

# Cable and Pipe Tracer



Model No.:MS-CPTK1A

Easy to trace hidden wire / pipe



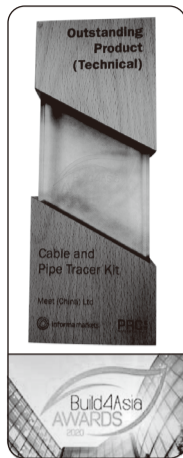
A must troubleshooting tools for D.I.Y; maintenance renovation and construction

Works on energized or de energized circuit

Thank you for purchasing MEET Cable and Pipe Tracer Kit !

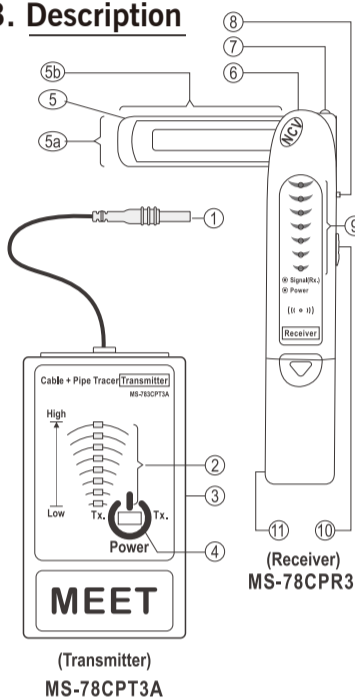
## 1. Contents

- Transmitter (MS-78CPT3A)
- Receiver (MS-78CPR3)
- 13A socket adaptor (MS-CP(9A))
- Croc clip (MS-LAC)
- E27 ES light fitting test adaptor (MS-TLAES)
- Carrying bag
- Operating manual



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## 3. Description



- 4mm Red connector (plug) / (pole).
- 8 level transmitting signal strength (LED's indicator) / all LEDs flash rapidly five times indicates low battery.
- Battery compartment on the rear side.
- Power / Tx. button
  - Press and hold > 3 secs. to power ON / OFF, the first green LED at the bottom lights up when power on.
  - Press once to increase the sensitivity progressively upwards, when all eight LEDs light up which means sending the strongest signal.
- 270° rotation with six position selectable sensing sensor (receiving signal).
- 5a) Narrow signal receiving area    5b) wide signal receiving area
 

**Note:** Slowly move the sensor across the location being searched. (If the searching movement is too fast, the signal can not be recognized).
- 'NCV', Non-contact AC voltage sensor.
- Super bright white LED.
- Flash light ON / OFF / REL (Zero) button.
  - When the slide switch ⑩ selected to 'O' position, Press the button to switch on the flashlight, release to switch off.
  - When the slide switch ⑩ selected to 'II' or 'I' position, press once the button to zero the sensitivity.
- Power ON LED indicator (the green LED lights up at the bottom).
  - 7 level receiving signal strength LEDs indicator.
  - Low battery indication (all LEDs flash rapidly five times).
- Mode selection slide switch ('I' / 'II' / 'O')
  - Slide the switch to 'O' position then press and hold the button ⑧ to switch ON the flash light, release to switch OFF.
  - Slide the switch to 'II' position to enter 'NCV' mode, press once the button ⑧ to zero the sensitivity.
  - Slide the switch to 'I' position to enter 'Receiving' mode, press once the button ⑧ to zero the sensitivity.
- Battery compartment.

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## 6. Safety

- ⚠ Please read the operating instructions carefully before using the product for the first time as they include important information necessary for correct measurement.
- ⚠ The guarantee becomes null and void when damage has incurred as a result of non-compliance with the operating instructions! We do not assume any liability for any damage arising as a consequence! We will also not assume any responsibility for damage to assets or for personal injury caused by improper handling or failure to observe the safety instructions.

This device left the manufacturer's factory in a safe and perfect condition. We kindly request the user to observe the safety instructions and warnings contained in this operating manual for safe operation.

