



Investigation Procedures Water Meter Troubleshooting

Written by ABT Water Management - ©2005

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Section 1. Identifying a Meter

ABT installs several different types of meters. Although similar in function, they may have slightly different appearance. Insulation around the meter may vary. ABT also reads meters that we did not install. It is possible that you may have a meter not listed. General procedures should be similar for like systems. Meters are generally located under the home near the riser pipe.



Neptune T-10 ECR



Sensus SR11 - ECR



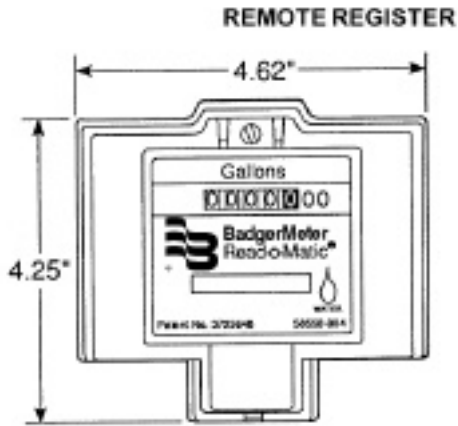
Badger M25 - Pulse



Siemens - Pulse

Section 2. Identifying Your Read System Type

ABT reads meters three ways.



1. Manual entry from odometer that is wired to a pulse meter

2. Touch Read from a black pad that is wired to an ECR meter



3. Radio read, which may be wired to pulse or ECR meters.



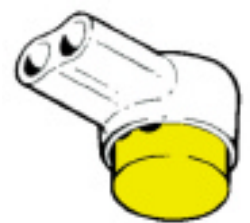
Wiring 101

No matter which system is attached to the meter, it is common for wiring to be an issue for non-reading meters. Many times, re-establishing readings is a matter of identifying if wires have been disconnected or cut. Re-connecting wires at the pad / remote or at the meter will fix the problem. Cut wires can be spliced or replaced with a new wire.

Pulse meters are 2 wire to the remote register. Touch pad from an ECR meter is also 2 wire. Pulse meter to radio is 2 wire. ECR meter to radio is 3 wire. Wire size is 18-22 gauge.

Wires may be spliced using 3M UY Telecom Connector.

Use splice connection between two solid copper conductors. 22-26 awg solid wire. Moisture resistant IDC connector does not require stripping of wire.



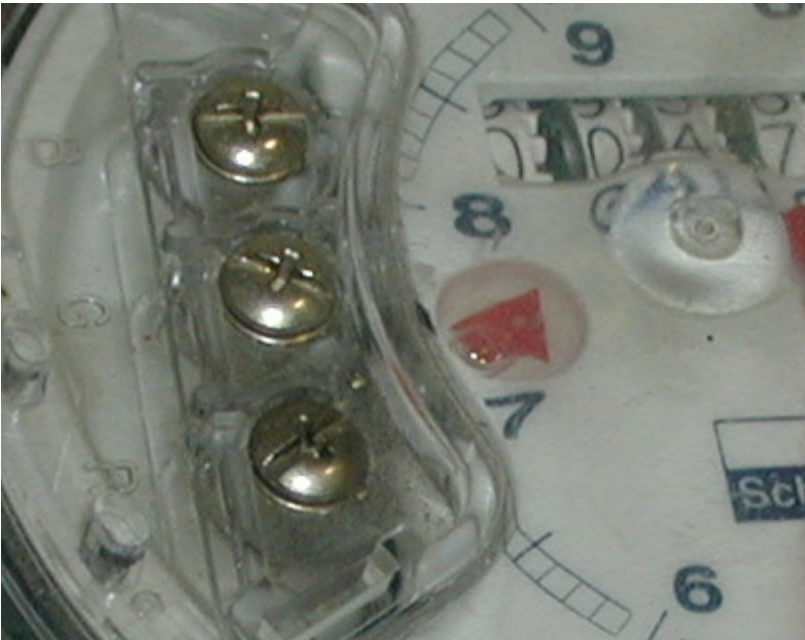
Section 3. Identifying Connections



Neptune and Sensus ECR meters have three terminal connection points on the meter head. Each terminal is labeled with a unique capitol letter designation; B, G, R. Wiring instructions will designate a color of wire which should be attached to a particular terminal.

