

Text Display Link Manual

2009-4

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1. Interface Specification and Communication

Protocols Supported by EZ600-DS04

1.1. Interface Specification



There are RS232 and RS422/485 interfaces in COM1, but only one interface can be used at one time.



About connection to the earth, please connect the shield layer of the communication cable to the shell and connect the shell to the earth well, another side can't be connected.

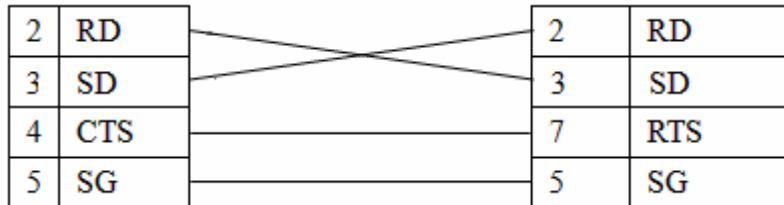
COM1 definition: The pin 6, 7, 8, 9 can be used by 422 or 485 interface

Pin	Define	Instruction
1	VCC	+5V power.
2	RXD	Receive the 232 communicate data
3	TXD	Transmit the 232 communicate data
4	CTS	Special use
5	SG	Signal GND
6	RD+	Receive the 422 communicate data +/- 485 communicate A
7	SD+	Transmit the 422 communicate data +/-485 communicate A
8	RD-	Receive the 422 communicate data -/ 485 communicate B
9	SD-	Transmit the 422 communicate data -/485 communicate B

2. Download Cable

TO EZ600-DS04 9 pin female

PC 9 pin female



3. PLC Link



Users can select default communication parameters in EZEDITOR (baud rate/data bit/check manner/stop bit), or set the parameter by themselves and make sure that the parameters are the same as the PLC's; otherwise the communication can't be successful.



Some PLC may have station number. Users can select default station number in EZEDITOR, or set the station number by themselves and make sure that the station number is the same as the PLC's; otherwise the communication can't be successful.

3.1. Mitsubishi Corporation

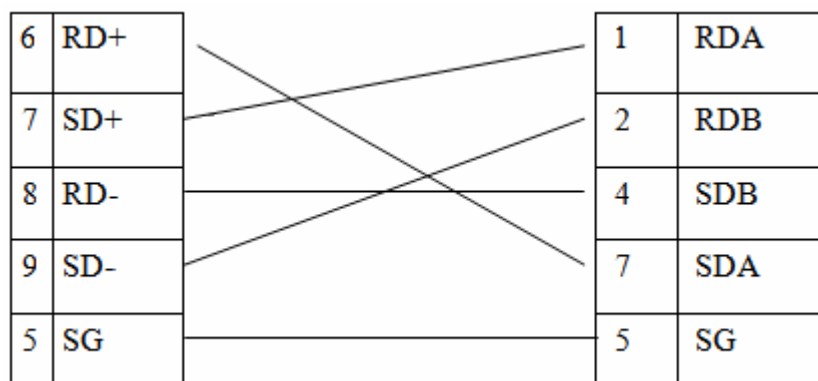
When EZ600-DS04 Text Display connects with the program port of FX PLC, please select FX_CPU protocol; when connects with communication extent module, please select FX_LINK protocol.

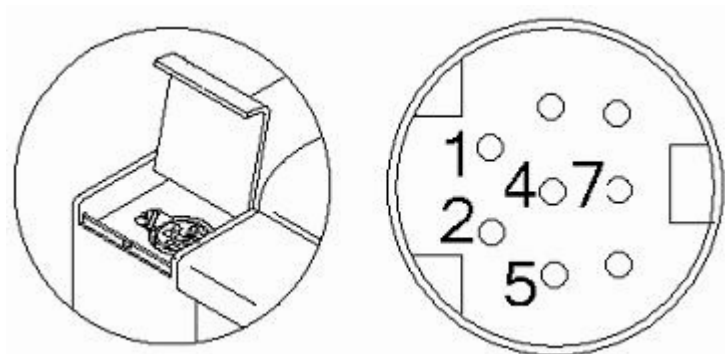
3.1.1. MITSUBISHI FX2N-CPU

Communication cable:

TO EZ600-DS04, 9 pin female
follows)

PLC (communication port as





The figure above is an overlooking map of the communication port; please note the symmetry of the pins.

