

How to Write GUI Code for WebControl™ 2.x.x Firmware

For reference only, no warranty or support

Warning: Writing your own GUI code to load into WebControl™ board may cause the WebControl™ board not functioning properly; it is not support and voids the warranty. Many users feel they like to write their own GUI code and load it on the WebControl™ board to fit their own needs, feel and looking. CAI Networks, Inc. releases this guide to customers as a reference with no warranty or support of any kind. In the event WebControl failed functioning due to customer loaded its own code into the board, CAI Networks, Inc. will charge a fee for reloading the firmware and GUI image code, plus return shipping cost.

1. GUI Command Codes and Web Page Creation

The configuration and control of WebControl™ is done via a web browser. WebControl™ hosts HTML web pages that use dynamic CGI variables to display dynamic quantities and CGI commands to perform an action on WebControl. This section gives guidelines and rules for writing web pages for WebControl that will use these CGI commands. This section is not indented to teach how to write HTML web pages, the reader is assumed to have a good understanding of HTML/CGI.

This section makes constant reference to the CGI Specification [ref1].

1.1 Web Sever Architecture

WebControl offers CGI codes for to be used in web pages for two purposes:

1. To display a dynamic changing system variable on a web page
2. For a web page to instruct the server to perform a command on the system. E.g. the user clicks a button to turn an output on

All web pages that will use CGI codes must have the file extension '.cgi' else they will function incorrectly. Figure 6.0 below summarises the file types supported.

NOTE: - the maximum file name length of any file to be uploaded to the WebControl server must not exceeded 8 characters excluding the file extension.

File Extension	Usage	Restrictions
.cgi	Must be used if the page is to contain CGI dynamic variables or CGI commands	
.htm	Can be used only if static content is to be displayed	No CGI
.gif	Images	No CGI

Figure 6.0 Supported file extensions/types

1.2 CGI Dynamic Variables

Dynamic variables are WebControl system variables that are capable of changing and are anything from temperature sensor values, output/input states or even the network settings of the server. The dynamic variable codes are used to display quantities and configuration items obtained from the server to the user via the web browser. Refer to the full CGI specification [ref1] for a complete list of available dynamic variables.

To use a dynamic variable in a web page you precede the CGI code with a '%' sign. When the HTTP server loads the web page it will replace this CGI code with the dynamic variable it represents. All CGI dynamic variables are 2 byte hexadecimal values written in uppercase ASCII E.g. 00F2.

The data returned by a dynamic variable is always a string intended to be used in the HTML mark-up. The contents of this string will obviously depend on the type of dynamic variable requested. Refer to the CGI specification [ref1] for a full list and details for each.

Some dynamic variables return a string that is to be used with a check box, radio button or combo box. In these cases you use that string to for the remaining HTML statement to check or uncheck the radio button or check box. It is detailed in the CGI specification [ref1] what each variable will return.

1.2.1 Examples of using text dynamic variables

```
<p>This is the state of input TTL2: - %00B4 </p>
```

The string %00B4 will be replaced by the current state of the TTL2 input at the time the web page is loaded. E.g. '1' if the input is true.

```
<p>Currently analog input A1 is at %00A9 %% </p>
```

This will display the percentage of the analog input A1. Note the double percent sign after the CGI code. This is an escape sequence, you use if you wish to display a percentage sign in a CGI web page. E.g. the above may read "55%".

1.2.2 Examples of using dynamic variables with a radio button

The variable dv_FTP_ENABLED_CHECK (0016) returns "checked" only if FTP is enabled on the system and the variable dv_FTP_DISABLED_CHECK (0017) returns "checked" only if FTP is disabled on the system. These variables are an example of using a radio buttons to indicate the status of the FTP enable and are used in HTML code as follows:

```
<input label="ftp enabled" type="radio" value="1" %0016 />  
<input label="ftp disabled" type="radio" value="1" %0017 />
```

The above example HTML code shows statements that display the enabled state of FTP using two radio buttons. Highlighted in red are the most important part of the statement that shows the

CGI dynamic variable and the initial value. NOTE: - The initial value of '1' is required for the CGI to work.

1.2.3 Examples of using dynamic variables with a check box

The variable `dv_TTL_DIGITAL_INTPUT1_INVERTED` (0092) returns "selected" if the input TTL1 is to be inverted. This variable is to be used with a check box as the following demonstrates:

```
<input label="TTL1 input inverted" type="checkbox" value="1" %0093 />
```

Highlighted in red are the most important part of the statement that shows the CGI dynamic variable and the initial value. NOTE: - The initial value of '1' is required for the CGI to work.

