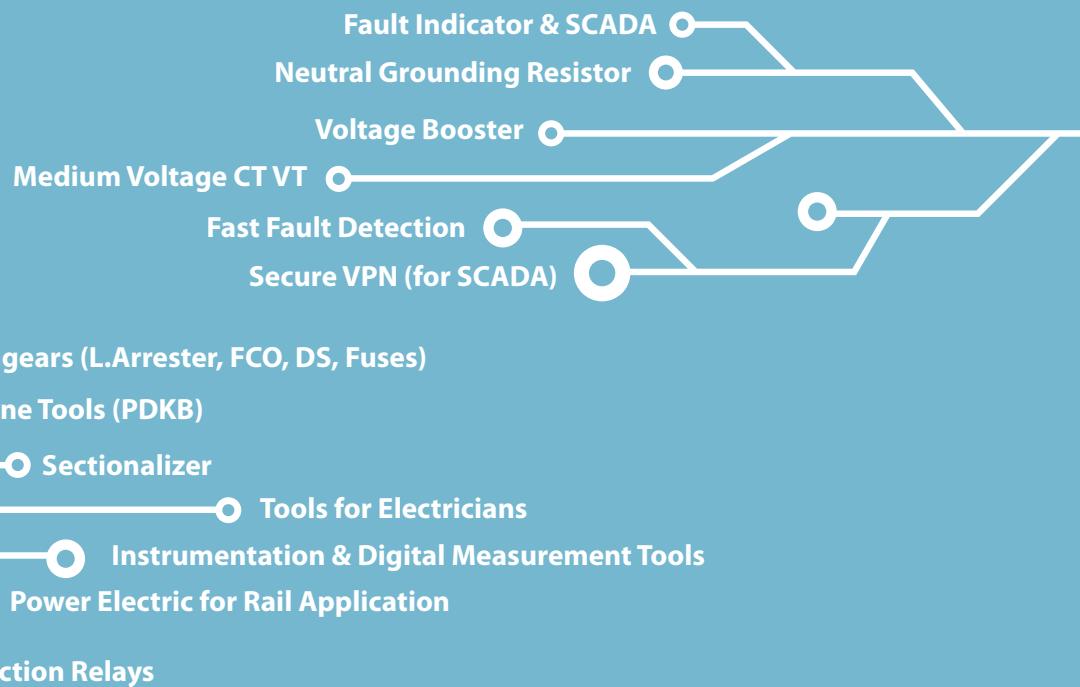




YOUR “ENERGY SAVINGS” PROVIDER

Ereptelindo

COMPANY PROFILE



OUR PRINCIPALS:

SADTEM



NORTROLL AS



SFE SISTEMI FAMIGLIARO
Division **ESP** ESTREMA SAFETY PRODUCTS

ADDISecure



ALROC

CELSA

INAEL

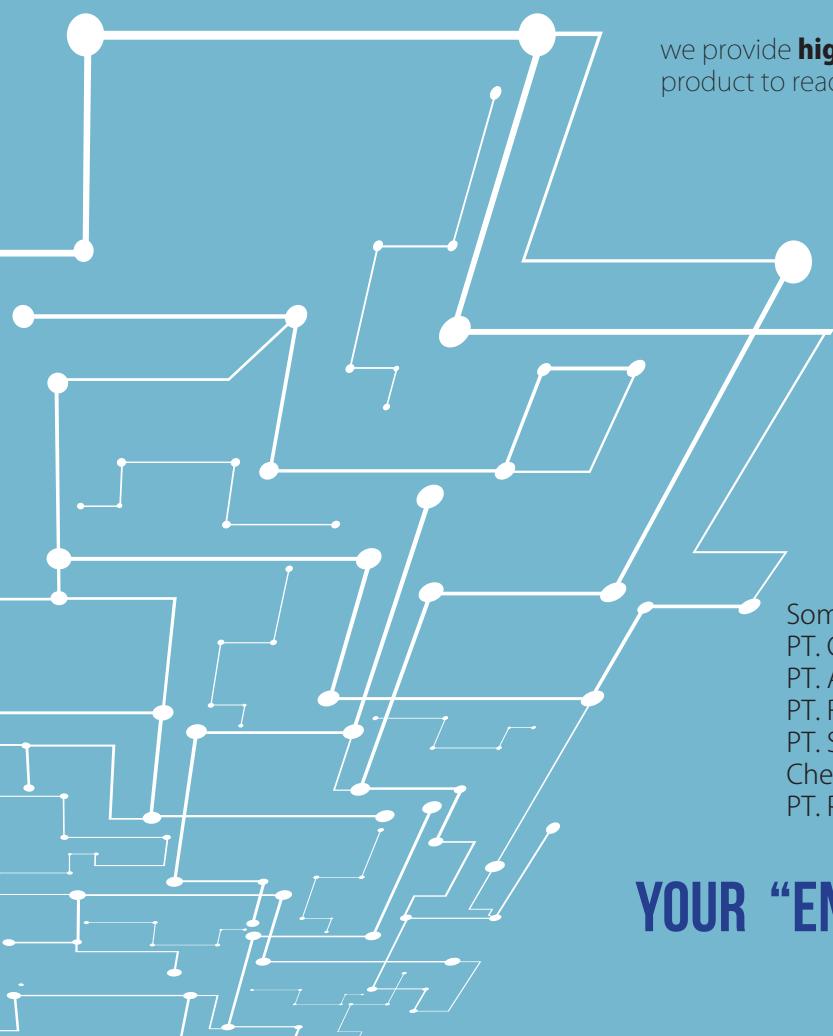




About us

EnerTELindo

PT. ENERTELINDO KENCANA



we provide **high quality service, trustworthiness** and product to reach "quality" customers.

ENERTEL GROUP whose core business was initially to **Import and Distribute electrical goods and equipment** in SINGAPORE and INDONESIA was established as early as November 1993 (ENERTEL) and September 29, 1994 (ENERTELINDO). Operation started in January 1994. We have our main HQ office located in Jakarta, INDONESIA.