### Please note the following symbols:

- ⚠ A triangle containing an exclamation mark indicates important information in these operating instructions which are to be observed without fail.
- ⚡ A triangle containing a lightning symbol warns of danger of an electric shock or of the impairment of the electrical safety of the device.
- 👉 The 'hand' symbol indicates special information and advice on operation of the device.

CE/UKCA This product has been CE / UKCA tested and meets the necessary European and U.K. guidelines.

□ Class 2 insulation (double or reinforced insulation).

CAT II Excess voltage category II for measurements in building installation (e.g. outlets). This category also contains all lower categories.

⏏ Ground potential.

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## How to use

### Transmitter, MS-78CPT3A:

- Powered by 9V battery.
- Standby mode: After installed a battery, the unit enters standby mode, press and hold the mode button 'POWER' ④ for 3 seconds to Power on and enter signal transmitting mode.
- Signal transmitting mode 'Tx':
  - When entered the signal transmission mode, the default signal transmitting level is 1 and one LED illuminates, press once, the transmitting level increase by 1 and illuminated LEDs level increase by one from the bottom LED ② correspondingly, the highest level is the eighth.
  - At the highest level (the eighth), press once again to go back from first level (the lowest level).
  - At signal transmission mode, press and hold for 3 seconds to enter standby mode.
- Low-power shutdown mode:
  - At signal transmitting 'Tx' mode, when the battery voltage is less than 5.5V, the meter enter low-power mode automatically.
  - At low-power mode, all level LEDs ② flash five times rapidly then enter to stand by mode.

👉 Transmitter works on energize or de energize up to 300V AC/DC circuit.

### Trace hidden wires inside walls, ceiling, floors, pipe and underground cables

- As shown below, transmitting signal by Penetrating-type through the insulated wire which do not affect the normal operation of the device.
 

**Note:** Such kind of transmission is for short range.



Please disconnect AC power source to avoid signal transmitting strength become weak

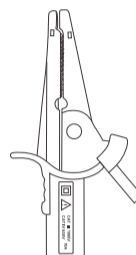
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## 2. Specifications

Model No	MS-78CPT3A	MS-78CPR3
Descriptions	Transmitter	Receiver
Output signal	*	
Max. voltage	CAT II 300V	
Operating current	<70mA	<70mA
8 level transmission signal selectable	*	
Non-contact AC voltage detection, NCV, > 100V AC		*
Works on energized or de energized circuit, AC/DC	*	
Transmission signal greater than 1Km while connecting with metallic conductor	*	
Couple transmission signal through the insulated wire and by segmenting type transmit the signal to unlimited distance	*	
APO, AUTO POWER OFF (4 minutes)		*
Tracing depth : 0~0.5m		*
Auto sensitivity adjust or manual 'REL' adjust		*
Audible and 7 level signal strength indication		*
With LED torch / flash light		*
270° rotation with six position selectable sensing arm		*
Battery powered (Best to use Alkaline type)	1 x 9V (6F22 / 6LR61 / 1604)	
Dimensions ( L x W x D ) approx.	106 x 61 x 26 (main unit )	172 x 34 x 30
Weight (approx.) (without battery)	100	85

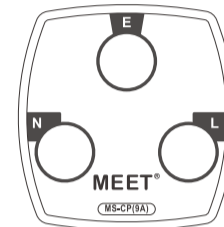
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## 4. Accessories



