DIWICON-K
DW 821 K
CATHODE STATION CONTROLLING MODULE

The purpose of the DIWICON-K cathodic protection system is to provide remote controlled cathodic protection for pipelines and to monitor the efficiency of the protection. The DW 821 K control unit has been developed for this purpose. It ensures continuous regulation and measurement, adjusted to the cathode stations, while the DIWICON-C communication unit synchronizes and forwards the measurement data.

FEATURES
- Continuous measurement of cathodic potential
- Continuous measurement of output current of the cathode station
- Continuous measurement of the output current of the cathode station
- Measurement of internal temperature
- No maintenance needed under normal conditions

SPECIAL FEATURES
- Infrared sensor to detect tampering
- GPS based time synchronized tact
- Reception and storage of settings

DESIGN
- Operational temperature range from -10°C to +60°C
- Protection: IP 30

APPLICATION

The system is capable of measuring the output current and voltage of the cathode station, of controlling the output voltage and current limits, of independently measuring the cathode potential of six protected objects and it also ensures a synchronized interruption cycle control signal. Thanks to the GPS time base, several devices at distant locations can be precisely operated together. For security, the unit also detects attempted tampering.

TECHNICAL DATA

OPERATIONAL FEATURES	
Supply voltage:	24 V DC ± 10%
Max. current pick-up:	120 mA
Electric protection grade:	IP 30
AMBIENT FEATURES	
Operational temperature:	-20°C to +60°C
Storage temperature:	-40°C to +120°C
Humidity:	5% to 95% RH
PHYSICAL FEATURES	
Dimensions (LxWxH):	25x122x117
Weight:	~ 350 g
ELECTRICAL OUTPUT	
Controlling voltage of cathode station:	
U_{out}:	0 to +5 V
U_{range}:	0 to +50 V
$U_{resolution}$:	10 mV
Cathode station current limit:	
U_{out}:	0 to +5 V
I_{range}:	0 to 50 A
$I_{resolution}$:	10 mA
Interruption cycle signal output:	
U_{out}:	0 to +5 V
I_{outmax}:	10 mA
ELECTRIC INPUT	
Input for output voltage of cathode station:	
U_{in}:	0 to +50 V
R_{in}:	10^6 Ohm
$U_{resolution}$:	1 mV
Input for output current of cathode station:	
U_{in}:	0 to +50 mV
R_{in}:	10^{12} Ohm
I_{range}:	0 to 50 A
$I_{resolution}$:	10 mA

THE INTERRUPTION CYCLING PROCESS

The interruption cycle operational mode allows the measurement of changes in the cathode potentials with intensive measurements at cathode stations. To take the measurements simultaneously at the moving measuring points, GPS based time synchronization is used during interruption cycling.

Because of the precision timing, the unit does not receive configuration commands when in interruption cycle mode; with the exception of the mode change command which causes it to switch back to the normal operational mode.

AUTOMATIC INTERRUPTION CYCLING

Automatic interruption cycle operational mode is also possible. This means that the unit will automatically switch to interruption cycle mode and measure the potentials for a specified period time at pre-determined intervals. The maximum interval between interruption cycling mode periods can be pre-set to 1 week.

INSTALLATION

The device is of industrial design and it is usually installed in an indoor instrument cabinet.
Necessary steps:

- Selecting the location of the equipment
- Mounting the equipment onto a TS35 type rail
- Connecting the power cable
- Connecting the signal cables
- Connecting the communication cables

COMMUNICATION

Communication between devices takes place over the CAN bus. This is a highly reliable and fast system which is capable of stringing together 127 devices. A DIWICON-C unit connected to the CAN bus is capable of forwarding the CAN packages sent by the cathode station controlling units to the central server. To do this it uses GSM/GPRS technology. Redundancy can be achieved by using multiple such devices. Using its own memory, the communication unit overcomes any lack of GPRS availability.

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