1.2.4 Examples of using dynamic variables with a combo box

When using dynamic variables that are to be used with a combo box the following syntax must be used in the HTML statements. The following code demonstrates using a combo to enumerate all the possible time zone options:

```
<select label="Time Zone"
  <option value="00" %003B >UTC-12</option>
  <option value="01" %003C >UTC-11</option>
  <option value="02" %003D >UTC-10</option>
  <option value="03" %003E >UTC-9</option>
  <option value="04" %003F >UTC-8</option>
  <option value="05" %0040 >UTC-7</option>
  <option value="06" %0041 >UTC-6</option>
  <option value="07" %0042 >UTC-5</option>
  <option value="08" %0043 >UTC-4</option>
  <option value="09" %0044 >UTC-3</option>
  <option value="0A" %0045 >UTC-2</option>
  <option value="0B" %0046 >UTC-1</option>
  <option value="0C" %0047 >UTC</option>
  <option value="0D" %0048 >UTC+1</option>
  <option value="0E" %0049 >UTC+2</option>
  <option value="0F" %004A >UTC+3</option>
  <option value="10" %004B >UTC+4</option>
  <option value="11" %004C >UTC+5</option>
  <option value="12" %004D >UTC+6</option>
  <option value="13" %004E >UTC+7</option>
  <option value="14" %004F >UTC+8</option>
  <option value="15" %0050 >UTC+9</option>
  <option value="16" %0051 >UTC+9.5</option>
  <option value="17" %0052 >UTC+10</option>
  <option value="18" %0053 >UTC+11</option>
  <option value="19" %0054 >UTC+12</option>
</div>
```

The highlighted text shows the CGI codes that will be replaced with the time zone strings by the server when it displays the web page.

1.3 CGI Command Codes

WebControl uses CGI command codes to process user input via the web browser. These CGI command codes allow the user to perform actions and configuration to the WebControl server. E.g. set or clear TTL outputs, setup the Boolean run engine and expressions ECT.

A CGI command is written into a standard form control e.g. a button or text box. The format of the CGI command is the same regardless of the control it is used with, except the placeholder for the command will vary between control types. See examples below.

All CGI commands use HTTP “GET” to send the commands to the HTTP server. Each command argument is therefore encoded into the URL string. The maximum number of arguments that the URL can have is 40 and the total length of the URL string must not exceed 236 characters.

WebControl provides a total of 14 active web pages that support CGI commands available to perform actions on the WebControl server. Each one of these web pages supports a defined set of CGI commands. For detailed information about the supported CGI commands of each page see the CGI specification [ref1].

In order to use these active web pages WebControl offers you must follow the rules that each page defines. You will find that in order to access a certain page you must go through another page first and only access it from a certain control that will issue a command to the WebControl server to display this page. This is necessary as some internal server setup may be required first in order to display the page requested correctly. This is certainly the case for any of the TTL output configuration web pages.

You will find in the CGI specification [ref1] that each active web page has a predefined name e.g. “setoutputs.cgi” If you wish to use commands offered by this page then the page you use the commands in must have the file name “setoutputs.cgi” in lower case.

Each CGI command is made up of a command ID code, an action and some arguments this is shown in figure 1.1.

2 Byte command ID	1 byte command action (W/E)	Data string
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Figure 1¹.1 CGI command code string format

The command ID is a 2 byte hexadecimal ID that identifies the actual command to be performed. The 1 byte command action identifies weather the command is a write action or an execute action. Finally the data string is a variable length string that holds the command arguments. This string is command specific and the reader is referred to the CGI specification [ref1] for further details.

It is recommended the reader to refer to the CGI specification [ref1] and the demo web page source code [ref2] to understand, and for examples of how to use the active web pages correctly. Some examples are provided here which shows how web forms and CGI pages are setup to make use of the active web page CGI.

1.3.1 Example of using Commands from the “setoutps.cgi” page

The following code snippet shows how to use the only command offered by the “setoutps.cgi” page, which is to set or clear a TTL output. The following code creates two buttons one to clear TTL0 and one to set TTL0.

```
form id="form1" name="form1" method="get" action="setoutps.cgi">
<input name="0000W01" type="submit" id="0000W01" value="TTL0 ON" />
</form>

<form id="form9" name="form9" method="get" action="setoutps.cgi">
<input name="0000W00" type="submit" id="0000W00" value="TTL0 OFF" />
</form>
```

The form that holds the controls for the particular page/command must have its method set to “get” and it’s action field set to the file name of the CGI web page.