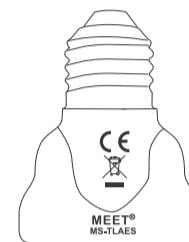
**Croc Clip MS-LAC**

Quick connect with wire / cable / metal pipe and transmit signal



**13A Socket Adaptor MS-CP(9A)**

Quick connect with 13A socket adaptor and transmit signal



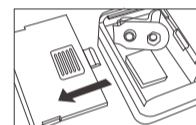
**E27 ES Light Fitting MS-TLAES**

Quick connect with Light Fitting and transmit signal

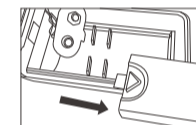
## 5. Battery replacement

- 👉 **Disconnect the transmitter from any live voltage before opening the battery cover!** ⚠ The LEDs flash five times then enter 'AUTO POWER OFF' mode that indicates the battery is weak. Slide off the battery cover and replace a piece of fresh 9V battery (6F22 / 6LR61 / 1604) according to the correct polarity. To avoid chemical leakage from the battery, remove the battery if you are intended not to use the tracer in short time.

**Note:**  
FOR BEST PERFORMANCE USE ALKALINE TYPE BATTERY



Transmitter



Receiver

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The unauthorized conversion and / or modification of the unit is inadmissible because of safety and approval reasons (CE / UKCA).

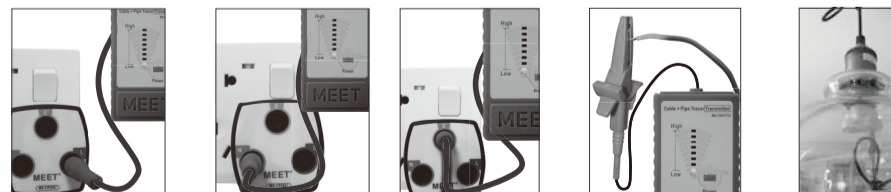
Consult an expert when in doubt about the operation, the safety or the connection of the device.

- Measuring instruments, accessories and packing materials must be kept away from the children's reach.
- ⚠ They may become hazardous.
- In commercial and industrial facilities the regulations for the prevention of accidents as laid down by the professional trade association for electrical equipment and devices need to be observed.
- ⚠ - The voltage must never exceed CAT II, 300 V (AC / DC).
- Check the measuring device and its measuring lines for damage before each measurement. Never carry out any measurements if the protecting insulation is torn or ripped off etc.
- 👉 **Do not use the tracer** ⚠ ⚠
  - During, before or immediately after thunder and lightning (thunder strike / high-energy over voltages), please make sure that your hands, shoes, clothes, the floor, switches and switching components all are dry.
  - Immediately after it has been taken from a cold to a warm environment, as the condensation water that forms might destroy your instrument. Switch Off the unit until it has reached room temperature.
- 👉 **Avoid operation near:**
  - Strong magnetic or electromagnetic fields. This may falsify the measured values.
  - Please do not use the receiver when at unknown (not from transmitter) strong magnetic fields area.
- 👉 **In case of the following situations, safe operation of the unit is no longer possible. Please do not use the meter immediately.**
  - The unit does not operate any longer
  - The unit was stored under unfavorable conditions for a long period of time
  - The unit can not transmit signal well.

Again please read all the safety instructions in each chapter of this manual.

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- As shown below, physically connect with exposed metallic conductor or object, it can send the signal to more farther distance.
  - Connect to any kind of wires / cables.



- Transmitting signal by direct connecting with metallic air / oil / hot or cold water pipes as well as hidden reinforced bar

👉 If the surface of the metal pipe is oxidized or painted, please clean up and ensure to contact with the metal parts securely. **DO NOT CONNECT WITH NON METALLIC OR INDIRECTLY** i.e. INSULATING COUPLING OR FLANGES SURFACE AS SHOW IN FIGURE 1.

