

**WEB05A**

**USER MANUAL**

**TCP/IP Ethernet**

**HTTP WEB CLIENT**

**RFID READER**

Version 1.7

28th April, 2011

AVEA International Company Limited

(<http://avea.cc>)

# Table of Contents

Table of Contents .....	1
WEB05A TCP/IP Ethernet HTTP Web Client RFID Reader.....	2
<b>1. SETUP THE READER.....</b>	<b>2</b>
<b>2. INSTALLATION.....</b>	<b>3</b>
2.1 POWER REQUIREMENTS .....	3
2.1.1 Terminal Block .....	3
2.1.2 Power from Cat-5/e Ethernet cable .....	3
2.2 EXTERNAL RELAY CONTROL.....	3
2.3 SLAVE READER .....	4
<b>3. SOFTWARE .....</b>	<b>6</b>
3.1 REQUESTS TO HTTP SERVER .....	6
3.1.1 <i>\avea.php</i> .....	6
3.1.2 <i>\$date and \$time</i> .....	6
3.1.3 <i>\$id</i> .....	6
3.1.4 <i>\$code</i> .....	6
3.1.5 <i>\$pin</i> .....	7
3.1.6 <i>\$cmd</i> .....	7
3.1.7 <i>\$type</i> .....	7
3.1.8 <i>\$mode</i> .....	7
3.2 RESPONSES FROM HTTP SERVER .....	8
3.2.1 <i>HB=xxxx</i> .....	8
3.2.2 <i>BEEP=x</i> .....	8
3.2.3 <i>CK=YYYY-MM-DD HH:MM:SS</i> .....	8
3.2.4 <i>GRNT=xx</i> .....	8
3.2.5 <i>DENY</i> .....	9
3.2.6 <i>MSG=xxxxxxxx</i> .....	9
3.2.7 <i>ACPIN=xxxx</i> .....	9
3.2.8 <i>CLEAR=ALL</i> .....	10
3.2.9 <i>AC=xxxxxxxx</i> .....	10
3.2.10 <i>DC=xxxxxxxx</i> .....	10
3.2.11 <i>ROOT=xxxxxxxx</i> .....	10
3.2.12 <i>SHOWPIN=x</i> .....	10
<b>4. PHP CODE EXAMPLE .....</b>	<b>11</b>

# WEB05A TCP/IP Ethernet HTTP Web Client RFID Reader

WEB05A is a TCP/IP Ethernet based RFID for 125KHz RFID cards. It is implemented as a HTTP web client. Various page extension is selectable, like .php, .asp, .cfm, .pl, .htm and .html. So various HTTP server systems (e.g. IIS and ASP from Microsoft; Apache with PHP with mySQL database server from Unix/Linux), a complete and powerful access control system and time attendance system can easily be implemented.



## 1. Setup the reader

In order to work properly, WEB05A must be configured correctly.

To enter configuration mode: hold the "\*" key while applying the power to the reader. 'CONF' will be shown on the reader. Place an ID card over the reader will register a 'MASTER' card to configuration later without power off the reader. By presenting the 'MASTER' card to the reader, it will enter the configuration mode directly.

Press "\*" to cycle the parameters to be configured:

Parameter	Description	Default
IP	IP address of the reader itself	192.168.1.234
Gate	Gateway IP address	192.168.1.1
Net	Netmask	255.255.255.0
Ser	HTTP server IP address	192.168.1.1
Port	HTTP server port number	80
Ext	Page extension	php

To edit the parameter, press '#' key. '.' is entered by pressing '#' key, i.e. use enter 192.168.1.123, the key sequence is 192#168#1#123, then press '#' key to confirm entry or "\*" key to cancel the operation. To set the Ext, press numeric key to cycle the available options (.php, .asp, .cfm, .pl, .htm and .html).

# 2. Installation

In order to work properly, WEB05A must have stable power supply, a 10-baseT Ethernet connection, an optional slave reader and an optional electric strike or magnetic lock.

