



Industrial Computer Products
and Data Acquisition Systems

VxComm and Xserver command protocol



I-7188EN Series

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1. Command set of the VxComm and Xserver

1. User can send command to 7188E/8000E module via connecting to TCP port 10000. The TCP port 10000+N is used to communicate with COM N of 7188E/8000E module.

The COM port of 7188E/8000E contains two modes to communicate with other device.

M0: Transparent Mode (Multi-echo mode) :

- Condition 1: One client sends a request to Xserver to access devices. The Xserver echoes data from devices to every client which is connected to the 7188E/8000E.
- Condition 2: No clients send a request to Xserver to access devices. The Xserver echoes data from devices to every client which are connected to the 7188E/8000E.
- It is applied to a condition which RS-232/485 device can actively send data to 7188E/8000E module. For example, card reader.

M1: Slave Mode (Single-echo mode) :

- Condition 1: One client sends a request to Xserver to access devices. The Xserver echoes data from devices to the client which requested the service.
- Condition 2: No clients send any request to Xserver to access devices. The Xserver doesn't echo data from devices to any client.
- It is applied to Master/Slave Mode. For example, Master sends a command to the slave module.

2. Command set of VxComm and Xserver as shown following tables.

00[Args]		
Description	This command is used to stop the module from executing Vxcomm.exe or Xserver, and returns to the MiniOS7 console mode.	
Parameters	Syntax	quit
Return Values	OK	None
	Error	The command was not successful because an error occurred.
Examples	Command	00quit
	Return	None
Version		

01		
Description	This command is used to read the version information for Vxcomm.exe or Xserver.	
Parameters	Syntax	None
Return Values	Return Values	The version information in the format: vm.n.rr [mm/dd/yy] <ul style="list-style-type: none"> ● m: major version ● n: minor version ● rr: revision number
	Examples	Command
	Return	v2.6.14 [09/04/2001]

Version		
02[Arg]		
Description	This command is used to set Baud Rate of COM ports of 7188E/8000E. Note that this value isn't stored in EEPROM of 7188E/8000E module.	
Parameters	Syntax	CBBBBBB
	C	COM Port (1-8)
	BBBBBB	Baud Rate (1200, 2400, 4800, 9600, 19200, 57600, 115200)
Return Values	OK	The command was successful.
	Error	The command was not successful because an error occurred.
Examples	Command	0219600
	Return	OK
Version		

03[Arg]		
Description	This command is used to set data format for the COM ports on the 7188E/8000E module. Note that this value isn't stored in EEPROM of 7188E/8000E module.	
Parameters	Syntax	CDPS
	C	COM port (1-8)
	D	Data bit <ul style="list-style-type: none"> • 7,8==>Only valid for COM1/COM2 • 5, 6, 7, 8==>Only valid for COM3-COM8
	P	Parity <ol style="list-style-type: none"> 1. N: None 2. E: Even 3. O: Odd 4. M: Mark 5. S: Space 1-3: Only valid for COM1/COM2 1-5: Only valid for COM3-COM8
	S	Stop bit <ol style="list-style-type: none"> 1: Only valid for COM1/COM2 1,2: Only valid for COM3-COM8
Return Values	OK	The command was successful.
	Error	The command was not successful because an error occurred.
Examples	Command	0317N1
	Return	OK
Version		

04[Arg]

Description	This command is used to read the reset status of the system [Added 10/19/2001].	
Parameters	Syntax	CC
	CC	The status bit (00-31). A max of 32 status bits is provided for the Client. Any Client that calls this function must use a different status bit. When the status bit is requested by the Client, it will be reset, which means that for the first request, the value will be 1, and for the next request will be 0. A value of 1 will be shown until the system is reset again.
Return Values	OK	The command was successful.
	Error	The command was not successful because an error occurred.
Examples	Command	0403
	Return	031
Version		

05[Arg]

Description	This command is used to set the RTS and DTR signal for the COM ports on the 7188E/800E module.	
Parameters	Syntax	CS[D]
	C	COM Port. (1-8)
	S	The RTS Status 0: Inactive 1: Active
	D	The DTR Status, If no argument is given, the DTR status will not be changed and the current status is preserved.
Return Values	OK	The command was successful.
	Error	The command was not successful because an error occurred.
Examples	Command	0511
	Return	OK
	Command	05411
	Return	OK
Version		

06[Arg]

Description	This command is used to set the Baud Rate to be used by the COM ports on the 7188E/8000E module and stores the value in the EEPROM of the module.	
Parameters	Syntax	CBBBBBB
	C	COM Port (1-8)
	BBBBBB	Baud Rate (1200, 2400, 4800, 9600, 19200, 57600, 115200)
Return Values	OK	The command was successful.

	Error	The command was not successful because an error occurred.
Examples	Command	0619600
	Return	OK
Version		

07[Arg]

Description	This command is used to set the Data Format fir the COM ports on 7188E/8000E module and stores the value in the EEPROM of the module.	
Parameters	Syntax	CDPS
	C	COM Port (1-8)
	D	Data Bit <ul style="list-style-type: none"> • 7,8==>Only valid for COM1/COM2 • 5, 6, 7, 8==>Only valid for COM3-COM8
	P	Parity <ol style="list-style-type: none"> 1. N: None 2. E: Even 3. O: Odd 4. M: Mark 5. S: Space 1-3: Only valid for COM1/COM2 1-5: Only valid for COM3-COM8
	S	Stop bit <ol style="list-style-type: none"> 1: Only valid for COM1/COM2 1,2: Only valid for COM3-COM8
Return Values	OK	The command was successful.
	Error	The command was not successful because an error occurred.
Examples	Command	0728E1
	Return	OK
Version		

08[Arg]

Description	This command is used to set the IP address for the 7188E/8000E module. After successfully setting the IP address, the client program must be reconnected to the new IP address in order to communicate with the 7188E module.	
Parameters	Syntax	iiipppIIIPPP
	iiipppIIIPPP	For 3-digit value in the range 000-255 representing the IP address
Return Values	OK	The command was successful.
	Error	The command was not successful because an error occurred.

