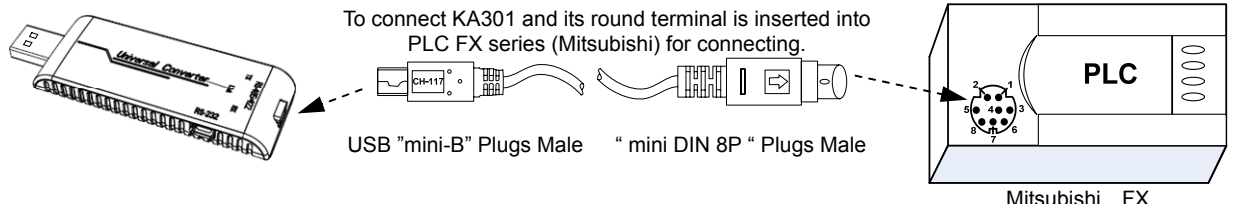
Accessories explanation & Configurations

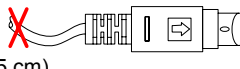
Connectors																															
KA502	 <p>Front : Separated plug-in-out terminal 4 pin RS-422 serial signal , four wires (T- , T+ , R+ , R-) RS-485 serial signal , two wires (DX+ , DX-) TTL serial signal , four wires(5V , D+ , 5G , D-) Behind : USB "mini-B" Receptacles "female"</p> <table border="1" data-bbox="1101 414 1460 560"> <thead> <tr> <th>Plugs-in</th> <th>PIN</th> <th>RS-485</th> <th>RS-422</th> <th>TTL</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1</td> <td>NC</td> <td>T(-)</td> <td>5V</td> </tr> <tr> <td>2</td> <td>2</td> <td>NC</td> <td>T(+)</td> <td>D+</td> </tr> <tr> <td>3</td> <td>3</td> <td>DX+</td> <td>R(+)</td> <td>5G</td> </tr> <tr> <td>4</td> <td>4</td> <td>DX-</td> <td>R(-)</td> <td>D-</td> </tr> </tbody> </table>	Plugs-in	PIN	RS-485	RS-422	TTL	1	1	NC	T(-)	5V	2	2	NC	T(+)	D+	3	3	DX+	R(+)	5G	4	4	DX-	R(-)	D-					
Plugs-in	PIN	RS-485	RS-422	TTL																											
1	1	NC	T(-)	5V																											
2	2	NC	T(+)	D+																											
3	3	DX+	R(+)	5G																											
4	4	DX-	R(-)	D-																											
KA503	 <p>Front : USB "mini-B" Receptacles "female" , as an extending connector. Behind : USB "mini-B" Receptacles "female" , as an extending connector</p> 																														
KA504	 <p>Front : RS-232 Plugs "male" serial signal (TXD , RXD , SG) Behind : USB "mini-B" Receptacles "female"</p> <table border="1" data-bbox="1101 705 1428 851"> <thead> <tr> <th>DB9 Plugs</th> <th>PIN</th> <th>RS-232</th> <th>PIN</th> <th>RS-232</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1</td> <td>NC</td> <td>6</td> <td>NC</td> </tr> <tr> <td>2</td> <td>2</td> <td>RXD</td> <td>7</td> <td>NC</td> </tr> <tr> <td>3</td> <td>3</td> <td>TXD</td> <td>8</td> <td>NC</td> </tr> <tr> <td>4</td> <td>4</td> <td>NC</td> <td>9</td> <td>NC</td> </tr> <tr> <td>5</td> <td>5</td> <td>SG</td> <td></td> <td></td> </tr> </tbody> </table>	DB9 Plugs	PIN	RS-232	PIN	RS-232	1	1	NC	6	NC	2	2	RXD	7	NC	3	3	TXD	8	NC	4	4	NC	9	NC	5	5	SG		
DB9 Plugs	PIN	RS-232	PIN	RS-232																											
1	1	NC	6	NC																											
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3	3	TXD	8	NC																											
4	4	NC	9	NC																											
5	5	SG																													