The two forms above have a single button on them each. One is setting the output TTL0 true and the other is clearing the output TTL0 false. The name field of the input tag holds the actual CGI command string. You can see that in the first control in form one the “name” field is set to

“0000W01”. The first four characters are the CGI command ID, the ‘W’ is the command action in this case we are writing, and the last two characters are the command arguments. In this case 01 indicating we want to set the output TTL0 true (the 0 in this case indicates the output number and the 1 is the state). The CGI specification [ref1] for each command specifies the expected data arguments and command action for each of the individual CGI commands.

You can see that the second form is almost the same as the first except we are clearing the output (using a 0 instead of a 1).

1.4 Mandatory Web Pages

In order for the WebControl web server to fully function correctly the following web pages shown in the table in figure 1.2 must be available on the server. It is up to the web page developer to make sure these pages are available to the WebControl server.

Required Web Page	File Name	Purpose
Index Page	index.cgi	This is the default page that will be displayed when the user first connects to the board, or a successful login is made in the case of web login being enabled
Login Page	login.cgi	This is the first page that the user sees when first connected to the board if web login is enabled. The user then supplies there username and password to gain access to WebControl
Logoff Page	logoff.cgi	Page which has a button control to allow the user to log off WebControl
Login Failed Page	lginfail.cgi	This page is displayed to the user if they fail to supply the correct username or password when attempting to log on to WebControl. This page should have a link back to the main login page a message informing the user there login was unsuccessful

Figure 1.2 Mandatory web pages needed by WebControl

1.5 Mandatory Rules for WebControl Web Page Design

This section summarises the rules that must be followed when designing web pages to be used on the WebControl HTTP server.

1. All web pages using CGI dynamic variables or command codes must have the file extension '.cgi'
2. When using the CGI command codes offered by the active web pages (see CGI specification [ref1]) then the web page file name must match that of the active web page exactly
3. No web page file name must exceeded 8 characters in length. (This excludes the file extension)
4. The maximum length of a URL string used when sending a CGI command on a active web page must not exceed 236 characters in length
5. The maximum number of CGI command arguments sent from a web from must not exceed 40
6. The mandatory web pages must be supplied to the WebControl HTTP server
7. Certain active web pages are required to be shown by a command sent from another parent web form instead of being able to access it by the direct URL alone. If this is the case it will be detailed in the CGI specification [ref1]
8. The total size of the web page image after it is compiled by the Microchip file system compilation tool must not exceed 393215 bytes in size.

1.6 Uploading Web page Files

The microchip MPFS generator tool is used to compiler all the web page file into a single binary image that can then be uploaded to WebControl via FTP.

In order for the binary image to be generated correctly the MPFS tool must have its advanced settings set correctly. Figure 1.3 shows a screen short of what the advanced settings should look like.

