



Product Catalog

Surveillance and automation systems



Contents

COMTROLL SAS. SURVEILLANCE AND AUTOMATION SYSTEM	3
COMMUNICATION	4
BUILDING-BLOCKS	5
NETTROLL AND NETDRAW	5
NETALERT	6
COMTROLL OUTSTATIONS	7
COMTROLL 220 ACTUATOR FOR OH LINE SWITCHES	7
COMTROLL 230	8
COMTROLL 155	9
COMTROLL REPEATER	9
COMTROLL RTU OPTIONS	10
COMTROLL GSM REMOTE TERMINAL UNITS	11
COMTROLL 333 RTU	11
COMTROLL 333 ICU	12



System for Remote Control and Automation of Medium Voltage distribution networks

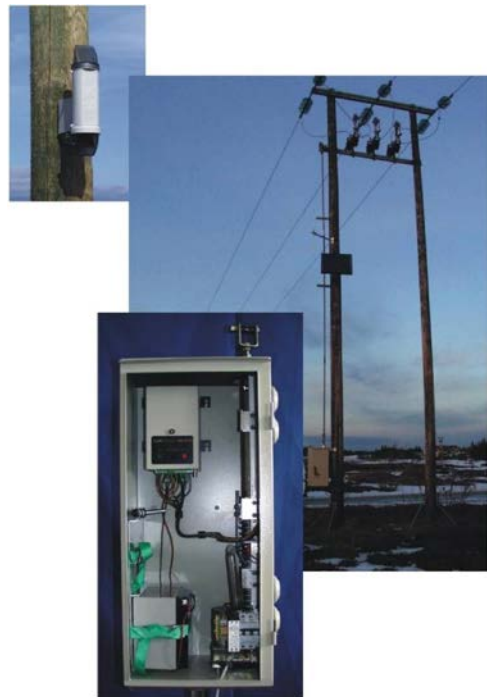
ComTroll SAS. Surveillance and Automation System

The electric utility industry is experiencing an increasing demand for a more efficient and cost-effective operation of the distribution network. De-regulation, increased competition, demand for better quality of supply and penalty for non-supplied energy is becoming the everyday challenge for an increasing number electricity distribution companies.

Changes in the industry have resulted in an increasing interest in distribution automation and surveillance as one means of meeting the new demands for customer satisfaction and profitability.

NorTroll's system for distribution automation called ComTroll is designed for remote control, surveillance and automation of both rural and urban distribution systems.

ComTroll is a modular system with different building-blocks allowing the utilities to tailor-make a system to meet their own demands for functionality and complexity.



NORTROLL offers:

- ✓ Fault passage indicators for cable- and overhead lines.
- ✓ Software for remote control and surveillance of the network.
- ✓ Outstations for remote operation of overhead line and underground cable switchgear.
- ✓ Interface for easy integration of the ComTroll system with other SCADA systems.
- ✓ Communication infrastructure for a wide range of media and communication protocols.

The ComTroll system is developed to identify the fault-location, isolate the faulty section and restore the healthy part of the system in a minimum of time.