Communication Parameters:

Parameters	EZ600-DS04	PLC(the parameters of program port can not be modified)
Baud Rate	9600	
Data bits	7	
Parity	Even	
Stop bits	1	

Elements supported by EZ600-DS04:

Elements	Bit	Word
Input Relay X	X0—X377	
Output Relay Y	Y0—Y377	
Auxiliary M	M0—M499	
Register D		D0---D1023
Timer T		T0—T0255
Counter C		C0---C0199



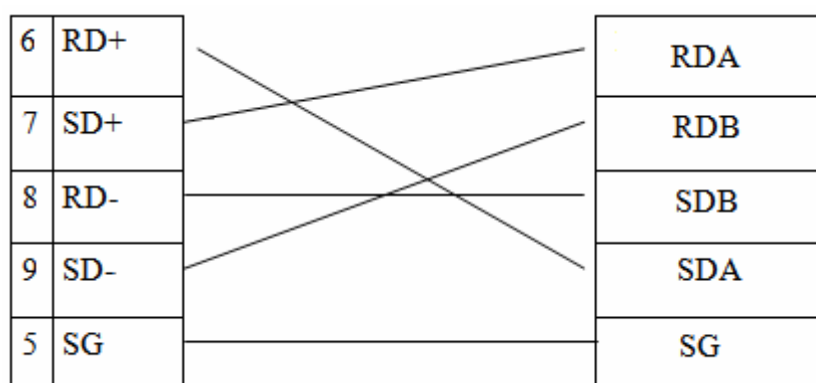
- 1) The dates of Timer T and Counter C are the current values of Timer T and Counter C.
- 2) The maximum length of Exchange COM's Data: The lengths of Register D, Timer T, and Counter C are 32 words (for details of Exchange COM's Data please refer to EZ600-DS04 Operate Manual).
- 3) The function of Exchange COM's Data is available only for the registers can be read and written.

3.1.2. MITSUBISHI FX2N-LINK

Communication cable:

TO EZ600-DS04, 9 pin female

FX2N-485-BD



Communication Parameters:

Parameters	EZ600-DS04	PLC
Baud Rate	9600 bps	9600 bps
Data bits	8	8
Parity	None	None
Stop bits	1	1



The setting of the register about communication in FX2N PLC: D8120=E381 (HEX), for details please refer to manual of FX PLC.

Elements supported by EZ600-DS04:

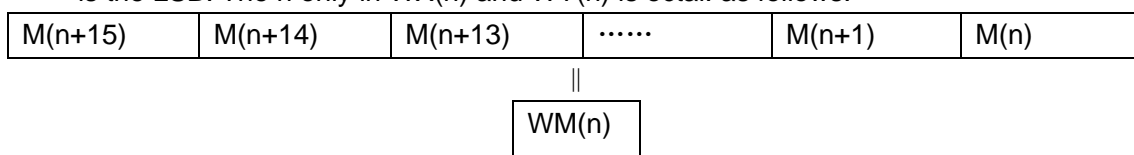
Elements	Bit	Word	Radix
Input Relay X	X0~X377	WX0~WX360	8
Output Relay Y	Y0~Y377	WY0~WY360	8
Auxiliary Relay M	M0~M3071	WM0~WM3056	10
Special Auxiliary Relay M	M8000~M8255	WM8000~WM8240	10
Status Relay S	S0~S999	WS0~WS984	10
Timer Contact TS	TS0~TS255	WTS0~WTS240	10
Counter Contact CS	CS0~CS255	WCS0~WCS240	10
Timer Current Value TN	None	TN0~TN255	10
Counter Current Value CN	None	CN0~CN255	10
Data Register D	None	D0~D7999	10
Special Data Register D	None	D8000~D8255	10



1) In EZ600-DS04 we access the parameters of PLC through “type of elements” +

“address of bit or word”.

