

**WEB08S**

**USER MANUAL**

**TCP/IP Ethernet**

**HTTP WEB CLIENT**

**RFID READER**

Version 0.6

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(<http://avea.cc>)

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# WEB08S TCP/IP Ethernet HTTP Web Client RFID Reader

WEB08S 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, WEB08S must be configured correctly. For normal condition, the blue LED is blinking. While relay is engaged, the red LED will be lighted up simultaneously.

## 1.1 Default Settings

The default configurations of the WEB08S is listed as follows:

Parameter	Description	Default
IP	IP address of the reader itself	192.168.1.234
GW	Gateway IP address	192.168.1.1
NM	Netmask	255.255.255.0
WS	HTTP server IP address	192.168.1.1
PT	HTTP server port number	80
EXT	Page extension	php
DHCP	DHCP configuration	0

## 1.2 Reset WEB08S to default

Before power up, put a jumper cap over J4. When power on, the settings of WEB08S will be cleared and set to the default condition as stated in 1.1. The jumper must be removed for normal operation.

## 1.3 Force DHCP mode

When a jumper cap put over J6. DHCP mode is enabled and it will be forced for automatic configuration of the WEB08S (i.e. DHCP=1).

If the DHCP server is configured to response the options www-server, i.e. option 72 (the numeric value of www-server), the web server IP will be configured as well.

## Example of dhcpd.conf:

```
#example of dhcpd.conf for web08s
ddns-update-style    ad-hoc;

subnet 192.168.1.0 netmask 255.255.255.0 {
    # --- default gateway
    option routers 192.168.1.1; # default gateway
    option subnet-mask 255.255.255.0; # netmask
    option www-server 192.168.1.123; # it must setup to the web server's IP
    range dynamic-bootp 192.168.1.10 192.168.1.99;
    default-lease-time 300;
    max-lease-time 3600;
}
```

# 2. Installation

In order to work properly, WEB08S 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

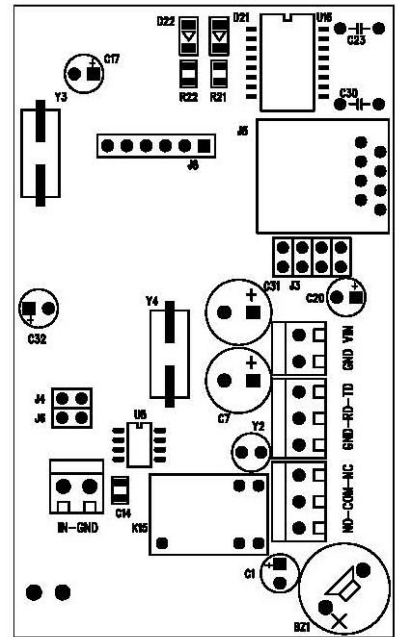
WEB08S requires 9 to 12V DC 500mA for normal operation. There are two ways to supply the power to the reader:

### 2.1.1 Terminal Block

Apply the power to the terminal block, with positive terminal to VIN and negative terminal to GND (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 GND (ground), and Pin 4 and 5 is connected to VIN. Meanwhile, jump block J3 must be shorted out by four two-pin jumper cap.