System for Remote Control and Automation of Medium Voltage distribution networks

Communication

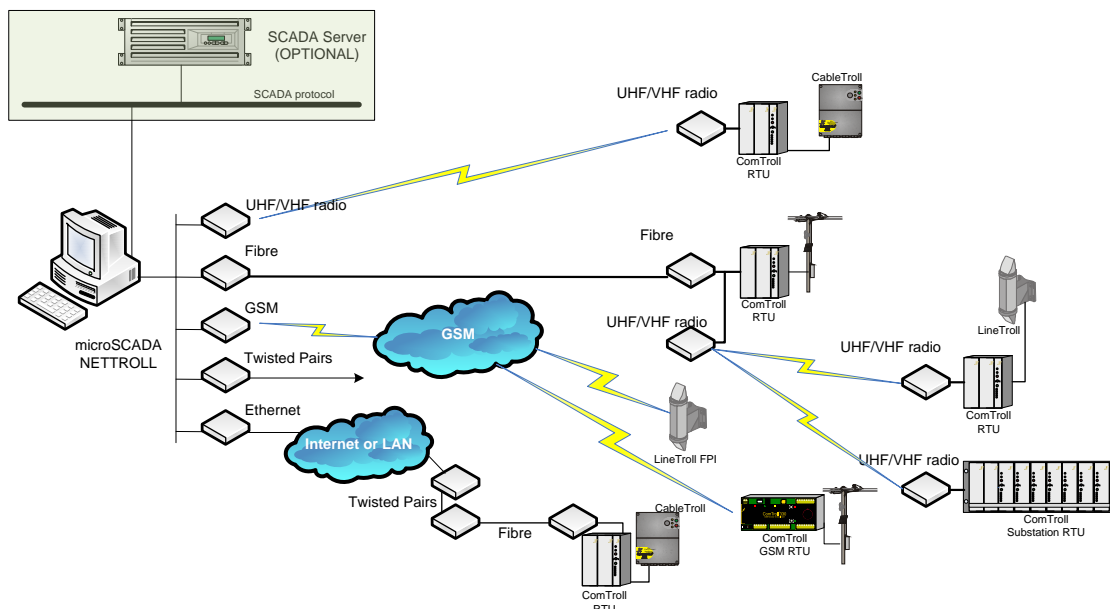
The ComTroll system is based on the modern and flexible LonWorks® technology with the integrated LonTalk® protocol. The system is very suitable for use in independent as well as shared networks. Nortroll has specialised in Radio communication (VHF/UHF) and has adapted the LonWorks technology to be used in an independent radio infrastructure, allowing the use of “store- and forward” repeaters to ensure the radio coverage to remote out-stations and indicators. The system allows for an outstation to act as a repeater for other out-stations or fault indicators.

The LonTalk protocol is media independent allowing for a wide range of media options such as radio, fibre, Ethernet and more. The LonTalk protocol benefits the power consumption as the traffic is kept in a minimum in this report-by-exception system.

This flexible communication platform opens for the use of different media within the same network.

This system can be fully integrated with a SCADA system using other protocols such as IEC60870-5-101/104 and DNP3 through a software SCADA gateway.

Nortroll also offers systems using IEC60870-5-101/104 protocol which communicates directly with existing SCADA systems on different communication media.



Low power consumption allows the outstations and repeaters to be charged from a solar-panel making it very simple and cost effective to build the radio infrastructure. This avoids the necessity for considering the cost and availability of mains power at all locations of the outstations and repeaters.



System for Remote Control and Automation of Medium Voltage distribution networks

Building-blocks

The NORTROLL system consists of different building-blocks, ranging from software for monitoring and remote control of the network to outstations with integrated RTU's and fault indicators for overhead-line or underground cable. All products have been designed with the focus on high modularity and flexibility, very low current consumption, media independent communication, and integration with other SCADA systems.

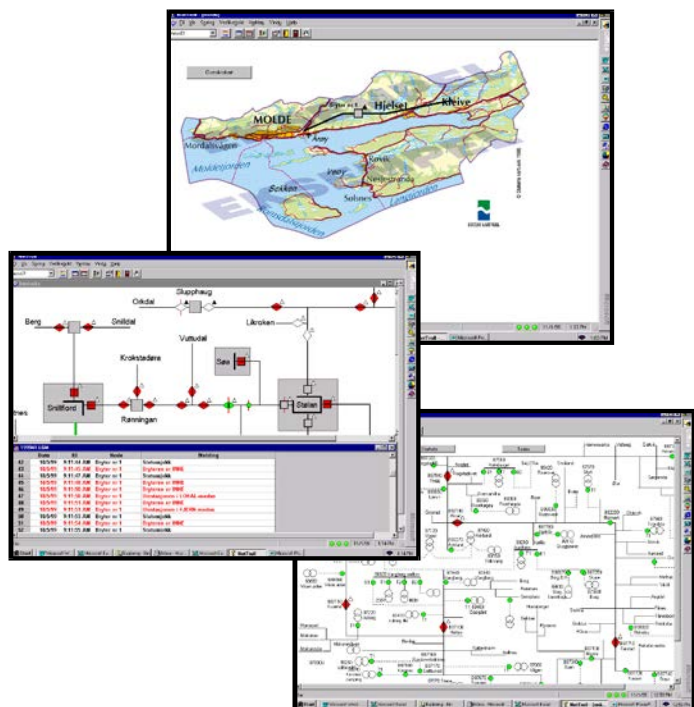
NetTroll and NetDraw

NetTroll® is a micro SCADA system for remote operation of switchgear, monitoring of indicators and switch-gear status and collection of other useful digital and analog data for effective operation and maintenance of the distribution network.

NetTroll offers a graphical, user friendly system, with an intuitive man machine interface. The system runs on a standard Windows based PC platform.