- 2) Bit address is composed of the character (X,Y,M,S) that marks the type of elements and a number of 4 digits, such as M0008. Timer Contact is expressed by characters TS and a decimal number of 3 digits, which denotes the channels of timer (from T000 to T255). Counter Contact is expressed by characters TS and a decimal number of 3 digits, which denotes the channels of counter (from T000 to T255).
- 3) Word address is composed of the characters (WX, WY, WM, WS and D) that mark the type of elements and a number of 4 digits, such as WM0008.
- 4) 32bit register is composed of the register of address specified and the register of the next address. For example, 32bit W0000 is composed of register W0000 and W0001; W0000 is the low word and W0001 is the high word.
- 5) Registers M8000-M8255 are special registers and please implement writing discreetly.
- 6) In EZ600-DS04 X, Y, M, S, TS and CS addressing by word are expressed as WX、WY、WM、WS、WTS and WCS. For example, auxiliary register M addressing by word is expressed as WM. WM(n) denotes the combination of M(n+15) M(n+14)···M(n+2) M(n+1) M(n) all together 16 bits (n is decimal); the M(n+15) is the MSB and the M(n) is the LSB. The n only in WX(n) and WY(n) is octal. as follows:



- 7) CN200-CN255 are 32bit current value of counter and must be access in mode of 32bit otherwise the access will not be successful, that is , in EZEDITOR, the register length of CN200-CN255 must be specified 32bit.
- 8) The maximum length of Exchange COM's Data: The length of Register WX, WY is 16 words (WX0-7 can only be read and not be written) and the length of register WM, WS, WTS, WCS, TN, CN, D is 32 words (for details of Exchange COM's Data please refer to EZ600-DS04 Operate Manual).
- 9) The function of Exchange COM's Data is available only for the registers can be read and written.

3.2. SIEMENS

3.2.1. SIWMENS S7-200 PPI

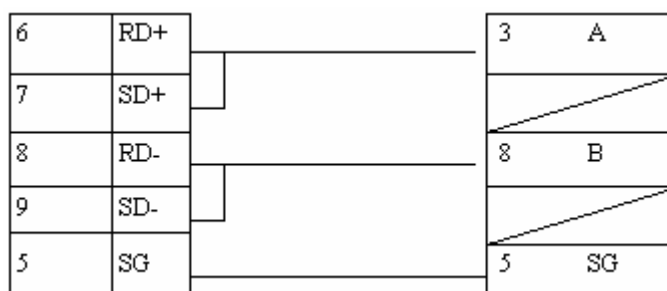


Important S7-200 PPI has two protocols S7-200PPI and S7-200PPI_V2. S7-200PPI_V2 has made improvements for S7-200 PLC and is recommended.

Communication cable:

TO EZ600-DS04, 9 pin female

PLC 9 pin male



Communication Parameters:

Parameters	EZ600-DS04	PLC
Baud Rate	9600	9600
Data bits	8	8
Parity	Even	Even
Stop bits	1	1

Elements supported by EZ600-DS04:

Element s	Bit Address expressed in S7-200	Word Address expressed in S7-200	Bit Address expressed in EZ600-DS04	Word Address expressed in EZ600-DS04
Register V	V0000.0-V0999.7	VW0—VW998	V00000-V09997	VW0—VW998
	V1000.0-V1999.7	VW1000—VW1998	V10000-V19997	VW1000—VW1998
	V2000.0-V2999.7	VW2000—VW2998	V20000-V29997	VW2000—VW2998
	V3000.0-V3999.7	VW3000—VW3998	V30000-V39997	VW3000—VW3998
Auxiliary Relay M	M000.0—M031.7	MW0—MW0030	M0000—M0317	MW0—MW0030
Input Relay I	I000.0-I015.7	IW0-IW0014	I0000-I0157	IW0-IW0014
Output Relay Q	Q000.0-Q015.7	QW0-QW0014	Q0000-Q0157	QW0-QW0014

