

KENTEC ELECTRONICS LTD	TEST PROCEDURE TO BS EN ISO 9001:2008 S509 PCB	Procedure No: TPS509	
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Prepared by..... A. Ahmed Authorised by.....S. Holmes

Manual Test :

1. Visually inspect board for poor soldering, solder bridges or unsoldered joints.
2. Apply power to terminals X2 (observe polarity) using a 30 Volt transformer (B2761) via a bridge rectifier (B2762).
3. With the help of the user manual, configure by setting or clearing ANY option at level 3 so as to initialize NEW production board.
4. Using pot VR1 adjust the battery voltage as per the temperature versus battery graph then connect a variable power supply set to 24V to battery terminals.
5. Connect 6R8 to extinguishant terminals and ensure panel announces Exting. Fault. If not trim the extinguishant adjust pot anti clock wise until panel announce fault. Trim the pot to clockwise until Exting. Fault clears. Do not over turn no more than ½ turn.
6. Remove 6R8 and Short circuit extinguishant terminals and ensure panel announces Exting. Fault.
7. Set Panel to access level 1 and ensure that only the power on LED and Auto& Manual LED are lit.
8. Press Lamp Test and ensure all the LED's come on in appropriate colors. Green: Power On; Red: Common fire, Z1,Z2 &Z3 Fire, Exting. Released, Release imminent, 1st stage activated; Yellow: All other LED's.
9. Enable the panel using Enable Key and ensure the display shows "Ac".
10. Ensure panel is in quiescent state, i.e. no fault or fire, buzzer sounds roger beep and all relays contacts are normally closed.
11. Short circuit zone 1 end of line resistor and ensure panel announce zone fault i.e. zone fault LED flashing with general fault LED on, buzzer sounds continuously and fault contact operates. Remove fault on zone and wait for normal condition.
12. Trigger zone 1 into fire condition by applying 470R resistor. Ensure panel announces zone fire i.e. zone fire LED flashing with common fire LED ON, buzzer sounds intermittently, local fire relay contact and fire relay contact operates. Reset panel using button reset.
13. Repeat steps 10, 11 for zones 2 and 3.
14. Activate Key Manual release button and ensure Common Fire LED, Release Imminent LED, 1st stage activated LED and Tel tale LED are on with panel display counting the time remaining for extinguishant release according to the configuration option set by user. (By default 30sec).

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15. Activate Hold by connecting a 470R to Hold terminals and ensure Hold activated LED is on and the display time restarts.
16. Remove 470R applied to hold terminals and wait for display count down to finish. Ensure extinguishant is active i.e. its polarity reversed and display shows "EEE".
17. Press Terminate Exting. Switch and ensure extinguishant polarity was reversed back to normal (0.6V).
18. Reset the panel using remote reset and ensure the panel returned to quiescent state
19. Activate remote manual release by connecting a 470R to manual release terminals and ensure panel enters release cycle as detailed in step13.
20. Activate Release pressure Switch by connecting a 470R to Release pressure Switch terminals and ensure Ext. released LED comes on. Reset the panel using button reset.
21. Set panel to access level 3 and press Silence/Sound alarm button once. Ensure that both sounder outputs operate. Connect terminal R0V to terminal SIL and ensure that sounder outputs switch off. Reset panel by connecting R0V to terminal R.
22. Connect terminal R0V to terminal AL, Ensure that both sounder outputs operate. Remove connection to AL to clear alarm condition.
23. Connect terminal R0V to terminal FLT and ensure that General fault buzzer sounds continuously and fault contact operates. Remove fault connection and wait for normal condition.
24. Connect AUX24V to earth and ensure earth fault led, general fault led come on, buzzer sounds continuously after 20sec. Similarly remove Aux24V connection to earth and connect R0V to earth and ensure panel enters Earth fault condition as detailed above after 20sec. Remove the connection to earth and wait for earth fault to clear.
25. Short Aux 24V supply and ensure Aux24V fault led, general fault led come on, buzzer sounds continuously. Remove short and ensure fault clears.
26. Open circuit 2nd stage sounder and ensure sounder fault, general fault, 2nd stage sounder fault, buzzer sounds continuously. Repeat the step for both 1st stage sounders as well and ensure panel announces S1/S2 fault condition appropriately.
27. Short circuit 2nd stage sounder and ensure sounder fault, general fault, 2nd stage sounder fault, buzzer sounds continuously. Repeat the step for both 1st stage sounders as well and ensure panel announces S1/S2 fault condition appropriately.

