

RedDetect™ system X3

Product datasheet

RedDetect X3 is developed to monitor, detect and locate water in the insulation in district cooling pipes. The built-in pulse echo meter and the software compare function make it a flexible and effective alarm unit.

Usage

RedDetect X3 is equipped with the latest technology – all in one unit. The modern construction makes X3 perfectly equipped for the different challenges and needs of the future.

RedDetect X3 has four channels for connection of RedDetect Cable 3dc and can locate faults on lengths up to 3000 meters per channel. RedDetect Cable 3dc is intended to be used in district cooling pipes with steel or plastic as media pipe.

It is possible to use insulated or uninsulated wires in joints. The wires in the Cable 3dc can be looped or open ended.

The exactly parallel cable wires in the RedDetect Cable 3dc gives the same impedance along the cable length which facilitates leak search and detection of water faults.

The special design of the cable permits that impedance changes from water faults, of certain size, can be detected although the cable is insulated.



For more information about RedDetect Cable 3dc please see *Product Sheet RedDetect Cable 3dc*.



Intelligence

RedDetect X3 measures the status of the pipe continuously and compares the incoming radar curves with the defined reference curves in the database. The monitoring software (XTool) will automatically give an alarm if a deviation from the reference curve occurs.

Properties

The system is delivered with Ethernet connection as standard, LCD-display with menu system, internal memory and a powerful integrated TDR (pulse echo meter) with an accuracy of < 1 meter. The accuracy depends on that the alarm wires is always on the same distance from the mediapipe, that all insulated cables are known and that there is an alarm drawing showing the exact location of the pipe and alarm wire.

The RedDetect system uses Ethernet and/or GPRS as the primary communication types. For powerless solution you can use solar panel and battery.

XTool

XTool is the monitoring software that handles the communication and presentation of data.

Technical information

Inputs

RedDetect X3 has four (4) pcs BNC-inputs for measurement of the insulation resistance, loop resistance and radar curves (impedance). Port 1

Digital and analogue inputs

RedDetect X3 has four (4) pcs contacts for measuring of voltage 0-10V or current loop 4-20mA, alternative digital levels. It can for example be used to measure the temperature and humidity on pipes and in chambers. Port 2

Outputs

RedDetect X3 unit has a 3-pole, choppy relay contact (NO/NC).

Power supply primary 110/230 VAC.

Secondary 12 volt DC for operating extern devices as modems etc.

Communication

Built-in Ethernet (TCP/IP) modem.

RJ-45, 10/100Mbit Ethernet for communication.

Memory

Internal flash memory.

LCD-display

2x16 character large-font LCD-display with background lighting for presentation of measure values and menus. The measuring values for the insulation resistance and loop resistance can directly be read from the display. Even alarm limits can be shown.

Front panel

5-keys keyboard for manoeuvre of menu system. The front panel has 2 pcs of lighting diodes for showing alarm and operating status.

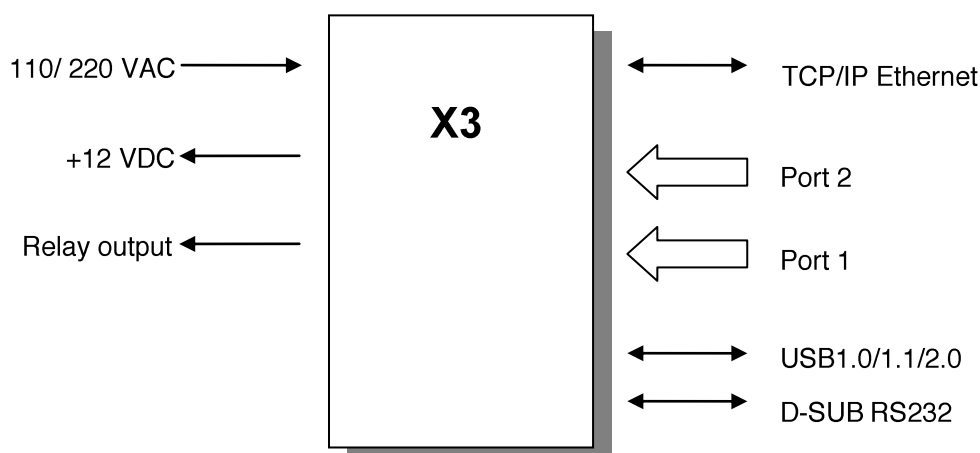
Solar panel

The RedDetect X3 can be powered with a solar panel and battery for powerless solution. Please contact us for more information.