Special Register SM	SM00.0-SM549.7	SMW0-SMW548	SM0000-SM5497	SMW0-SMW548
Timer T	T0-T255	TW0-T255	T0-T255	TW0-T255
Counter C	C0-C255	CW0-C255	C0-C255	CW0-C255



- 1) Considering the range of addresses according to the model S7-CPU266, it may not support the range of other models.
- 2) When expresses the address of PLC, it elides the “.” in address, such as I000.1 expressed as I0001 in EZ600-DS04.
- 3) Because the range of Register V is large, EZ600-DS04 expresses Register V in subsections. The Most Significant digit is provided by the drop down menu of address type, and the other digits are input by users. For instance, V1234.5 denotes bit5 of register V1234 and in EZ600-DS04 select V1 in drop down menu of address type, input 2345 in address bar eliding “.”.
- 4) The last significant digit of all bit addresses except T and C denotes which bit of byte.
- 5) The registers of T and C are the current value of Timer and Counter and they are 16bit registers. The bits of T and C are the status of T and C and can not be modified.
- 6) The maximum length of Exchange COM's Data: The length of Register VW, SMW, and MW is 15 words; the length of register TW and IW is 7 words; the length of register CW is 10 words (for details of Exchange COM's Data please refer to EZ600-DS04 Operate Manual). Note: the registers of other PLC arrange from low to high. On the contrary, the registers of SIEMENSE PLC arrange from high to low. For example, SIEMENSE PLC exchanges data with OMRON PLC, the length is specified 10, the start address of SIEMENSE PLC is CW0 and of OMRON PLC is DM0 and the transfer direction is from OMRON PLC to SIEMENS PLC. The actual registers exchange data as follows:

DM0		CW9
DM1		CW8
DM2		CW7
DM3		CW6
DM4		CW5
DM5		CW4
DM6		CW3
DM7		CW2
DM8		CW1
DM9		CW0

- 7) The function of Exchange COM's Data is available only for the registers can be read and written.

3.3. Schneider

3.3.1. MODBUS

MODBUS Protocol is a common communication protocol used in industrial control. With this protocol, industrial devices can easily communication with each other. It has become a common industry standard. With it, different control devices of different manufacturers can be connected into the industrial network, control centralized.

EZ600-DS04 Text Display integrates the standard MODBUS RTU protocol. Users can produce their own cable referring to definition of EZ600-DS04 Text Display communications port and device communication port.

Communication Parameters:

Parameters	EZ600-DS04	PLC
Baud Rate	9600	9600
Data bits	8	8
Parity	EVEN	EVEN
Stop bits	1	1

Elements supported by EZ600-DS04:

Elements	Bit	Word
Relay 0.(output)	0000-9999	None
Relay 1.(input)	0000-9999	None
Register 4.(holding)	None	0000-9999
Register 3.(input)	None	0000-9999



- 1) Relay 1. (Input) and Register 3. (Input) can only be read and can not be written.

3.4. Emerson

3.4.1. EC10 SERIES

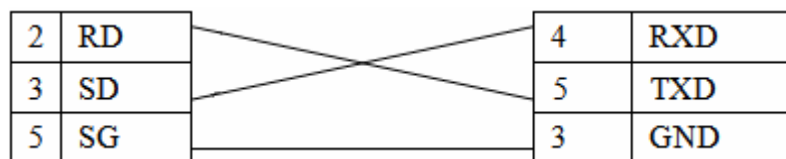
Communication cable:

1) RS232:

EZ600-DS04 links EC10 Program PORT0:

TO EZ600-DS04, 9 pin female

PLC (EC20 Program PORT0 as follows)

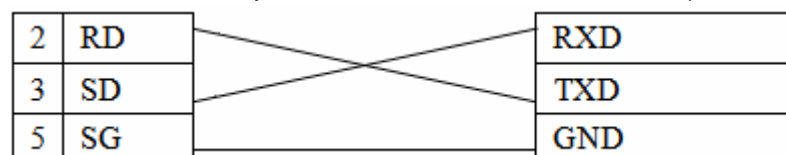


The figure above is an overlooking map of EC10 Program PORT0; please note the symmetry of the pins.

