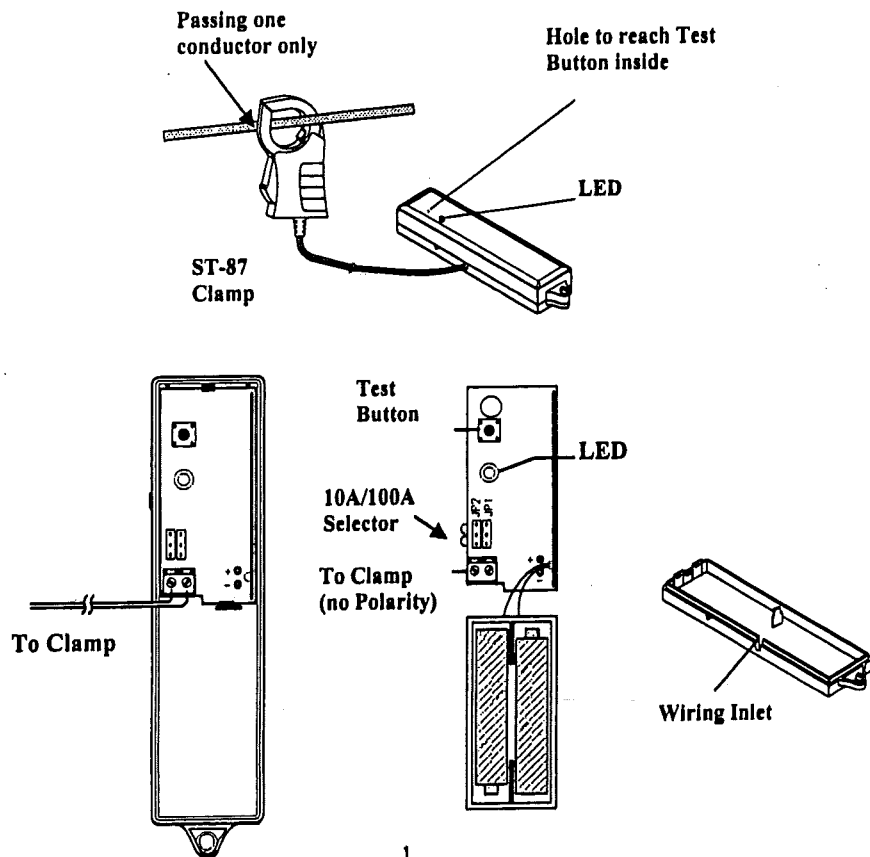# TX-3AC True RMS AC Meter/Temperature Two-In-One Sensor

Warning: This device must be working in the environment under 600VAC and handled by professional user or electric technician who has the knowledge of AC main power supply.
If user has to open the power distribution box then he must have the permission from the local power company and wear insulating dielectric gloves for safety reason. Mishandling of this device may cause lethal harm to human body.

INTRODUCTION
The TX-3AC is a battery operated wireless True RMS AC Meter/Temperature two-in-one sensor specially designed for the LifeSOS Systems. With the AC clamp probe KT-87, it can measure the AC current up to 100A in 50 or 60 Hz. The measured data will be translated into 0-100 readings and transmit to the Base Unit by RF signal.
With wireless operation, the sensor can be put anywhere to monitor/record the AC current consumption and temperature in a room, a chamber or a power distribution box. The system will issue a real time alarm if the reading is over the high/low limits.

Passing one conductor only

Hole to reach Test Button inside

LED

ST-87 Clamp

Test Button

LED

10A/100A Selector

To Clamp (no Polarity)

To Clamp

Wiring Inlet

INSTALLATION
A. Enrolling code
1. Loosen the screw of the TX-3AC, open the upper case, select right position of JP1 and JP2 (default at 100A, both jumpers have to be set for full scale of 10A or 100A) and connect the wires of AC Clamp probe (no polarity) to the terminals.
Insert two AAA alkaline batteries then put back the cover.
Important Notice: The sensor will issue battery low signal to the Base Unit if the battery voltages are too low for normal operation. In order to reset the microprocessor properly, please press TEST button for 5 seconds after removing the old batteries to discharge the energy that remains in the capacitors of TX-3AC then insert new batteries. Otherwise, it may not restart after changing batteries
2. Select "Installer Mode" on the Base Unit and enroll both sensors (AC Meter and Temperature) to the zone numbers according to your system configuration.
(This Enrollment also can be done through the HyperSecureLink software from PC)
Enter Installer Password to gain access authority then select \Set Device\Enroll Device\Special Sensor\Enter Zone No. to enroll the ID of the TX-3AC by pressing its TEST button.
If the Base Unit receives correct RF code from TX-3AC, the Base Unit will issue "Ding Dong" and show "Enroll OK!" on the LCD display.
Now the Base Unit has learnt one type of the two sensors (AC Meter or Temperature sensor), next step is to enroll another type sensor.