Some of the Reference: PT. PLN (Persero), PT. Grid Solution, PT. Siemens Indonesia, PT. ABB Sakti Industri, PT. INCO, PT. Rekayasa Industri, PT. Unindo, PT. Schneider Indonesia, PT. Krakatau Steel, Chevron, PT. MEDCO Energy, PT. Pertamina (Persero), and more...

YOUR "ENERGY SAVINGS" PROVIDER

Table Contents



HIGH VOLTAGE RESISTOR EXPERT

Page 2

SADTEM



SADTEM

Page 4

STABILISHING LOW AND MEDIUM VOLTAGE LINES

Page 8

NORTROLL AS



FIND FAULT FAST REDUCES OUTAGE TIME

Page 12

FAULT DETECTION AND SMART GRID SOLUTIONS

Page 14



INTELEGENCE FOR ENERGY DISTRIBUTION GRID MONITORING, PROTECTION

AUTOMATION

Page 16

ADD SECURE



We ADD SECURITY IoT

Page 20

THINK SAFE WORK SAVE HOME SAVE

Page 24

ALROC



CABLE PREPARATION TOOL

Page 28

PETZL PROFESIONAL - VERTICALITY

Page 30



MATERING, INSTRUMENTATION & TRANSDUCER

Page 32



THE REFERENCE FOR INDUSTRIAL RELAYS

Page 34

CELSA



DIGITAL ELECTRONIC SECTIONALIZER WITH RF

PAge 36

LEADER in THE ENERGY SECTOR

Page 38



POWER ELECTRICS FOR RAIL APPLICATION

Page 40





MICROELETTRICA SCIENTIFICA
M.S. RESISTANCES



www.msresistances.com

HIGH VOLTAGE RESISTOR EXPERT

OUR CLIENT

PT PLN (PERSERO), PERTAMINA, ALSTOM/GRID SOLUTION, ABB SAKTI INDUSTRI, SIEMENS, SCHEINDER, PT PETRO KIMIA GERESIK, MEDCO ENERGI, CNOOC SES, PT PUPUK SRIWIJAYA, REKAYASA INDUSTRI, ASAHIIMA CHEMICAL, INCO, BANGUN ENERGI RESOURCES, PT TRAFINDO, CHANDRA ASRI, KRAKATAU OSAK STEEL, TRIPATRA HESS, PT PUPUK KALTIM, PT CHIYODA ALMANA, TOYO ENGEENERING, BUKAKA ,INALUM, CALTEC, UNINDO, MUSI HEPP, PT KRAKATAU DAYA LISTRIK, TUBAN AROMATIC PLANT, CHEVRON, SEMEN TONASA, BARTEC, EPC COMPANY, ETC.



NEUTRAL GROUNDING RESISTORS





OUR RESISTOR

- Neutral Grounding
- Damping
- Pre insertion
- Load bank
- Motor control
- Marine braking



OUR TECHNOLOGY

Stamped grids



Testing Process



NEUTRAL GROUNDING RESISTOR

- Network Voltage (Un) : up to 150kV
- Fault Current (In) : up to 3000A
- Rated Fault Duration (second) : up to continuous rating
- IP Code : up to Ip56
- Area Classification : up to hazardous area
- Kind of Company : PowerPlant, Gas & Oil, Industry, Chemical, Cement, Mining etc.

SADTEM



www.sadtem.com

ISO 9001:2008
BUREAU VERITAS
Certification



THE COMPANY

A family-owned company over more than 80 years, allow SADTEM keeping a long-term strategy, developing market-bound product, recruiting right people at every place, investing in best machinery and workshop, and giving priority to Quality Management and R&D expanses.

THE PRODUCT

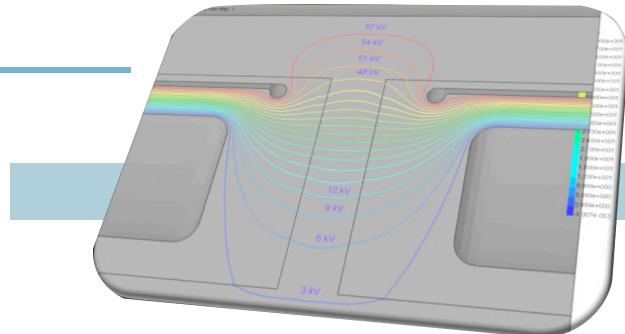
Instrument Transformers from 3 kV to 72.5 kV,
Ct's and Vt's for Revenue Metering and protection (Relays, SCADA...)

Design, Research, Development

THE KNOW-HOW

Experienced engineers and aides continuously works on R&D, from new raw-material to new processes

So SADTEM can safely design and manufacture either improved or customized classic models, or brand-new ones



QUALITY MANAGEMENT

ISO 9001 compliance certified

2 Top test Labs

Each unit individually tested according to its Norm

IEC, CSA, IEEE, AS...

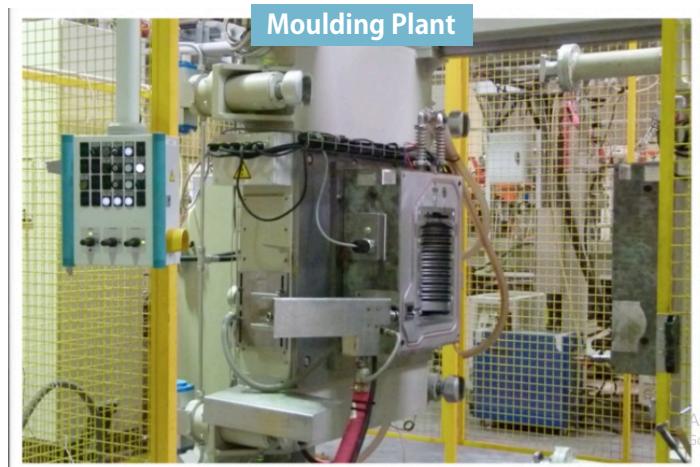
I-traceability of every production step: material, machinery, staff.