CABLE	
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CH-114	 <p>It is used to connect the USB socket of PC as an extending wire of KA301 converter.</p> <p>USB "A" Plugs Male USB "A" Receptacles Female</p> <p>Before connect KA301 with PC, please install the USB driver at first.</p>
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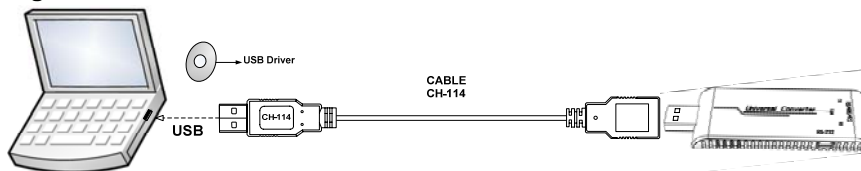
CH-116	 <p>Used for connecting KA301 with shift connector of KA502 , KA503 , KA504 , TTL</p> <p>USB "mini-B" Plugs Male USB "mini-B" Plugs Female</p>
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CH-117	 <p>To connect KA301 and its round terminal is inserted into PLC FX series (Mitsubishi) for connecting.</p> <p>USB "mini-B" Plugs Male "mini DIN 8P" Plugs Male</p> <p>Mitsubishi FX</p>
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- Other use :
1. Cut off the round plug of "mini DIN 8P" from CH-117 wire. 
 2. Shelling the wrap of wire off to appropriate length (approx. 5 cm)
 3. It can be changed to become to RS422/485 Device or TTL (single micro-chip hardware develops) connected line to use.

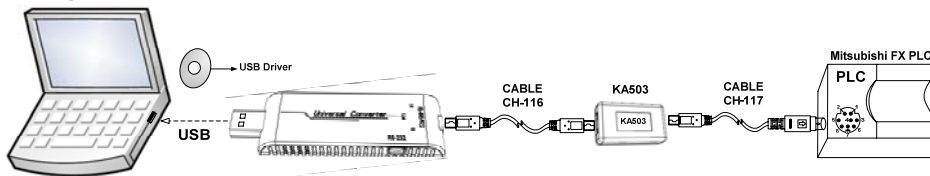
Line material color	Color	RS-485	RS-422	TTL
1 Red	1 Red	NC	T(-)	5V
2 Green	2 Green	NC	T(+)	TXD
3 White	3 White	DX-	R(-)	RXD
4 Yellow	4 Yellow	NC	NC	RTS
5 Black	5 Black	DX+	R(+)	5G

(1) Instance of wiring instance : CH-114



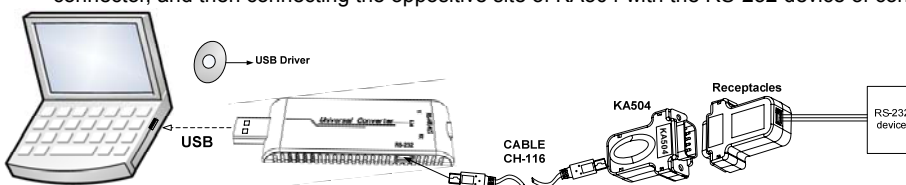
※Before connect KA301 with PC, please install the USB driver at first.

(2) Instance of wiring instance : KA503



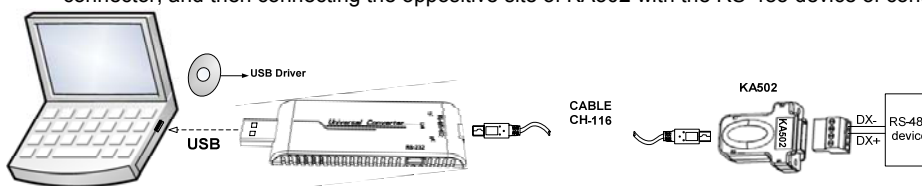
(3) Connecting RS-232 device :

Taking KA301 USB terminal to insert the USB socket of PC and connecting CABLE (CH-116) with KA504 connector, and then connecting the opposite site of KA504 with the RS-232 device of controller.



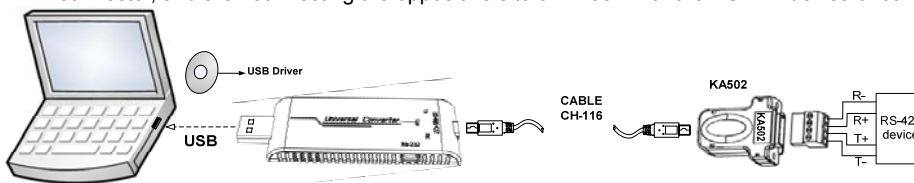
(4) Connecting RS-485 device :

Taking KA301 USB terminal to insert the USB socket of PC and connecting CABLE (CH-116) with KA502 connector, and then connecting the opposite site of KA502 with the RS-485 device of controller.