Examples	Command	08192168255001
	Return	OK
Version		

09[Arg]

Description	This command is used to set the Receive Timeout for the COM port on the 7188E/8000E. (Modified from Vcom3008)	
Parameters	Syntax	ptttt
	p tttt	COM Port (1-8) The Receive Timeout value (0-99999. Units: ms). If set as 'a', 'A' or -1, the tttt value will be determined by the system. If the trigger level (Refer to command 32) is >1, the tttt value will be (trigger level - 1 + 3) * time of (trigger level + 2 bytes) + 1ms. If the trigger level == 1, the tttt value will be the time for 1 byte + 1 ms (Min value is 2 ms).
Return Values	OK	The command was successful.
	Error	The command was not successful because an error occurred.
Examples	Command	093
	Return	30
Version	Modified in V3.0.08	

10

Description	This command is used to read the name of the module.	
Parameters	Syntax	None
Return Values	The name of the module (e.g.. 7188E1, 7188E2, 7188EX, etc.)	
Examples	Command	10
	Return	7188E1
Version		

11[Arg]

Description	This command is used for testing purposes only.	
Parameters	Syntax	Any string. The string length must be <=80bytes.
Return Values	Success	If the command was successful, the test string will be returned.
	Error	The command was not successful because an error occurred.
Examples	Command	11TEST
	Return	TEST
Version		

12[Arg]

Description	This command is used to set the Gateway address for the 7188E/8000E module. After successfully	
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	setting the Gateway address. The client program must be reconnected to the new Gateway address in order to communicate with the 7188E module.	
Parameters	Syntax	iiippplIIPPP
		For 3-digit value in the range 000-255 representing the Gateway address
Return Values	OK	The command was successful. Reconnect the client program to re-establish communication with the module.
	Error	The command was not successful because an error occurred.
Examples	Command	12192168000001
	Return	OK...Reconnect
Version		

13

Description	This command is used to read the Gateway address for the 7188E/8000E module.	
Parameters	Syntax	None
Return Values	OK	The Gateway address: xxx.xxx.xxx.xxx (where xxx will be in the range: 0-255)
	Error	The command was not successful because an error occurred.
Examples	Command	13
	Return	192.168.0.1
Version		

14[Arg]

Description	This command is used to set the subnet mask address for the 7188E/8000E module. After successfully setting the subnet mask, the client program must be reconnected to the new subnet mask address in order to communicate with the 7188E module.	
Parameters	Syntax	iiippplIIPPP
	iiippplIIPPP	Four 3-digit values in the range 000-255 representing the subnet mask address
Return Values	OK	The command was successful. Reconnect the client program to re-establish communication with the module.
	Error	The command was not successful because an error occurred.
Examples	Command	14255255000000
	Return	OK...Reconnect
Version		

15

Description	This command is used to read the subnet mask address for the 7188E/8000E module.	
Parameters	Syntax	None
Return Values	OK	The subnet mask address: xxx.xxx.xxx.xxx (where xxx will be in the range: 0-255)
	Error	The command was not successful because an error occurred.

Examples	Command	15
	Return	255.255.0.0
Version		

16[Arg]

Description	This command is used to read the status of a specified COM port on the 7188E/8000E module.	
Parameters	Syntax	C
	C	COM Port (1-8)
Return Values	OK	BBBB,D,P,S BBBB: Baud Rate D: Data bit P: Parity S: Stop bit
	Error	The command was not successful because an error occurred.
Examples	Command	162
	Return	9600,N,8,1
Version		

17[Arg]

Description	This command is used to read the value of the Digital Input for a specified address on the 7188E module.	
Parameters	Syntax	pppp
	pppp	A 4-digit Hexadecimal value representing the Digital Input address. For example, a value of 0300 denotes that the Digital Input address is 0x300.
Return Values	OK	The command was successful.
	Error	The command was not successful because an error occurred.
Examples	Command	170003
	Return	55
Version		

18[Arg]

Description	This command is used to send data to the Digital Output of the 7188E module.	
Parameters	Syntax	ppppdd
	pppp	A 4-digit Hexadecimal value representing the Digital Output address. For example, a value of 03f8 denotes that the Digital Output address is 0x3f8.
	dd	A 2-digit Hexadecimal value representing the Output value
Return Values	OK	The command was successful.
	Error	The command was not successful because an error occurred.

Examples	Command	1803f855
	Return	OK
Version		

19[Arg]

Description	This command is used to transmit command to I-7188E/8000E module for executing specified function.	
Parameters	Syntax	A user-defined value
Return Values	OK	Any return values will be user-defined.
	Error	The command was not successful because an error occurred.
Examples	Command	19 (User defined)
	Return	(User defined)
Version		

20[Arg]

Description	This command is used to enables or disables the 5-Digit LED on the 7188E module.	
Parameters	Syntax	L
	L	L=1: Enables the 5-Digit LED L=0: Disables the 5-Digit LED
Return Values	OK	The command was successful.
	Error	The command was not successful because an error occurred.
Examples	Command	201
	Return	OK
Version		

21

Description	This command is used to read the MAC address for the 7188E/8000E module.	
Parameters	Syntax	None
Return Values	Success	The MAC address. A 6-digit Hexadecimal value in the format[xx:xx:xx:xx:xx:xx]
	Error	The command was not successful because an error occurred.
Examples	Command	21
	Return	71:88:03:3b:02:c7
Version		

