There are 2 types of telemetry systems:

- **Centralized**
  Data collection in a central database through the RF / GPRS transmission. Users can view the data collected through our software interface.

- **With the meter reader**
  Is the collection of data read by the meter reader.

SRC Electronic is able to provide a single system:

With the meter reader, that can be centralized without any intervention on the objects of the transponder. Thus avoiding additional costs.
BENEFITS

- More services with the same transponder.

  1. Accounts data collection service.
     It provides the accounting data by reading the meter reader and/or directly from the center.

  2. Maintenance service.
     This service provides data regarding the use of the meter, plus the maintenance data of the transponders. It is possible to detect real-time alarms and events that concern failures, fraud and/or requests for maintenance.

     The transponder provides simultaneously both of the above services.

- No wire connection between meter and transponder.
  (integrated transponder version)

  - One-supply of the meter together with the transponder in order that it is impossible to disconnect them.
  
  - Ensure the synchronism between the mechanical index counter and the electronic one of the transponder.

- No power supply from the fixed network

  - All system hardware objects are powered by battery and/or solar cell.
  
  - Our hardware battery-powered objects have an operating autonomy of 10-15 years.

- The most convenient system on the market

  - Low price-transponder.
  
  - No configuration and/or calibration is required by the customer.
  
  - High service flexibility: the same system with the meter reader can be centralized or vice versa.
  
  - Purchase of objects is not limited, and not dependent on any project and/or configuration. This allows the creation of a store with items purchased in large quantities and at low cost.
PARTS OF THE SYSTEM

The system with the meter reader is composed of:

1. Meter + Transponder
2. Service palm

The centralized system is composed of:

1. Meter + Transponder
2. Concentrator
3. Server + GSM adapter

- **Transponder unit**

The transponder unit has the following functions:

1. Detects the shot from the meter

![Transponder unit diagram]

2. Increments the number of the 'index of consumption' and records the new value in the internal electronic meter.

3. Calculates the time (date, hour, minutes, seconds, day of week)

4. According to the relationship between shots/time calculates the number of internal registers dedicated to:
   - Loss events
   - Overflow
   - Blocked meter

   ![Transponder unit diagram with time and number of internal registers]
- Content of the data collected by the transponder:

- **Transponder code:**

  The identification code of the transponder is unique and can not represent any other item.

- **Consumption index:**

  The progressive number of shots until the time of reading

- **Alarms:**

  A register that contains up to 8 alarms and events during a scheduled period of time.

  - 000 No Alarm
  - 001 Low Battery
  - 002 Water Loss
  - 004 Blocked Meter
  - 016 Capacity over-limit (Overflow)
  - 032 Magnetic Fraud
  - 064 Overflow in progress
  - 128 Magnetic Fraud in progress
- Types of Transponders

**Remote Version:**
This transponder is connected to the meter via the launch pulse cable supplied by the meter manufacturers.

Benefits:
1. Low cost.
2. Opportunity to continue using the existing meters (if arranged).

Disadvantages:
1. Lack of anti-magnetic fraud protection
2. The meter cable may be tampered.

**Integrated Transponder Version**
This transponder is designed to be an integral part of the meter

Benefits:
1. Anti-fraud and anti-vandalism
2. No installation costs.
3. Small size
**Technical Specifications**

|                     | 169 Mhz  
|---------------------|--------
| Frequency band      | 433 MHz
|                     | 868 MHz
| Modulation          | FSK/GFSK  
|                     | default: GFSK
| Power               | Programmable 0 - 15 db
| Transmission        | One-way / two-way
| Standard            | EN 300 220
| Communication distance | Up to 1500 m
| Voltage             | 3.6V
| Battery Life        | Up to 10 years
| Working temperature | -20°C up to +70°C
| Humidity tolerance  | 0 % - 100 %
| Protection          | IP65
| Configuration interface | RS 232  
|                     | 9600 baud
**Data Concentrator**

The concentrator is designed to create a centralized service of telemetering. It consists of an RF module and a GPRS module.

![Data Concentrator Diagram](image)

**Technical Specifications**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Frequency</strong></td>
<td>Programmable default: 433.300 MHz (vers. 433 Mhz) 868.900 MHz (vers. 868 Mhz)</td>
</tr>
<tr>
<td><strong>Modulation</strong></td>
<td>FSK/GFSK default: GFSK</td>
</tr>
<tr>
<td><strong>Power</strong></td>
<td>Programmable 0 - 10 Mw default: 9mW</td>
</tr>
<tr>
<td><strong>Transmission</strong></td>
<td>Bidirectional</td>
</tr>
<tr>
<td><strong>Standard</strong></td>
<td>EN 300 220</td>
</tr>
<tr>
<td><strong>Sensitivity</strong></td>
<td>Max -118 dbm</td>
</tr>
<tr>
<td><strong>Communication distance</strong></td>
<td>Up to 800 m</td>
</tr>
<tr>
<td><strong>Voltage</strong></td>
<td>3.6V</td>
</tr>
<tr>
<td><strong>Battery life</strong></td>
<td>Up to 3-6 years</td>
</tr>
<tr>
<td><strong>Working temperature</strong></td>
<td>-20°C up to +70°C</td>
</tr>
<tr>
<td><strong>Humidity tolerance</strong></td>
<td>0% - 100%</td>
</tr>
<tr>
<td><strong>Protection</strong></td>
<td>IP65</td>
</tr>
</tbody>
</table>
Palmar

The PDA provides:

- The transponder identification via BAR-CODE reader.
- Opening and processing of the installation and system configuration projects.
- Automatic collection of data read by the wireless system of SRC Electronic.
- Received data conversion in EXCEL format.
- Creation of reading Report by using OFFICE package.
- Wireless network and system parameters configuration.
- GSM/GPRS board.
- WiFi radio for standard communications 802.11/b/d embedded.
- 500k-16M byte flash memory for data storing.
- Accessories for installation in motor vehicles (power supply, construction fittings.)