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DT- 20 Zone Annunciator

General Overview:

The DT- 20 Zone Annunciator is a low powered, system monitoring board, developed for the Fire Protection industry to monitor the status of Alarm / Fault conditions of Fire Pump Control Panels and relay conditions.

The DT – 20 Zone Annunciator essentially ensures the healthy operation of fire pump controllers while notifying the user of any conditions that may occur via audible and visual indicators.

General Specifications:

1. Supply input voltage: 12 VAC.
2. Battery Supply: 12 VDC (2x12V 12aH)
3. Input option 1: 20 lines (Expandable to 40 Zone)
4. Input option 2: 2 x Non monitored digital inputs
5. MCU: Microchips Embedded Pic Microcontroller
6. Watch Dog Timer: Enabled
7. Clock speed: 32 MHz
8. Output Siren 1: Monitored Lines for Healthy, Short Circuit and Disconnection.
9. Output Siren 2: Monitored Lines for Healthy, Short Circuit and Disconnection.
10. Output Beacon: Monitored Lines for Healthy, Short Circuit and Disconnection.
11. Output Bell: Monitored Lines for Healthy, Short Circuit and Disconnection.
12. Output additional relay 1: Annunciator Fault
13. Output additional relay 2: Annunciator Common Fault (Operates under any fault and alarm condition)
14. Output Rs485: 1 x Communication Output (9600 baud)
15. Output: 2 x 10 DIL headers for LED facia display
16. Output: 2 x 10-way terminal blocks for pilot light display
17. Display: 16 x 2 RGB LCD
18. Control: 2 x Discreet Tactile Switches
19. Programming: 2x5 DIL header pin ICSP
20. Battery Charger: 1A Constant Voltage regulated based on a TI-BQ charger IC
21. Battery Load Testing: Yes (Requires an 18 Ohm 100W load resistor to be installed)
22. Battery Reverse Polarity Protection: Yes
23. Battery Reverse Polarity Indication: Yes

General Operation:

The general operation of the DT-20 Zone Annunciator is such that each input line (J53-J56) is monitored in the following way:

1. 4k7 Ohm End of Line = Healthy Condition.
2. 270 Ohm End of line = Alarm Condition.
3. Open Line = Fault Condition displayed on LDC with the Prefix DC.
4. Short Circuit = Fault Condition displayed on LCD with Prefix SC.

The Siren1 / Siren2 / Bell / Beacon outputs are monitored by installing end of line resistor cards into each unit with the following monitored resistance values.

1. Siren 1 End of Line = 1k Ohm.
2. Siren 2 End of Line = 2k2 Ohm.
3. Bell End of Line = 4k7 Ohm.
4. Beacon End of Line= 8k2 Ohm.

The DT- 20 Zone Annunciator offers the following LCD display features:

1. AC Supply Voltage monitoring.
2. Battery Voltage Monitoring.
3. Battery load Testing.
5. Service Reminder.
6. Alarm Accept.
7. Lamp test.
8. Healthy Condition.
9. Alarm Condition.
10. System Fault SC (Short Circuit on line).
11. System Fault DC (Disconnection on line).
11. Battery Reverse Polarity.
12. Mains Fail.
13. Load Test Failed – (This will latch the failed signal until a load test passed is achieved).
14. Line Alarm list in real time binary representation.
15. Line Alarm list in words.
16. Line Short Circuit list in real time binary representation.
17. Line Short Circuit list in words.
18. Line Disconnected list in real time binary representation.
19. Line Disconnected list in words.
20. Battery Disconnected.
21. Siren 1 Short Circuit.
22. Siren 1 Disconnected.
23. Beacon Short Circuit.
24. Beacon Disconnected.
25. Bell Short Circuit.
26. Bell Disconnected.
27. Siren 2 Short Circuit.
28. Siren 2 Disconnected.

29. Battery Load Test Failed.
30. Battery Load Test Complete.
31. Battery Load Test Passed.
32. Charger Fail.
33. Client Specific Contact Details under fault condition.
34. Input 1 System Fault.
35. Input 2 Common Fault.

The DT – 20 Zone Annunciator offers the following human Interface Features:
1. Alarm Accept.
2. Lamp Test.
3. Mode Push button.
4. Select Push button.
5. Reset Push button.

The DT – 20 Zone Annunciator offers the following protection features:
1. Reverse polarity protection and indication on battery input.
2. Bridge rectified 12VAC input for polarity protection.
3. Metal Oxide Varistor on 230VAC input.
4. NTC thermistor for inrush protection on 230VAC input.
5. Opto Isolated GPIO inputs.
6. USB based Service Reset Key.
7. Battery Voltage Monitoring and over voltage protection.
8. Fused 230VAC input (1A).
9. Fused 24VAC input (3.5A).
10. Fused Battery Charger output (3.5A).
11. Fused Siren 1 monitored output (2A).
12. Fused Siren 2 monitored output (2A).
13. Fused Beacon monitored output (0.5A).
14. Fused Bell monitored output (0.5A).
15. Fused Potential Free Contacts for System Fault (2A).
16. Fused Potential Free Contacts for Common Fault(2A).