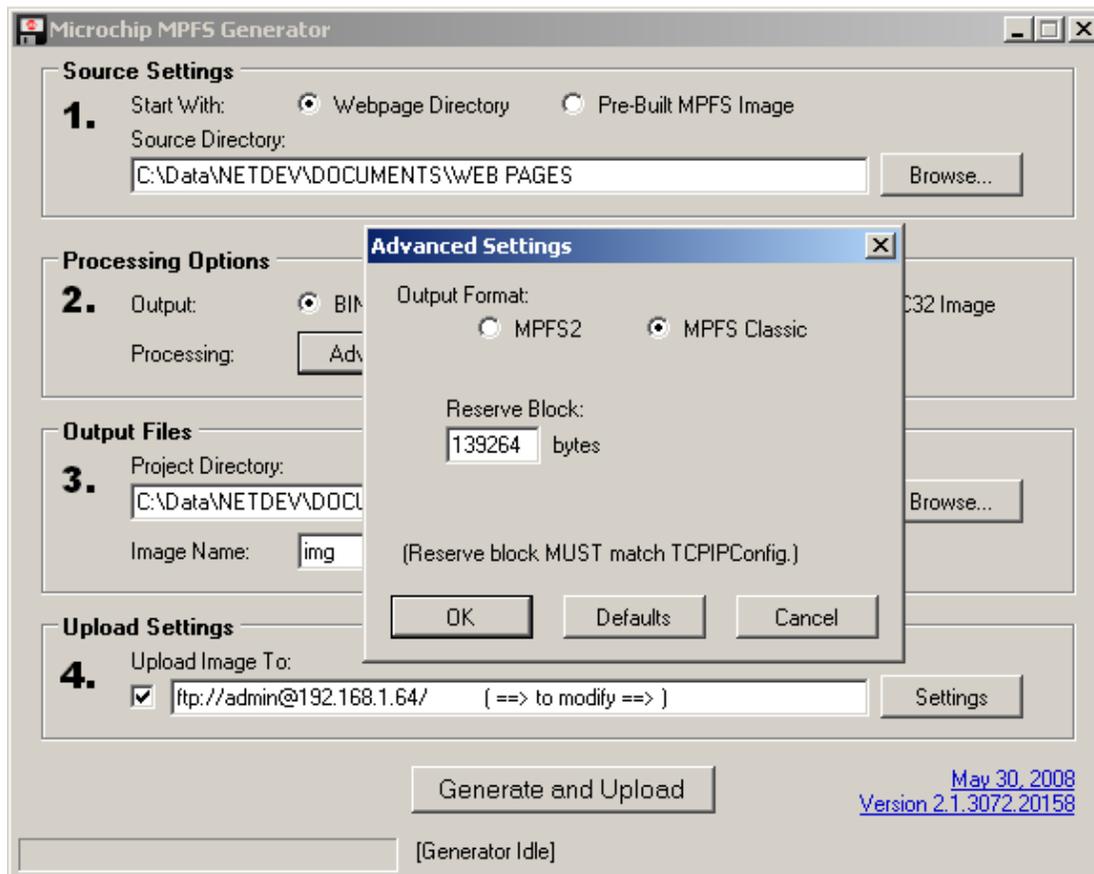


Figure 1.3 Advanced settings screen of the MPFS tool

The output format needs to be set to MPFS Classic and the reserve block must be set to 139264 bytes.

If you are wishing the tool to upload the new binary image directly to WebControl once it is generated then the upload settings in section 4 of the main screen needs to be configured correctly too.

Once the binary image file has been generated then if it is not uploaded directly using this tool then you can upload it using FTP manually from the command line in Windows.

Ref 1. WebControl CGI-Spec

Support CGI Commands for emailcfg.cgi web page

CGI Command String Format

<Item ID> <Command ID (W/E)><data string>

Item ID Hex	Description	Command ID (W/E)	Min data string length	Max data string length	Web Form Control Support
0000	SMTP host name	W only	0	48	Text Box
0001	Username for SMTP servers requiring authentication	W only	0	48	Text Box
0002	Password for SMTP servers requiring authentication	W only	0	48	Text Box
0003	Email address to send mail to	W only	0	48	Text Box
0004	Email address mail is being sent from	W only	0	48	Text Box
0005	Subject string	W only	0	48	Text Box

Support CGI Commands for digipcfg.cgi web page

CGI Command String Format

<Item ID> <Command ID (W/E)><data string>

Item ID Hex	Description	Command ID (W/E)	Min data string length	Max data string length	Web Form Control Support
0000	Currently Unused	W Only	1	5	Text Box
0001		W Only	1	5	Text Box
0002		W Only	1	5	Text Box
0003		W Only	1	5	Text Box
0004		W Only	1	5	Text Box
0005		W Only	1	5	Text Box
0006		W Only	1	5	Text Box
0007	W Only	1	5	Text Box	
0008	Inverts digital input	W Only	0	1	Check Box
0009	Inverts digital input	W Only	0	1	Check Box
000A	Inverts digital input	W Only	0	1	Check Box
000B	Inverts digital input	W Only	0	1	Check Box
000C	Inverts digital input	W Only	0	1	Check Box
000D	Inverts digital input	W Only	0	1	Check Box
000E	Inverts digital input	W Only	0	1	Check Box
000F	Inverts digital input	W Only	0	1	Check Box

Support CGI Commands for alogcfg.cgi web page

CGI Command String Format

<Item ID> <Command ID (W/E)><data string>

Item ID Hex	Description	Command ID (W/E)	Min data string length	Max data string length	Web Form Control Support	Data String
0000	Analog input to configure	W only	2	2	Combo B ox	"00" = AN1 "01" = AN2 "02" = AN3
0001	Lower threshold limit for this analog input	W	1	3	Text Box	Analog input percentage of full scale. 0 - 100 %
0002	Upper threshold limit for this analog input	W	1	3	Text Box	Analog input percentage of full scale. 0 - 100 %

Support CGI Commands for timers.cgi web page

CGI Command String Format

<Item ID> <Command ID (W/E)><data string>

Item ID Hex	Description	Command ID (W/E)	Min data string length	Max data string length	Web Forms Control Supported	Data string
0000	Tmer to configure	W only	2	2	Combo Box	"00" = TIMER1 "01" = TIMER2 . . "13" = TIMER20
0001	Tmer configuration string	W	13	13	Text Box	String in the format of DD MMDD HH:MM. Time is in 24hr clock format

