WEB08S-TA

USER MANUAL

TCP/IP Ethernet

HTTP WEB CLIENT

RFID READER

For

Attendance

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for Attendance
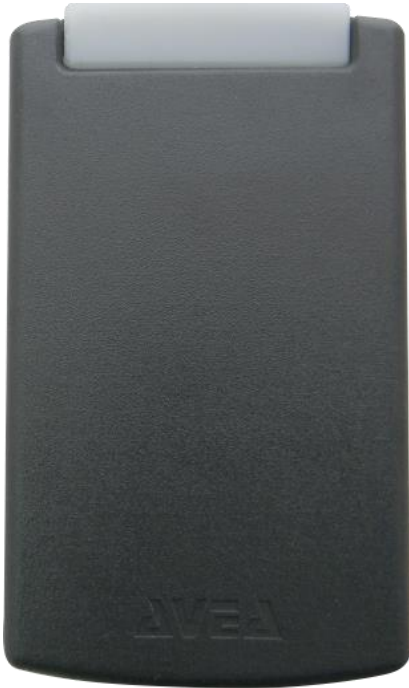
WEB08S-TA is a TCP/IP Ethernet based RFID reader for 125KHz RFID cards. Battery backed real-time clock and memory is included.

It is implemented as a HTTP web client. Various page extension is selectable, like .php, .asp, .cfm, .pl, .htm, .html and .aspx. So various HTTP server systems (e.g. IIS and ASP from Microsoft; Apache with PHP enabled and mySQL database server from Unix/Linux), a complete and powerful time attendance system can easily be implemented.

Since the real-time clock is battery backed, even the power is lost the clock is still running properly.

When cards are presented, the transaction information is stored inside the memory of the reader. Whenever there is network connection and the server is running, those records will be sent to the server. Upon confirmation by the server, the records will be deleted accordingly.

The memory is capable to store up to 1000 records. The memory is retained even power is lost. Whenever a card is presented to the reader, the record is stored with a short beep sound for the acknowledgement of the record stored. When the memory is used up, a long beep sound will be made. The oldest record will be deleted in order to store the newest record.

1. Setup the reader

In order to work properly, WEB08S-TA must be configured correctly. For normal condition, the blue LED is blinking. While relay is engaged, the red LED with be lighted up simultaneously.

1.1 Default Settings

The default configurations of the WEB08S-TA 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

1.2 Reset WEB08S-TA to default

Before power up, put a jumper cap over J4. When power on, the settings of WEB08S-TA will be cleared and set to the default condition. It must be removed for normal operation.

1.3 Force DHCP mode

When a jumper cap put over J6. DHCP mode will be forced for automatic configuration of the WEB08S-TA. The DHCP server must be configured to response the options www-server, i.e. option 72.

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-TA 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-TA 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.
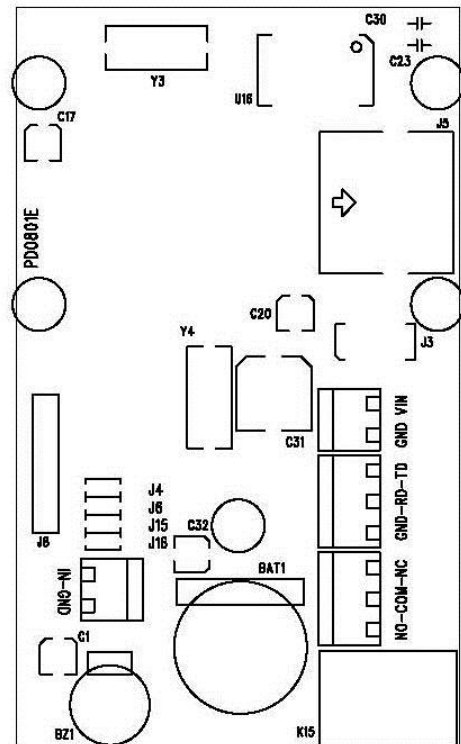
2.2 External Relay Control