## 2.2 External Relay Control

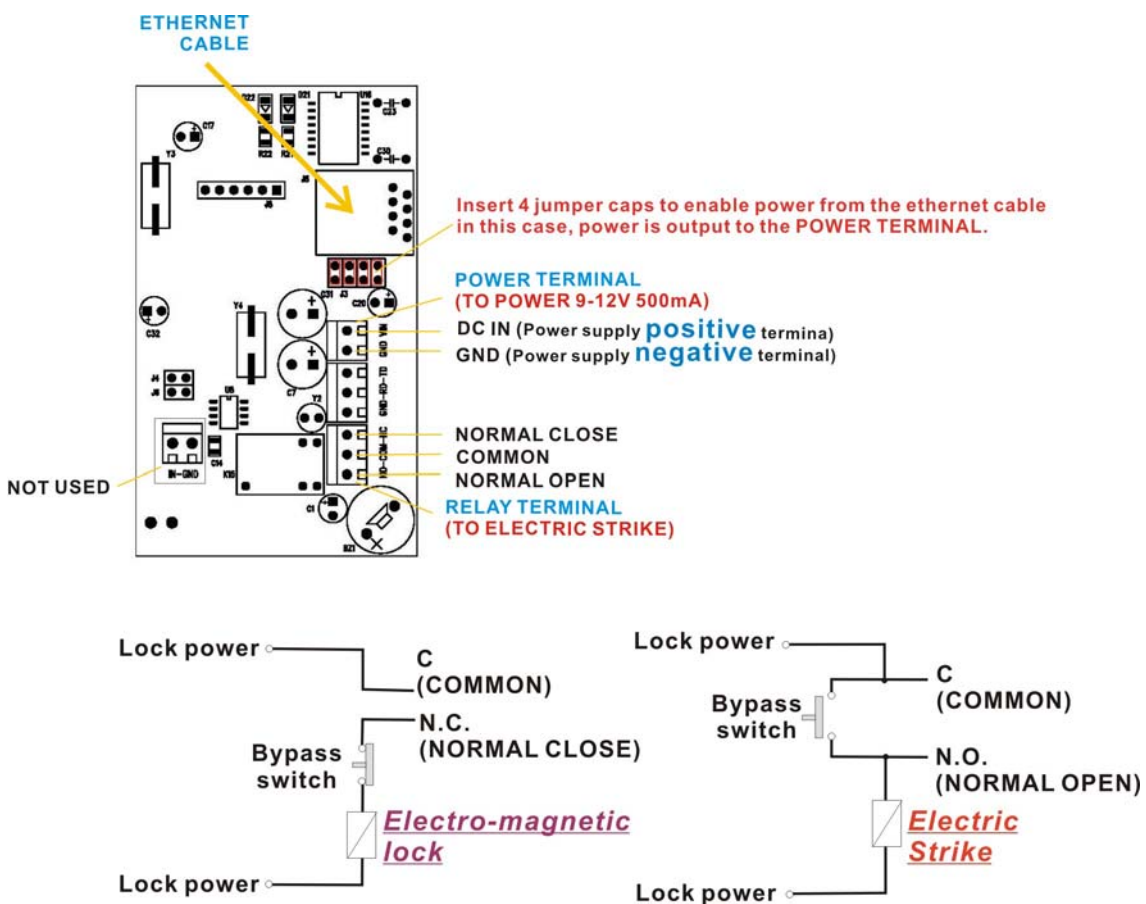
WEB08S is built-in with a controllable relay output on the terminal block J9, where:

NC - normal close, it is connected to C normally.

C - common, it will connect to either NO or NC, but not both.

NO - normal open, it is open circuit normally.

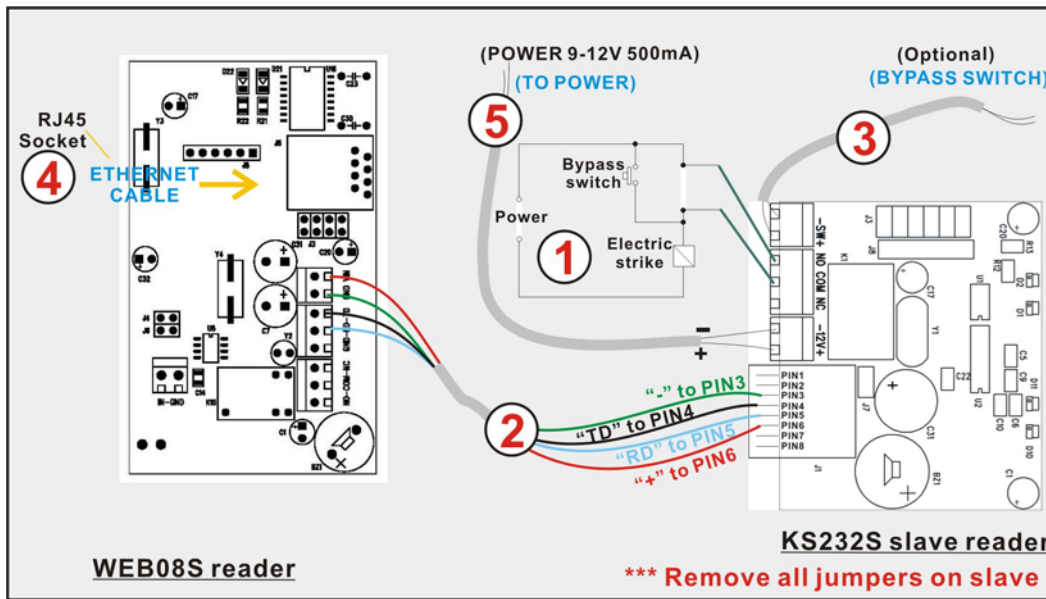
The maximum switching voltage of the relay is 120VAC or 60VDC, and the maximum switching current is 2A. It can be used to connect to the bypass switch of an electric strike for door access controlling. Overloading the maximum ratings may cause damages to the reader permanently and cannot be repaired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



## 2.3 Slave Reader

WEB08S allows a slave reader (MODEL NO: KS232S) to work together and the host software can identify the actions it comes from the WEB08S or the slave reader by checking the variable \$type. The following is the connection diagram assuming the WEB08S 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 WEB08S 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 WEB08S and the slave reader.