22

Description	This command is used to read the version information for the MiniOS7 system installed in the 7188E/8000E module.	
Parameters	Syntax	None
Return Values	Success	The version information in the format: vm.n.rr [mm/dd/yy]

		<ul style="list-style-type: none"> • m: major version • n: minor version • rr: revision number
	Error	The command was not successful because an error occurred.
Examples	Command	22
	Return	v1.1.0 (2001/9/1)
Version		

23[Arg]

Description	This command is used to transmit user-define command to I-7188E/8000E for executing specified function, including the socket number and the data length as well.	
Parameters	Syntax	A user-defined command
Return Values	Success	Any return sting will be user-defined.
	Error	The command was not successful because an error occurred.
Examples	Command	23 (User defined)
	Return	User defined
Version	2.6.14	

24[Arg]

Description	This command is used to set the feedback command value for the 7188E/8000E module.	
Parameters	Syntax	m
	m	m=0: Feedback a message without command number. m=1: Feedback a message with command number.
Return Values	Success	The command was successful.
	Error	The command was not successful because an error occurred.
Examples	Command	241
	Return	24OK 240 OK
Version		

25[Arg]

Description	This command is used to queries the current system parameters 7188E/8000E module.	
Parameters	Syntax	m
	m	<ul style="list-style-type: none"> • m='S': Reads the timeout value for the system • m='W': Reads the timeout value for the socket • m='N': Reads the Max. number of sockets • m='M': Reads the operating option M0/M1

		<ul style="list-style-type: none"> ● m='B': Read Broadcast mode '0': The Broadcast mode (Default) is disabled '1': The Broadcast mode is enabled ● m='E': Reads the command echo mode 'E=0': Echo mode (Default) is disabled 'E=1': Echo mode is enabled ● m='L': Reads the status of the 7-Seg LED 'L=0': The LED function is disabled 'L=1': The LED function is enabled ● m='I': Reads the NAME, IP, MASK, GATEWAY, and MAC values for the 7188E module
Return Values	Success	m=xxx <ul style="list-style-type: none"> ● m: 'S', 'W', 'N', 'M' ● xxx: value
	Error	The command was not successful because an error occurred.
Examples	Command	25M
	Return	M=0 25S S=0
Version	3.0.02 established 3.0.10 modified	

26[Arg]

Description	This command is used to set the system parameters for the 7188E/8000E module.	
Parameters	Syntax	m=n
	m	<ul style="list-style-type: none"> ● m='SAVE': Sets whether the system parameters will be stored in the EEPROM or not. If this parameter is not set, the default value is SAVE=0. For example, "26SAVE=1", "26SAVE=0" ● m='S': Sets the system Timeout value. n: Timeout value ● m='W': Sets the socket Timeout value. n: Timeout value ● m='M': Sets the operating option. ● m='B': Enables or disables the Broadcast mode. n='0': Disables the Broadcast mode (Default) n='1': Enables the Broadcast mode ● m='E': Enables or disables the command echo mode n='0': Disables echo mode (Default) n='1': Enables echo mode ● m='L' Enables or disables the LED n='0': Disables the LED

		<p>n='1': Enables the LED</p> <ul style="list-style-type: none"> ● m='l': Sets the IP, MASK, GATEWAY, or MAC values. Note that IP/GATEWAY/MASK/MAC must be in uppercase letters <p>To set multiple parameters, use a comma as a separator. For example, "26SAVE=1,M=0,B=0,S=300000"</p>
Return Values	Success	<p>m=n</p> <ul style="list-style-type: none"> ● m: 'SAVE', 'B', 'S' or 'M' ● n: The setting value
	Error	The command was not successful because an error occurred.
Examples	Command	26SAVE=1,M=1, B=0
	Return	<p>SAVE=1,M=1,B=0</p> <p>26M=1,B=0,S=300000</p> <p>M=1,B=0,S=300000</p> <p>26UDP=1</p> <p>UDP=1</p>
Version		3.0.02 established
		3.0.10 modified

27[Arg]

Description	This command is used to send a Break signal to a specified COM port on the 7188E/8000E module.	
Parameters	Syntax	CM
	C	COM Port (1-8)
	M	<p>0: Disabled</p> <p>1: Enabled</p>
Return Values	Success	The command was successful.
	Error	The command was not successful because an error occurred.
Examples	Command	2711
	Return	OK
Version		

28[Arg]

Description	This command is used to set/read the CTS/RTS mode for the flow control on the 7188E/8000E module.	
Parameters	Syntax	p[mn]

	p m n	COM Port (only valid for COM Ports 1/3/4/5) Sets the flow control of CTS to the other mode Sets the flow control of RTS to the other mode mode: <ul style="list-style-type: none"> • '0': Disabled • '1': Enabled. (RTS flow control mode must be controlled by the user program.) • '2': Enabled. Flow control is automatically controlled by the hardware. • '3': Enabled. Flow control is automatically controlled by the software Library. Note that for CTS mode, modes '1' and '3' are the same. If the “mn” arguments are not included in the command, it will only read the configurations.
Return Values	Success Error	The command was successful. The command was not successful because an error occurred.
Examples	Command Return	28111 111
Version	3.0.07	

29[Arg]

Description	This command is used to read the status of CST mode on the 7188E/8000E module.	
Parameters	Syntax	p
	p	COM Port (only valid for COM Ports 1/3/4/5)
Return Values	Success	CTS _n =0 or CTS _n =1. n: COM port.
	Error	The command was not successful because an error occurred.
Examples	Command	291
	Return	CTS1=0
Version	3.0.07	

30[Arg]