WEB08S-TA 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.
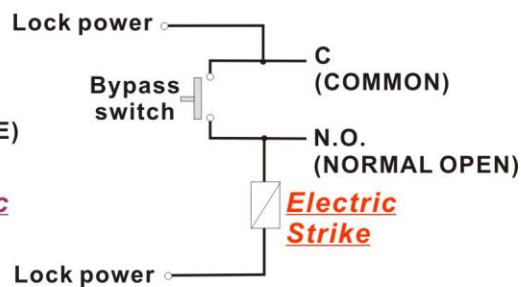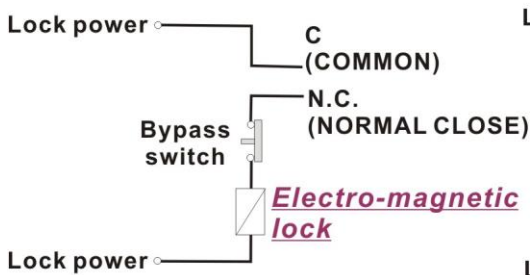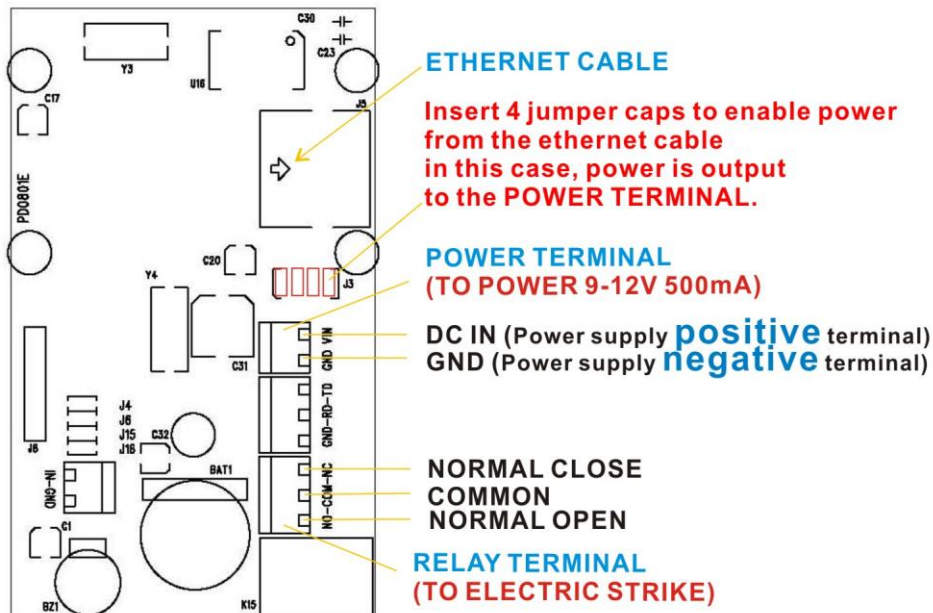
2.3 Contact Switch

WEB08S-TA allows a external contact switch (i.e. a push button) to be connected to the IN-GND terminals. The changes of its status (i.e. shorted or opened), will post corresponding messages to the web server.

2.4 Slave Reader

WEB08S-TA allows a slave reader (MODEL NO: KS232S) to work together and the host software can identify the actions is come from the WEB08S-TA or the slave reader by check the variable $type. The following is the connection diagram assuming the WEB08S-TA is installed outside the premises while the slave reader is installed inside the premises.
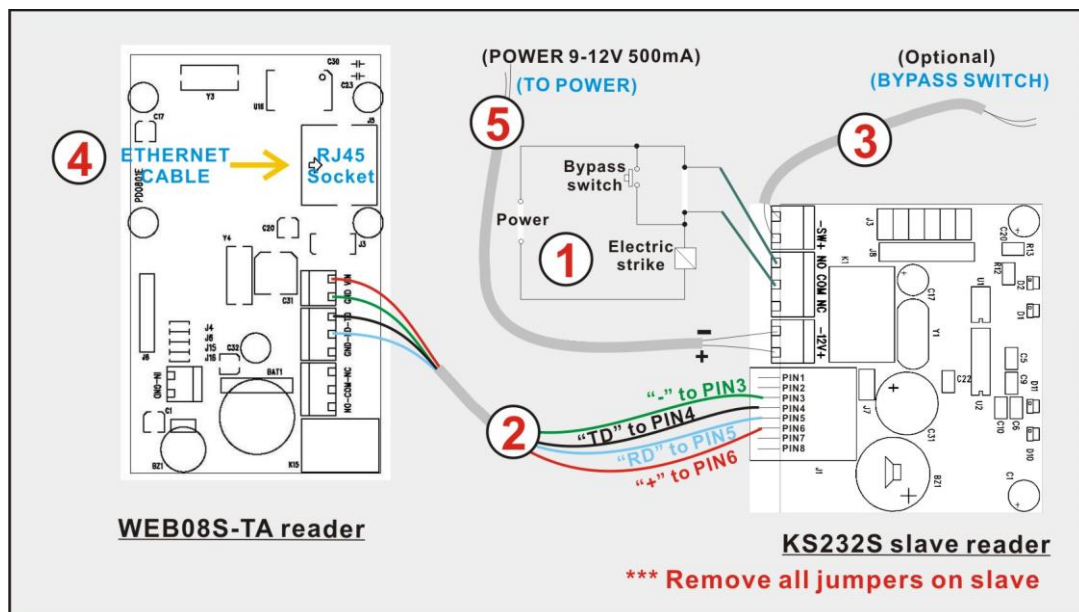
Remarks:
1. Connection to the electric strike.
2. Connection from the slave reader to WEB08S-TA which consists of 4 wires, power '+' and '-', and data signals RD and TD.
3. Connection to an internal bypass switch.

