

## WinTrans

### Test point mounted Wireless Remote Monitoring and Control System

#### Battery powered Remote Test Point Monitoring

Remote monitoring of cathodic protection system can only be economic and effective if simultaneous installation can be made at both test points and rectifier stations. This will reduce the amount of time and labour otherwise required for regular or manual monitoring.

**MiniTrans** has been specially designed for automated wireless remote monitoring of cathodic protection system operating parameters, such as ON- and Off-potentials, AC voltages, currents, microvolts, etc.

Advances in low-energy hardware and latest GSM radio technology allow 3 years of daily measurements and monitoring operations without a change of battery.



Input channels and serial PC interface port



DCF-77 and GSM antenna terminal

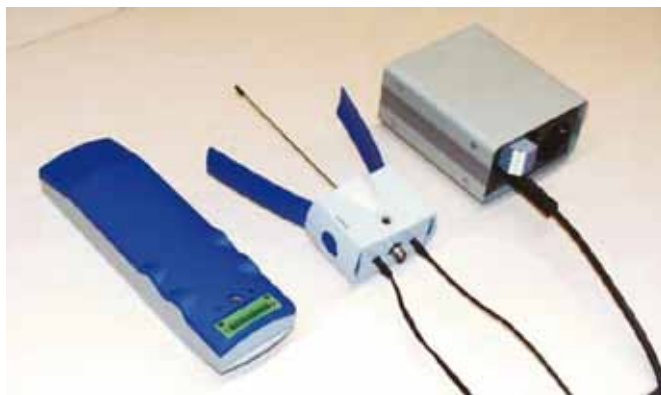
#### Low Cost Installation and Setup

**MiniTrans** installation is both simple easy and inexpensive. The antenna is specially designed to combine DCF-77 radio and (GSM) mobile phone technologies. It is very simply attached to the test station pole while the wireless sensor is mounted on top of the terminal board. Once installation is complete, connection to a remote monitoring network requires no more than the wiring of the input channels followed by a short test of functions.

#### Multi-Channel Datalogger for remote-controlled Registration

In addition to remote monitoring, **MiniTrans** allows remote controlled, multi-channel registration.

**MiniTrans** thus offers indispensable functions to support measurement of for example stray currents and fault location.



Combined system consisting of sensor, antenna combination and external power supply unit

#### Time and Cost Saving Remote Programming

With its comprehensive remote programming and transmission functions, the **MiniTrans** allows technicians and operators to control all CP system functions from off-site locations (such as offices), thus reducing the time and labour otherwise necessary for site visits.

**MiniTrans** enables immediate, trouble-free response to changes in operational conditions of cathodic protection systems, such as measuring periods and volume.

In addition to the standard requirements of CP measuring techniques, **MiniTrans** continuously supervises and transmits internal data such as battery condition, DCF-77 and GSM signal strength, ambient temperature and synchronisation state.

**Mains-powered Remote Monitoring of Rectifier Systems**

In the past, reliable and trouble-free operation of cathodic protection systems depended on regular, manual supervision and monitoring of system functions, rectifier voltages and currents, etc., carried out on site.

**MiniTrans** remote monitoring of protection systems will allow your company to make a significant reduction to outlays of time and cost for manual and/or on site maintenance.

A mains-powered version of **MiniTrans** is also available for automated wireless remote monitoring and control of rectifier voltages and currents, ON and OFF- potentials and all other operating parameters of your cathodic protection system.

A back-up battery ensures that the **MiniTrans** remote monitoring system remains fully functional even in the event of mains power failure, thus guaranteeing rapid detection of operating faults or problems in your CP system.



Remote controlled switching of rectifier system with mains power supply unit



Controlling rectifier stations by mobile phone

**Switching of rectifiers for Maintenance and Intensive Measurements**

Previously, the carrying out of maintenance or intensive measurements required the time-consuming temporary installation of current interrupters. **MiniTrans** wireless sensor stations mean that this is no longer necessary.

Activation of rectifier switching and selection of switching cycles of single groups of rectifier stations can be carried out by remote control from an office or by mobile field operators.