Go to www.sadtem.com

Winding Workshop



Moulding Plant



Medium Voltage Indoor / Outdoor CT



INDOOR CT



OUTDOOR CT



RING TYPE CT up to 500 kV



INDOOR COMBINE UNIT (CT -VT)

Medium Voltage Indoor / Outdoor VT



INDOOR VT



INDOOR VT



OUTDOOR 72 kV VT



OUTDOOR VT



OUTDOOR 52 kV VT

ON SITE INSTALLATION

POWER PLANT



ON SITE GENERATOR

SUBSTATION



CT - VT COMBINE



CT - VT COMBINE



CT - VT COMBINE



ON SITE INSTALLATION

RAILWAY APPLICATION



ON ROOF OF LOCOMOTIVE

TABEL KECOCOKAN CT PT SADTEM PADA BEBERAPA TIPE CUBICLE

Builder	Typ&Model of Switch Gear	Most possible models of CT's in existing Cubicles	Height (mm)ldstance between poles	Comments	Equivalent SADTEM – Proposed	Interchangeability With Existing CT		Alternative (If minor adaptation required only)
						– Electrical (E) Dimension (D)	– Installation Plate (P)	
SCHNEIDER	VM13/D 12-DM23 etc	MG TCJRC M68	226/90	specially designed for VM6	K52	100%	–	'0: possible without changing the integrity of the cubicle
	VM6/IM QM	SADTEM K52	225/90		K52	100%	–	Same as above
	SM6/DM1 DM2 CiBC (400-630A)	MG TCJRC	225/4.0		K51	100%	–	Same as above
	SM6/DM1 DM2 CiBC (400-630A)	SADTEM K51	226/40		K5 1 (single core)	100%	–	Same as above
	SM6jDM 1 DM2 GBH (1250A)	Magriini ARMS N2F	292/86		SW34	100% (designed to match Magriini)	–	K52 with plate
	SM6/IMC	Magriini ARM2/N2F	244/86	With sheds	SW33	100% (designed to match Magriini)	–	K52 with plate
ALSTOM / UNINDO	SM6/QMC	Magriini ARM 1 / N1F	244/86	With sheds	SW32 (single core)	100% (designed to match Magriini)	–	K52 with plate
	SII.46/CRM	Magnni ARJP 1/ N2F	260/120		SW44 (sm6)	100% (designed to match Magriini)	–	K 5 2 with plate
	Fluokit	Balteau RKF24	239/70		K52 with plate	10C% on E. 95% or 0 smaller .90 % on P (drilling)	–	
		SADTEM K54	280/120		SW54	100%	–	K52 with plate
		SADTEM SW44	250/120		SW44	100%	–	K52 with plate
	Cemkit	SADTEM 5.6		No more available	K52	80%	–	
ABB	Uniswitch	ABB Stromberg KOF024 (DIN)	280/120		SW84/180b29	100% (All DIN sizes)	–	
		SADTEM SW64	280/120		3W84/180b29	100% (All DIN sizes)	–	
		SADTEM SW44	250/120	Can be up to 280	SW44	100%	–	
F&G industria	Metal	SADTEM SW45	250/120		SW45	100%	–	
		CE A154 DIN	280/120		SW841180b29	100% (All DIN sizes)	–	
SIEMENS		Various DIN 42600	280/120		SWB41180b29	100% (All DIN sizes)	–	

STABILISING LOW AND MEDIUM VOLTAGE LINES

Magtech Voltage Booster — MVB

www.magtech.no



MAGTECH VOLTAGE BOOSTER STABILISING LOW VOLTAGE LINES

SAVE MONEY

- Reduce or / and postpone investments
- Save man-hours for engineering and installation
- Increase technical and economical life span for existing grid
- Flexible—move installation to next site



POWER QUALITY

- Lifts and stabilizes voltages for each phase individually
- Corrects unbalanced voltages (symmetrical)
- Significantly increases single pole short circuit capacity in Y ground network
- Voltage is not influenced if N conductor is disconnected
- Reducing overvoltage caused by unbalanced loads
- Fast regulation; 10 ms response

QUICK INSTALLATION

- Easy to install—one day
- Pole mounted; no housing required, one or two poles
- Ground mounted; no housing required
- Free planning tool (Excel) available on www.magtech.no

ROBUST

- 25 years designed lifetime - no moving parts or semiconductors in power circuit
- Smart patented controllable inductor design with no moving parts
- Galvanized casing for outdoor use
- Oil cooled, standard transformer oil, optional with organic decomposable oil
- Hermetically sealed with overpressure valve
- Overvoltage protected



PROVEN

- Developed in close cooperation with several electric utilities (a.o. Vattenfall Eldistribution AB, Hafslund Nett AS)
- In compliance with EN50160 and CE-marking for domestic use
- A large number of units installed in Europe, first pilot installed 2003

SAFE

- Bypass contactor ensures fail safe (no power interruptions) at overload or faults
- Returns automatically to operation when fault is not present (e.g. high temperature, overload)
- Increases one pole short circuit capacity in ground Y networks.
- Ik_1 increases typically by more than 60%
- Option: electronic circuit breaker on output takes care of very low short circuit levels