> **Each time when you press the TEST button on the sensor it will send the current AC Meter reading (LED two flashes) or temperature (LED one flash) alternatively.**

3. Press [YES], enter the Zone number and press the TEST button on the sensor again to enroll another type sensor.
   Note: If LCD shows "Duplicate" it means the Bas Unit received signal type of the reading (AC Meter or Temperature Sensor) is the same as the last one. You have to go to step 2 to enroll another type sensor again.
4. After the Device Enroll is completed, you can go to "Device Check" to check the sensors.
   Select "Master Mode" on the Base Unit and press [YES] for "System Check? Or Hot Key" then select "Device Check"
   (There should be two new sensors in the device list, one is AC Meter and the other one is Temperature sensor.)
5. You may change its various attributes under \Set Device\Change Device Setting\Special Sensor to fulfill different requirements.
   The sensor can be set as an **Alarm Device** or a **Control Device**. (Refer to the last page)

B. Mounting & operation

It is recommended to attach the sensor on a flat surface of the wall by the Velcro supplied. *Do not mount the sensor on the metal surface of the power distribution panel, the RF transmission range will be seriously shrunk due to radio signal attenuation.*

If the sensor is put in a closed metal box, there will be a large reduction in radio range. The user should move the Base Unit close to the sensor or use a repeater to relay the RF signal.

To measure the AC current the clamp probe can only pass one conductor. Normally there are two or three conductors in a power cord, you have to separate the wires and identify the conductor that carries the current (not grounding wire).

C. Testing

Each time when you press the TEST button on the sensor it will send the AC Meter reading (LED flashes twice) or temperature (LED flashes once) alternatively.

D. AC Meter/ Temperature Limits Setting (also can be done by HyperSecurLink software)

Enter Installer Password to gain access authority of Installer Mode. Then select \Set Device\Special Sensor Limit Set\Enter Zone Number and then set High Limit or Low Limit.

If the AC Meter or temperature reading is over their limits, the LS-30 sends control command to control the switches or issue Special Sensor alarm and inform the user (Special telephone number should be set).

If both high/low limits are set, the high limit should be greater than the low limit at least for 3 readings.

Note: If the sensor works in the temperature range over +50 ℃ to -20 ℃ for a long time, the device's life will be reduced and the performance maybe degraded.

E. Measuring data and display

To save battery power, the device sends reading automatically only when the temperature change is over 1 ℃ or AC Meter Reading change is over 2 readings.

If there is no change for a long time, the device will send the reading hourly to update the memory and display.

If there is any new reading transmitted from the device, the Base Unit will keep the reading on the display alternatively with the time display each for 5 seconds. You can clear the reading display by Hot Key C.
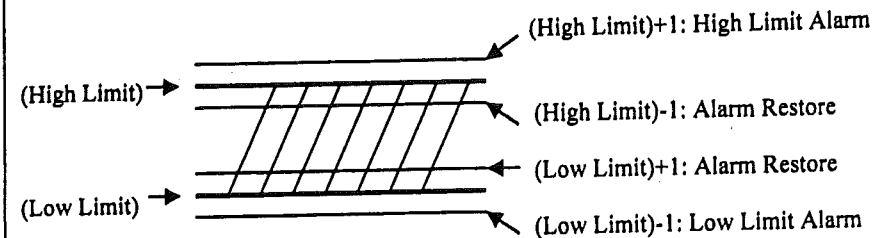
Note: For the selection of 10A as full scale.

1, Both JP1 and JP2 must be set to 10A position.
2, The reading has to be divided by 10. Ex. Reading=76 means 7.6 A.

