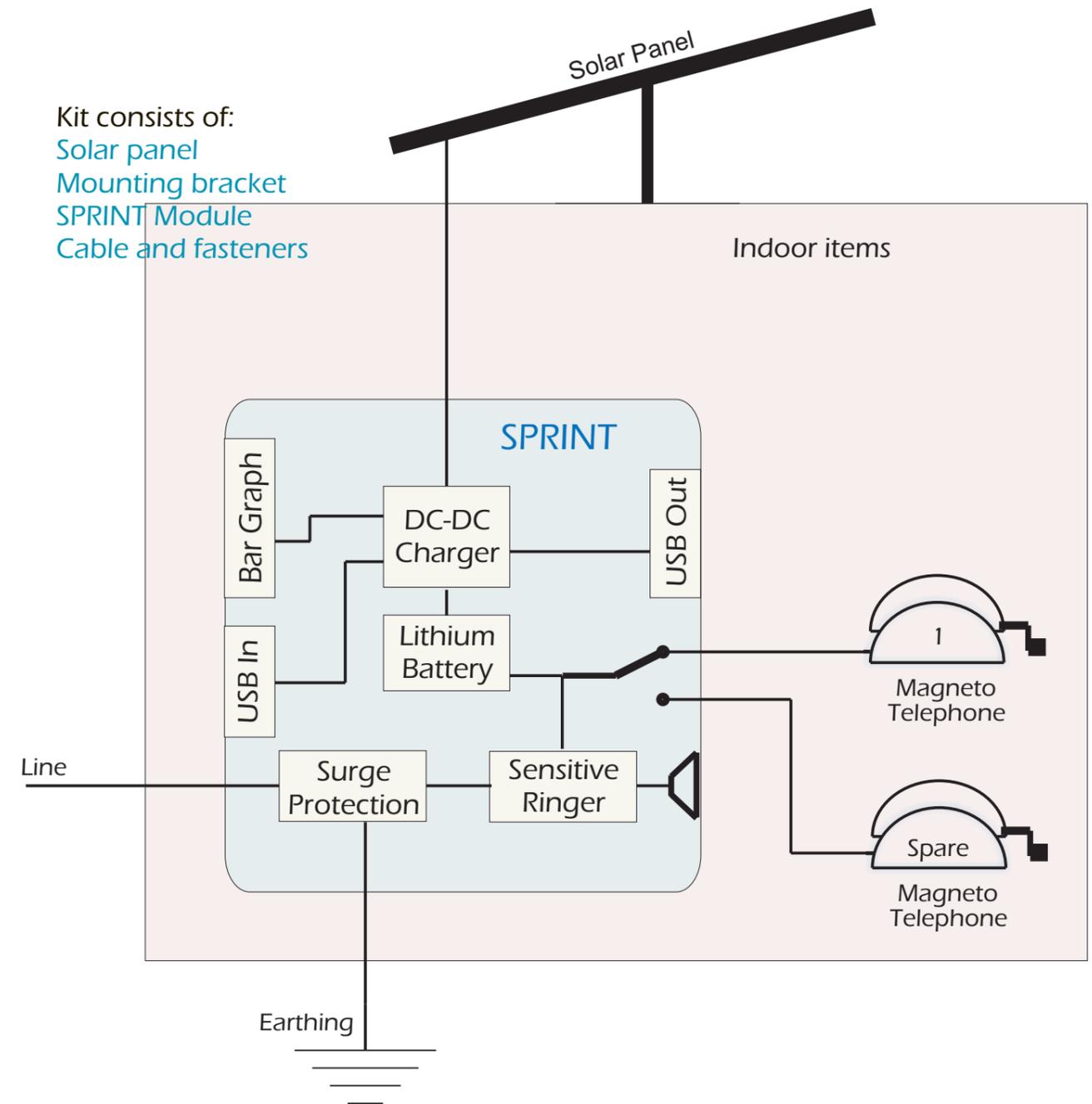


# SPRINT Kit

For Magneto Telephones



The **SPRINT Kit** assists in the safe, reliable and efficient performance of magneto telephones (to specification IRS TC 36) at critical railway locations. It provides the magneto telephone with:

- 1) An efficient and independent solar based power supply with back-up;
- 2) Surge protection for the communication line;
- 3) Sensitive high impedance line ringer;
- 4) Connection terminals and selection switch for spare magneto telephone.