Functions

Common

- Built-in transformer
- Stand alone function
- Fast built-in TDR ver. 2.0
- Clock and battery backup
- Collects radar curve automatically at a resistance alarm.



RedDetect™ system X3

Technical data

General

Working temperature	-20 / +80 degrees C.
Power supply	110/230 VAC
Power consumption (idle)	15W
Case	IP53 (IP67, optional steel case)

Communication protocol	TCP/IP
Communication types	Broadband, GPRS, and fibre optic
Channels	4 channels with BNC contacts
Alarm wires	3000 m Cable 3dc / channel (Opened or looped)

TDR	Built-in TDR pulse echometer ver. 2.0
Connctions	Ethernet

Measurement

Insulation resistance	1 kohm – 50 Mohm
Loop resistance	0 – 200 ohm
TDR curve	resolution 0,25 ns to 5ns

Outputs

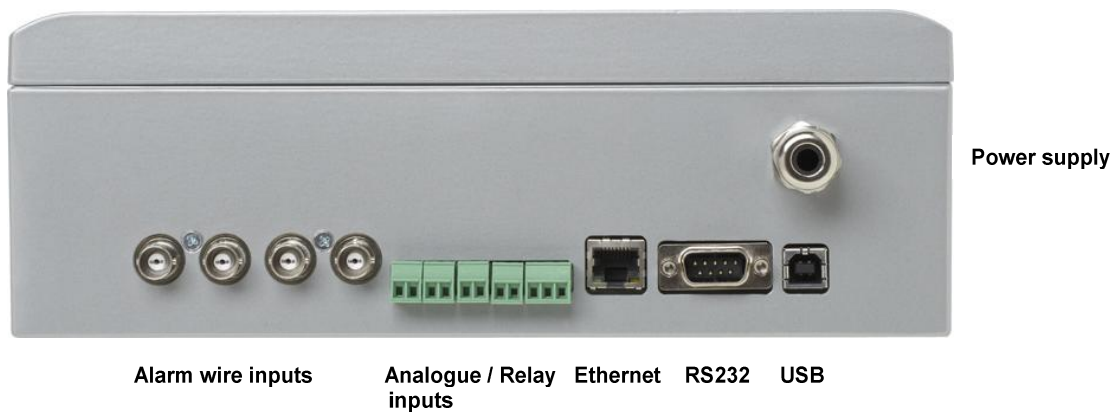
Relay output	NO/NC
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Ingångar

Analouge (digital)	0-10 V / 4-20mA
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Size

Length	260 mm
Height	150 mm (excl. contacts)
Depth	90 mm
Weight	2 kg



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Technical specification

Unit	X1	X2	X4	X3
XTool monitoring software	√	√	√	√
Stand alone function	√	√	√	√
Water leak detection	√	√	√	√
Steam leak detection	√	√	√	√
Oil leak detection	-	-	-	√
TDR (pulse echo meter)	-	-	√	√
Measuring channels	4	4	4	4
Max. alarm wire / channel	5000	5000	5000	3000
Communication				
Broadband	√	√	√	√
GPRS	√	√	√	√
Fibre optic	√	√	√	√
Size (LxDxH) mm	200 x 110 x 60	260x150x90	260x150x90	260x150x90
Casing material	Polycarbonat	Aluminium	Aluminium	Aluminium
EMC protection	√	√	√	√
Power supply				
Primary	Battery pack / 12VDC	110/230 VAC	110/230 VAC	110/230 VAC
Secondary	24 VDC	12V DC	12V DC	12V DC
Internal transformer	-	√	√	√
Power consumption (idle)		15W	15W	15W
Protection class	IP65	IP53	IP53	IP53
External steel case (optional)	IP67	IP67	IP67	IP67
Potentialfree relay output NO/NC	√	√	√	√
Measurement				
Insulation resistance	1kohm- 1 Mohm	1kohm- 50Mohm	1kohm- 50Mohm	1kohm- 50Mohm
Alarm limit activating	Manually or from software	through software	through software	through software
Adjustable alarm limits	√	√	√	√
Measurement				
Loop resistance	0-200 ohm	0-200 ohm	0-200 ohm	0-200 ohm
Adjustable alarm limit	√	√	√	√
Pulse echo meter (TDR)				
TDR measurement	-	-	√	√
TDR resolution	-	-	1 ns-5ns	0,25 ns-5ns
TDR accuracy	-	-	< 1 m	< 1 m
Battery voltage	-0.5 volt.....+ 0.5 volt	-0.5 volt.....+ 0.5 volt	-0.5 volt.....+ 0.5 volt	-0.5 volt.....+ 0.5 volt

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