## 2.1 Power Requirements

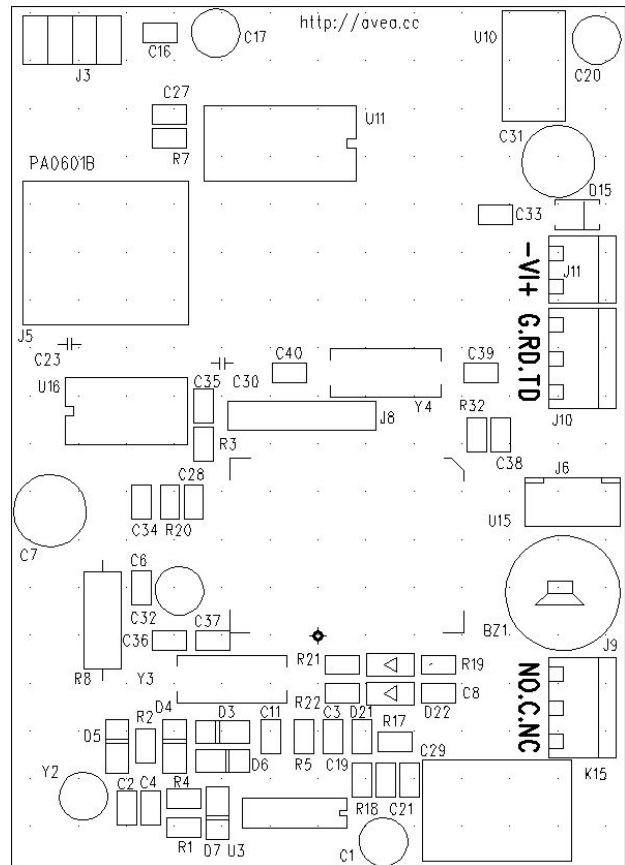
WEB05A requires 9 to 12V DC 500mA for normal operation. There are two ways to supply the power to the reader:

### 2.1.1 Terminal Block

Apply the power to the terminal block J11, with positive terminal to VI+ and negative terminal to VI- (ground).

### 2.1.2 Power from Cat-5/e Ethernet cable

Apply the power through the Ethernet cable on the RJ45 connector. Pin 7 and 8 is connected to VI- (ground), and Pin 4 and 5 is connected to VI+. Meanwhile, jump block J3 must be shorted out by four two-pin jumper headers.

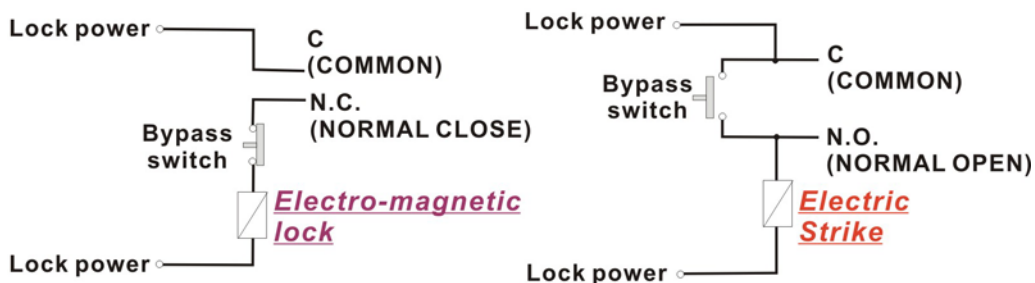
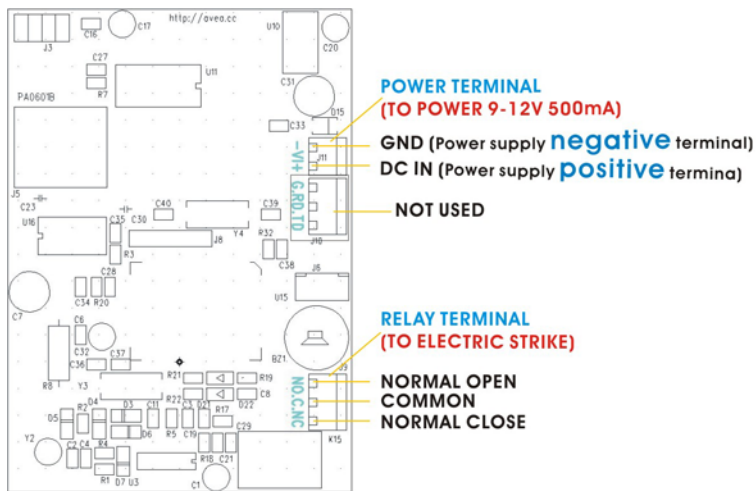