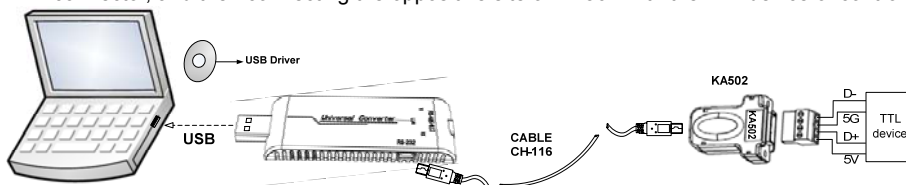
(5) Connecting RS-422 device :

Taking KA301 USB terminal to insert the USB socket of PC and connecting CABLE (CH-116) with KA502 connector, and then connecting the opposite site of KA502 with the RS-422 device of controller.



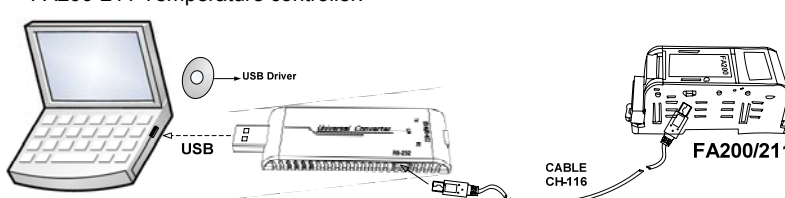
(6) Connecting TTL device :

Taking KA301 USB terminal to insert the USB socket of PC and connecting CABLE (CH-116) with KA502 connector, and then connecting the opposite site of KA502 with the TTL device of controller.



(7) Connecting FA200/211 Temperature Controller (for parameter copy system) :

Taking KA301 USB terminal to insert the USB socket of PC, and then connecting CABLE (CH-116) with FA200-211 Temperature controller.



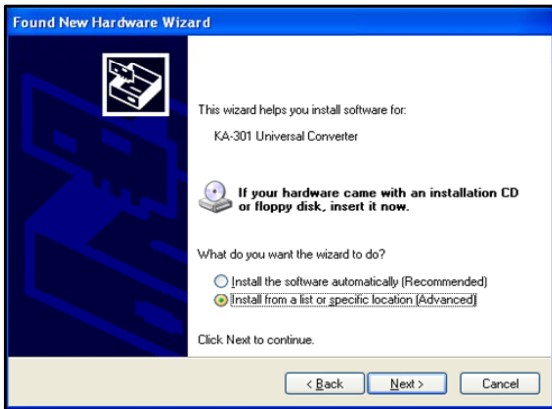
1.1 KA301 Universal Converter Installation

Please insert KA301 into the USB socket of PC at first, then will show "Found New Hardware".

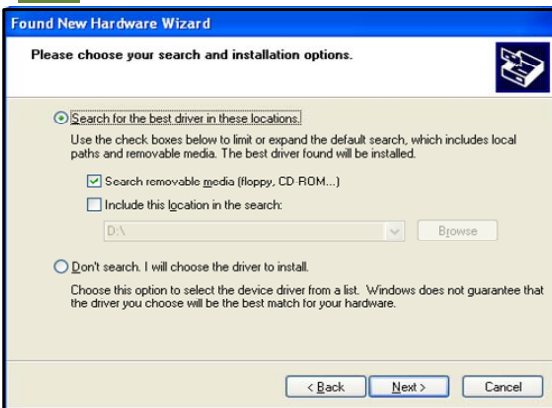


Installing CD into the drive and in "Found New Hardware Wizard", click "Install from a list or specific location (Advanced)" items

after that press **Next>**



Click "Search for the best driver in these locations" items, and click "Search removable media (floppy, CD-ROM...)", after that press **Next>**