**Mobile Remote Control of Rectifiers by Mobile Phone (Cellphone)**

**MiniTrans** wireless sensors are equipped as standard for remote operation by text message (SMS).

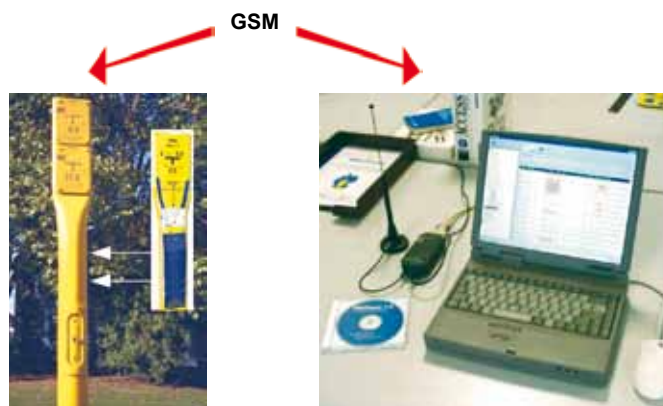
Keycodes can be sent by text message from any SMS-capable mobile phone to activate different switching modes and cycles.

**Intelligent and off-site Remote Monitoring**

The latest GSM radio technology allows the use of **MiniTrans** remote monitoring system locally and abroad and includes protection against data loss or manipulation.

A GSM mailbox is used during automatic data back-up and transmission. This also allows every **MiniTrans** wireless sensor to store current remote operation functions and settings even if the control station (office-based PC, etc.) is offline.

This allows the simultaneous reception of measuring data and control of remote monitoring functions by up to 3 offices or mobile supervisory teams. Remote control and monitoring means that CP systems and stations can be left unattended.







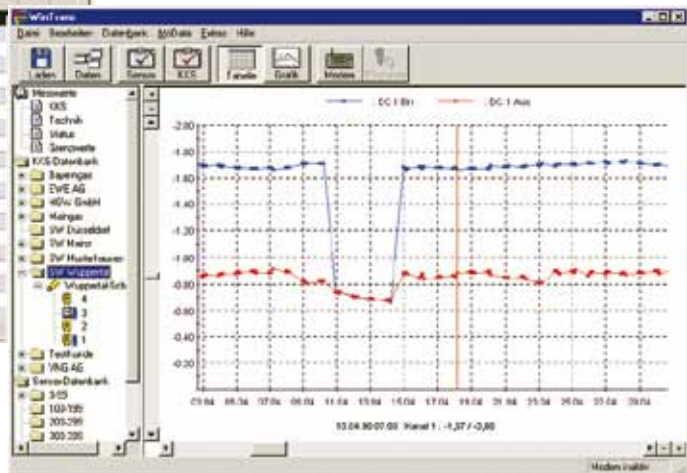
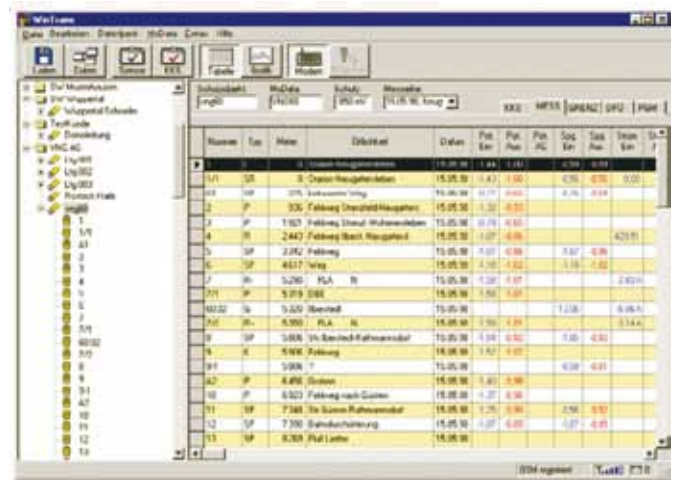
**Software for Control and Evaluation of Remote Monitoring and Maintenance**

**Remote Control and Remote Monitoring**

Control and evaluation of all **MiniTrans** wireless sensors functions is carried out using **WinTrans** software.

All current remote monitoring operation parameters, such as measuring ranges, measuring periods, radio transmission and switching cycles are controlled by **WinTrans software** and transmitted to **MiniTrans** wireless sensors.

**WinTrans** uses a powerful, comprehensive database which has been specially designed to meet all standard CP system monitoring requirements. This can also be expanded according to enduser specifications to control all CP test points and rectifier stations.



**Intelligent Remote Monitoring within Network**

A reduced number of components for intelligent, low maintenance remote monitoring systems.

Test points and rectifier stations can be remotely controlled and monitored from your office. All you need is a PC or a notebook with installed **WinTrans** software and a **WinTrans** radio modem with external radio antenna.

Linked with a network gives you easy and convenient access to all information about your CP system test points and rectifier stations.