Description	This command is used to send a string and receives the data, which is the same as the string that was sent. The returned string will include the command number 30, no matter the command '24' is set to 0 or 1.	
Parameters	Syntax	ssss
	ssss	Any string. The max length of the string is 1460 bytes.
Return Values	Success	Returns the same string that was sent.
	Error	The command was not successful because an error occurred.
Examples	Command	30123456789
	Return	30123456789
Version	3.0.08	

31[Arg]

Description	<p>This command is used to set the trigger level for the COM port on the 16550 chip. Note that this command is only valid for COM Ports 3-8 and is not valid for COM Ports 1/2.</p> <p>Any one of the values 1, 4, 8, or 14 can be used as the trigger level. If it isn't changed, the default value is 8.</p>	
Parameters	Syntax	p[LL]
	p [LL]	<p>COM Port (3-8)</p> <p>The trigger level "1", "4", "8", "14" Choose only one from the four values. If the LL arguments are not included in the command, it will only read the configurations.</p>
Return Values	Success	Returns the value that that was sent. Format: 30p[LL]
	Error	The command was not successful because an error occurred.
Examples	Command	31314
	Return	<p>314 (COM3, trigger level=14)</p> <p>313</p> <p>38 (COM3, trigger level=8)</p>
Version	3.0.08	

32[Arg]

Description	<p>This command is used to set the trigger level for the COM Port Buffer on module in bytes. This value ensures that the number of bytes that are received match the trigger level value (bytes). The data contained in the Buffer will be returned.</p> <p>Note that this command is more efficient for transmissions where the received string is a static length, and is not useful as the timeout value for each time that data is received.</p>	
Parameters	Syntax	p[nnnn]
	p nnnn	<p>COM Port (3-8)</p> <p>The trigger level, range = 0-1460. If the nnnn arguments are not included in the command, the return value is the previous value.</p>
Return Values	Success	Returns the value that has just been sent. Format: 31pnnnn.
	Error	The command was not successful because an error occurred.
Examples	Command	321
	Return	<p>10</p> <p>3221460</p> <p>21460</p>
Version	3.0.08	

33[Arg]

Description	This command is used to upload a file to the 7188E module.	
Parameters	Syntax	

	dir \n; dir a\r dir b\r load a size\r FILE DATA del a del b reset fileno a fileno b	Lists all the files, which was stored in disk A Lists all the files, which was stored in disk B Ask for download file For download file Delete all the files stored in disk A. Delete all the files stored in disk B. Send a command for the module was reset by the WDT. Read the number of files and free space on disk A Read the number of files and free space on disk B
Return Values	Success Error	Returns the value from the 7188E module. The command was not successful because an error occurred.
Examples	Command Return	33fileno a 199286 33del a Deletes file(s) from disk A OK
Version	3.0.09	

34[Arg]

Description	This command is used to read the version and date information for the Vcomnnn.exe library (including the 7188el.lib and tcpipl.lib files) currently installed on the 7188E/8000E module.	
Parameters	Syntax	None
Return Values	Success Error	The version information for the library file. Format: n.nn[MM DD YYYY] The command was not successful because an error occurred.
Examples	Command Return	34 7188el.lib 1.20[11 06 2002] (Ver. 1.20 Nov. 06, 2002) tcpipL.lib1.10[10 24 2002] (Ver. 1.1, Oct. 24, 2002)
Version	3.0.10	

35[Arg]

Description	This command is used to clear the input/output buffer for the COM Port on the 7188E/8000E module.	
Parameters	Syntax	ptr
	p t r	COM Port (1-8) '1' clears the Tx output buffer '1' clears the Rx input buffer
Return Values	Success Error	None. The command was not successful because an error occurred.
Examples	Command Return	35111

Version	3.2.0	
36[Arg]		
Description	This command is used to read the time ticks. The timer inside the system is used to count time.	
Parameters	Syntax	None
Return Values	Success	TIMETICKS=Value. Units: ms
	Error	The command was not successful because an error occurred.
Examples	Command	36
	Return	TIMETICKS=4219529
Version	3.2.0	

37[Arg]		
Description	This command is used to read the MSR (Modem Status Register) value for the COM port on the 7188E/8000E module.	
Parameters	Syntax	p
	p	COM Port (1-8)
Return Values	Success	The MSR status value.
	Error	The command was not successful because an error occurred.
Examples	Command	371
	Return	MSR1=30
Version	3.2.1	

2. Version History

Version	Description
3.2.32	<p>New Functions</p> <ol style="list-style-type: none"> 1. Added a debug function so that when the init* pin is grounded to console mode, the user can send the command “debug0” or “debug1” to enable or disable the debug function. 2. Added a function to allow the 7188E/8000E module to send a UDP search reply message when the 7188E/8000E module is turned on or when the Ethernet cable has been reconnected to the 7188E/8000E module. 3. Added function that allows modification of the hostname. 4. Added an IP check function so that the 7188E/8000E module can check the last number of the IP address to verify whether is set to 0 or 255. If the last number of the IP address is set to 0 or 255, the IP modification will be ignored. The IP check function supports the following four conditions. <ol style="list-style-type: none"> a. Modify IP by sending a command from TCP/IP Port10000. b. Modify IP in console mode. c. Modify IP from a web interface. d. Modify IP when searching via UDP/IP. 5. Added an automatic reset function.
	<p>Revised Functions</p> <ol style="list-style-type: none"> 1. Fixed an issue that occurred when modifying the ACK delay from a web interface which restored the7188E/8000E module to default value after it was rebooted. 2. Fixed an issue with the clear buffer function that cause the CPU to be reset by the WDT when the 7188E/8000E module received a clear Tx buffer command (Command "35110" or "35210" from TCP port 10000) while data stored in the buffer of COM1/ COM2 was ready to be sent. 3. Fixed an issue that caused the COM Ports (COM3-COM6) to lose data when the FIFO Trigger Level is set to 1.
	<p>Modified Functions</p> <ol style="list-style-type: none"> 1. Modified the default value for the slave timeout in M1/M2 mode from 100ms to 200ms. 2. Modified the font type displayed on the web interface. 3. Modified the DHCP function to resolve an issue where socket adopts a non-block mode to obtain dynamic IP address which may cause the IP address for the 7188E/8000E to be displayed as “0.0.0.0” after being turned on (“0.0.0.0” indicates that the DHCP is being process). 4. Updated the Xserver library. 5. Modified the default value of ET_TOUT from 0 to 5 which ensures that a successful connection to the LAN can be established within 10ms. 6. Increased the number of TCP/IP connections for each COM Port from 8 to 24.