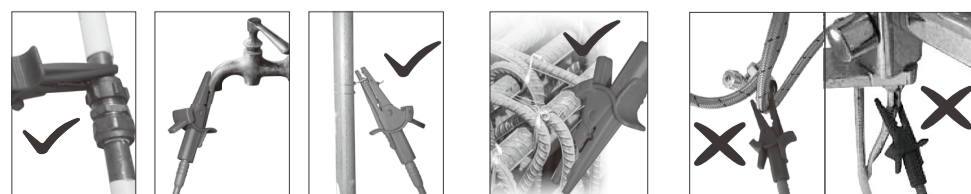


Figure 1

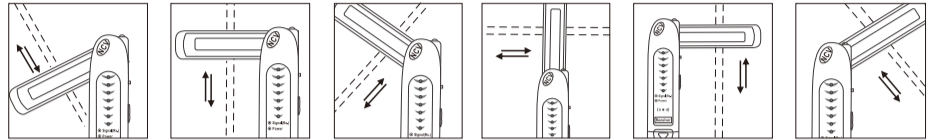
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## Receiver, MS-78CPR3:

- A) Powered by 9V battery.  
 B) Mode switch  
 a) OFF / Flashlight (OFF)  
 b) 'NCV' mode  
 c) 'RX', 'Receiving' mode  
 C) Slide the switch to 'I' position and turn the sensor to receive the signal from the 'transmitter', green LED at the bottom turns to red. stronger the signal received, more LEDs light up from the bottom.  
 D) Auto Power OFF (APO)  
 - When at receiving and 'NCV' mode, the unit automatically enter to standby mode when inactive for 4 minutes.  
 - When the battery voltage is too low to operate, the meter will turn off automatically.  
 E) Low battery indication:  
 - At 'Receiving' or 'NCV' mode, when the battery voltage is lower than 5.5V approximately, the meter turns on to 'low battery' mode  
 - At 'Low battery' mode, Level LEDs (9) flash five times rapidly, then enter to 'standby' mode

### Signal receiving mode, Receive(Rx.):

- Power ON the transmitter MS-78CPT3A.  
 a) Turn the sensor (5) to the suitable tracing angle for easy to trace any hidden object layed different position



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- b) How to use receiver to scan or trace the object  
 - Slide the switch of the Receiver to 'I' position away from the transmitter (when Transmitter is ON) to obtain highest receiving signal, bottom green LED (9) lights up with a beep sound.  
 - Turn the sensor at right angle position and move towards the target object to trace or scan

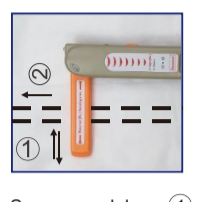
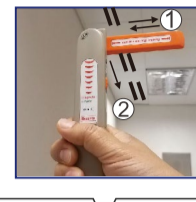
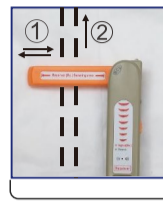


Move forward (1) slowly and scan left → right (2)



Approach closely towards the object

- To find buried cables or AC circuit inside the walls / floors, move your receiver towards the object slowly and scan up and down, from left and right with different sensing angle. During tracing, observe the LED's status of the receiver, the highest LED's is the strongest and nearer to the object



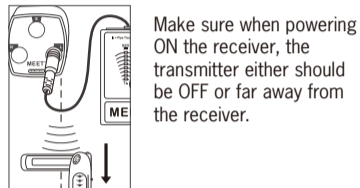
Scan to and fro from left to right (1) and move forward (2)

Scan up and down (1) and move forward (2)

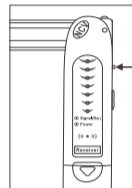
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## Sensitivity adjustment and attentions to be followed

### 1) Sensitivity of receiver



Make sure when powering ON the receiver, the transmitter either should be OFF or far away from the receiver.

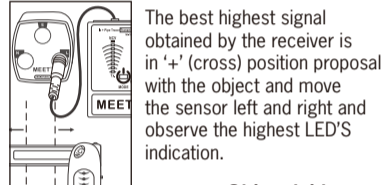


#### How to reduce sensitivity

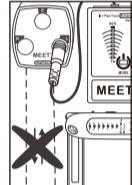
When measuring, if the transmission signal is too high and hard to find the location of the object, press once the button (8) of the receiver at existing location to reduce the sensitivity to 'Zero', then move again towards the target, if still the sensitivity is high, press once again the button (8) at new existing location.