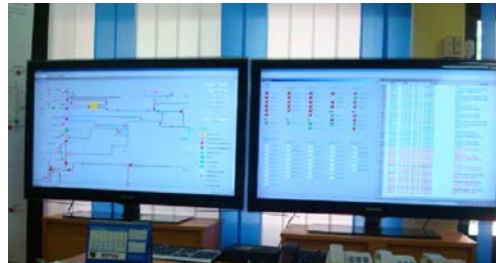
NetTroll Features:

- ✓ Runs on a standard Windows PC platform.
- ✓ Easy installation and configuration.
- ✓ Easy-to-use operator interface.
- ✓ User defined logs for monitoring of specific events.
- ✓ Advanced Alarm Management
- ✓ Built-in Conditional Actions Module (CAM)
- ✓ Ideally suited for monitoring and control of report-by-exception fault passage indicators and RTU's.
- ✓ Secure password protected user levels.
- ✓ Advanced graphical features.
- ✓ Built-in bitmap editor for creating user defined symbols.
- ✓ Device specific message properties.
- ✓ Unlimited number of devices can be installed.
- ✓ Easy Master SCADA integration with a wide range of SCADA protocols.



NetDraw® is a drawing editor for NetTroll and gives the user full control of the screen graphics. Symbols for outstations and indicators can be chosen from the symbol library or can be designed by the user (bit-maps). Device independent properties can be set to give any message a special meaning and importance level.

System for Remote Control and Automation of Medium Voltage distribution networks



NetAlert

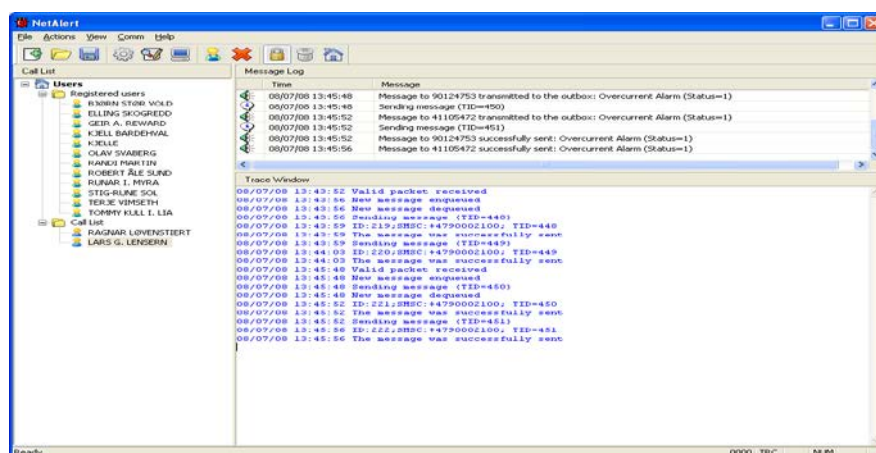
NetAlert is a supplementary program to NetTroll 4.

NetAlert sends SMS alarms to one or more pre-defined users set up in one or several call lists.

Alarms in NetTroll can be grouped and different group messages can be forwarded to different recipients.

It is also possible to forward alarms from specific devices to specific recipients defining the same message from different devices into the same group.

The SMS recipients receive will contain the same alarm string as defined for the actual message in NetTroll. It also contains date, time and the outstation name.



System for Remote Control and Automation of Medium Voltage distribution networks

ComTroll Outstations

ComTroll Outstations can be equipped with a variety of RTU's. From the compact ComTroll 155 offering a simple low-cost solution for operation of one switch (Nortroll actuator, LBS, ABS etc) as well as being a repeater for other stations to the more advanced rack based ComTroll 230.

ComTroll 230 (RTU-30 / RTU-30i) offers various numbers of I/O's, digital, analog and serial interface and can be built on customer specific requirements. ComTroll 230T (RTU-30t) includes a GPS unit that provides a highly accurate time reference on events that occurs in the RTU.

ComTroll 230S (RTU-30s) is equipped with an EIA-232/EIA-485 port which can be connected to up to 15 external Modbus RTU devices such as relay protection, switchgear, power quality devices etc.

ComTroll 220 Actuator for OH line switches

COMTROLL 220A1 is a linear motordrive unit suitable for the operation of Medium Voltage Overhead Line Switches with a vertical manoeuvring rod.

Due to its adjustable stroke length and high linear force, COMTROLL 220A1 is suitable for most types of switches available on the market.