Version	Description
3.2.32	<p>New Functions:</p> <ol style="list-style-type: none"> 1. Added a M2 mode (Half-Slave Mode) function. The functionality of M2 mode falls between M0 mode and M1 mode. If there is only one connection, the functionality of M0 mode and M2 mode are the same. If there is more than one connection, the functionality of M1 mode and M2 mode are the same. If the COM port still got no command from new connection, it will continue to send messages to the connection where it sent the last command. 2. Added a function that allowed the COM port to be set for each individual usage (M0/M1/M2). 3. Added a Master ACK Timeout function to M1 mode that allows user to change the ACK Timeout. Added console commands to COM1 so that when the init* pin is grounded to console mode, the user can send commands to configure the 7188EX module or query the status of 7188EX module. (Console command: ipconfig, socket, COM, etc) 4. Added an IP filter function that allows the user to set the range of address can be used to access the module. 5. Added a Master IP function. Once set, only connections from the Master IP address can be used to modify the configuration, and connections from any other IP address will be prevented from modifying the settings. The Master IP function can be disabled by setting the Master IP address to 0.0.0.0 using the connection from the Master IP address. 6. Added a pair connection function. 7. Added a function that sends an ARP packet to the Gateway once every minute. If no valid packets are received within ten seconds, an ARP packet will be sent to the Geteway. 8. Added a UDP broadcast packet filtering function. Only two kinds of UDP broadcast packets are accepted by the module. One is VCOM's UDP search function, which uses UDP Port 57188. The other is the DHCP server response that uses UDP Port 68. All other UDP broadcast packets will be ignored. 9. Added a function that port 9999 is able to support for DCON commands. 7188E3/7188E3-232 modules can be used to send commands to operate the DI/O of the 7188E3 module using DI/O functions, and if the autoinitc.bat for the 7188E3-232 is set to "runexe /NX507 /ST300" and "runexe /NX508 /ST300, then Port 9999 will be opened to provide support for DCON commands.
	<p>Modified Function:</p> <ol style="list-style-type: none"> 1. Telnet (TCP Port 23) can now support to send the same command as follows. <ol style="list-style-type: none"> a. console mode b. Port 10000.

Version	Description
3.2.23	<p>New Function:</p> <ol style="list-style-type: none"> Added two new functions that use "/P23" command to enable the Telnet functionality and use "/HTTP" command to enable the web server functionality. The default setting for both is "enabled". <p>Revised Functions:</p> <ol style="list-style-type: none"> Fixed an issue with the DHCP function. [05/04/13]. Fixed an issue with the web configuration function which meant that Mozilla/Firefox browsers could not be used. Fixed an issue with the H/W flow control which meant that the RTS would not operate correctly. Fixed an issue with the command 28 which caused COM1 to send invalid messages. [05/04/22] Fixed an issue with the command 26. Fixed an issue with the command 292/296/297 which caused the system to crash. Fixed an issue with the command 05 which caused COM1 to send invalid messages. [05/04/26] Fixed an issue with the "00quit" command which meant that this command could function without receiving the CR character. Fixed an issue that cause the WDT to crash the system and the LED on the 7188E module to blink for 5 times per second if the Ethernet cable has been removed. <p>Modified Functions:</p> <ol style="list-style-type: none"> Modified the structure of Xserver. [04/11/23] Removed the debug message from the UDP function. [05/05/23] Simplified the source code for command 23 and reduced the size of the program by 200 bytes. [05/05/04] Changed the name of the Timer function from *TimeTicks to STOPWATCH. [05/06/20] Changed the name of the Timer function in the TCPIP LIB from *TimeTicks() to GetTimeTicks(). The first 3 bytes of the MAC address has been changed to "00:0d:e0" by default. Changed the receiving method if the string has been received from TCP port 10000. [07/26] Changed the LED blink rate for the different echo modes. M0 remain in the original mode (ON 0.5 sec, OFF 0.5 sec), but now M1 has been adjusted to ON for 0.1 sec, OFF for 0.1 sec and then ON for 0.1 sec, and OFF 0.7 sec. Modified the ping gateway function. Originally, the function was set to enable by default, and the default is set to disable now. When using this function, the command line option is "/ping=nnn", where the variable "nnn" is the ping frequency. [2006/04/28] Modified the web server configuration screen. [2006/04/28]

Version	Description
3.2.22	<p>New Function:</p> <ol style="list-style-type: none"> Added the DHCP function. [04/11/01]

Version	Description
3.2.21	New Function: <ol style="list-style-type: none"> Enhanced the functionality of commands 25/26. [04/10/20]

Version	Description
3.2.21	New Function: <ol style="list-style-type: none"> Added the web configuration function. [04/09/16] Added telnet functionality (TCP port 23). [04/10/14]