Press once to 'zero'

### 2) Position of receiving signal



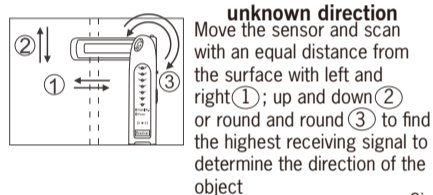
The best highest signal obtained by the receiver is in '+' (cross) position proposal with the object and move the sensor left and right and observe the highest LED'S indication.



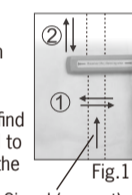
#### Very weak sensitivity

The sensor and the buried object are in parallel, so the receiver obtained weak signal.

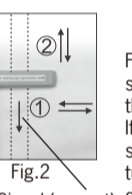
#### Object laid unknown direction



Move the sensor and scan with an equal distance from the surface with left and right (1); up and down (2) or round and round (3) to find the highest receiving signal to determine the direction of the object



Signal (current) upward



Signal (current) downward

NOTE: Most LEDs lights up indicates the location where the measured object laid underneath

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#### Polarity (Current flows) direction of transmitting signal

Fig.1 shows the direction of the signal flows upward and in Fig.2 the signal flows downward. If the receiver detect weak signal in either direction, just turn the sensor to the opposite direction to obtain higher signal

### 3) Sensitivity of transmitter

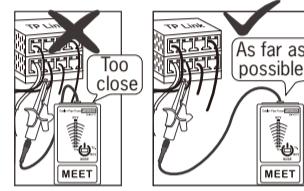


Figure 1

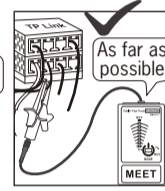


Figure 2

AS shown on left figure 2, the transmitter should be placed as far as possible away from the measured wires or metallic object, especially the wires with active signal, such as network line / wires with AC current

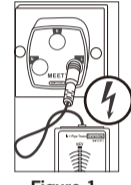


Figure 1

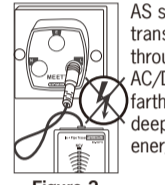


Figure 2

AS shown in figure 2, transmitting signal through de energized AC/DC circuit is farther and penetrate deeper than energized circuit.

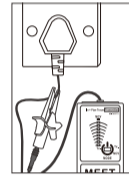


Figure 1

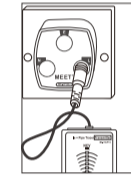


Figure 2

As shown in figure 2, transmitting signal through direct contact with metallic conductor or terminal is farther and penetrate deeper than on insulated wire or cables figure 1

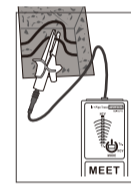


Figure 1

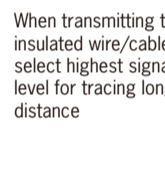


Figure 2

When transmitting through insulated wire/cable, please select highest signal output level for tracing longer distance

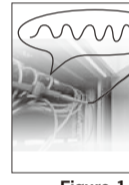


Figure 1

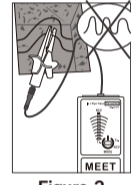


Figure 2

As shown in figure 2, transmitting signal through insulated sheath of non-signal transmission line is farther and penetrate deeper than on carrying signal line figure 1

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## NCV, Typical examples of how to use Non-Contact Voltage of MS-78CPR3 (Receiver)

### 1) Verify AC voltage and wiring connection of wall socket

- Use receiver as detector, slide the switch (10) to 'I' position entering NCV mode

NOTE : DETECTOR MUST BE AWAY FROM ANY POWER SOURCE WHEN SELECTING TO 'NCV' MODE.



Due to internal circuit of some double 13A wall socket connection differ, So please test left side one for better performance.