## 2.2 External Relay Control

WEB05A is built-in with a controllable relay output on the terminal block J9, where:

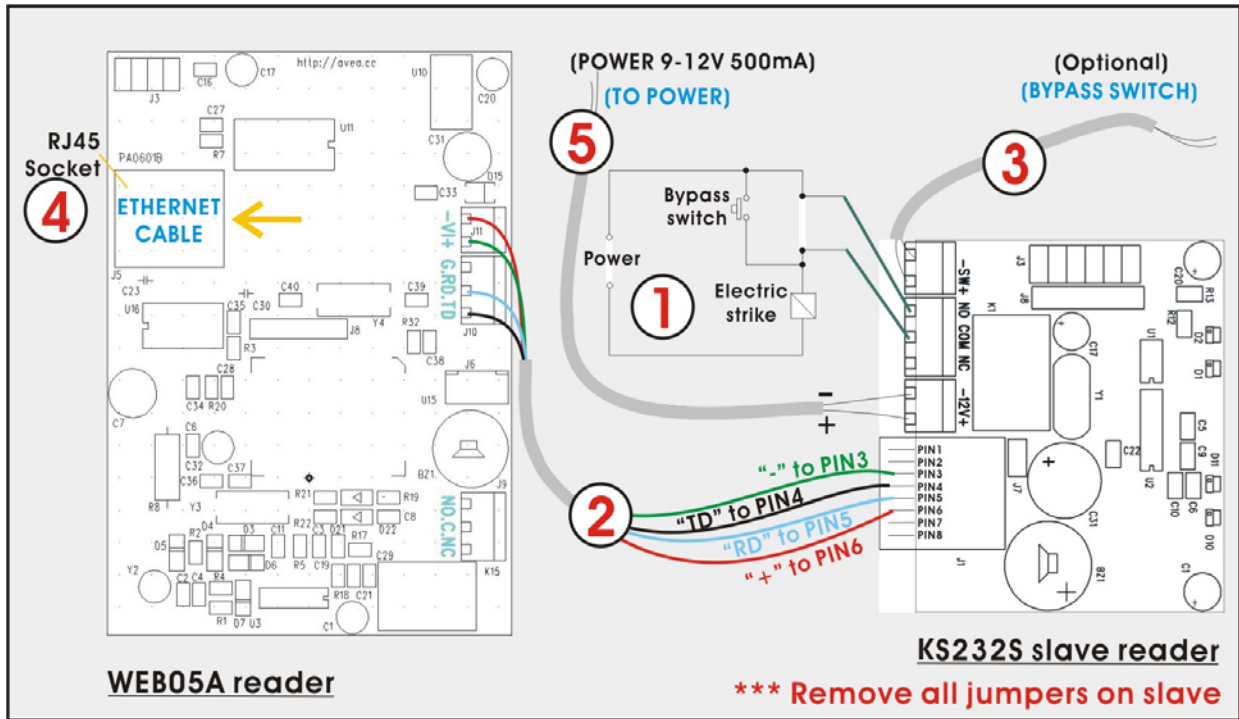
- NC - normal close, it is connected to C normally.
- C - common, it will connects to either NO or NC, but not both.
- NO - normal open, it is open circuit normally.

The maximum switching voltage of the relay is 120VAC or 60VDC, and the maximum switching current is 2A. It can be used to connect to the bypass switch of an electric strike for door access controlling. Overloading the maximum ratings may cause damages to the reader permanently and cannot be repaired anymore.



## 2.3 Slave Reader

WEB05A allows a slave reader (MODEL NO: KS232S) to work together and the host software can identify the actions is come from the WEB05A or the slave reader by check the variable \$type. The following is the connection diagram assuming the WEB05A is installed outside the premises while the slave reader is installed inside the premises.



Remarks:

1. Connection to the electric strike.
2. Connection from the slave reader to WEB05A which consists of 4 wires, power '+' and '-', and data signals RD and TD.
3. Connection to an internal bypass switch.
4. Connection to Ethernet network.
5. Connection to power supply for WEB05A and the slave reader.