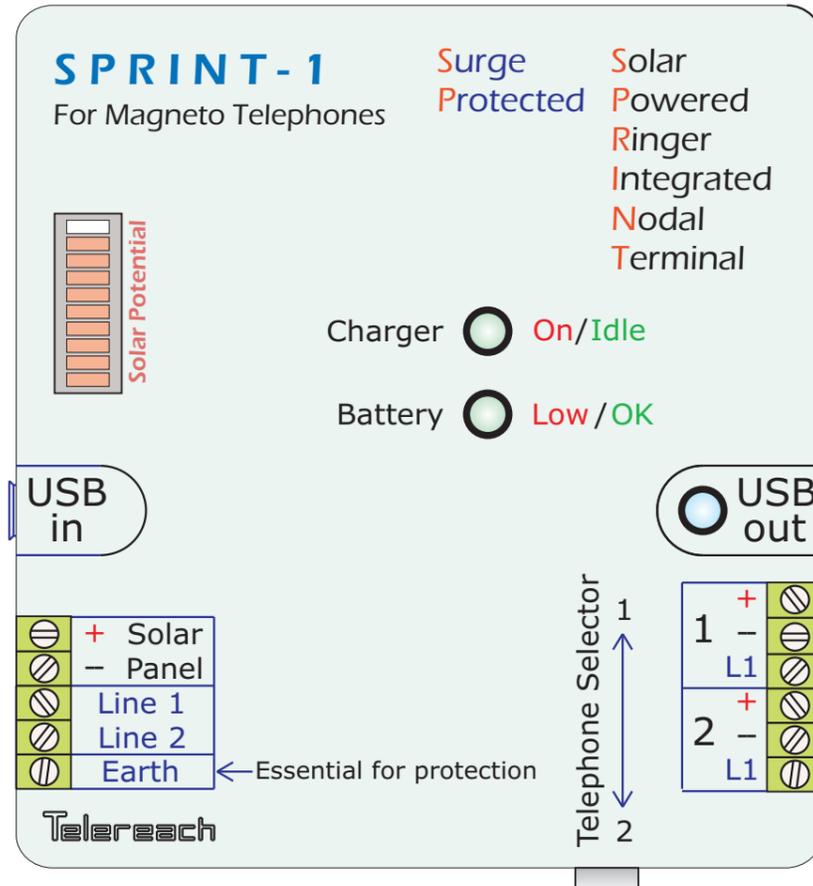
## Main Features of SPRINT-1

Magneto telephones at many railway locations face three major hazards:

- 1) Erratic mains based power supply, or batteries requiring frequent change;
- 2) Damage from voltage surges, especially during monsoons.
- 3) Ringer or generator malfunction.

The SPRINT Kit provides the following solutions:

- 1) Solar based power supply with Lithium-Ion back-up as a reliable and consistent power source.
- 2) The Solar power arrangement eliminates all contact with AC mains, thereby avoiding exposure to lightning and surges that spread through the power grid. Hence no surge protection is required for the power supply. Underground cables are nowadays used for communication lines. These have minimal exposure to lightning and power surges. Any rare spikes that still impact the line are shunted to ground by the SPRINT module.
- 3) Breakdowns in magneto telephones over a period of time are mainly the sending or receiving of ring voltage. The SPRINT module has a built-in ringer circuit that serves as a parallel ringer for incoming rings even if they are very weak. For outgoing rings it will sound to indicate that proper call voltage has been sent by the telephone generator. If a fault in the ringing or generation of the magneto telephone becomes evident, a selector switch permits a spare connected magneto telephone to be deployed without delay.



Appearance and features may change due to improvements.

A bargraph illustrates supply from the solar panel. Faults such as dust accumulation, shadow, position shift, disconnection or theft of the panel can be deciphered easily.

Indicators for Battery Level and Battery Charge display the battery status.

USB charging facility works from spare solar energy (after internal battery is topped up) to charge mobile phones that become useful in emergencies.

Sensitive ringing system of the SPRINT module works as a parallel ringer with a fraction of the insertion loss, to indicate incoming as well as outgoing calls. This enables magneto telephones with faulty ringer to remain in use. It also responds to calls from a magneto telephone having a weak generator or is at a great distance or there are many parallel telephones on the same line.

Second set of terminals with changeover switch permits a spare magneto telephone to be deployed without delay.

Powering the Interface module is possible from any of three sources:

- 1) From solar panel that is part of the kit;
- 2) From a DC source of 7 to 36 V (instead of solar panel);
- 3) From a mains powered mobile charger (however, this will expose the Interface to surges that might arrive through the grid).

## Performance

Internal battery:	3.7 V, 2.5 AH Lithium Ion
Back-up capacity:	> 100 hours talking, 5 hours ringing
Battery re-charging time:	< 5 hours
Nominal battery life:	10 years
Solar Panel:	12 W, 18 V
Power output for telephone:	3.3 V, 100 mA
USB output:	5 V, 500 mA
Load at ringing (15 to 70 Hz):	> 80 kΩ (0.2 REN ETSI)
Ringing sensitivity:	5 V
Current required during ringing:	< 80 mA
Load on speech signals (1 kHz):	> 60 kΩ (negligible insertion loss)
Gas Discharge Tube:	150 V, 10,000 A
Metal Oxide Varister:	150 V, 50 A
Capacitance:	5 pF
Nominal Resistance:	20 Ω
Insulation Resistance:	> 1 Giga Ohms

Inspection by RITES may be availed if order value is above 5 lakh rupees.

Manufactured by:

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# SPRINT Kit

For Magneto Telephones

Solar Panel

Indoor items

