



Communication is on the advance in the world of measuring instruments. Remote programming and reading data followed by taking appropriate action is one of the many possibilities.

Eijkelkamp Agrisearch Equipment is currently engaged in perfecting an innovative measuring network that can be accessed via the Internet, called e-SENSE®. With an SMS modem taking independent measurements via multiple different intelligent sensors such as the Diver, the digital level marker and e+sensors has become more than just measuring.

Sending data via SMS

The decision was made to opt for a GSM/SMS network. The reason for this is that the GSM has almost complete global coverage.

Data communication using SMS is relatively inexpensive and it is anticipated that prices will come down further in the near future. It is in this respect that the system distinguishes itself from other systems commonly used. Communication

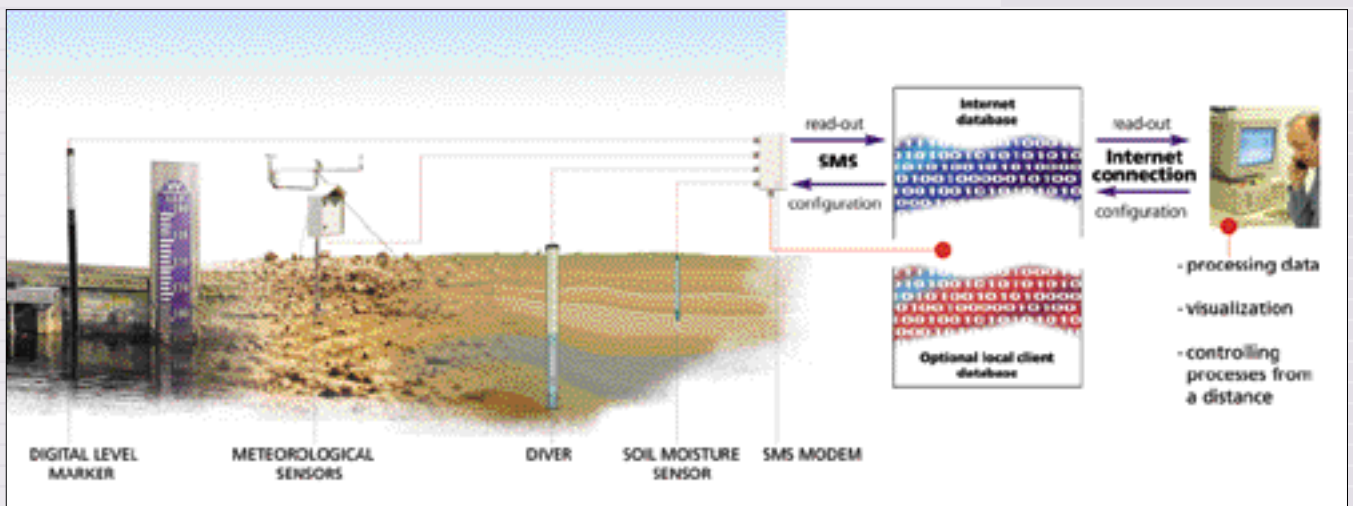
with these systems is carried out via GSM networks relying on interaction between the initiating and the receiving modem. Such interaction always requires the full availability of the connection and the receiving modem. There is also considerable expense attached to this solution both in terms of communication as well as equipment.

The right alternative is SMS, a service that virtually all GSM providers can deliver. SMS stands for Short Message Service. The measurement data from the connected intelligent sensors are read and sent as SMS code messages to the Internet database. Messages of that type need very little data traffic and for that reason are inexpensive.