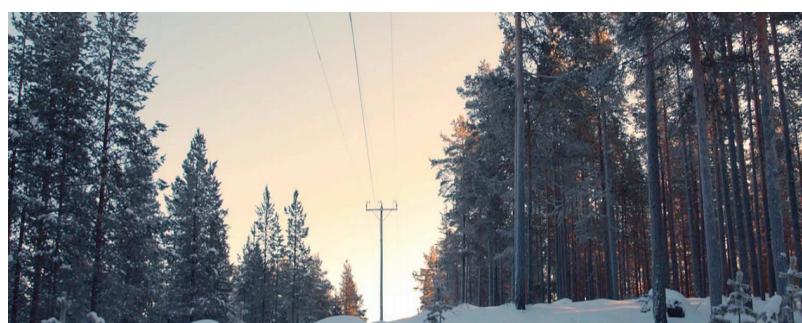
AREAS OF APPLICATION

Stabilizing voltage for long LV lines or sea cables. Supporting telecom base station transmitters for GSM and UMTS, vacation homes, weekend cottages, rural homes and stores, farms, fish farms, production plants etc. Provisional power supply for construction areas, tunnels etc. Stabilizing voltage in the grid when voltage fluctuation is caused by distributed generation like solar cells, hydropower or wind-power-plants. Stabilizing and lifting voltage on the LV side, when voltage drop is caused on 1kV or higher. For ground cables in rural or densely populated areas. Mounted on the ground or on poles.

MAGTECH VOLTAGE BOOSTER STABILISING MEDIUM VOLTAGE LINES

POWER QUALITY

- Regulator lifts and stabilises medium voltage lines
- Lifts and stabilizes voltages for each phase individually
- Corrects unbalanced voltages (symmetrical)
- High dynamic, voltage correction 1000V/s
- Fast regulation; 500ms for a typical load change
- Continuous control – no steps



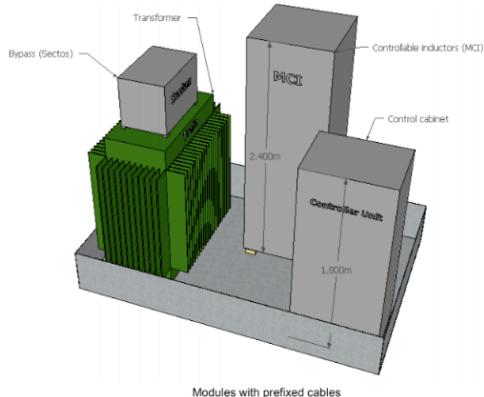


ROBUST

- 25 years designed lifetime - No moving parts or semiconductors in the power circuit
- The patented MCI, Magtech Controllable Inductor – a design with mainly copper and iron in power circuit
- Oil cooled, standard transformer oil, optional with organic decomposable oil
- System tested before shipment
- Lifts and stabilises frequent voltage changes – unlimited number of voltage corrections

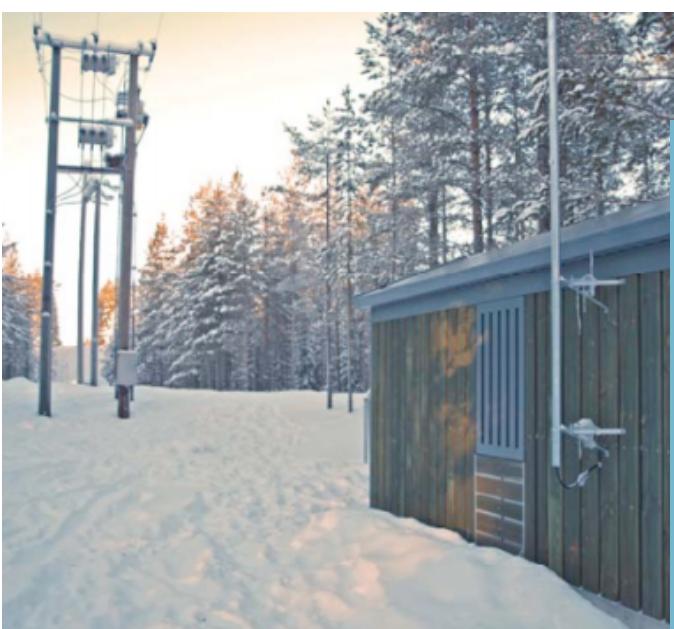
SAFE

- Bypass function ensures fail safe (no power interruptions) at overload or faults
- Returns automatically to operation when fault is not present (e.g. high temperature, overload)
- Secures no reduction of short circuit capacity
- Safe bypass – direct bypass during operation



QUICK INSTALLATION

- Easy to install – prefixed pluggable cables between units
- All units in one kiosk
- Only two power cables to be connected externally, for over head lines or ground cables
- Ground mounted
- Free planning tool (Excel) available on www.magtech.no



PROVEN

- Developed in close cooperation with several Norwegian electric utilities
- In compliance with EN50160 and CE-marking for industrial EMC environment
- First pilot installed 2009
- Regulator uses same system solution as the low voltage version of Magtech Voltage Booster that has been delivered in large numbers all over Europe