## 3. Software

WEB05A is a HTTP client with PHP enabled. It will send PHP URL requests to the HTTP server with the various parameters. And it accepts responses from the HTTP server to perform various actions on the reader. The manual is based on using PHP version 4. It may have some differences across various versions.

### 3.1 Requests to HTTP server

The followings are the variables presented to the PHP. User can access it correspondingly.

#### 3.1.1 `\avea.php`

The reader send a GET request to access a fixed web page of the HTTP server: `avea.php` located on the root of the website. The file extension is user selectable, e.g. `avea.asp`, `avea.cfm`, `avea.pl`, `avea.htm` and `avea.html`. But it is server changeable to any numeric filename located on the root.

#### 3.1.2 `$date` and `$time`

Hold the date and time of that request. The format of date is YYYY-MM-DD, e.g. 2007-01-23 means 23<sup>rd</sup> Jan 2007. The format of time is HH:MM:SS where HH is hour, MM is minute and SS is second.

#### 3.1.3 `$id`

It is the IP address of the reader, e.g. 192.168.1.234. It must be set to different value for each reader in order to function properly.

#### 3.1.4 `$code`

It is the unique code number of the ID card presented to the reader.

### **3.1.5 \$pin**

It is the PIN number entered by the user and terminated by the '#' key. The maximum length is 8-digit number.

### **3.1.6 \$cmd**

It holds the action that was taken on the reader.

- I. \$cmd=PU, it is sent once after the reader is just power up.
- II. \$cmd=CO, it is sent with an ID card is read on the reader. The card number is stored in \$code.
- III. \$cmd=PO, it is sent when a PIN number is entered and terminated with '#' key. The PIN number is stored in \$pin.
- IV. \$cmd=CP, it is sent when PIN number is entered and terminated with ID card read. The card number is stored in \$code and the PIN number is stored in \$pin.
- V. \$cmd=TS, it is sent when '\*' key or '#' key is pressed on the reader.
- VI. \$cmd=HB, it is sent when the programmed heartbeat rate is reach. The default heartbeat rate is 300 seconds.

### **3.1.7 \$type**

It defines the action is coming from the WEB05A or the slave reader.

- I. \$type=m, the action is coming from the WEB05A.
- II. \$type=s, the action is coming from the slave reader.

### **3.1.8 \$mode**

- I. If \$mode=ID1, the action is coming from the WEB05A.

## 3.2 Responses from HTTP server

After sending request, WEB05A will wait for a response from the HTTP server. It looks for the starting flag <AVEA> and the ending flag </AVEA>. Then it interprets the strings in between. There must be no space between the keywords and parameters. The maximum size of the response packet should be less than 1024 bytes.

The following responses are supported:

### 3.2.1 HB=xxxx

Set the heartbeat rate of the reader in seconds. It is a fixed length format in decimal value. Example:

HB=0300 set the reader send a heartbeat request to the HTTP server once in 300 seconds.

HB=0000 to disable the heartbeat request.

### 3.2.2 BEEP=x

Make a beep sound on the reader. It is a fixed length format. Example:

BEEP=1 make a short beep.

BEEP=0 make a long beep.

### 3.2.3 CK=YYYY-MM-DD HH:MM:SS

Set the clock of the reader. The year must be in 2000 to 2099. It is a fixed length format. Example:

CK=2007-01-23 12:34:56 set the clock to 23<sup>rd</sup> Jan 2007, pm12:34:56.

### 3.2.4 GRNT=xx

Set the reader to a grant access state, i.e. to engage the relay from NO state to NC

state for xx seconds and return to NO state. It is a fixed length format. Example:

GRNT=03 set the relay to NC state for three seconds and return to NO state.

### 3.2.5 DENY

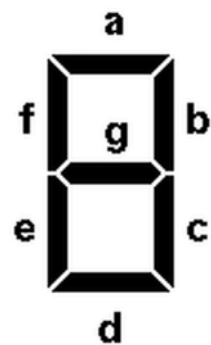
Set the reader to a deny access state, i.e. to make sure the relay is in NO state.