4.   Connection to Ethernet network.
5.   Connection to power supply for WEB08S-TA and the slave reader.

2.5 Mechanical Dimensions

Height: 97mm
Width: 57mm
Depth: 24mm

2.6 Battery

A CR1220 lithium cell battery is required for the normal operation of the real-time clock. It is not included in the package. Customer needs to purchase by themselves.

3. Software

WEB08S-TA 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. 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 23rd 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=REC, 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.

IV. $cmd=SW, it is sent once when contact switch is just shorted or opened.

V. $cmd=PG, it is sent when the reader is being pinged.

3.1.6 $type

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

I. $type=m, the action is coming from the WEB08S-TA.

II. $type=s, the action is coming from the slave reader.

3.1.7 $mode

For WEB08S-TA, $mode=TA1. So it can be used to identify the reader.

3.1.8 $ver

It is the firmware revision. Currently it is 1.5.

3.1.9 $contact

It is used with $cmd=SW to indicate the state of the contact switch. If the switch is opened, $contact=OPEN. If the switch is closed, $contact=CLOSE.

3.1.10 $recno

Hold the reference number of the record in decimal format. The server must response this parameter in order to acknowledge the record and confirm the deletion of that record.

3.1.11 $rdate and $rtime

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

3.1.12 $sid

This is the value set by the SID response.

3.1.13 $deviceid

This is the unique id of the reader.

3.2 Responses from HTTP server

After sending request, WEB08S-TA 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 23rd 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
6	.aspx

3.2.8 DHCP=x

This will control DHCP feature of the reader. If DHCP=1, DHCP is enabled. If DHCP=0, DHCP is disabled. If enabled, it will send requests to DHCP server to acquire the following items:

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

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 RLY=x

This is a fixed length command and values are in decimal. If RLY=1, the relay will be turned on. If RLY=0, the relay will be turned off. The state of relay will be affected by the subsequence commands.

3.2.15 REC_DEL=xxxx

This is a fixed length command and xxxx is a 16bit hexadecimal value. This will acknowledge the reception of the record. Once the reader get this response, it will delete that record accordingly and cannot be recovered.

3.2.16 SID=xxxxxxxx

This is a fixed length command and values are in hexadecimal value. It is a non-volatile value and will not changed after power removed.

4. PHP Code Example

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

```php
<html>
<body>
<?php
// setup variables
$cmd=$_GET["cmd"];
$mode=$_GET["mode"];

$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
$remote_open=1;

echo "<AVEA>"; // starting flag
switch ($cmd) {
case "PU":       // power up
     echo "CK=$st"; // set clock
     if ($mode==ID2) {   // for web08s only
          echo "DHCP=1";       // turn on the DHCP feature
     }
     break;

case "REC":     // stored record
     $code=$_GET["code"];
     $rectime=$_GET["rtime"];
     $recdate=$_GET["rdate"];
     //
     // you can write you own code here, i.e. store the record into database
     //

     // the following will acknowledge the reception of the record
     echo "REC_DEL="; printf("%04X",$_GET["recno"]);
     break;
```

```php
    case "HB":       // heartbeat
        echo "CK=$st"; // set clock
        break;


    case "PG":       // being pinged
        if ($_GET["contact"]=="CLOSE") {
            echo "GRNT=01";      // grant access
        }
        break;


    case "SW":       // being pinged
        if (remote_open==1) {
            echo "GRNT=01";      // grant access
        }
        break;
    }
    echo "</AVEA>";      // ending flag
    ?>
    </body>
    </html>
```