Support CGI Commands for humsnrs.cgi web page

CGI Command String Format

<Item ID> <Command ID (W/E)><data string>

Item ID Hex	Description	Command ID (W/E)	Min data string length	Max data string length	Web Form Control Supported	Data string
0000	Humidity upper threshold	W only	1	3	Text Box	Humidity percentage 0 - 100
0001	Humidity lower threshold	W only	1	3	Text Box	Humidity percentage 0 - 100

Support CGI Commands for tempsnrs.cgi web page

CGI Command String Format

<Item ID> <Command ID (W/E)><data string>

Item ID Hex	Description	Command ID (W/E)	Min data string length	Max data string length	Web Form Control Supported	Data string
0000		W only	2	2	Combo Box	"00" = T1 "01" = T2 . "07" = T8
0001	Temperature upper threshold	W only	1	4	Text Box	-55 to +125 degrees centigrade
0002	Temperature lower threshold	W only	1	4	Text Box	-55 to +125 degrees centigrade
0003	Sensor to use for this temperature identifier	W only	12	12	Text Box	Rom code

Support CGI Commands for op_parms.cgi web page

Description	Command ID (W/E)	Min data string length	Max data string length	Web Form Control Supported	Data string
Shows timers.cgi page to configure timers for current TTL output config	E only	0	0	Button	
Shows tempsnrs.cgi page to configure temp sensors for current TTL output config	E only	0	0	Button	
Shows humsnrs.cgi page to configure humidity sensors for current TTL output config	E only	0	0	Button	
Shows alogcfg.cgi page to configure analog inputs for current TTL output config	E only	0	0	Button	
Shows digipcfg.cgi page to configure digital inputs for current TTL output config	E only	0	0	Button	
Enables the use of the browser to set or clear this TTL output	W only	1	1	Radio Button	1' to enable
Inverts this output	W only	1	1	Radio Button	1' to enable
Enables the boolean run engine for this output	W only	1	1	Radio Button	1' to enable
The boolean expression to set this output TRUE	W only	3	32	Text Box	
The boolean expression to set this output FALSE	W only	3	32	Text Box	
Enables the automated sending of email when the output state changes	W only	1	1	Radio Button	1' to enable
Message of the automated email	W only	0	128	Text Box	

Support CGI Commands for servcfg.cgi web page

Description	Command ID (W/E)	Min data string length	Max data string length	Web Form Control Supported	Data string
Sets the board name string	W	0	16	Text Box	String
Ip address of client that is allowed access to the board. If all 0 then any client can connect	W	15	15	Text Box	Ip address string
Ip address of client that is allowed access to the board. If all 0 then any client can connect	W	15	15	Text Box	Ip address string
Ip address of client that is allowed access to the board. If all 0 then any client can connect	W	15	15	Text Box	Ip address string
Ip address of client that is allowed access to the board. If all 0 then any client can connect	W	15	15	Text Box	Ip address string
Ip address of client that is allowed access to the board. If all 0 then any client can connect	W	15	15	Text Box	Ip address string
Ip address of client that is allowed access to the board. If all 0 then any client can connect	W	15	15	Text Box	Ip address string
Ip address of client that is allowed access to the board. If all 0 then any client can connect	W	15	15	Text Box	Ip address string
Ip address of client that is allowed access to the board. If all 0 then any client can connect	W	15	15	Text Box	Ip address string

Support CGI Commands for clkcfg.cgi web page
CGI Command String Format

<Item ID> <Command ID (W/E)><data string>

Item ID Hex	Description	Command ID (W/E)	Min data string length	Max data string length	Web Form Control Supported	Data string
0000	Time zone	W	2	2	Combo Box	"00" = UTC-12 "01" = UTC-11 "02" = UTC-10 "03" = UTC-9 "04" = UTC-8 "05" = UTC-7 "06" = UTC-6 "07" = UTC-5 "08" = UTC-4 "09" = UTC-3 "0A" = UTC-2 "0B" = UTC-1 "0C" = UTC "0D" = UTC+1 "0E" = UTC+2 "0F" = UTC+3 "10" = UTC+4 "11" = UTC+5 "12" = UTC+6 "13" = UTC+7 "14" = UTC+8 "15" = UTC+9 "16" = UTC+9.5 "17" = UTC+10 "18" = UTC+11 "19" = UTC+12

Support CGI Commands for opscfg.cgi web page

CGI Command String Format

<Item ID> <Command ID (W/E)><data string>

Item ID Hex	Description	Command ID (W/E)	Min data string length	Max data string length	Web Form Controls Supported	Data string
0000	Show a TTL output config page	E only	2	2	Button	TTL output number to show config page for. Valid numbers are 00 to 07.