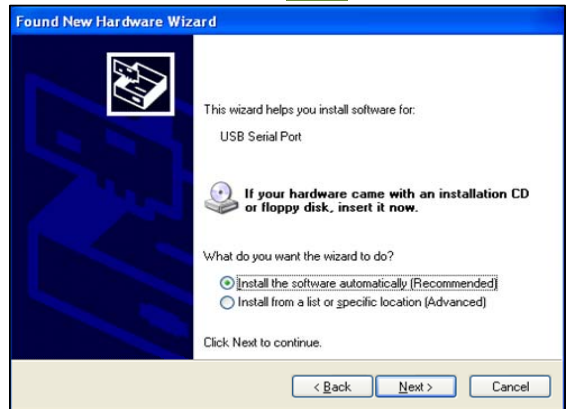
In "Found New Hardware Wizard", press **Finish**; than will complete the installation.



1.2 USB Serial Port Installation step

It will automatically jump an elf window of "Found New Hardware

Wizard" after finished the USB serial Converter installation, click "Install the software automatically (Recommended)" after that press **Next>**

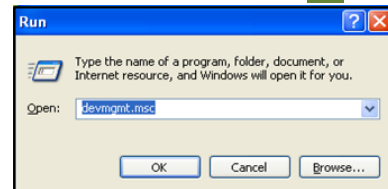


Completing the Found New Hardware Wizard, press **Finish**

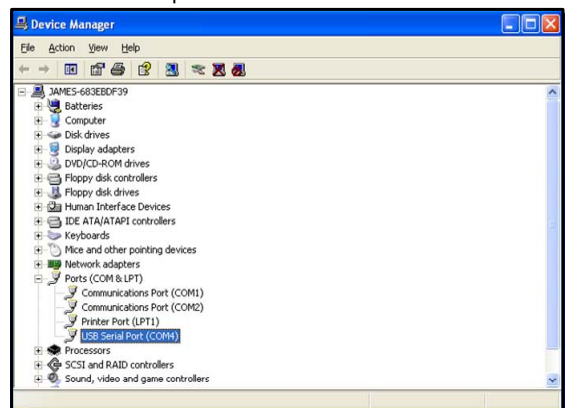


1.3 Search USB Serial Port

Click "Start" -> "Run", key in "devmgmt.msc" at the Run windows, after that press **OK**



Click the correct "Ports (COM & LPT)" at the Device Manager windows, it will find the USB Serial Port at once. For example: In this computer the USB Serial Port is COM4.



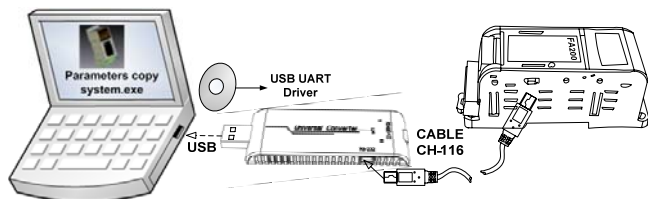
※ This mean when you insert the KA301 Converter, the USB Serial Port will distribute in COM4.



Parameter copy system (Operating FA200/211) controller

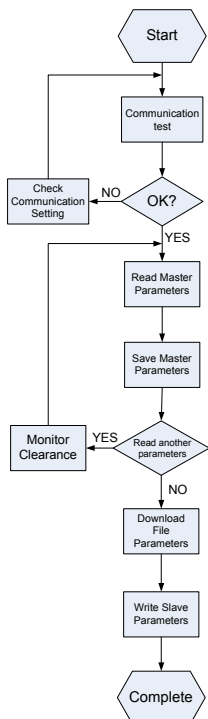
Parameter copy system instructions :

1. It is better to apply for this function when customers use considerable quantities of controllers and request all the same parameters setting.
2. Selecting and setting a controller as a master controller and use the parameter copy system to read and save the data of this master controller.
3. Change the master controller into has been copied slave controllers and then retrieves the saved data to all slave controllers.
4. It will be saved a lot of time and manpower for the above operation.



※Before connect KA301 with PC, please install the USB driver at first.