Two-way communication

e-SENSE enables two-way communication to take place between the measuring unit in the field and the central computer system. The data are transmitted from the sensor to the central database. The central computer system allows your

Programming and reading out the data from the e-SENSE Internet database





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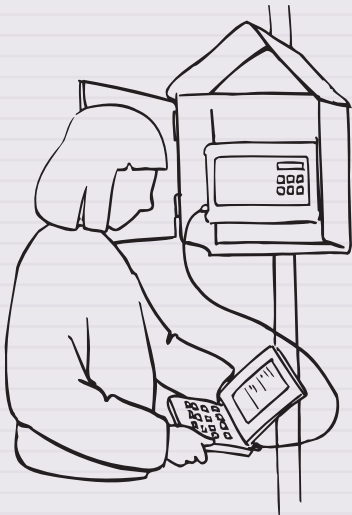


e-SENSE

sensors to be accessed from a distance as well. It is a simple matter therefore to alter the settings of the sensors in the field from your place of work. Increasing or lowering the measurement intervals is easy to do without having personally to go to the place where the measurements are being taken. It is also possible to download the files in EnviroMon and ASCII format (using spread sheets).

coded SMS messages to the central Internet database. The Internet database processes the messages and sends confirmation of communication back to the measuring set-up. The e-SENSE modem indicates that everything is functioning correctly and the user can close up the watertight, fraudproof field housing with an easy mind.

Reading out and programming the meteo station in the traditional way with a laptop.



Installation in the field, plug and play

The e-SENSE modem comes with a display which shows the status during installation. One of the functions performed by the e-SENSE modem is first of all to determine the best possible setting for GSM reception quality. The next step is to connect the sensors by means of waterproof connectors. The e-SENSE modem checks that the sensors that have been connected are working correctly. If desired the current measurement values of the sensors can be checked with the use of a laptop. The configuration of the measuring set-up is sent in

Advantages

The advantages are:

- Economical.
- Modem can be used in mobile units.
- Flexibility when setting up the measuring parameters.
- Long life.
- Various sensor models can be connected.
- Alarm function.
- The batteries have the capacity to supply power to a measuring unit for a whole year.



e-SENSE modem with 2 ports



Modems

Up to 8 intelligent sensors can be connected to the e-SENSE modem. The intelligent sensors measure data in the field and store them in their internal memory.

These data were already available for direct reading in the field but the e-SENSE modem makes it possible from now on to send these data to a central database which the user can then access via the Internet (or via a database on a client server as another option).

11.31.12 e-SENSE modem, 2 ports

SMS Modem 2 ports for GSM data communication with max. 2 sensors (Diver, digital level marker or e+sensors). With status display. Power supply 7.5 Vdc. Readout and configuration via (Internet) database.

11.31.18 e-SENSE modem, 8 ports

SMS Modem 8 ports for GSM data communication with max. 8 sensors (Diver, digital level marker or e+sensors). With status display. Power supply 7.5 Vdc. Readout and configuration via (Internet) database.

11.31.00 Underground housing

Underground housing to install the SMS-Modem and battery housing. Side inlet for cable. Water and vandalismproof lockable. Incl. mounting bracket for SMS modem and battery housing. Dimensions 200 x 310 x 520 mm.

11.31.01 Above-ground housing

Above-ground housing to install the SMS-Modem and battery housing. Inc. vandalism proof mounting material for monitoring well or pole from 50 to 270 mm diameter. Dimensions 120 x 255 x 250 mm.

Before the underground housing is installed a hole is dug.



Underground housing



Above-ground housing



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e-SENSE

The e-SENSE modem is user-ready for connecting to the following intelligent sensors:

- Diver
- CTD Diver
- OTD Diver
- Baro Diver
- Digital level marker

They can be connected in any combination at all to the e-SENSE modem.

Soon to be ready for connection to the system, intelligent sensors with from one to three parameters:

- Soil moisture
- Soil conductivity
- Soil temperature
- Precipitation
- Air temperature
- Humidity
- Wind speed
- Wind direction
- Solar radiation
- Atmospheric pressure
- And sensors still to be defined on the basis of output signals: voltage, current; digital.

After installation the e+soil moisture is connected to the modem in the above-ground housing.



CTD-Diver and e+soil moisture