OPERATING INSTRUCTIONS

RAMAR 900 Series TransPondIT

Introduction

The RAMAR radio TransPondIT is the device at the meter-end of the RAMAR system which allows readings to be obtained from water, gas and electricity meters from a distance by means of low-powered radio.

The TransPondIT enables meter readings to be taken from a distance via a hand-held system, using the RAMAR hand-held Radio Reader, or by RAMAR's vehicle-mounted system, or by RAMAR's fixed network product, the Micronode.

The TransPondIT is based around a radio transmitter, which transmits the meter reading and tamper messages back to the reading device.

The TransPondIT is comprised of one printed circuit board, housed in an ultrasonically-welded, waterproof box, with dimensions 75mm x 75mm x 20mm. The TransPondIT can be connected to pulse output or electronic meters. For this purpose, a wire protrudes from the TransPondIT's waterproof box.

Installation Procedure

i) Hand-held - Hardware and Software

If the utility is already using a route management system with hand-held computers, the software company providing the route management system should make a small modification to the software in order to accommodate RAMAR's radio meter reading system. The software provider can make this modification easily - please refer the software provider to RAMAR Technology Ltd for the interface requirements.

The RAMAR hand-held radio reader is compatible with a variety of hand-held computers.

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ii) Installation - The 900 Series TransPondIT

a) The TransPondIT is first programmed by a RAMAR Field Programmer. The Field Programmer will configure the TransPondIT to be able to read the designated meter.

b) The TransPondIT device is attached to the wall near (10cm) the meter which it will be reading by means of a tie-wrap and screw, supplied by RAMAR Technology Ltd. The TransPondIT must not be attached directly to a metal surface or a metal pipe, and the "RAMAR" must be facing away from the wall and in a vertical plane.

c) The TransPondIT is then either wired directly to the screw terminals of a pulse output or encoded meter, or where a reed switch has already been moulded to the TransPondIT wire, the reed switch is attached/clipped to the meter in the normal way.

d) While still at the meter site, the TransPondIT installer will complete a radio meter reading, as prompted by the route management system on his hand-held computer. This will act as a system check prior to leaving the meter site.

e) If the meter is a *pulse-output meter* only, the route management system on the installer's hand-held computer will prompt the installer for a visual meter reading of the meter. The installer will then enter this meter reading into the hand-held computer. This process loads the meter offset (the pulse count is zero at installation) into the hand-held computer database.

f) Having left the premises, the installer should go to the position from which he would expect to read the meter (e.g. the street outside). A field in the database can be used to note the position at which successful remote meter reading was achieved, if required.

g) An installer can install a minimum of 30 TransPondITs in a day, where installation normally requires (difficult) access to a water pit, drilling a hole for the screw to mount the TransPondIT and the above procedure.

Making a Reading

The TransPondIT must be used with a RAMAR device such as the radio reader in order to obtain remote meter readings. In order to make a meter reading, the meter reader must be within range of the TransPondIT at the meter. In free space, the range should be greater than 200m, although in practice range will be reduced by local conditions such as topography, whether the meter is inside a building or outside a building and whether the TransPondIT is above or below ground.

The TransPondIT should last 10 years on the same battery. Temperature operating conditions are -40C to +85C.