PCB based LED indication of the following hardware fault conditions:
1. MCU Operational.
2. Charger Available.
3. 5VDC Available.
4. Battery Available.
5. Charger Fuse Blown.
6. Battery Reverse Polarity.
7. 12VAC Fuse Blown
8. Battery Fault
9. 12VAC supply Fail

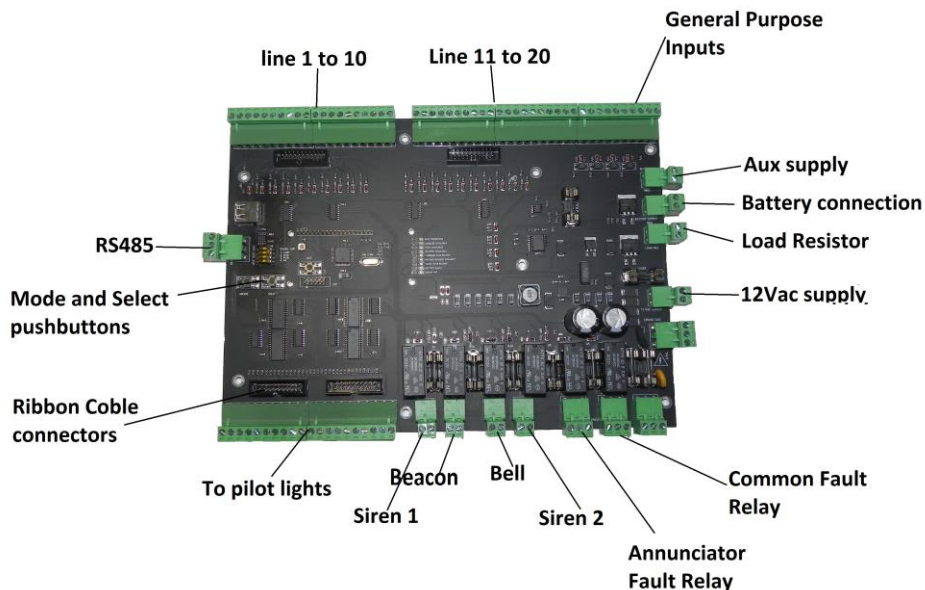**PCB based LED indication of the following relay switched condition:**
1. Siren 1 Relay Switched, 8A @ 250VAC
2. Beacon Relay Switched, 8A @ 250VAC
3. Bell Relay Switched, 8A @ 250VAC
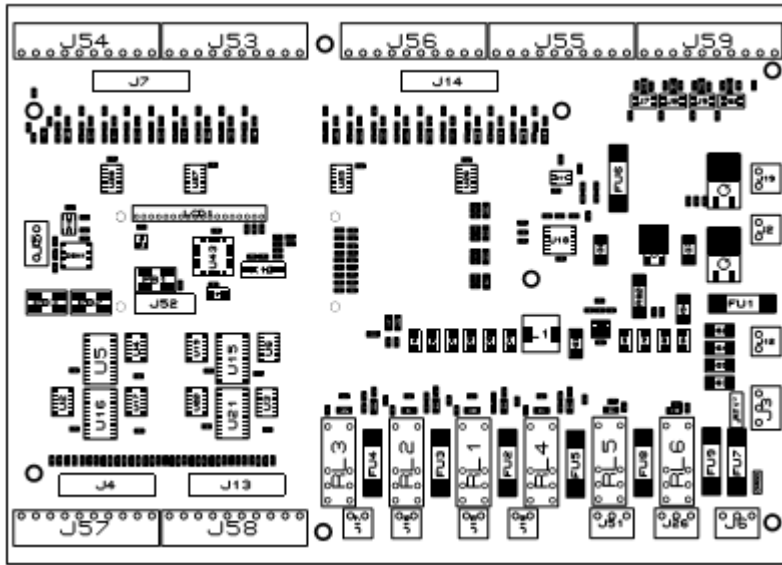4. Siren 2 Relay Switched, 8A @ 250VAC

User Input Function Explanation:
The User/Technician has access to 2 x tactile switches that allow access to the following test applications:
1. Battery Load Test.
2. Lamp Test.
3. Fault List Short Circuit in words.
4. Fault List Short Circuit in Binary.
5. Fault List Connection in word.
6. Fault List Connection in Binary.
7. Alarm List in words.
8. Alarm List is Binary.
9. LED facia Selection.
10. Board Zone Selection.
11. Relay Expansion Selection.
12. Firmware Version

General Layout:

Contact us:

For further details or requirements please contact us at Info@day-tec.com