Support CGI Commands for logoff.cgi web page

CGI Command String Format

<Item ID> <Command ID (W/E)><data string>

Item ID Hex	Description	Command ID (W/E)	Min data string length	Max data string length	Web Form Control Supported	Data string
0000	Logoff server	E only	0	0	Button	

Support CGI Commands for setoutputs.cgi web page

CGI Command String Format

<Item ID> <Command ID (W/E)><data string>

Item ID Hex	Description	Command ID (W/E)	Min data string length	Max data string length	Web Form Control Supported	Data string
0000	Sets state if TTL output	W only	2	2	Button	First char 0 - 7 TTL output then state either 1 or 0. E.g to set TTL2 high send "21"

Support CGI Commands for login.cgi web page

CGI Command String Format

<Item ID> <Command ID (W/E)><data string>

Item ID Hex	Description	Command ID (W/E)	Min data string length	Max data string length	Web Form Control Supported	Data string
0000	Login username	E only	1	16	Text Box	username
0001	Login password	E only	1	16	Text Box	password

Support CGI Commands for netcfg.cgi web page

CGI Command String Format

<Item ID> <Command ID (W/E)><data string>

Item ID Hex	Description	Command ID (W/E)	Min data string length	Max data string length	Web Form Control Supported	Data string
0000	Board IP address	W only	7	15	Text Box	IP address i.e 192.168.1.2
0001	Board subnet	W only	7	15	Text Box	Subnet mask i.e 255.255.255.255
0002	Gateway address	W only	7	15	Text Box	Gateway IP address
0003	NetBIOS name of board	W only	1	16	Text Box	Board name
0004	Login username	W only	1	16	Text Box	username
0005	Login password	W only	1	16	Text Box	password
0006	Enables/Disables DCHP	W only	1	1	Radio Button	Send '1' to enable or '0' to disable
0007	Enables/Disables FTP	W only	1	1	Radio Button	Send '1' to enable or '0' to disable
0008	Enables/Disables web login	W only	1	1	Radio Button	Send '1' to enable or '0' to disable
0009	Primary dns server address	W only	7	15	Text Box	
000A	Secondary dns server address	W only	7	15	Text Box	

CGI Dynamic Variables

Item ID Hex	Max Data Length	Description
0000	1	TTL output 0 '1' if set '0' if cleared
0001	1	TTL output 1 '1' if set '0' if cleared
0002	1	TTL output 2 '1' if set '0' if cleared
0003	1	TTL output 3 '1' if set '0' if cleared
0004	1	TTL output 4 '1' if set '0' if cleared
0005	1	TTL output 5 '1' if set '0' if cleared
0006	1	TTL output 6 '1' if set '0' if cleared
0007	1	TTL output 7 '1' if set '0' if cleared
0008	4	TTL port state in a hex string e.g "0x32"
0009	9	TTL port state in a binary string e.g "11110100"
000C	6	Application firmware version
000E	15	Application firmware build date
000F	18	Board MAC address
0010	15	Board IP address
0011	15	Board subnet
0012	15	Gateway address
0013	16	NetBIOS name of board
0036	16	
0037	16	
0014	16	Login username
0015	16	Login password
0016	7	Returns "checked" if FTP is enabled
0017	7	Returns "checked" if FTP is disabled
0018	7	Returns "checked" if DHCP is enabled
0019	7	Returns "checked" if DHCP is disabled
001A	7	Returns "checked" if web login is enabled
001B	7	Returns "checked" if web login is disabled
001C	3	Returns "YES" if ftp is enabled else returns "NO"
001D	3	Returns "YES" if dhcp is enabled else returns "NO"
001E	3	Returns "YES" if web login is enabled else returns "NO"
001F	13	Returns timer config1 in the format DD MMDD HH:MM
0020	13	Returns timer config2 in the format DD MMDD HH:MM
0021	13	Returns timer config3 in the format DD MMDD HH:MM
0022	13	Returns timer config4 in the format DD MMDD HH:MM
0023	13	Returns timer config5 in the format DD MMDD HH:MM
0024	13	Returns timer config6 in the format DD MMDD HH:MM
0056	13	Returns timer config7 in the format DD MMDD HH:MM
0057	13	Returns timer config8 in the format DD MMDD HH:MM
0058	13	Returns timer config9 in the format DD MMDD HH:MM
0059	13	Returns timer config10 in the format DD MMDD HH:MM
005A	13	Returns timer config11 in the format DD MMDD HH:MM