Version	Description
3.2.10	New Functions: <ol style="list-style-type: none"> Added a new function that allows command line options to be added to 'Vcom.ini' and the 7188E kernel (Vcom320) will load the command line options from 'VCom.ini'. When the firmware is executed, the parameters are incorporated into the system. To avoid more than one configuration are incorporated into the system, it will access the parameter according to the priority. Priority: Default < Value saved on EEPROM< vcom.ini< command line written on Autoexec.bat. [2004/7/5] (A)Added the "/SIpxxxx" and "/SOpxxxx" command to change the size of the IN/OUT bufferfor the COM port. (default are 1024 bytes) [2004/7/5] (B)Added the "/SCpxxxx" command to change the size of the TCP output buffer which is used to receive data from the COM Port. [2004/7/5] Added the "/COMp=nnn-n-P-n" command that allows the baud rate and data format of COM port to be set.[2004/8/20]

Version	Description
3.2.00	New Function: <ol style="list-style-type: none"> Added three new functions [2004/03/24] void Port9999Start(int skt) void Port502Start(int skt) void PortUserStart(int skt) These functions will be called once the client has connected to the Xserver Added a "/Y" command in order to enable the 8KE4/8KE8 module. [2004/04/19] Added a "/Z" command in order to set the ACK delay time. [2004/04/19] Modified Function: <ol style="list-style-type: none"> Added Port 9999/Port 502 so that they are set to 0 by default, and can be changed by the user.

Version	Description
3.2.09	<p>New Functions:</p> <ol style="list-style-type: none"> 1. Added command 33 to that allows files to be uploaded via port 10000. [2002/09/04] 2. Added a command that allow terminal character can be altered to the command line. [2002/09/09] 3. Added a variable that saves the system running time as a variable and stores it in the EEPROM. [2002/9/13] 4. Added a function that allows the system/socket timeout timer to be reset after the packet has finished being sent. [2002/9/23] 5. Added support to allow command 34 to read the version and date information for the Vcomnnn.exe library. 6. Added the "/pxxxx" command that allows port 10000 to be changed. [07/23/2003] 7. Added a function that allows the command port to be shown on the 7-Seg LED after 7-Seg LED showed 11111. For example: When Port10000=54332, the LED will display "5.4.3.3.2." <p>Revised Function:</p> <ol style="list-style-type: none"> 1. Fixed an issue with the mask. [2002/9/12] 2. Modified the COM port for x512(7188E7). [2002/10/30] 3. Fixed an issue with command 15. [2002/10/31] 4. Fixed an issue with the Vcom3009.lib which meant that the 7188e module could not be reset using the "/st300" command. [08/14/2003] <p>Modified Functions:</p> <ol style="list-style-type: none"> 1. Modified COM2 from Interrupt to DMA mode and can now be used to receive data. Note that MiniOS7 must be upgraded to e-020924.img or later to use this modification [2002/9/26] 2. Modified COM1 to DMA mode so that it can be used to receive data, and fixed an issue with the RTS control. [2002/10/1] 3. Modified the "09pA" command. When set to 'a' or 'A', the timeout will be set by the system [2002/10/18] 4. Added the "/L0" command in order to enable/disable 5-Digit LED. [2002/10/18] 5. Removed the "/N" parameter. [2002/10/29] 6. Fixed command 07 so that it allows the user to set the parity for the COM port to Mark and Space. [11/07/2003] 7. Modified DMA function so that supported stop bits can be set to 2 on COM2. [01/12/2004]

Version	Description
3.0.08	<p>New Function:</p> <ol style="list-style-type: none"> 1. Added user commands 30, 31 and 32. [2002/08/13] <p>Modified Function:</p> <ol style="list-style-type: none"> 1. Modified the command 09. [2002/08/13]

Version	Description
3.0.07	New Function: <ol style="list-style-type: none"> Added a DMA function to COM1 that allows data to be sent only, but not received. [04/25/2002]

Version	Description
3.0.06	New Function: <ol style="list-style-type: none"> Added a function that allows COM Port to be able to send or receive a break signal. [04/09/2002]

Version	Description
3.0.05	New Function: <ol style="list-style-type: none"> Added the PortUser function for Xserver. [02/18/2002] Amended the PortUser function so that if the value of PortUser for Port 9999 or Port 502 is zero, the port will be closed. [02/18/2002]

Version	Description
3.0.04	Modified Functions: <ol style="list-style-type: none"> Modified the Port 9999 and Port 502 variable so that it can be changed to any port number by the user in the UserInit() function. [01/18/2001] Modified the Port 10000 variable so that it can also be changed to any port number by the user in the UserInit() function. [02/06/2002]

Version	Description
3.0.03	Modified Functions: <ol style="list-style-type: none"> Modified the process where OpMode is set to 0. [12/19/2001] Modified the UserLoop function so that the function is called in each loop. [12/28/2001]

Version	Description
3.0.02	New Function: <ol style="list-style-type: none"> Added user command "25", "26". Added support for TCP ports 9999 and 502.
	Modified Function: <ol style="list-style-type: none"> Modified the COM7 error.

Version	Description
3.0.01	New Function: <ol style="list-style-type: none"> Added functions to support the 7188E8 module. [11/01/2001]

Version	Description
3.0.00	New Function: <ol style="list-style-type: none"> Added functions to support the 7188E5 module. [10/23/2001]

Version	Description
2.6.14	New Function: <ol style="list-style-type: none"> Added user command "23". The default value for system timeout is zero, which means that there is no timeout. If no packets sent to system within the timeout, the system will be reset by Watchdog. When the time ticks of the system restores to normal status, the TCP ACK delay will be set to 0ms. Added a checksum to the value set for the COM port. If the value read from the modules is wrong, the values of the COM port will be set to default (9600, N, 8, 1.) Modified Function: <ol style="list-style-type: none"> In the multi-client mode. The timeout was detected whether the data of COM port had received, but it was not detected by the terminal character (Ex: 0x0D). <ul style="list-style-type: none"> This version is for testing. It is the released version for 7188E1/2/X/A.