If the full scale selector is at 10A position. The "MA" field of "Device Status" in the HyperSecureLink software will be assigned as "01" to indicate the reading needs to be divided by 10 to get the real value.
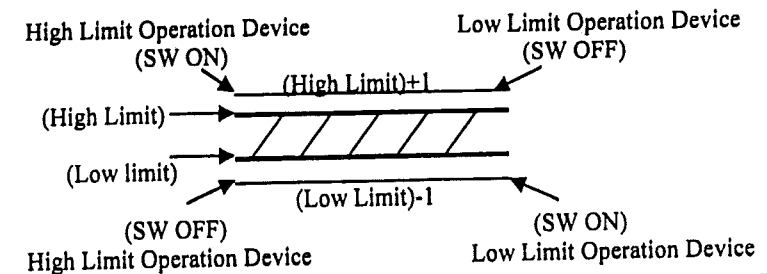
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Set the sensor as Alarm Device and its operation:

The system issues alarm when the reading is over the limits and issues restore signal when the reading returns to the limits.

- (High Limit)+1: High Limit Alarm
- (High Limit)-1: Alarm Restore
- (Low Limit)+1: Alarm Restore
- (Low Limit)-1: Low Limit Alarm

Set the sensor as control device and its operation:

The reading from this device will not issue any alarm but control the operation of the switches those were associated with this device (refer to the HyperSecureLink software).

High Limit Operation: Turn on at high limit reading and turn off at low limit reading.
Low Limit Operation: Turn on at low limit reading and turn off at high limit reading.

High Limit Operation Device (SW ON)   Low Limit Operation Device (SW OFF)
(High Limit)+1
(High Limit)
(Low limit)
(Low Limit)-1
(SW OFF)   (SW ON)
High Limit Operation Device   Low Limit Operation Device

F. SPECIFICATIONS

Supervision: sends AC Meter/Temperature reading at 30-minute interval alternatively.
Power Source: two AAA alkaline batteries.
Working Temperature Range: -20℃ to 50℃ (over this range the working of the device is not guaranteed)
Data Sampling Rate: 30-second/ Sampling, (15-second/Sampling available).
Temperature Sensor Operation Range: -40℃/85℃.
Temperature Accuracy: 10℃ to 40℃   +/- 1℃ max.
                        -40℃ to 85℃   +/- 3℃ max.
AC Meter Reading: 0-100 for 0~10A or 0~100A selectable.
AC Meter Accuracy: +/- 10% +/- 3 readings (for reading above 10).
Measuring method: Using AC clamp probe KT-87 with true RMS reading (50/60Hz).
Low Battery Detection: 2.6V+/- 0.1V.
Current Drain: 5uA @ standby, 20mA @ RF operation
Estimated Battery Life: Sending 250 readings/day for 1 year or 75 readings/day for 2 years.
Transmitter Size/Weight: 20 x 29 x 123.5 mm, about 34g (w/o battery).
KT-87 AC Clamp probe Size/Weight: 96 x 60 x 20 mm, about 85g (not including cable).
Jaw Opening: 25mm in diameter.

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WARRANTY

The Manufacturer warrants its products (hereinafter referred to as the Product) to be in conformance with its own plans and specifications and to be free of defects in materials and workmanship under normal use and service for a period of twelve months from the date of shipment by the Manufacturer. The Manufacturer's obligations shall be limited within the warranty period. At its option, to repair or replace the Product or and part thereof. To exercise the warranty the Product must be returned to the Manufacturer freight prepaid and insured.

This warranty does not apply in the following cases: improper installation, misuse, failure to follow installation and operating instructions, alteration, abuse, accident or tampering, and repair by anyone other than the manufacturer.

This warranty is exclusive and expressly in lieu of all other warranties, obligations or liabilities, whether written, oral, express or implied, including any warranty of merchantability or fitness for a particular purpose, or otherwise. In no case shall the Manufacturer be liable to anyone for any consequential of incidental damages for breach of this warranty or any other warranties whatsoever, as aforesaid.

This warranty shall apply to the Product only. All Products, accessories or attachments of others used in conjunction with the Products, including batteries, shall be covered solely by their own warranty, if any. The Manufacturer shall not be liable for any damage or loss whatsoever, whether directly, indirectly, incidentally, consequentially or otherwise, caused by the malfunction of the Product due to Products, accessories, or attachments of others, including batteries, used in conjunction with the Products.

The Manufacturer shall have no liability for any death, personal and/or bodily injury and/or damage to property or other loss whether direct, indirect, incidental, consequential or otherwise, based on a claim that the Product failed to function.

NOTE: The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

To comply with the FCC RF exposure compliance requirements, this device and its antenna must not be co-located or operating to conjunction with any other antenna or transmitter.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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