005B	13	Returns timer config12 in the format DD MMDD HH:MM
005C	13	Returns timer config13 in the format DD MMDD HH:MM
005D	13	Returns timer config14 in the format DD MMDD HH:MM
005E	13	Returns timer config15 in the format DD MMDD HH:MM
005F	13	Returns timer config16 in the format DD MMDD HH:MM
0060	13	Returns timer config17 in the format DD MMDD HH:MM
0061	13	Returns timer config18 in the format DD MMDD HH:MM
0062	13	Returns timer config19 in the format DD MMDD HH:MM
0063	13	Returns timer config20 in the format DD MMDD HH:MM
0064	4	Returns temperature sensor 1 upper threshold
0065	4	Returns temperature sensor 2 upper threshold
0066	4	Returns temperature sensor 3 upper threshold
0067	4	Returns temperature sensor 4 upper threshold
0068	4	Returns temperature sensor 5 upper threshold
0069	4	Returns temperature sensor 6 upper threshold
006A	4	Returns temperature sensor 7 upper threshold
006B	4	Returns temperature sensor 8 upper threshold
006C	4	Returns temperature sensor 1 lower threshold
006D	4	Returns temperature sensor 2 lower threshold
006E	4	Returns temperature sensor 3 lower threshold
006F	4	Returns temperature sensor 4 lower threshold
0070	4	Returns temperature sensor 5 lower threshold
0071	4	Returns temperature sensor 6 lower threshold
0072	4	Returns temperature sensor 7 lower threshold
0073	4	Returns temperature sensor 8 lower threshold
0074	12	Returns temperature sensor 1 ROM code
0075	12	Returns temperature sensor 2 ROM code
0076	12	Returns temperature sensor 3 ROM code
0077	12	Returns temperature sensor 4 ROM code
0078	12	Returns temperature sensor 5 ROM code
0079	12	Returns temperature sensor 6 ROM code
007A	12	Returns temperature sensor 7 ROM code
007B	12	Returns temperature sensor 8 ROM code
009A	3	Returns analog input 1 lower threshold for current TTL output config in view, as a percentage of full scale reference
009B	3	Returns analog input 2 lower threshold for current TTL output config in view, as a percentage of full scale reference
009C	3	Returns analog input 3 lower threshold for current TTL output config in view, as a percentage of full scale reference
009D	3	Returns analog input 1 upper threshold for current TTL output config in view, as a percentage of full scale reference
009E	3	Returns analog input 2 upper threshold for current TTL output config in view, as a percentage of full scale reference
009F	3	Returns analog input 3 upper threshold for current TTL output config in view, as a percentage of full scale reference
008A		
008B		
008C		

NOT USED

008D		
008E		
008F		
0090		
0091		
0092	8	Returns "selected" if input is inverted. Only to be used with a check box
0093	8	Returns "selected" if input is inverted. Only to be used with a check box
0094	8	Returns "selected" if input is inverted. Only to be used with a check box
0095	8	Returns "selected" if input is inverted. Only to be used with a check box
0096	8	Returns "selected" if input is inverted. Only to be used with a check box
0097	8	Returns "selected" if input is inverted. Only to be used with a check box
0098	8	Returns "selected" if input is inverted. Only to be used with a check box
0099	8	Returns "selected" if input is inverted. Only to be used with a check box
002B	3	Returns the humidity sensor upper threshold
002C	3	Returns the humidity sensor lower threshold
002D	7	Returns "checked" if browser control of this output is enabled. Only to be used with a Radio button
002E	7	Returns "checked" if browser control of this output is disabled. Only to be used with a Radio button
002F	7	Returns "checked" if this output should be inverted. Only to be used with a Radio button
0030	7	Returns "checked" if this output should not be inverted. Only to be used with a Radio button
0031	7	Returns "checked" if the boolean run engine for this output is enabled. Only to be used with a Radio button
0032	7	Returns "checked" if the boolean run engine for this output is disabled. Only to be used with a Radio button
0033	36	Returns the expression that will switch this output TRUE
0034	36	Returns the expression that will switch this output FALSE
00C2	96	Email message
00C3	7	Returns "checked" if automated email on state change is enabled. Only to be used with a Radio button
00C4	7	Returns "checked" if automated email on state change is disabled. Only to be used with a Radio button
0035	1	TTL output number this config page is displaying
0038	18	Date and time string
0039	8	Time only string (24hr format)
003A	10	Date only
003B	8	Returns "selected="selected"" if UTC-12 time zone selected. Only to be used with a combo box
003C	8	Returns "selected" if UTC-11 time zone selected. Only to be used with a combo box
003D	8	Returns "selected" if UTC-10 time zone selected. Only to be used with a combo box
003E	8	Returns "selected" if UTC-9 time zone selected. Only to be used with a combo box
003F	8	Returns "selected" if UTC-8 time zone selected. Only to be used with a combo box
0040	8	Returns "selected" if UTC-7 time zone selected. Only to be used with a combo box
0041	8	Returns "selected" if UTC-6 time zone selected. Only to be used with a combo box
0042	8	Returns "selected" if UTC-5 time zone selected. Only to be used with a combo box
0043	8	Returns "selected" if UTC-4 time zone selected. Only to be used with a combo box
0044	8	Returns "selected" if UTC-3 time zone selected. Only to be used with a combo box
0045	8	Returns "selected" if UTC-2 time zone selected. Only to be used with a combo box
0046	8	Returns "selected" if UTC-1 time zone selected. Only to be used with a combo box
0047	8	Returns "selected" if UTC time zone selected. Only to be used with a combo box
0048	8	Returns "selected" if UTC+1 time zone selected. Only to be used with a combo box
0049	8	Returns "selected" if UTC+2 time zone selected. Only to be used with a combo box
004A	8	Returns "selected" if UTC+3 time zone selected. Only to be used with a combo box