Version	Description
2.6.13	New Function: <ol style="list-style-type: none"> Added a debug port for 7188 module, which <ul style="list-style-type: none"> Sends a command to break some or all sockets. Lists the messages from all connected sockets. Modified Function: <ol style="list-style-type: none"> Modified a function that it will add a one byte checksum when saves the COM port value. If the checksum was read incorrectly, the value of COM port was set to default. (9600,N,8,1) Make system crash easily. (Unstable version)

3. Command Line Options

Options	Description	Notes
"/1"	Recognizes 7188E1 module	
"/2"	Recognizes 7188E2 module	
"/3"	Recognizes 7188E3 module	v3.0.0 or later
"/4"	Recognizes 7188E4 module	v3.0.0 or later
"/5"	Recognizes 7188E5 module	v3.0.0 or later
"/8"	Recognizes 7188E8 module	v3.0.0 or later
"/X"	Recognizes 7188EX module	v3.0.0 or later
"/A"	Recognizes 7188EA module	v3.0.0 or later
"/M0"	Set multi-echo mode. Echoes data from the COM ports on the 7188E/8000E module to each client connected to the module.	
"/M1"	Set single-echo mode. Echoes data from the COM ports on the 7188E/8000E module to the specific client that requested the service.	v2.6.12 or later
"/Wxxx"	Sets the timeout value for socket communication. If the timeout expires, Vxcomm.exe/Xserver will release the connection. xxx: timeout Time units: seconds Default: 0 xxx=0: disables the /W option	
"/STxxx"	Sets the system timeout value between two packets sent from the network to the 7188E/8000E module. If the timeout expires, Vxcomm.exe/Xserver will automatically reboot the system. xxx: timeout Time units: seconds Default: 0 xxx=0: disables the /ST option	
"/Txxx"	Sets a timeout value for the interval between the completion of a command being sent from the 7188E/8000E module to the COM ports, and the start of the data being received from the COM port. If the timeout expires, Vxcomm.exe/Xserver discards this data. Time units: ms Default: 200 ms xxx=0: disables the /T option	Only valid in M1 (Single-echo) mode

Options	Description	Notes
"/FCnnnnn"	<p>Sets the CTS control mode.</p> <p>The value of nnnnn depends on the configured value and represents COM1-5, respectively.</p> <p>If n = 0-3. refer to the parameters of command "28" for more details.</p>	v3.0.07 or later
"/FRnnnnn"	<p>Sets the RTS control mode</p> <p>The value of nnnnn depends on the configured value and represents COM1-5, respectively.</p> <p>If n = 0-3. refer to the parameters of command "28" for more details.</p>	v3.0.07 or later
"/Ehh"	<p>Sets the terminal character.</p> <p>When the last character of the data being received matches the terminal character, the received data will be returned immediately.</p> <p>hh is a hexadecimal value. The default value is 0</p> <p>For example, 0x0A is set using "/E0A", and 0xFF is set as "/EFF". A value of 0 denotes no terminal character is set.</p>	v3.0.09 or later
"/Kxxx"	<p>Sets the ACK delay time. When a remote device on a TCP connection sends data to the Vxcomm TCP/ IP kernel, the kernel must return an ACK message to acknowledge that the data has been received. The delay time is used to wait to determine whether additional data will be transferred to the other side along with the ACK message.</p> <p>Units: ms</p> <p>Default: 2ms</p>	<p>Changed from /A to /K</p> <p>Modified on [01/10/23]</p>
"/Cxxx"	<p>Sets the maximum delay time before closing the socket.</p> <p>Units: ms</p> <p>Default: 500ms</p>	
"/Pxxxxx"	<p>Changes the command port (the default is 10000). If Command Port 10000 is changed to 200, the COM ports will be mapped to TCP/IP ports 201~208.</p>	v3.0.09 [07/23/2003] or later
"/S1"	<p>The Command port and each TCP/IP-mapped COM port only allows one TCP/IP connection and other connections will not be accepted.</p>	v3.0.09 [10/29/2003] or later
"/LO"	<p>Adds the "/LO" command option that allows 5-Digit LED to be enabled/disabled, which reduces the running time for module with no 5-Digit LED.</p>	v3.0.09 or later
"/Zxxx"	<p>This command is used to set that ACK delay time that is determines the time the module should wait for an ACK reply from the remote device using a TCP/IP connection.</p> <p>(Note that this command is different to /K) [2004/04/19]</p> <p>Units: ms</p> <p>Default : 1000 ms</p>	3.2.0 [03/24/2004] or later

Options	Description	Notes
"/SIpnnn"	Changes the size of the Input buffer for COM port (Max: 32767 bytes). p : COM1~COM8	3.2.0 [2004/07/05] or later
"/SOpnnn"	Changes the size of Output buffer size for COM port (Max : 32767 bytes). p: COM1~COM8	3.2.0 [2004/07/05] or later
"/SCpnnn"	Changes the size of TCP Output buffer which is used to receive data from the COM port (Max 32767 bytes).	3.2.0 [2004/07/05] or later
"/Bn"	Set the of the Broadcast function n='0': Prevents broadcast packets from being received, which is more efficient for TCP communications but doesn't support searching of 7188E series modules using UDP broadcast mode. n='1': Allows the broadcast packets to be received.	3.2.0 [2004/07/05] or later
"/Un"	Enables or disabled support for UDP function. n='0': Disables support for UDP functions. n='1': Enables support for UDP functions. When set to "/U1", UDP broadcast mode is enabled, which allows I7188E module containing the Vcom320/Vcom310 to be searched within the same local Ethernet network, and allows the IP, Mask and Gateway addresses for the I7188E to be changed using the UDP protocol.	3.2.0 [2004/07/05] or later
"/Dpnnn"	Sets the waiting time for the input of the COM port. The data input from the COM port will be stored in the buffer, and the timer will be activated to monitor whether any further data has been received. Once the timeout expires, the data currently existing in the buffer will be transmitted via Ethernet connection. nnn: 0~99999. Units: ms. If set to 'a', 'A' or -1, the tttt value will be configured by the system. The default value depends on the baud rate set for the COM port and the UART FIFO trigger level. This command is similar to command '09'. p: COM1-COM8	3.2.0 [2004/07/05] or later
"/Nxxx"	Sets the name of the X-board and can be recognized by the Vxcomm. The value of "xxx" will be saved to XBoardName variable defined in the Vxcomm.	3.2.0 [2004/07/05] or later
"/Y"	The command is used to enable 8KE4/8KE8 module.	3.2.0[2004/04/19] or later