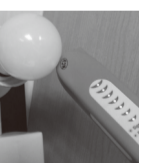
Figure 1

Measure right and left terminal to and fro to identify proper connection of 'L' and 'N'. Highest LEDs indicates live (L) terminal, as shown in figure (1)

Figure 2

Note: In some case, more than one LED's lights up, which indicates wire are NOT properly connected i.e. Left (N) or Top (E) terminal or both terminals, as shown in figure 2

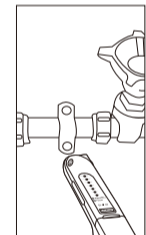
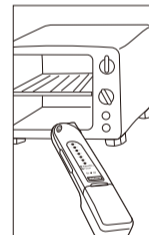
### 2) Check wrong wiring connection



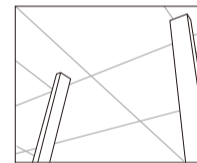
Connect the device / appliance to power source and with the switch to OFF position. Move the detector from the front of hair dryer or near the lamp, LED/s lights up indicates the Live and Neutral are reversed connected.

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### 3) Check proper Ground / Earthing connection of electrical appliances; machinery equipment; exposed metallic framework etc.



Move the receiver close to appliance, No LED lights up, (occasionally, one LED lights up, it is normal), that indicates appliance is properly connected with Ground / Earthing. Note: Test suitable for appliances / machinery with metallic case or exposed metal parts.



Suitable to check false ceiling; metal grids; light tray; ceiling lights; metallic doors / windows frame; etc.. In summary, all metallic parts / objects can be measured.

### 4) Instantly check if the fuse blown

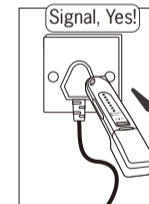


Figure 1

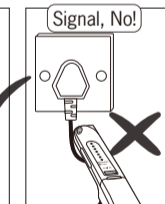
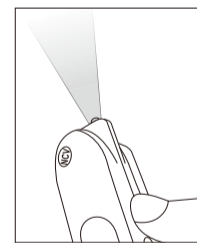


Figure 2

Move the receiver close to plug, LEDs light up (figure 1), that indicates presence of voltage/current, following close to the wire, no LED lights up (figure 2), which indicates presence of no voltage / current and the fuse has blown

Note: During measurement, the socket must be energized.

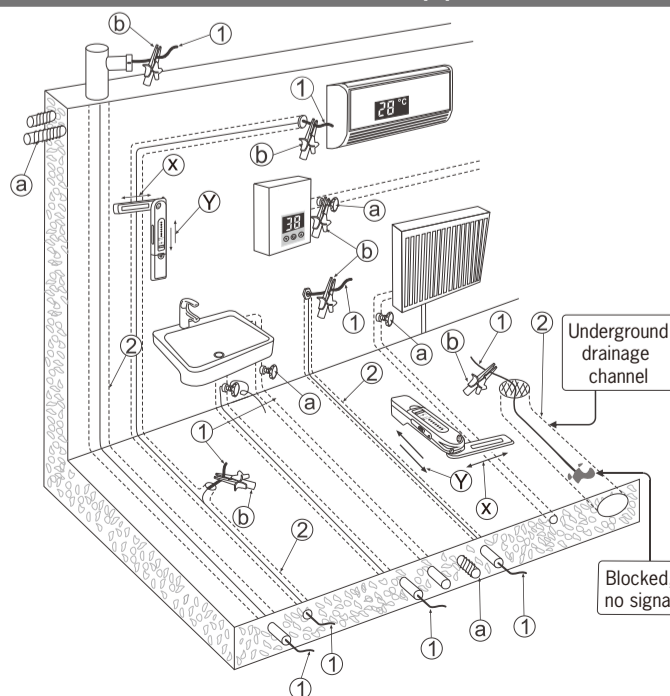
### 5) Flashlight / Torch



Select the slide switch (10) to 'O' position, press and hold the button (8), white LED will lights up, release to turn off.