Examples:

Neptune & Sensus Touchpads must be wired to the B & R terminal on the meter. (the pad itself is not polarity sensitive)



SpeedRead radio tag to a Neptune meter is wired from wire color to terminal;
Red wire to R Green wire to G, and Black wire to B.

Hexagram to Neptune wiring is Red to B, Black to G, and White to R.

Installing a replacement remote pad or dial is an easy disconnect from the existing remote and connecting the wires to the new remote at the same terminals.

Section 4. Checks and Repairs

Lots identified by work order should be verified that a home is on the lot, and someone actually lives in the home. If true, then the following inspections would be performed for the specified problem.

Problem

No Read - This is likely a wiring issue. Check wires at remote or radio. Check wire to the meter. Check wire connections at the meter. Loose wires should be re-connected and tightened down. Cut wires may be spliced with 3M connector or replaced with new wire. If no obvious wiring problems can be seen, then the remote pad or radio tag should be replaced. Send removed equipment back to ABT for inspection, refurb, or warranty replacement.

No Water Use - These meters haven't registered any usage in a while, which may mean that either the lot is unoccupied, the residents have moved out temporarily, or the meter guts may be jammed with sand or rust. Replace meter. Send old meter back to ABT for refurb or warranty replacement.

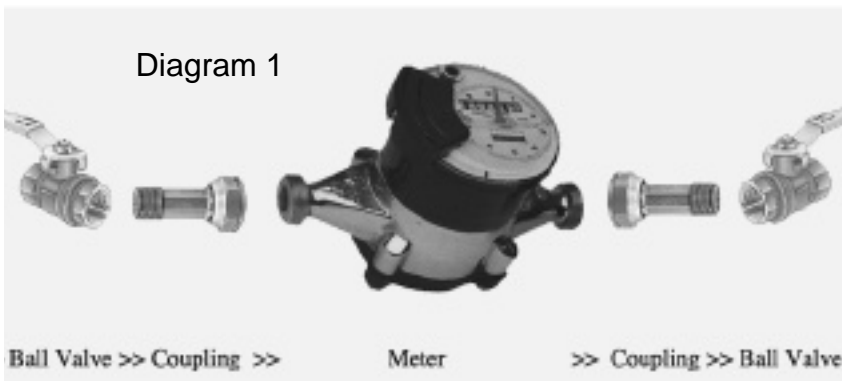
Meter Read is Zero - These meters have a current read of zero, so they are probably new meters. If these meters continue to read zero, the transponder may not be connected to the meter head properly (pulse meters), the meter guts may be jammed with sand or rust, or the lot may be unoccupied. If the meter is actually reading zero after several weeks in service then it should be replaced. Send old meter back to ABT for refurb or warranty replacement.

Multiple Averages - This is an ongoing No Read which results in tenants receiving averaged bills. Check wires at remote or radio. Check wire to the meter. Check wire connections at the meter. Loose wires should be re-connected and tightened down. Cut wires may be spliced with 3M connector. If no obvious wiring problems can be seen, then the remote pad or radio tag should be replaced. Send removed equipment back to ABT for inspection, refurb, or warranty replacement.

Section 5. Replacing a Meter.

Actually this is easier than it sounds. Water meters are installed with 2 couplings which are not much more than hand tight. Inside the coupling is a rubber gasket that prevents water from leaking out.

The meter will likely have insulation, or a meter jacket to retain heat from heating tape. Remove the insulation or jacket and look for valves before and after the meter. Turn the valve(s) off and look for couplings as shown in diagram 1. Generally, a pair of pliers will be enough to loosen the couplings and remove the meter. Be careful to keep track of the rubber gaskets. The coupling will not re-seal without a rubber gasket.



When the new meter is installed and the valves are back on, the insulation or jacket should be placed back over the meter and the remote wires connected.