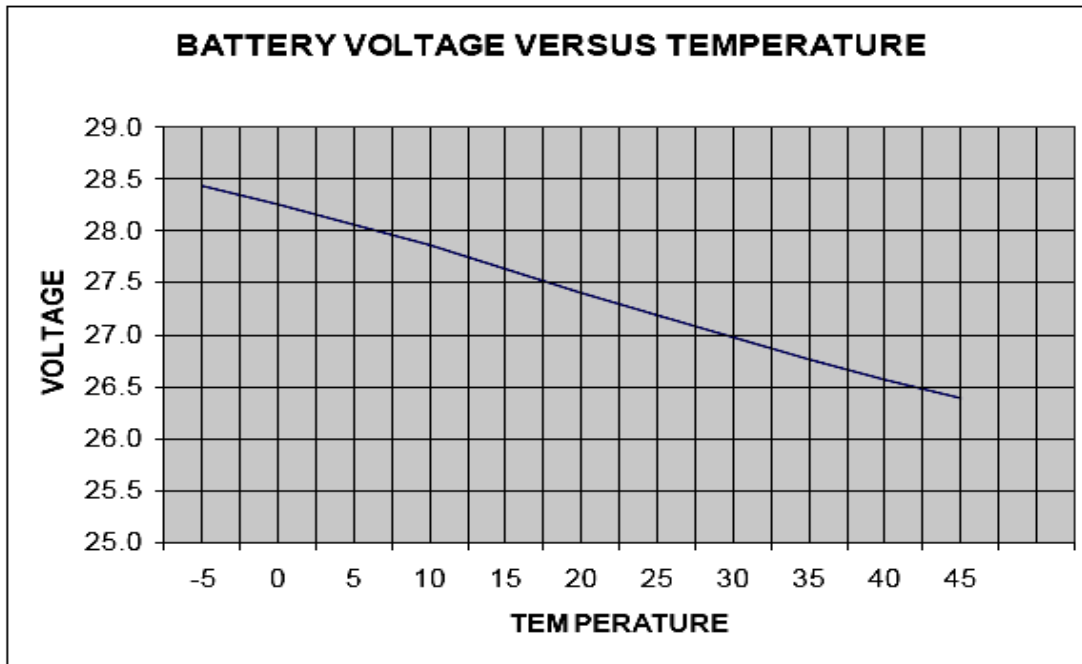
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<p>28. Open circuit Extinguishant EOL and ensure general fault, extinguishant fault, flooding zone fault LED's comes on. Connect EOL and ensure fault clears.</p> <p>29. Short Circuit Mode EOL and ensure general fault, mode fault, flooding zone fault comes on. Remove short circuit and repeat step with open circuit condition.</p> <p>30. Activate Remote Mode by connecting a 470R to its terminals and ensure panel mode changes</p> <p>31. Short Circuit Hold EOL and ensure panel announces hold fault with general fault, flooding zone fault, hold activated LED's come on. Remove short circuit and repeat step with open circuit condition.</p> <p>32. Short Circuit Rel. Pres. Switch EOL and ensure release fault with general fault and flooding zone fault LED's come on. Remove short circuit and repeat step with open circuit condition.</p> <p>33. Short Circuit Low Pres. Switch EOL and ensure Low pres. Fault, general fault and flooding zone fault leds come on. Remove short circuit and repeat step with open circuit condition.</p> <p>34. Activate Low Pres. Switch by connecting a 470R to its terminals and ensure Low Pressure led, general fault led and flooding zone fault led come on.</p> <p>35. With panel at access level 3, scroll through both digits using mode and select buttons, ensure display is ok.</p> <p>36. Disconnect battery supply and ensure Bat. Fail led, general fault led, power fault led come on after 10sec.</p> <p>37. Reduce battery voltage down to 20V. Ensure Bat. Low led, general fault led, power fault led come on after 10sec.</p> <p>38. Disconnect mains supply and ensure Mains fail led, power fault led, general fault led comes on.</p> <p>39. Power down the Sigma XT main Panel and connect Status unit to it. Power Up both main panel and status unit and check the status unit address is displayed on the main panel at access level 1. Accept the repeater by pressing enter button on panel. Check no Comm's. Fault LED announced on any of both main panel and status unit.</p> <p>40. Power Down the panel and Stamp the board as passed. When the board is failed at any of the steps pass on to repair along with failure report.</p>
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National ATE Test:

1. Place Sigma XT cassette on the receiver and fit Sigma XT fingers
2. Double click on Sigma XT icon on ATE Desktop.
3. When prompted, enter your username and password and press 'Enter' key.
4. When the file is loaded, Press F5 key to start the test.
5. Visually inspect board to be tested for poor soldering, solder bridges or unsoldered joints.
6. Carefully place the board on to test cassette such that it aligns exactly with in the slot. Engage the lever on the right side of the receiver.
7. Scan/Enter Works order number of the board.
8. Operate Write Enable Switch when prompted.
9. When the meter is displayed, adjust the battery voltage to the specified value by adjusting the pot VR1 in the top left hand corner of the board and then click on 'OK'. Note: If the battery voltage is correct or has been previously adjusted, no meter will be displayed.
10. If the voltage was not adjusted properly, a warning message will be displayed, asking the operator to re-adjust. If the voltage can't be adjusted, click on 'EXIT'.
11. When prompted for lamp test, check all LED's are ON except LED's in the bottom row of the board. Note: - Green: Power On; Red: Common fire, Z1, Z2 & Z3 Fire, Exting. Released, Release imminent, 1st stage activated; Yellow: All remaining LED's.
12. When prompted pre-adjust extinguishant pot VR2 in the bottom right hand corner of the board in anti clockwise direction until buzzer sounds continuously. When prompted adjust VR2 in clockwise direction until buzzer stops completely. Turn no more than ½ turn after buzzer stops. If prompted as pot overturned, turn the pot VR2 in anti clockwise direction until buzzer sounds continuously. Do not over turn pot again.
13. When the board is passed at the end of the test, stamp the board as Passed, fit all end of lines, solder all leads as per P.A.F and place it in passed box. If the board is failed, attach the print slip and pass it on to repair.
14. Repeat steps 5-15 until all the boards were tested.