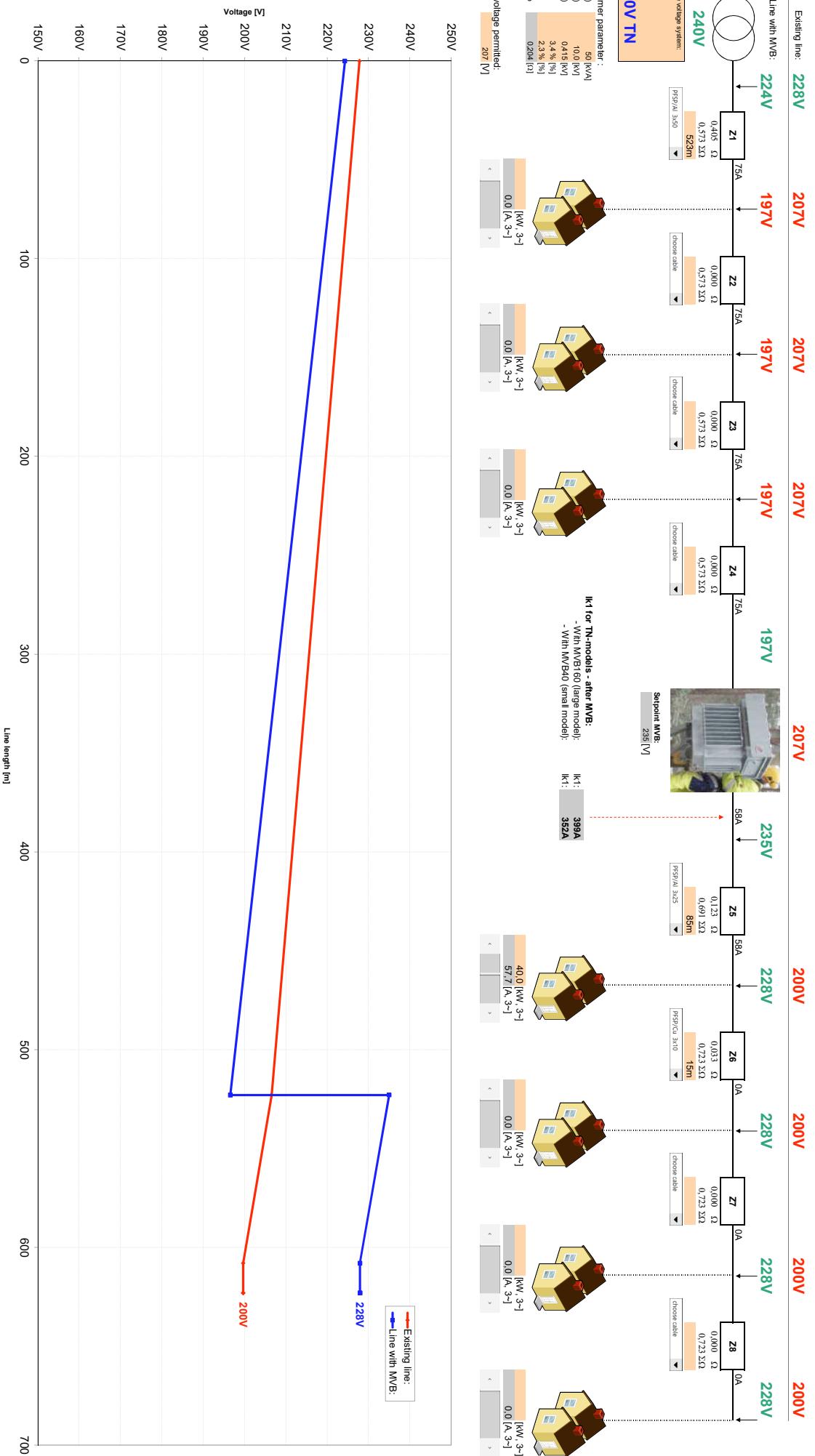
AREAS OF APPLICATION

- Stabilizing voltage for long medium voltage (MV) lines or sea cables. e.g 5kV, 10kV, 22kV etc
- Supporting areas with vacation homes, weekend cottages, rural homes and stores, farms, fish farms, production plants etc.
- Provisional power supply for construction areas, tunnels etc.
- Stabilizing voltage in the grid when voltage fluctuation is caused by distributed generation like solar cells, hydropower or wind-power-plants.
- Stabilizing and lifting voltage on the medium voltage side, when voltage drop is caused on the HV side.

Voltages with and without Magtech Voltage Booster

Description:

1. Choose voltage system
2. Fill in parameters in the coloured fields:
3. Choose cable type
4. Observe voltage with and without MVb (Magtech Voltage Booster)





FIND FAULT FAST
REDUCED OUTAGE TIMES

www.nortroll.no



FAULT INDICATOR SUTM (Conductor Mounting)

LT110E/LT110EuR

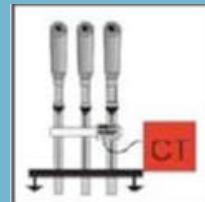
- ⚡ Dipasang pada konduktor SUTM 6-69 kV
- ⚡ Monitoring arus beban
- ⚡ Indikasi Gangguan PTP, PTG, Temporary Fault, Lost Voltage
- ⚡ Programable (DIP Switches, Concentrator, Comtroll)
- ⚡ Indikasi via LED yg dapat dilihat pada jarak <1km
- ⚡ Bisa integrasi dengan modem RTU type apapun.



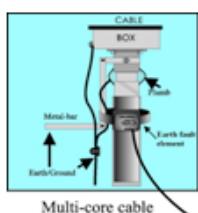
GROUND FAULT DETECTOR (GFD) CABLE TROLL

CableTroll 2310/2320/2330

- ⚡ Dipasang pada terminal kabel SKTM Multicore atau single core
- ⚡ Indikasi untuk Short Circuit atau Ground Fault (GFD)
- ⚡ Sensor via sensor arus Nortroll Flexible
- ⚡ Programmable (DIP Switches)
- ⚡ Indikasi via LED diapasang di dinding gardu distribusi



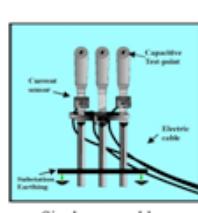
Surface Mounting



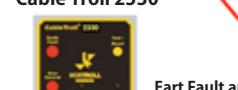
Cable Troll 2310



Eart Fault



Cable Troll 2330



Eart Fault and Short Circuit Fault



CableTroll 2310 & 2330

Indicator for underground cable networks (6-33kV)

FAULT INDICATOR SUTM (Pole Mounting)