004B	8	Returns "selected" if UTC+4 time zone selected. Only to be used with a combo box
004C	8	Returns "selected" if UTC+5 time zone selected. Only to be used with a combo box
004D	8	Returns "selected" if UTC+6 time zone selected. Only to be used with a combo box
004E	8	Returns "selected" if UTC+7 time zone selected. Only to be used with a combo box
004F	8	Returns "selected" if UTC+8 time zone selected. Only to be used with a combo box
0050	8	Returns "selected" if UTC+9 time zone selected. Only to be used with a combo box
0051	8	Returns "selected" if UTC+9P5 time zone selected. Only to be used with a combo box
0052	8	Returns "selected" if UTC+10 time zone selected. Only to be used with a combo box
0053	8	Returns "selected" if UTC+11 time zone selected. Only to be used with a combo box
0054	8	Returns "selected" if UTC+12 time zone selected. Only to be used with a combo box
007C	12	Returns a DS1822 6 byte ROM code (HEX) e.g 0F34980D3FEE
007D	12	Returns a DS1822 6 byte ROM code (HEX)
007E	12	Returns a DS1822 6 byte ROM code (HEX)
007F	12	Returns a DS1822 6 byte ROM code (HEX)
0080	12	Returns a DS1822 6 byte ROM code (HEX)
0081	12	Returns a DS1822 6 byte ROM code (HEX)
0082	12	Returns a DS1822 6 byte ROM code (HEX)
0083	12	Returns a DS1822 6 byte ROM code (HEX)
0055	16	Returns board name
00A0	15	Ip address to allow access to board
00A1	15	
00A2	15	
00A3	15	
00A4	15	
00A5	15	
00A6	15	
00A7	15	
00A8	15	Ip address of current connect client
00A9	3	Analog input value as a percentage of full scale. 0 - 100%
00AA	3	Analog input value as a percentage of full scale. 0 - 100%
00AB	3	Analog input value as a percentage of full scale. 0 - 100%
00AC	7	Temperature -55 to +125 degrees centigrade
00AD	7	Temperature -55 to +125 degrees centigrade
00AE	7	Temperature -55 to +125 degrees centigrade
00AF	7	Temperature -55 to +125 degrees centigrade
00B0	7	Temperature -55 to +125 degrees centigrade
00B1	7	Temperature -55 to +125 degrees centigrade
00B2	7	Temperature -55 to +125 degrees centigrade
00B3	7	Temperature -55 to +125 degrees centigrade
000A	3	Relative humidity reading from humidity sensor. 0 - 100%
00B4	1	Digital input state '0' or '1'
00B5	1	Digital input state '0' or '1'
00B6	1	Digital input state '0' or '1'
00B7	1	Digital input state '0' or '1'
00B8	1	Digital input state '0' or '1'

00B9	1	Digital input state '0' or '1'
00BA	1	Digital input state '0' or '1'
00BB	1	Digital input state '0' or '1'
00BC	48	
00BD	48	
00BE	48	
00BF	48	
00C0	48	
00C1	48	
00C5		