**Technical Data**

Description	Battery operated wireless sensor for radio-controlled monitoring and monitoring of CP measuring data and for remote switching of rectifier station
Measuring Inputs	2 x DC (with high AC attenuation) 2 x AC (parallel to DC channel measuring) 1 x $\mu$ V (with high AC attenuation)
Memory	32 KByte Program / 96 KByte Data
Interface	9600 Baud serial for programming and supervision on installation site
Timer	DCF-77 synchronised real time clock with supply voltage change over and active temperature compensation
Timer Deviation	50 ms max. at 12 DCF receiver sequences / day (between -20°C and 60°C)
Switching Load Output	30 V / 0.1 A / 30 (higher load with external power supply unit)
Wireless system	Internal radio modem for GSM networks at 900 MHz
Antenna	Special antenna combination for DCF and GSM radio application for test point mounting or rectifier station installation
Program Updates	Wireless via remote transmission or direct via serial interface
Calibration control QM	Via serial interface with notebook on site
Battery Power Supply	Lithium battery pack 7,2 V / 13 Ah (uninterrupted data safety during battery change)
Mains Power Supply (optional)	External power supply unit with slave relay control
Dimensions / Weight	
Wireless sensor	65 x 240 x 40 mm (W x H x D) / 480 g (incl. Battery)
Antenna	75 x 60 x 40 mm (W x H x D) / 170 g (excl. Antenna rod)

**Measuring Ranges**

DC Voltage	Channel 1 + 2	
	Range	Resolution
	$\pm 1000$ mV	0.1 mV
	$\pm 10$ V	1 mV
	$\pm 150$ V	15 V
Input Impedance	> 2 M $\Omega$	
Damping	at 16.6 Hz    60 dB (factor 1.000) at 50.0 Hz    100 dB (factor 100.000)	
AC Voltage	Channel 1 + 2	
	Range	Resolution
	1 V eff.	0.2 mV
	10 V eff.	2 mV
	250 V eff.	50 V
Input Impedance	> 2 M $\Omega$	
Frequency range	15 - 500 Hz	
Microvolts	Channel 3	
	Range	Resolution
	$\pm 100$ mV	1 $\mu$ V
Input Impedance	> 200 k $\Omega$	
Damping	at 16.6 Hz    60 dB (factor 1.000) at 50.0 Hz    100 dB (factor 100.000)	
Zero calibration	Automatic before measurement	

**Remote Monitoring / Switching of Rectifier Station**

Monitoring facilities	2 DC channels On / Off (e.g. potential and protection tube) 2 AC channels (e.g. potential and foreign pipe) 1 $\mu$ V channel On / Off (e.g. pipe current or rectifier current)
Measuring periods	
Mode normal	Max. 4 complete on and off measurements / day (timer free programmable)
Mode diagnosis	5, 10, 30, 60 or 120 min
Formation of mean value	Freely programmable (without or 1, 2, 4 or 8 min)
Switching options	
Permanent On	e.g. in case of interface measurements
Measuring Cycle	Standard setting at remote monitoring
Permanent Cycle	e.g. 12/3 or 4/2 for intensive measurement
Permanent Off	For pipe repair
Radio periods	
Mode normal	Max. 4 complete on- and off measurements / day (timer freely programmable)
Mode diagnosis	Every 5, 10, 30, 60, or 120 min
Status monitoring	
DCF-77 Signal	Quality and reception status
Synchronisation	Timer deviation in ms
Radio signal	Quality and reception reports
Battery state	Remaining capacity and operational time
Main power supply	Mains failure indicator
Temperature	Temperature measurements
Zero calibration	Monitoring measurements accuracy
Remote programming	Remote programming of all settings and measuring features.
Battery life span	
Mode normal	Approx. 2.5 to 3 years
Radio on weekends off	Approx. 3.5 to 4 years

**Registration / Datalogger**

Channels	2 DC, 2 AC, 1 Microvolts
Sampling Rate	
without microvolt measurements	0,5 s, 1 s, 2 s, 5 s, 10 s, 30 s
with microvolt measurements	2 s, 5 s, 10 s, 30 s
Measuring values memory	ca. 50.000 values
Programming	Number of channels Measuring range Sampling rate Start-up Terminal time
Data Transmission	Wireless by radio or direct via serial interface
Remote Programming	Remote programming of all features
Battery Life Span	Approx. 80 single channel recordings at 1s sampling rate over 6 h (incl. radio transmission)
Zero calibration	Automatic during registration