COMTROLL 220A1 has an integrated spring mechanism allowing for high speed closing. (Live line closing option).

COMTROLL 220A1 is equipped with motor protection fuses, and a local operation module with terminals for remote control options. The actuator can be manually operated in case of a power failure.

COMTROLL 220A1 can be operated by

- ✓ Nortroll's VHF radio controlled RTU
- ✓ Nortroll's GSM operated RTU (ComTroll 333 RTU)
- ✓ Other supplier's RTU systems



System for Remote Control and Automation of Medium Voltage distribution networks

Solar Charged version and Mains Charged versions are available dependent upon the type of communication module and RTU



ComTroll 230



ComTroll 230 is a series of outstations for operation of already motorised switchgear such as reclosers and ground mounted actuator driven switchgear. One 19" Rack Frame can be fitted with 8 RTU cards. I/O's can be utilized individually although the normal setup is one RTU pr switch. For stations or cabinets

with limited space, a 10.5" Rack Frame can be supplied leaving enough space for 3 RTU cards including power supply and various communication modules.

The ComTroll 230 can be fitted with different RTU cards with different features and protocols to tailor the application in each case.



System for Remote Control and Automation of Medium Voltage distribution networks

ComTroll 155

ComTroll 155 RTU is a compact device with RTU, modem, radio and DC/DC charger all built in to one unit. A version designed for fibre networks is also available. The ComTroll 155 RTU can be used for remote control of one actuator or one motorised switch. The ComTroll 155 can be supplied with a cabinet for outdoor mounting.



ComTroll Repeater

The ComTroll standalone repeater is based on the same hardware as the ComTroll 155 RTU/ICU. The repeater can be configured to route signals to specific address ranges keeping the radio traffic to a minimum for maximum throughput. Any Nortroll RTU can be configured as a combined repeater extending the radio coverage to outstations further out in the network.

System for Remote Control and Automation of Medium Voltage distribution networks

ComTroll RTU Options.

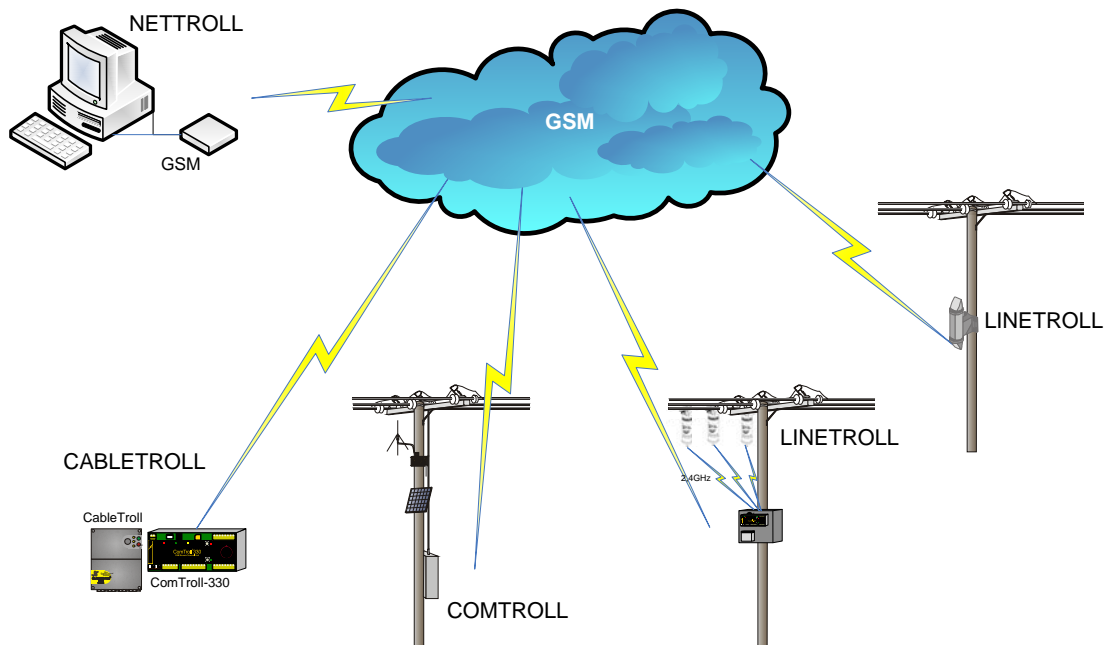
	ComTroll 155 RTU	ComTroll 155 ICU	RTU-26	RTU-30	RTU-30i	RTU-30s	RTU-30t
Digital Inputs	7	9	8	8	8	N/A	8
Digital Outputs	4	5	6	6	6	N/A	6
Analog Inputs	0	0	3	4	4	N/A	4
Serial port (MODBUS RTU)	No	No	No	No	No	Yes	No
IEC870-5-101 Protocol	Through gateway	Trough gateway	Trough gateway	Trough gateway	Trough gateway	Yes	Trough gateway
Time Stamped Events (External GPS)	No	No	No	No	No	Optional	Yes
Solar Charging Option	Yes	Yes	Yes	Yes	Yes	Yes	No
Switchgear Control Appl.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Communication Media	UHF/VHF Radio	UHF/VHF Radio	Selectable	Selectable	Selectable	Selectable	Selectable
Local/Remote control	Local & Remote	Remote	Local & Remote	Local & Remote	Local & Remote	Local & Remote	Local & Remote
Form factor	Stand-alone. 300x201x65 [mm]	Stand-alone. 300x201x65 [mm]	10,5" / 19" rack-frame, single height	10,5" / 19" rack-frame, single height	10,5" / 19" rack-frame, single height	10,5" / 19" rack-frame, single height	10,5" / 19" rack-frame, single height