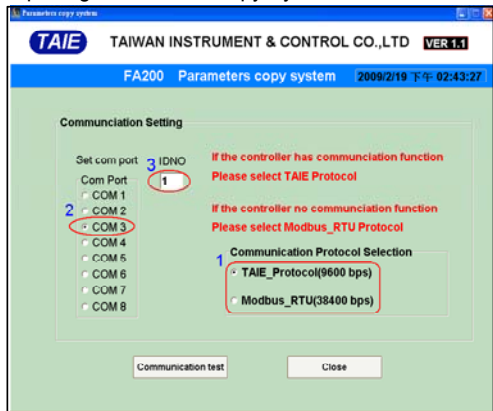
Using parameter copy system to connect controller FA-200 (TTL terminal)



Parameters COPY System Operational Flowchart

(1) Communication Parameter Settings

1. Opening Parameters Copy System



- ① Programmable site of communication protocol and Baud rate are fixed, so the controller should be set as:
PSL : TAIE Baud rate : 9600 bps
Modbus_RTU Baud rate : 38400 bps
- ② COM Port : Com Port is transferred from USB converter(any details please refer to page4_1.3 Inquiring the No's of USB Serial Port)
- ③ ID : The site of controller

2. Click the communication test key

- ① If the communication test is success, the program will display "Communications test normal, Access to the system", and then press enter in to the program.

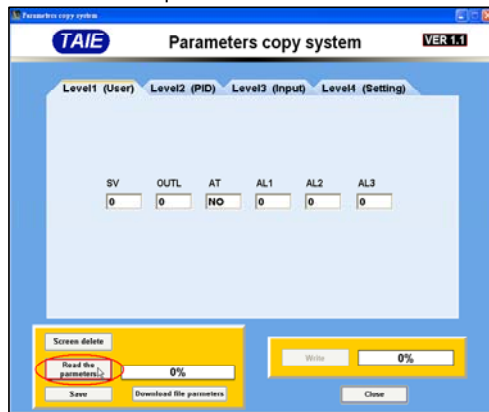


- ② If the communication test is fail, the program will display "Please check the port, Communication rate", and then press enter to recheck the communication parameter setting value.

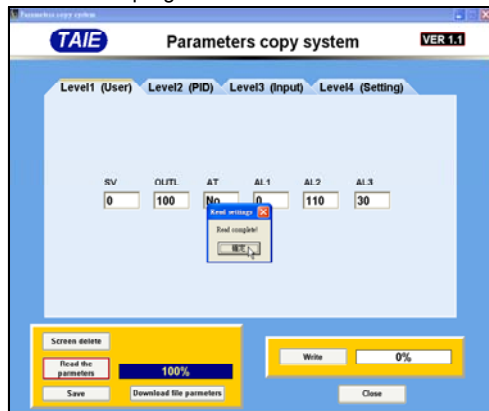


(2) Reading Parameters (master)

1. Enter the insides of program after the communication is successful. Press "Read the parameters"

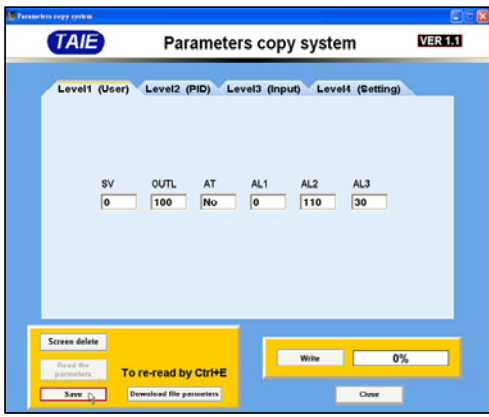


2. When completed the reading it will download all parameters from controller to program.



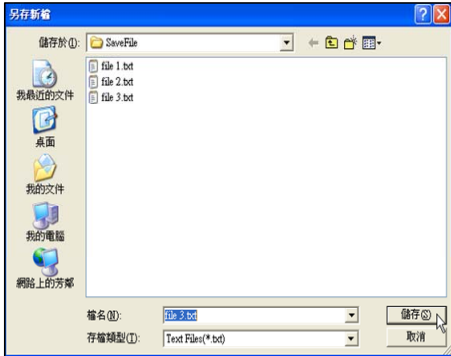
(3) Saving parameters (Master)

1. Press the "Save" key and it will save all parameters. When started parameter copy system the program will automatically occur a "SaveFile" and click the "Save" key. The data with characters mode (.txt) will be saved in "SaveFile".



(p.s.) : SaveFile in the installation file.