## 2.4 Mechanical Dimensions:

Height: 97mm

Width: 57mm

Depth: 24mm

## **3. Software**

WEB08S 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.

### **3.1 Requests to HTTP server**

The followings are the variables presented to the PHP. Depends on the version of PHP, variable can be directly access by adding the \$ sign in front of the variable name (eg. \$variable). But some version need to use function \$\_GET[variable] to get the content of the variable.

#### **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 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=HB, it is sent when the programmed heartbeat rate is reach. The default heartbeat rate is 300 seconds.

### **3.1.6 type**

It defines the action is coming from the WEB08S or the slave reader.

- I. \$type=m, the action is coming from the WEB08S.
- II. \$type=s, the action is coming from the slave reader.

### **3.1.7 mode**

If \$mode=ID2, the action is coming from the WEB08S.

### **3.1.8 sid**

The session ID, sid is a 32-bit variable defined by the user. It's value is changeable by using the SID=xxxxxxx command.

## 3.2 Responses from HTTP server

After sending request, WEB08S 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 600 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 in decimal values. 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. Meanwhile a LED will be turn on and off simultaneously. It is a fixed length format in decimal value. Example:

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

### 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 ROOT=xxxxxxxx

This will change the root page to be access by the reader. It is a fixed length format in decimal value. 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.

### 3.2.7 EXT=x

This will change the root page's file extension to be access by the reader. It is a fixed length format.

Value of x	File extension
0	.php
1	.asp
2	.cfm
3	.pl
4	.htm
5	.html

## **3.2.8 DHCP=x**

This will control DHCP feature of the reader. If DHCP=1 or DHCP=2, DHCP is enabled.

If DHCP=0, DHCP is disabled.

If DHCP is enabled, it will send requests to DHCP server to acquire the following items:

- host IP
- netmask
- default gateway
- www-server IP

For DHCP=1, it will set the web server IP address sent by DHCP server.

For DHCP=2, it will discard the web server IP address sent by DHCP server.

## **3.2.9 IP=xxx.xxx.xxx.xxx**

This is a fixed length command and values are in decimal. It will change the IP address of the reader. Example:

IP=192.168.001.234

## **3.2.10 GW=xxx.xxx.xxx.xxx**

This is a fixed length command and values are in decimal. It will change the default router of the reader. Example:

GW=192.168.001.002

## **3.2.11 NM=xxx.xxx.xxx.xxx**

This is a fixed length command and values are in decimal. It will change the netmask of the reader. Example:

NM=255.255.255.000

### **3.2.12 WS=xxx.xxx.xxx.xxx**

This is a fixed length command and values are in decimal. It will change the web server IP address to be accessed by the reader. Example:

WS=192.168.001.001

### **3.2.13 PT=xxxxx**

This is a fixed length command and values are in decimal. It will change the port number to be used to access the web server in decimal. Example:

PT=00080

### **3.2.14 SID=xxxxxxxx**

This is a fixed length command and values are in hexadecimal. It will change the session id variable in the reader. Example:

SID=12FE4C2B

## 4. PHP Code Example

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

```
<html>
<body>
<?php
    // setup variables
    $cmd=$_GET["cmd"]; // get the command from the reader
    $mode=$_GET["mode"]; // get the reader type
    $code=$_GET["code"]; // get the card code
    $time=$_GET["time"]; // get the time when card code is logged
    $date=$_GET["date"]; // get the date when card code is logged

    $now=time();// stamp the current time
    $st=date('Y-m-d H:i:s',$now); // set the datetime string to correct format
    $mycard=359452; // replaced by your card 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
        if ($mode=="ID2") { // this is WEB08S reader
            echo "DHCP=1"; // turn on the DHCP feature
        }
        break;
    case "CO": // card only
        echo "CK=$st"; // set clock
        if ($code==$mycard) {
            echo "MSG=3f737937"; // show message OPEN, for WEB05A only
            echo "GRNT=01"; // grant access
        } else {
            echo "DENY"; // deny access
        }
        break;
    case "HB": // heartbeat
        echo "CK=$st"; // set clock
```

```
        break;
    }
    echo "</AVEA>"; // ending flag
?>
</body>
</html>
```