System for Remote Control and Automation of Medium Voltage distribution networks

ComTroll GSM Remote Terminal Units

Nortroll offers a complete system for **Remote Indication and – control** using GSM as the communication carrier. In fault indicator systems, SMS is the most commonly used media to transfer the alarms to the central unit. GPRS solutions for fault indicators are also available. Control systems have to establish a CSD or GPRS connection before any control can be executed. The GPRS system can also connect to any SCADA system directly running the IEC870-101-5-104 protocol. The GSM based system can be integrated into NetTroll in the same way as equipment using other communication media.



ComTroll 333 RTU

ComTroll 333 RTU's primary function is to monitor and control overhead line and cable switchgears. It reports any alarm to a central control system by sending SMS text message or by a GSM Data (CSD) connection. Critical messages as switchgear position are always sent by CSD. Secondary alarms can be set up by the user to either use SMS or CSD. If the CSD connection fails, the unit tries to re-connect three times. If the CSD connection still fails a SMS is sent to ensure all alarms or events are received by the central unit.

During the design of this product, NorTroll has put all efforts into making an RTU with lowest possible power consumption, allowing the unit to work for a long period during loss of charging. It is designed to facilitate solar panel charging and for operation in the most demanding climatic environment.

System for Remote Control and Automation of Medium Voltage distribution networks

ComTroll 333 RTU is available in a version where the GSM modem is replaced with an Ethernet port. (ComTroll 333 RTU Ethernet) The protocol used is IEC60870-5-104 which means it can be installed in most SCADA system without the need for a SCADA gateway.



Additional analog- and digital I/O's can be added using the ComTroll 333 Slave unit. The slave unit has 4 analog, 8 digital inputs and 8 relay outputs and is connected to the 333RTU by a serial port.

ComTroll 333 ICU

(Indicator Communication Unit) communicates with the NetTroll micro SCADA system through SMS. The unit can be used as a general communication module for NorTroll's fault passage indicators as well as third parties equipment though its 8 digital inputs, 4 analogs and 4 relay outputs. (8 relays optional). The units also have a serial port for serial connection to third parties equipment. (EIA 485)



The ComTroll 333 ICU is especially suitable together with the ComTroll 115C QuickLink Collector. ComTroll 115C communicates with up to 9 LineTroll 110EµR phase –mounted fault passage indicator with a 2.4GHz radio link.

Nortroll's range of products comprises

LineTroll Product range Fault Passage Indicators for overhead lines

CableTroll Product range Fault Passage Indicators for cable Networks

ComTroll Product range RTU's for substations and motorized switchgear, communication equipment for fault passage indicators and RTU's, MicroSCADA System for surveillance and control and NetTroll SCADA Gateway

This document does not contain all of Nortrolls products within the ComTroll range, but lists our main products for SMARTER NETWORK MANAGEMENT in distribution networks. For more information please contact your local NORTROLL representative or get more information on our web site www.nortroll.com

NORTROLL AS
Havneveien 17
7601 Levanger, Norway
Tel: +4774 085500
Fax: +4774 085501
nortroll@nortroll.no





Visiting address
Havneveien 17
P.O. Box133
N-7601 Levanger, Norway
Tlf. +47 74 08 55 00
www.nortroll.no