Options	Description	Notes
"COMp= nnn-n-P-n"	<p>Sets the Baud Rate, data bits, parity, stop bits for the COM port.</p> <p>p: COM port</p> <p>nnn: Baud Rate 8, 12, 96, 192, 1152</p> <p>n: Stop bits '1' or '2'</p> <p>n: Data bits '5', '6', '7' or '8'</p> <p>P: Parity</p> <ul style="list-style-type: none"> 'N'/n': None. 'E'/e': Even. 'O'/o': Odd. 'M'/m': Mark. 'S'/s': Space. <p>Note that the position of the parameters are interchangeable but need to be separated by a '-' For example "96-N-8-1" is the same as "8-N-1-96"</p>	3.2.0 [2004/8/20] or later
"/DHCP=x"	<p>Enables or disables DHCP function</p> <p>/DHCP=0: Disabled</p> <p>/DHCP=1: Enabled</p>	3.2.23[2005/04/13] or later
"/PING=nn n"	<p>Sets the Ping function.</p> <p>/PING=nnn, where the variable "nnn" is the Ping frequency. The recommended frequency should be more than 2 times.</p>	3.2.23[2006/04/28] or later
"/P23=n"	<p>Enables or disables the Telnet functions.</p> <p>/P23=0: Disabled</p> <p>/P23=1: Enabled</p>	3.2.23[2006/08/22] or later
"/HTTP=n"	<p>Enabled or disabled the web server function.</p> <p>/HTTP=0: Disabled</p> <p>/HTTP=1: Enabled</p>	3.2.23[2006/08/22] or later
"/RT=xxx"	<p>Enabled or disabled the reset function. The module will automatically be reset "xxx" minutes after the module is turned on.</p> <p>Units: minutes</p>	3.2.32[2014/04/01] or later
"/hostname =NNNN[/m ac]"	<p>Sets the hostname transmitted to the server when DHCP function is enabled.</p> <p>NNNN: hostname</p> <p>[/mac]: Appends the Mac address of the device to the end of hostname.</p> <p>For example. If set to "/hostname=ABCD/mac", the DHCP server will receive the hostname "ABCD_xxxxxx", where "xxxxxx" denotes the last 3 numbers of the Mac address.</p> <p>Maximum length: 30 bytes (Including the "_xxxxxx" Mac address)</p> <p>Default: icpdas_xx:xx:xx, ("/hostname" function disabled)</p>	3.2.32[2014/04/01] or later

Note: All the options listed above are case sensitive.

The Vxcomm mentioned above refers to the firmware for the 7188E series module.

4. 5-Digit LED

1. To indicate whether the firmware executed normally, the system LED indicator on the module will periodically flash ON for 0.5 seconds then OFF for 0.5 seconds.

2. 5-Digit LED

The configuration information for the 7188E module will be displayed in sequence on the five 7-seg LED, and can be categorized as following four sections :

I. 11111 : After the 5-Digit LED displayed 11111, it will display IP Address, the configuration of command port number and the DHCP function in sequence.

The format of the IP information for the 7188E series is as follows :

1. xxx
2. xxx
3. xxx
4. xxx

After the IP address, the command port number (Port10000) will be displayed.

dHCP.x : It indicates whether the DHCP function is enabled or disabled.

dHCP.0 : The DHCP function is disabled.

dHCP.1 : The DHCP function is enabled.

II. 22222 : After the 5-Digit LED displayed 22222, it will display the Baud Rate of COM port in sequence from COM 1 to COM N.

1. 1152 (115200 bps)
2. 96 (9600 bps)
3. 384 (38400 bps)
4. 192 (19200 bps)

III. 33333 : After the 5-Digit LED displayed 33333, it will display the data format of COM port in sequence from COM 1 to COM N.

1. 801 (8 Data Bits, None Parity, 1 Stop Bit)
2. 801 (8 Data Bits, None Parity, 1 Stop Bit)
3. 811 (8 Data Bits, Odd Parity, 1 Stop Bit)
4. 701 (7 Data Bits, None Parity, 1 Stop Bit)

IV. 44444 : After the 5-Digit LED displayed 44444, it will display the following information.

- 1.26.01 : Denotes the connected client information for the 7188E module. The value '26' denotes that 26 socket is free and the value "1" denotes that 1 client connects to the 7188E/8000E
- 2.0419 : Denotes the Reset counter value.

In this example, the total reset counter value is 419. This value is saved to the EEPROM on the 7188E/8000E module, and will increase by 1 each time the 7188E module is powered on or reset, etc.

- 3.0126 : This indicates the total number of packets been sent from the Ethernet to the 7188E module.
- 4.0000 : This is a flag that is used to detect whether a packet can be sent by the module. A value of 0 means that the packet is OK, and 1 means that the 7188E cannot send the packet.
- 5.0001 : This value denotes the reset value for the 8019s chip and is counted from the time a 7188E module is booted. The normal value is 1.

The following is an overview of the LED functions.