### 3.2.6 MSG=xxxxxxxx

Display a 4-digit message on the LCD display of the reader. It is a fixed length format.

The message is a bitmap pattern to the 7-segment LCD digit.

Each two hexadecimal number represents a LCD digit. The leftmost digits represent the leftmost LCD digit.



The mapping is as follows:

0x01 will turn on the segment a

0x02 will turn on the segment b

0x04 will turn on the segment c

0x08 will turn on the segment d

0x10 will turn on the segment e

0x20 will turn on the segment f

0x40 will turn on the segment g

By adding the values together, multiple segments can be displayed at the same time.

Example:

MSG=3f737937 to display 'OPEN' on the LCD.

### 3.2.7 ACPIN=xxxx

Set a 4-digit access PIN into the reader. In any situation, press “#” and the access PIN will allow granted access to the relay. If the access PIN number is '0000', no access will be granted at all. It is a fixed length format.

### **3.2.8 CLEAR=ALL**

The reader will clear the offline access right table, i.e. no offline access will be granted to any card.

### **3.2.9 AC=xxxxxxxxxx**

The reader will store the offline access right for the specific card number (10-digit), i.e. press '#' and swipe the card over the reader will grant offline access to that card. It is a fixed length format.

### **3.2.10 DC=xxxxxxxxxx**

The reader will remove the offline access right of the specific card number (10-digit). It is a fixed length format. A maximum of 200 cards can be stored for offline access.

### **3.2.11 ROOT=xxxxxxx**

This will change the root page to be access by the reader. It is a fixed length format. For example: ROOT=00024689, this will make the reader to access the page /24689.php rather than the default /avea.php. By setting ROOT=00000000 will reset to access the default page.

### **3.2.12 SHOWPIN=x**

This will affect whether the pin number is shown on the LCD display during entering. If SHOWPIN=1, the pin number will be shown. If SHOWPIN=0, the pin number will be hidden.

## 4. PHP Code Example

The following is an self explainable example of PHP version 4 script located on the HTTP server. The filename is \avea.php.

```
<html >
<body>
<?php
$now=time(); // stamp the current time
$cmd=_GET["cmd"]; // get the command from the reader
$date=_GET["date"]; // get the date of card code is logged
$time=_GET["time"]; // get the time of card code is logged
$st=date('Y-m-d H:i:s',$now); // set the datetime string to correct format
$mycard=359452; // replaced by your card number
$mypin=1234; // replaced by your PIN number
$rtime=$date . $time; // access the date and time of the reader

echo "<AVEA>"; // starting flag
switch ($cmd) {
case "PU": // power up
    echo "CK=$st"; // set clock
    break;
case "CO": // card only
    $code=_GET["code"]; // get the card code
    if ($code==$mycard) {
        echo "MSG=3f737937"; // show message OPEN
        echo "GRNT=01"; // grant access
    } else {
        echo "DENY"; // deny access
    }
    break;
case "PO": // pin only
    $pin=_GET["pin"]; // get the PIN
    if ($pin==$mypin) {
        echo "MSG=3f737937"; // show message OPEN
        echo "GRNT=01"; // grant access
    } else {
        echo "DENY"; // deny access
    }
}
```

```

        break;
case "CP":      // card + pin
    $pin=_GET["pin"]; // get the PIN
    $code=_GET["code"]; // get the card code
    if (($code==$mycard) && ($pin==$mypin)) {
        echo "MSG=3f737937"; // show message OPEN
        echo "GRNT=01";      // grant access
    } else {
        echo "DENY";        // deny access
    }
    break;
case "TS":      // * key
    echo "ACPIN=1234"; // add offline access PIN, i.e. press #1234 will be access granted
    echo "AC=0005793663"; // add offline access card, i.e. press # and swipe this card will be access
    granted
    echo "DC=0005793664"; // remove offline access card, i.e. press # and swipe this card will be
    not access granted
    echo "MSG=40763040"; // show message -HI -
    echo "BEEP=0"; // make long beep
    break;
case "HB":      // heartbeat
    echo "CK=$st"; // set clock
    break;
}
echo "</AVEA>"; // ending flag
?>
</body>
</html >

```