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TP No	Comment
TP01A	Checks Zone1 Terminal Voltage, while the Processor boots up.
TP01B	Checks Zone2 Terminal Voltage, while the Processor boots up.
TP01C	Checks Zone3 Terminal Voltage, while the Processor boots up.
TP01D	Checks Mode Terminal Voltage, while the Processor boots up.
TP01E	Checks Manual release Terminal Voltage, while the Processor boots up.
TP01F	Checks Hold Terminal Voltage, while the Processor boots up.
TP01G	Checks Release Pressure Switch Terminal Voltage, while the Processor boots up.
TP01H	Checks Low Pressure Switch Terminal Voltage, while the Processor boots up.
TP01I	Checks Sounder 1 Terminal Voltage, While waiting for Z3 short circuit fault to clear.
TP01J	Checks Sounder 2 Terminal Voltage, While waiting for Z3 short circuit fault to clear.
TP01K	Checks 2nd stage Sounder Terminal Voltage, While waiting for Z3 short circuit fault to clear.
TP01L	Checks Extinguishant Terminal Voltage, While waiting for Z3 short circuit fault to clear.
TP01M	Operating Write Enable Switch can't set access Level 3 i.e. 7segment display digit0 showing 'U' or 'P'.
TP01N	Battery Voltage can't be adjusted to a value as per temperature.
TP01O	Lamp Test Failed i.e. all the lamp doesn't comes on in appropriate colours.
TP01P	No Extinguishant fault with 6R8 connected across its terminals. Can not adjust Extinguishant pot VR1 anticlockwise for Extinguishant fault
TP01Q	Extinguishant always in fault with 6R8 connected across its terminals. Cannot adjust Extinguishant pot VR1 clockwise to clear Extinguishant fault.
TP01R	Checks Aux24V terminal voltage after battery voltage was adjusted
TP01S	Checks Status Unit Power terminal voltage after battery voltage was adjusted
TP01T	Checks battery under load. Fails if it's not in the limits.
TP01U	Checks fire buzzer beep i.e. fails if the buzzer not loud enough.
TP01V	Checks Panel Status for Common Fire Condition i.e. Common Fire, 1st stage activated LED's ON and 1st stage sounders activated, Fire relay contacts operated and Local fire relay operated.
TP01W	Checks Panel Status for Remote Silence Condition i.e. Common Fire, 1st stage activated LED's ON and 1st stage sounders de-activated, Fire relay contacts operated and Local fire relay not operated
TP01X	Checks Extinguishant short circuit condition after the pot is adjusted. Fails if the panel can't be set to extinguishant fault when its extinguishant terminals are shorted.
TP01Y	Checks Panel Status in Quiescent State and Auto& Manual Mode i.e. Auto &Manual LED ON, all other LED's are OFF except Power On LED and all relay contacts in normally closed condition.
TP01Z	Checks Panel Status in Quiescent State and Manual Mode i.e. Manual LED ON and Auto &Manual LED OFF.
TP02A	Checks Panel Status in Zone1 short circuit Condition i.e. Zone1 Fault LED flashing and General Fault LED comes ON.

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TP No	Comment
TP02B	Checks Panel Status in Zone2 short circuit Condition i.e. Zone2 Fault LED flashing and General Fault LED comes ON.
TP02C	Checks Panel Status in Zone3 short circuit Condition i.e. Zone3 Fault LED flashing and General Fault LED comes ON.
TP02D	Checks Panel Status in Zone1 Detector Fire Condition i.e. Zone1 Fire LED flashing and Common Fire comes ON.
TP02E	Checks Panel Status in Zone2 Detector Fire Condition i.e. Zone2 Fire LED flashing and Common Fire comes ON.
TP02F	Checks Panel Status in Zone3 Detector Fire Condition i.e. Zone3 Fire LED flashing and Common Fire comes ON.
TP03A	Checks Panel Status in Sounder1 Open Circuit Condition i.e. Sounder Fault LED flashing and General Fault, S1 Fault LED comes ON.
TP03B	Checks Panel Status in Sounder1 Short Circuit Condition i.e. Sounder Fault LED flashing and General Fault, S1 Fault LED comes ON.
TP03C	Checks Panel Status in Sounder2 Open Circuit Condition i.e. Sounder Fault LED flashing and General Fault, S2 Fault LED comes ON.
TP03D	Checks Panel Status in Sounder2 Short Circuit Condition i.e. Sounder Fault LED flashing and General Fault, S2 Fault LED comes ON.
TP04A	Checks Panel Status in 2nd Stage Sounder Open Circuit Condition i.e. General Fault, Flooding Zone Fault and 2nd Stage Sounder Fault LED comes On.
TP04B	Checks Panel Status in 2nd Stage Sounder Short Circuit Condition i.e. General Fault, Flooding Zone Fault and 2nd Stage Sounder Fault LED ON comes ON.
TP04C	Checks Panel Status in Extinguishant Open Circuit Condition i.e. General Fault, Flooding Zone Fault and Extinguishant Fault LED comes ON.
TP04D	Checks Panel Status in Mode Input Short Circuit Condition i.e. General Fault, Flooding Zone Fault and Mode Fault LED comes ON.
TP04E	Checks Panel Status in Manual release Input Short Circuit Condition i.e. General Fault, Flooding Zone Fault and Man.Rel Fault LED comes ON.
TP04F	Checks Panel Status in Hold Input Short Circuit Condition i.e. General Fault, Flooding Zone Fault Hold Fault LED and Hold Activated LED comes ON.
TP04G	Checks Panel Status in Release Pressure Switch Input Short Circuit Condition i.e. General Fault, Flooding Zone Fault and Release Fault LED comes ON.
TP04H	Checks Panel Status in Low Pressure Switch Input Short Circuit Condition i.e. General Fault, Flooding Zone Fault and Low Pressure Fault LED comes ON.
TP04I	Checks Panel Status when Remote Mode is activated i.e. Manual LED comes ON.
TP04J	Checks Panel Status when Low Pressure Switch is activated i.e. General Fault, Flooding Zone Fault and Low Pressure LED comes ON.
TP04K	Checks Panel Status when Button Manual Release is activated i.e. Common Fire, Release Imminent, 1st stage activated, Tel tale LED's ON and 1st stage sounders activated, 2nd stage sounder pulsing and Fire& Local fire relay contacts, 1st&2nd stage relay contacts operated