2. Key in the file name and click saving key

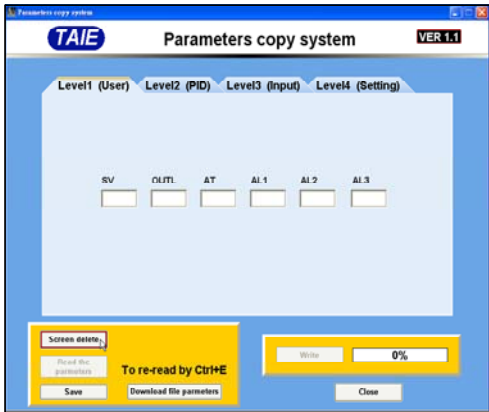


3. Press enter after saving



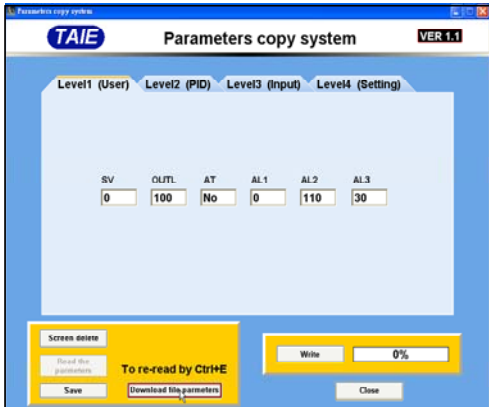
(4) Screen delete

Click the "Screen delete" key it will clear the parameters of all layers in order to download for another controller.

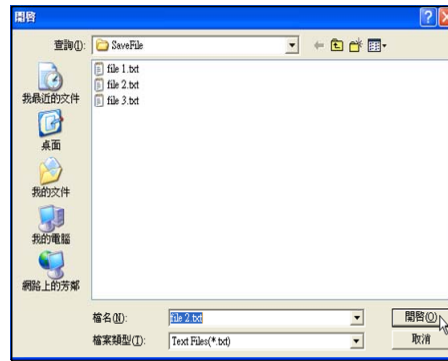


(5) Download file parameters

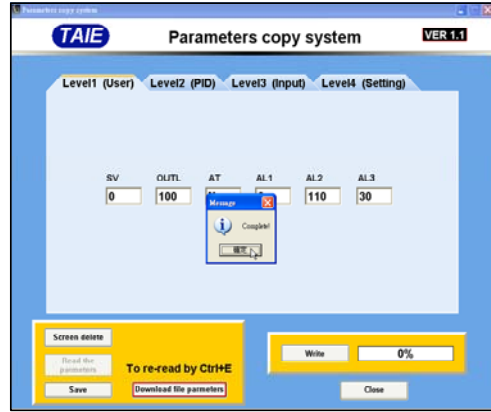
1. Download the file parameters from the "SaveFile"



2. Download the file name of desiring writing

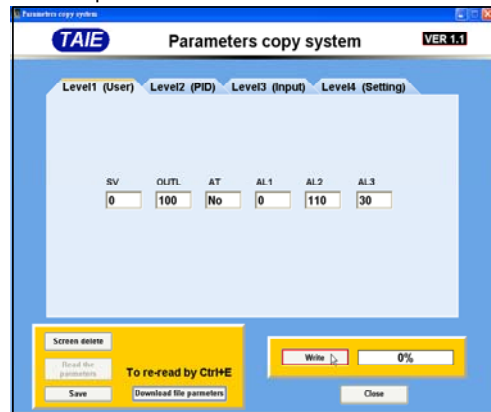


3. Parameters download to PC and complete

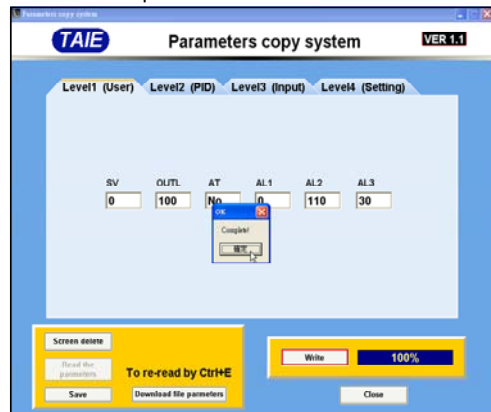


(6) Writing parameters

1. When click "Write" it will write the parameters that were downloaded parameters to controller.



2. It will jump a complete window when written successfully, press enter and complete.



Distributor:

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