R110CQ

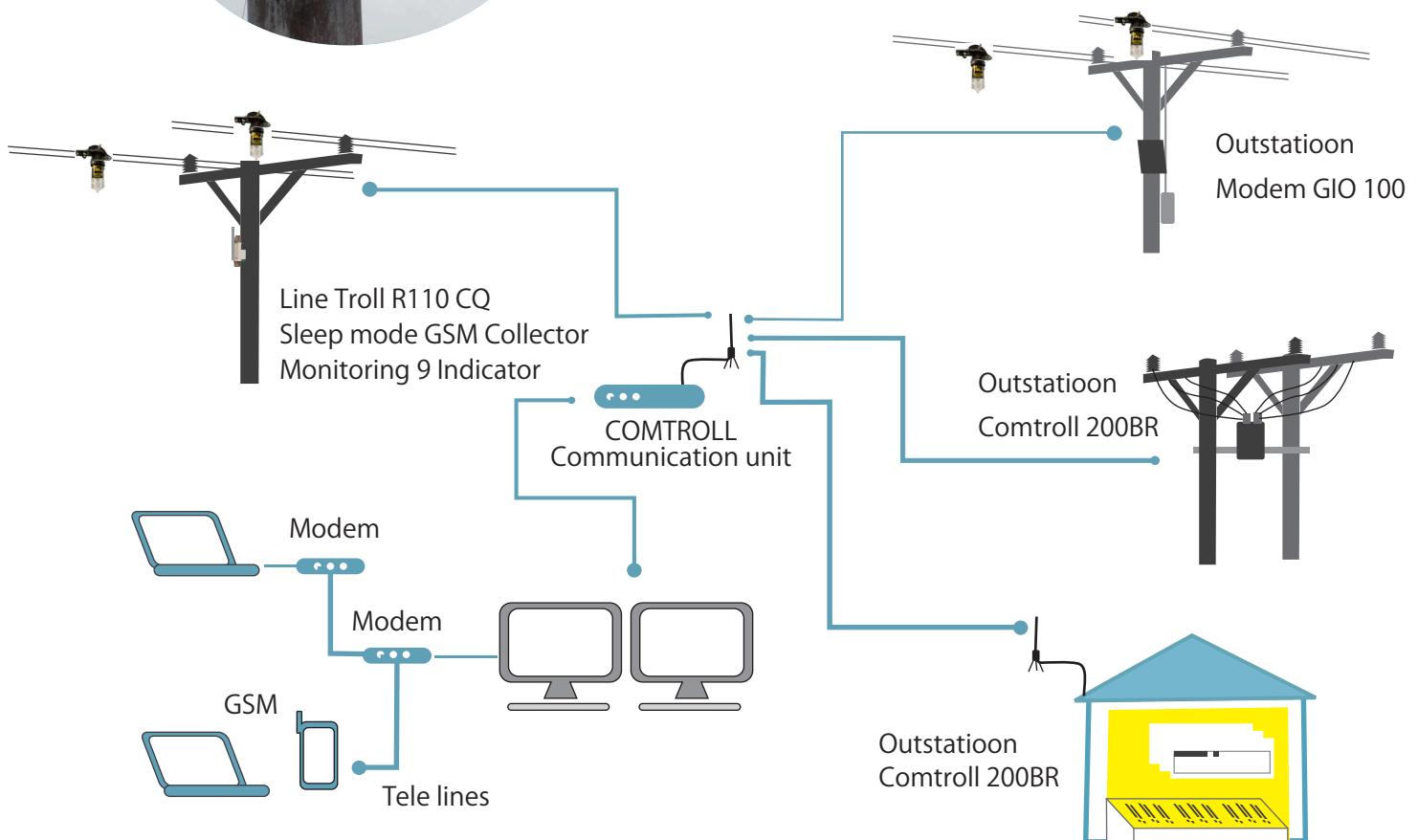
- ⚡ Dipasang pada tiang SUTM
- ⚡ Indikasi untuk Short Circuit dan Ground Fault
- ⚡ Programable (Netroll FDP)
- ⚡ Indikasi via LED yang dapat dilihat pada jarak >1 km
- ⚡ Remote indication via RF atau GSM



NetTROLL MINI SCADA SYSTEM

ComTroll Remote Control & Surveillance System

- ⚡ Akuisisi data dari indicator gangguan (SUTM & SKTM)
- ⚡ Indikasi via Single Line Diagram atau map
- ⚡ SMS alert, mengirim SMS kepada operator
- ⚡ Integrasi ke SCADA existing
- ⚡ Komunikasi via GSM dan Radio



FAULT DETECTION AND SMART GRID SOLUTIONS

www.en.protrol.se

QUALITY

Protrol offers specialized products and services. A dedicated quality work is of great benefit to both us and our customers, allowing employees at Protrol feel a genuine responsibility that the deliveries match, and preferably exceed, requirements and expectations



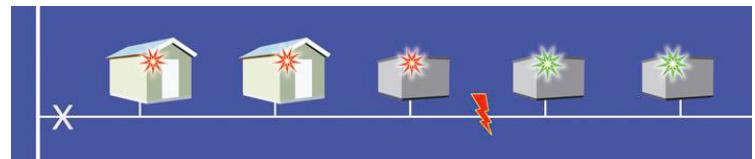
EASY IPS LIGHT



Supercapacitors stores
Stores energy for 24 h
flashing

APPLICATION

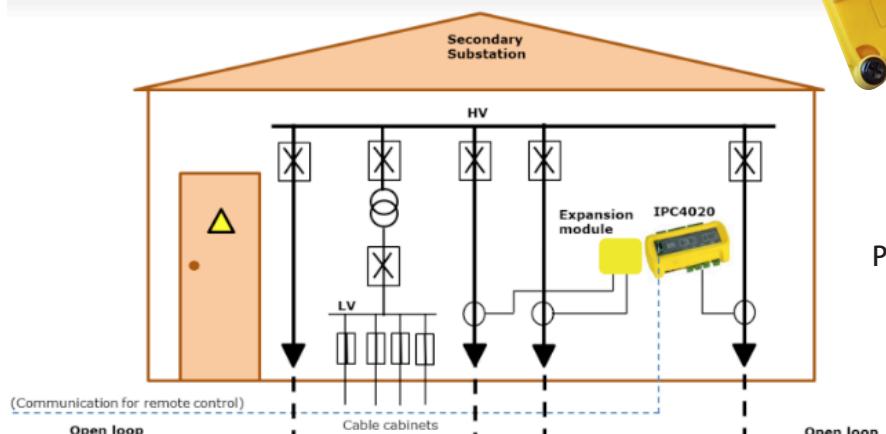
When the feeder is deenergized after a fault,
the IPS Light indicates **GREEN** or **RED**