EZ600-DS04 links EC10 Program PORT1:

TO EZ600-DS04, 9 pin female

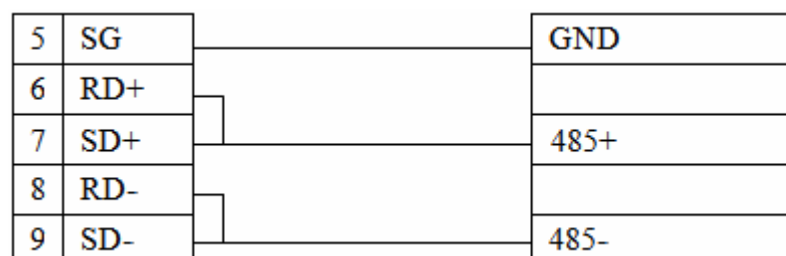
PLC (EC10 Program PORT1 as follows)



2) RS485:

TO EZ600-DS04, 9 pin female

PLC (EC20 Program PORT1 as follows)



Communication Parameters:

Parameters	EZ600-DS04	PLC
Baud Rate	19200	19200

Data bits	8	8
Parity	EVEN	EVEN
Stop bits	1	1

Elements supported by EZ600-DS04:

Element	Bit	Word	Radix
External Output Relay Y	Y0~Y377	None	8
External Input Relay X	X0~X377	None	8
Auxiliary Relay M	M0~M1999	None	10
Special Auxiliary Relay SM	SM0~SM255	None	10
Step State Relay S	S0~S991	None	10
Timer Contact T	T0~T255	None	10
Counter Contact C	C0~C255	None	10
Data Register D	None	D0~D7999	10
Special Data Register SD	None	SD0~SD255	10
Indexed Addressing Register Z	None	Z0~Z15	10
Timer Current Value T	None	T0~T255	10
16Bit Counter Current Value C	None	C0~C199	10
32Bit Counter Current Value C	None	C200~C255	10



- 1) EZ600-DS04 accesses the elements by the mode of “type”+ “address”.
- 2) 32bit register is composed of the register of address specified and the register of the next address. For example, 32bit D0003 is composed of register W0003 and W0004; W0004 is the low word and W0003 is the high word.
- 3) Relays SM000-SM255 are special auxiliary Relays and registers SD0000-SD255 are special data registers. Please implement writing discreetly.
- 4) Registers C000-C199 are 16bit counter current value, and must be accessed by register type “C” + address “000-199” and register length “16BIT”. Registers C200-C255 are 32bit counter current value, and must be accessed by register type “C2” + address “200-255” and register length “32BIT”.
- 5) The maximum length of Exchange COM's Data: The length of W~C is 32 words, Z is 16 words, SD and 32Bit C only can be read and can not be written (for details of Exchange COM's Data please refer to EZ600-DS04 Operate Manual).
- 6) The function of Exchange COM's Data is available only for the registers can be read and written

3.4.2. EC20 SERIES

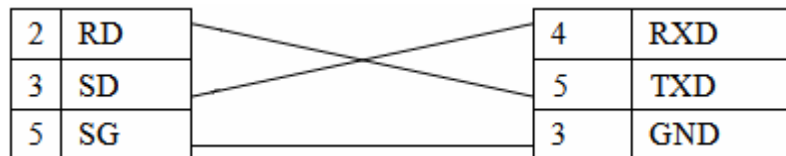
Communication cable:

1) RS232:

EZ600-DS04 links EC20 Program PORT0:

TO EZ600-DS04, 9 pin female

PLC (EC20 Program PORT0 as follows)

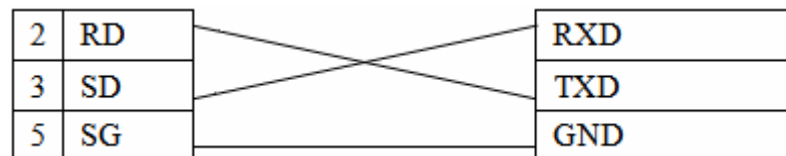


The figure above is an overlooking map of EC20 Program PORT0; please note the symmetry of the pins.

EZ600-DS04 links EC20 Program PORT1:

TO EZ600-DS04, 9 pin female

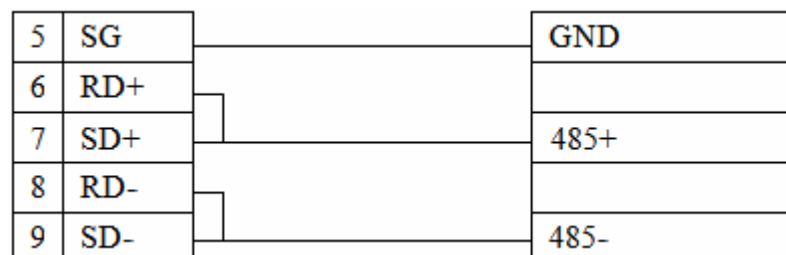
PLC (EC20 Program PORT1 as follows)



2) RS485:

TO EZ600-DS04, 9 pin female

PLC (EC20 Program PORT1 as follows)



Communication Parameters:

Parameters	EZ600-DS04	PLC
Baud Rate	9600	9600
Data bits	8	8
Parity	EVEN	EVEN
Stop bits	1	1

Elements supported by EZ600-DS04:

Element	Bit	Word	Radix
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External Output Relay Y	Y0~Y377	None	8
External Input Relay X	X0~X377	None	8
Auxiliary Relay M	M0~M1999	None	10
Special Auxiliary Relay SM	SM0~SM255	None	10
Step State Relay S	S0~S991	None	10
Timer Contact T	T0~T255	None	10
Counter Contact C	C0~C255	None	10
Data Register D	None	D0~D7999	10
Special Data Register SD	None	SD0~SD255	10
Indexed Addressing Register Z	None	Z0~Z15	10
Timer Current Value T	None	T0~T255	10
16Bit Counter Current Value C	None	C0~C199	10
32Bit Counter Current Value C	None	C200~C255	10



- 1) EZ600-DS04 accesses the elements by the mode of “type”+ “address”.
- 2) 32bit register is composed of the register of address specified and the register of the next address. For example, 32bit D0003 is composed of register W0003 and W0004; W0004 is the low word and W0003 is the high word.
- 3) Relays SM000-SM255 are special auxiliary Relays and registers SD0000-SD255 are special data registers. Please implement writing discreetly.
- 4) Registers C000-C199 are 16bit counter current value, and must be accessed by register type “C” + address “000-199” and register length “16BIT”. Registers C200-C255 are 32bit counter current value, and must be accessed by register type “C2” + address “200-255” and register length “32BIT”.
- 5) The maximum length of Exchange COM's Data: The length of W~C is 32 words, Z is 16 words, SD and 32Bit C only can be read and can not be written (for details of Exchange COM's Data please refer to EZ600-DS04 Operate Manual).
- 6) The function of Exchange COM's Data is available only for the registers can be read and written

4. OTHERS

4.1. DEMO

Protocol DEMO does not have the practical function of communication and it is only for demonstrating. Users can select this protocol to demonstrate the functions of EZ600-DS04 without connecting to any PLC.

Communication Parameters:

No practical significance and can be specified at will.

Elements supported by EZ600-DS04:

Element	Bit	Word
Relay M	M0-M0010	None
Register D	None	D0-D0010

5. Record of alteration

Data	Alteration content	