S800N Cable Fault Locator

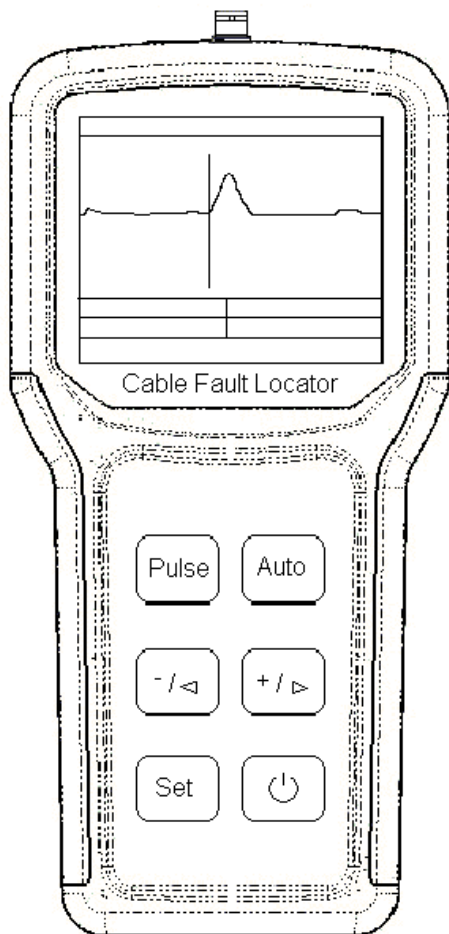V1.1

RMS Communications Inc.

Catalog

1. Packing List

* Cable Fault Locator……………………. ..1pc

* Charger…………………………….……1pc

* User Manual………………………….……1pc

* Test Leads…………………………. …...2pc

* Softcase……………………………. ……..1pc

Pic 1 : Apperance

2. Introduction

S800N cable Fault Locator (hereinafter to be referred asS800N) is used for test cable break, short circuit faults of telephone cable, data cable, high frequency cable, coaxial cable, and so on.

S800N can do auto test of various faults, and the details as follows:

1) DGAC(digital gain auto control).   This will reduce the waveform distortion caused by the Potentiometer knob; and also can be used for pure line adjust which is convenient for manual test

2) Auto identification technology of the digit wave form: The unit can automatically identify the waveform that difficult to judge manually and test the dead zone clearly.

3) Adopts high end (True 32-bit) ARM chip to cooperate with FPGA(Field programmable gates array technology), which will be in favor of performing the complicated operation and judging the faults wave correctly.

4) Big screen color LCD display, human interface with CN/EN menu, six keys to perform all operation completely.

5) High-energy lithium battery, which ensure the working time last for 10 hours

3. Specifications

1) Max measurement range (Manual): 8KM

2) Max measurement range (Auto): 4km

3) Max resolution: 1m

4) Dead zone: 0m

5) Power Consumption: 1W

6) Weight:<0.5kg

7) Dimensions: 204*100*36mm

8) Working temperature: -15℃~45℃
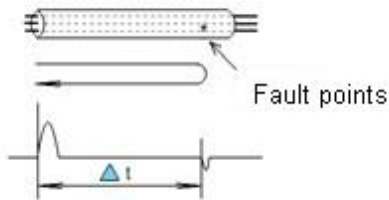
   Storage temperature: -20℃-55℃

4. Working Principle

S800N Adopts Pulse reflecting technique to measure the cable faults, And it belongs to remote sensing method, this means: the tester can get the correct

location of the faults in office ； Operators do not need

to go to the field sit either not need to cooperate with the opposite end;

The Principe as follows:

The tester send a pulse to the cable for test, and the transmitting wave will reflect to the sender when meet a faults point, if we can get the round-trip time, we can

get the distance too. So we can get the follows:

Pic 2: Pulse reflection test mode

V: Speed of the transmitting wave

T: Round-trip time of the transmitting wave

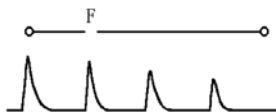L: Distance between sender and faults point

And the formula will be:

2L=VT

L=VT/2

For example: we send a pulse in a cable, and after 20μS, the wave return back to the sender, and we know that in plastic cable the transmitting speed is 201m/μS, so we can get the distance : L=201*20/2=2010m

When the faults is short-circuit faults, the polarity is opposite between the sending pulse and the reflection

pulse; According to the polarity identification, we can judge the faults as short-circuit faults
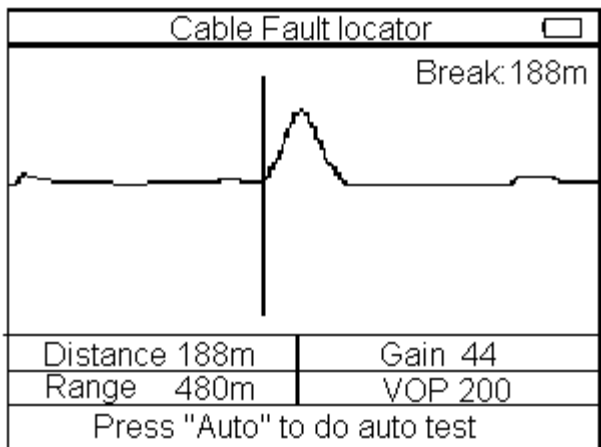
Pics as below:

Pic 3: Disconnection faults   Pic 4: Short-circuit faults
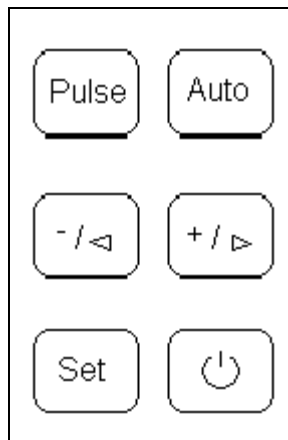
5. LCD Display and Key Panel

Pic 5 : LCD Display

LCD Display:

1. Battery Power: in the top right corner, there's battery symbol which shows the current battery status, please charge the battery before low voltage.
2. Break 188m: the LCD display faults type and faults distance
    Distance: The cursor in place of the corresponding distance
3. Gain: Current Gain of current pulse signal, Press "Set" to choose this item, and operators can adjust

    the gain parameters through " ⁻ / ◁ "and "+ / ▷".

4. Range: The current measurent range; Press " Set" to choose this item, operators can adjust the test

    range parameters through " ⁻ / ◁ "and "+ / ▷".

5. VOP: The current Wave velocity value, Press " Set" to choose this item, operators can adjust the

    current VOP through" ⁻ / ◁ "and "+ / ▷" .

6. Press "Auto" to do auto test: Lead operators to do
      fast operation

Pic 6 : Key Panel

Keys：

8. Pulse: Press for one time, the tester will test once

9. Auto: Search for suitable testing range automatically,
    and locates the most probable faults points

10. $^-/\lhd$ and $^+/\rhd$: Move the cursor and cooperate
     with " Set" to adjust parameters

12 : $\circlearrowleft$: Used to turn on/off the tester

6. Operation steps

Determine the faults properties

6.1. Cable Break

One or several cable cores disconnect

6.2. Cable Mix

The insulation falls between the cable cores, and cause

the signal attenuation bigger

6.3. Geo-Gas

Insulation drops between core wires to ground

6.4. Cross-Talk and noise

Cable wires soaking, and the capacitance is bigger, this
will affect the communication

6.5. Poor Insulation

Insulation drops between cable wires or between cable
wires to ground.

6.6. Faults test

Disconnect the test leads and station equipment, ensure the cable for test do not have power, use the QMS800N to do auto test first, if can not get the result, please use manual test.

6.7. Location

According to the test results, judge the general location firstly, and then according to the true situation, open the distributor box to confirm the location sit.

7. Auto Test

Press ON/OFF key to pen the test, connect the test leads with the tester and the cable for test, press Auto, the test result will appears

Note: the default VOP setting in the tester is 200m/μS, when do auto test, operators should confirm whether this VOP is OK or not, Please refer to the following description of how to modify the VOP.

8. Manual Test

Below the screen display the current settings and parameters, press SET to modify the current settings and parameters.

8.1 Modify Gain

Press SET ,until the Gain xx is highlighted, press – or + to modify the Gain Value (From 1 to 99); Press PULSE key, the tester will display the new waveform according to the new value of Gain.

8.2. Modify Range

During the Manual test, the range will decide the max measurement distance of the cable, operators should choose bigger range than the real cable distance; When modify the range, please press SET until the Range xx is highlighted, press – or + to modify the range.

8.3. Modify the VOP

The VOP value affect the accuracy of test results; So operators would adjust the VOP value according to the cable type. Please press SET until the VOP xx is highlighted, press– or + to modify the range

Adjust the range and VOP according to the cable length and cable type, Press PULSE to check the waveform displays on screen, and modify the Gain to make the waveform more easier to check, move the cursor to the inflection point, the distance will be shown at the below of the screen.

9. Reference Value Of Cable Speed

Number	Insulating Medium	Wave Speed (m/us)
1	Air Insulation	294
2	Coaxial Air Insulation	282
3	Foam Polythene	240~260
4	Polytetrafluoroethylene	213
5	Local Cable of Polythene	190~202
6	Pulp 0.083UF/Mile	216
7	Pulp 0.073UF/Mile	264
8	Paper Full Of oil	140~168
9	Crossed Polythene	140~174
10	High Molecule Polymer	150~186

10. Charge

1. The screen will show the current battery capacity, when the battery capacity is insufficient, please use the special charger equipped with the tester to charge the battery.

2. During charge, the indicator of the charger is red; When the LED changes to green, the charging is completed.

3. Charge time no more than 2-3 hours

11. Notes

1. Avoid direct sunlight on the screen, because when

temperature is higher than 60℃, the contrast will go

worse; When temperature is below 60℃, the screen

will be OK.

2. Before test, please measure the Voltage between the cables for test

3. Please Don't collide the screen directly with good thing.

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