LED

CONFIGURABLE IPS2 FAULT DETECTOR

Earth fault and over current detector
Easy rotary switch setup
IEC 60780 - 5 - 101 interface



APPLICATION

True fault pass-through indication
for overcurrent and high ohmic earth faults.
Sensitivity for earth faults is better than
watt metrical directional earth fault relays
Phase current measurement using simple and
easy to apply magnetic current transformers
no need for polarizing voltage in
the secondary substation



IPC4020

IPC4020 is a fault detector for overcurrent and earth faults with integrated remote terminal unit functionality. It has I/O for indications and orders and is therefore suitable for a typical secondary substation with up to four objects.

The standard IPC4020 detects faults on one feeder. It can be ordered with an expansion module that allows fault detection of 2 additional feeders.

Fault Detection

Overcurrent: 0.5 - 3.5 x rated CT, 0.04 - 10.00 s

Earth Fault: Hi Z: 0.8 A, 0.02 - 2.00 s

Transient Fault Recording

Inputs & Outputs

16 Binary Inputs

8 Binary Outputs

3 Analogue Inputs

Remote Terminal Unit

Expandable with expansion modules

Could be integrated to HMI User Interface

The communication protocol is IEC 60870-5-101 or -104.

Since the algorithm for earth fault detection does not require any voltage measurement, IPC4020 provides very cost-efficient fault detection and grid automation with a high sensitivity for pass-through faults, also in networks where the earth fault currents are low



IPC4022

Fault Detection

Overcurrent: 0.1 - 5 x rated CT, 0.02 - 10.00 s

Earth Fault: Hi Z: 0.8 A, 0.02 - 2.00 s

Transient Fault Recording

Inputs & Outputs

4 Binary Inputs

3 Binary Outputs

3 Analogue Inputs

Remote Terminal Unit

Expandable with expansion modules

Could be integrated to HMI User Interface

CURRENT TRANSFORMER

Splittable CT's are delivered with 4 m cable.

Temperature range: -30°C to 80°C

Isolation level: 3 kV

Each type of CT have 150/1 and 300/1 ratio



Split core current transformers, taped, for cables with diameter <50 mm or 85 mm



Split core current transformers, clip-together, for cables with diameter <34mm



Solid current transformers

INTELEGENCE FOR ENERGY DISTRIBUTION GRID

MONITORING, PROTECTION, AUTOMATION

Langestr.26

Sandhofweg

Rathaus

Trafo



IKI-SHORT CIRCUIT INDICATOR



IKI 20

Short circuit/earth fault indicator



IKI 20

Self test function

Analog and digital outputs

User adjustable parameters

Fault detection and indication features

Applicable in closed loop or radial networks

Free of maintenance, powered by current transformers

IKI 23

- No battery required
- Integrated self-test function
- Conformance to IEC standard IEC 61243-5
- Maintenance-free due to self-test and self-monitoring
- Voltage detection system module for retrofitting IKI-23
- Complete insulation monitoring of the capacitive divider
- Result: Fault-detection and voltage detection in one space-saving housing



IKI 23

Directional fault indicator



IKI 10light

IKI 10 LIGHT

Earth Fault Detector

Earth fault detector

Reliable fault detection

Dry contacts for remote monitoring

Parameters adjustable by user

Self tes function

Include energy buffer

Included split core transformer

Wall mountable or panel type housing available

Optioanl blinking unit for remote outdoor indication

CAPACITIVE VOLTAGE SENSOR

For Voltage Detection and Voltage Measuring

- Capacitive sensors for 12 - 36kV
- Voltage detection
- Voltage measuring
- With Post-insulator functionality (TSKA) or without post functionality (KKE)

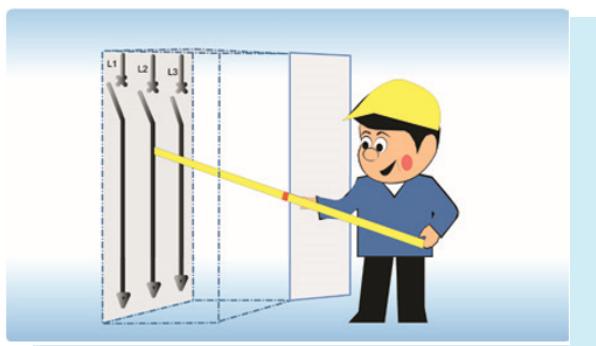
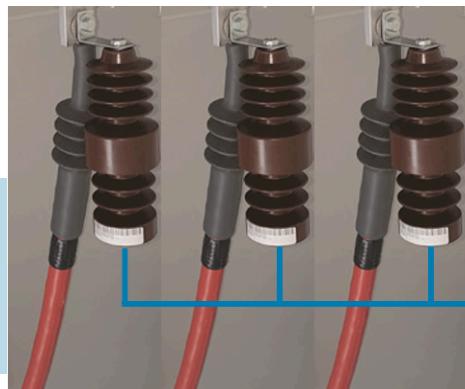


Capacitive Voltage Sensor

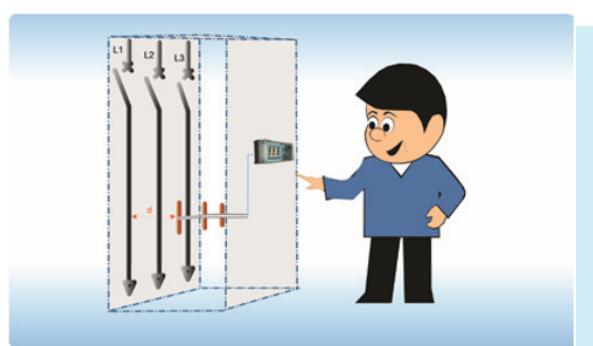


MOUNTING KIT FOR VOLTAGE SENSORS

easy retrofitting of voltage sensors directly at cable terminations of air-insulated switchgears
minimal effort = minimal disconnecting time
safe voltage detection with CAPIDS due to closed switch doors during operation



Until now: No Fault-arc protection during voltage detection due to open door.