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TP04L	Checks Panel Status when Rem. Hold is activated i.e. Common Fire, Release Imminent, 1st stage activated, Hold Activated, Tel tale LED's ON and 1st stage sounders activated, 2nd stage sounder pulsing and Fire& Local fire relay contacts, 1st&2nd stage relay contacts operated
TP04M	Checks Panel Status when extinguishant starts discharge i.e. Common Fire, Extinguishant Released, Release Imminent, 1st stage activated, Hold Activated, Tel tale LED's ON and 1st & 2nd stage sounders, Extinguishant activated, and Fire& Local fire relay contacts, 1st&2nd stage relay contacts operated.
TP04N	Checks Panel Status when Extract Fan is activated i.e. Extract Fan Relay operated and Extinguishant terminated (de-activated).
TP04O	Checks Panel Status when Remote Manual Release is activated i.e. Common Fire, Release Imminent, 1st stage activated, Tel tale LED's ON and 1st stage sounders activated, 2nd stage sounder pulsing and Fire& Local fire relay contacts, 1st&2nd stage relay contacts operated
TP05A	Checks Sounder 1 voltage reversed, when Remote Alarm is activated
TP05B	Checks Sounder 2 voltage reversed, when Remote Alarm is activated
TP05C	Checks panel status when Remote Fault (FLT) is activated i.e. Common Fault LED, Buzzer Silence LED and Fault Relay operated
TP06A	Checks Panel Status when Battery is disconnected i.e. General fault LED, Power Fault LED ON, Battery Fail LED comes ON.
TP06B	Checks Panel Status when Battery Voltage is Low (20V) i.e. General fault LED, Power Fault LED ON, Battery Low LED comes ON.
TP06C	Checks battery voltage collapsed down to around 3V when battery terminals are short-circuited.
TP07A	Checks Panel Status in Aux24V Short Circuit Condition i.e. General fault LED, Aux24V fault LED comes ON.
TP07B	Checks Panel Status when Processor is Reset i.e. General fault LED, System Fault LED, CPU Fault LED comes ON.
TP07C	When panel is in remote manual release press the terminate Extinguishant switch. Fails if it doesn't change polarity.
TP08A	Checks Panel Status in Negative Earth Fault Condition (Earth at 0V) i.e. General fault LED, Power Fault LED ON, Earth Fault LED comes ON.
TP08B	Checks Panel Status in Positive Earth Fault Condition (Earth at 5V) i.e. General fault LED, Power Fault LED ON, Earth Fault LED comes ON.
TP09A	Checks Panel Status when both Mains and Status unit are disconnected i.e. General fault LED, Power Fault LED ON, Mains Fail LED, Comm's Fault LED, Hold Activated LED and Flooding zone fault LED comes ON.

TP NO Execution Order:

TP01A -01H, 01M, 01N, 01R, 01S, 01T, 01Q, 01P, 01Q, 01X, 01Y, 01U, 01V, 01W, 01Z, 02A-02C, 01L-01L, 02D-02F, 03A-03D, 07A, 04A-04J, 04K-04O, 07C, 07B, 05A, 05B, 06A-06C, 08A, 05C, 08B, 09A

NOTE:

TP06C & TP07A NOT TESTING AT THE MOMENT.