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## Trace different kinds of pipes and locate drainage blocked location



### Locate buried / hidden 'metallic' pipe:

Connect the clip directly on the metallic surface of the buried pipe and transmit the signal as shown in fig (a)

### Locate buried / hidden PVC / Concrete pipe or drainage pipeline:

Connect the clip on 'Metallic Guide Wire' (1) and transmit the signal to search / trace or locate PVC/ concrete pipe as well as drainage pipeline as shown in fig. (b)

#### Note:

1. Move the sensor left and right (X); Forward and back (Y) slowly at equal distance from the walls / ceilings / floors and observe the highest LED's lights up, as shown in fig. right side.
2. When measuring, if the transmission signal is too high and hard to find the location of the object, press once the button (8) of the receiver at existing location to reduce the sensitivity to 'Zero', then move again towards the target, as shown in fig right side.
3. In case when measuring on side by side parallel object i.e. pipes ; cables; conduit or bunch of wires, you may place the sensor on the object which carries weakest receiving signal and press the button (8) to zero the sensitivity and then move on again one by one to compare and observe the highest LED' indication as shown in right side.

## Find or trace wires

### Locate or trace any kind of wires / cables even it is buried:

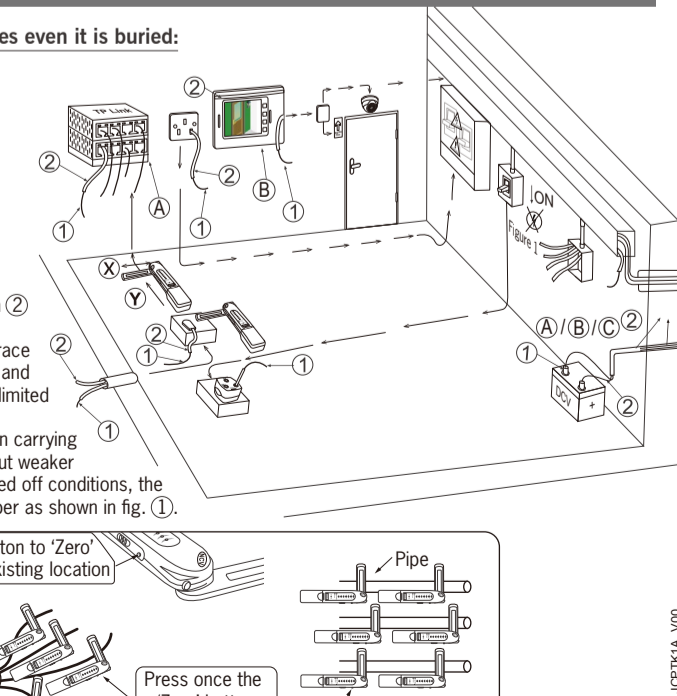
- (A) Lan / Telephone / CCTV / T.V. cables etc.
- (B) Monitor / Control / Alarm / HVAC etc.
- (C) Energized or de energized AC/DC / Signal wires / cables etc.

#### Transmit signal directly on metallic conductor:

Transmitting through on wire conductor (1) to obtain farther and deeper penetrate signal.

#### Transmitt signal penetrate through insulated wire:

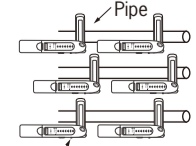
Although transmitting through insulated sheath (2) running weaker signal penetrate through the conductor, but it is easy and convenience to trace the wire or cable midway laid on at any length and as well as by subsection method tracing to unlimited distance  
 - Transmitting through the wires or cables when carrying AC power or signal will effect the signal output weaker  
 - In case of de energized AC voltage or switched off conditions, the transmitting distance will be farther and deeper as shown in fig. (1)



Press once the button to 'Zero' the sensitivity at existing location

Cables

Press once the 'Zero' button



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Features and specifications are subject to change without prior notice.

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