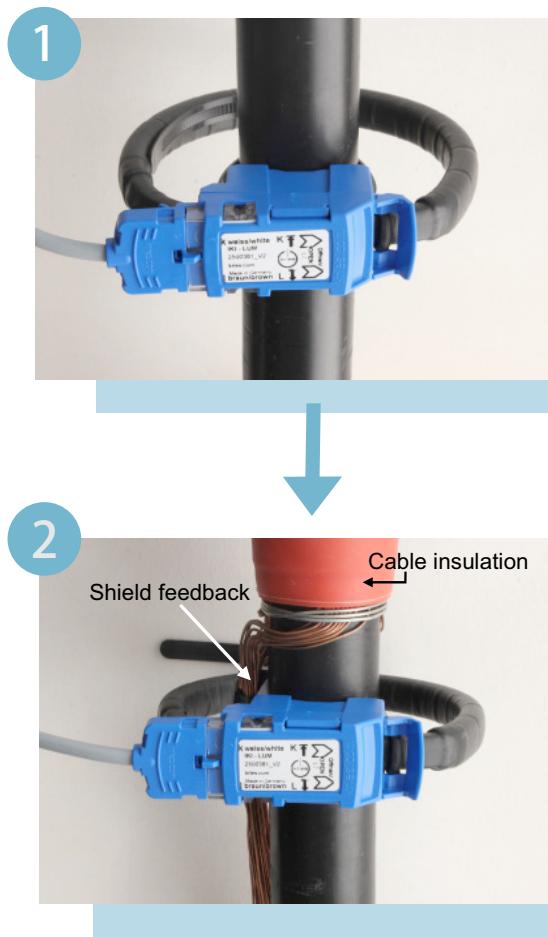
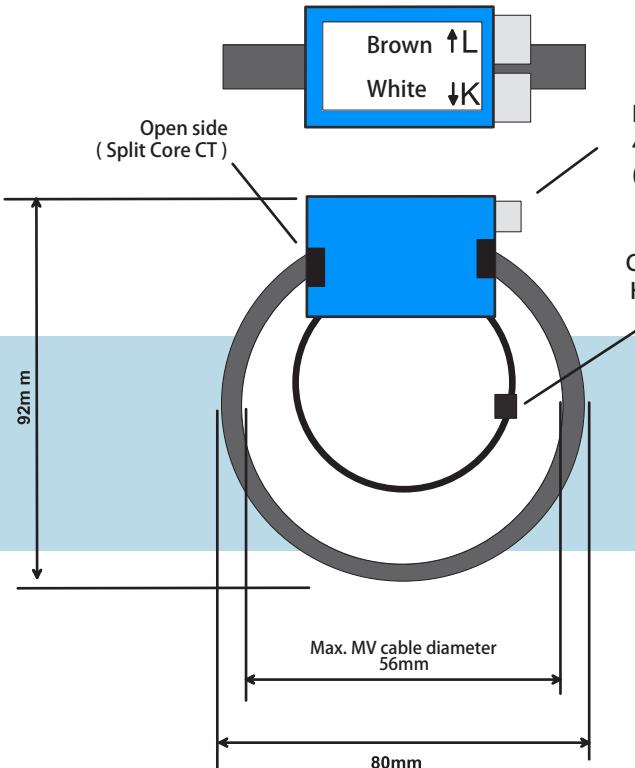
Today, state of the art protection against fault-arc during operation and voltage detection due to closed doors.

CURRENT TRANSFORMER IKI-LUM-D92



The current transformer IKI-30-LUM-D92 has a separable core and is suitable for retrofit to low-voltage cables, touch-proof shielded medium-voltage single-conductor cables and to touch-proof single conductors of three-conductor cables. The current transformer can also be attached to isolated low-voltage busbars ($< 1\text{kV}$).

- Open CT core, attach CT to cable with cable tie, close CT core
- Orientation: "K (P1)" towards busbar
"L (P2)" towards consumer
- Shield feedback : see picture no 2
- Mounting at optional available bushing holders.
(For screened plugs only)



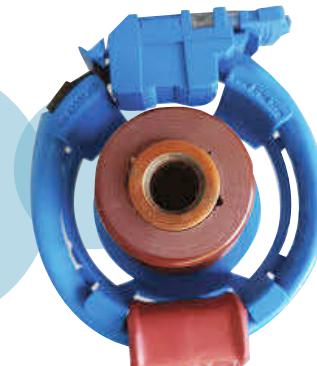
Current Transformer



IKI-LUG



IKI-LUM



	Voltage detection system	Voltage detection system with relay output	Voltage detection system with relay output	Voltage detection system (with relay output)	Voltage detection system for retrofit	Voltage detection system for retrofit
	CAPDIS-S1+ (R4.5)	CAPDIS-S2+ (R4.5)	CAPDIS-S2_55	CAPDIS-S1(S2)_HV	CAPDIS-PI-HR	CAPDIS-PI-RR4
						
Item no.	2502145	2502134	2502134_H002	2502145_H001 (2502134_H001)	2501382	2501384
Application	Voltage detection Voltage monitoring Interlock of earthing switch	Voltage detection Voltage monitoring Protection functionality	Voltage detection Voltage monitoring for high-voltage applications	Retrofit of capacitive interfaces	Retrofit of capacitive interfaces	
Standard	IEC 61243-5	IEC 61243-5	IEC 61243-5 IEC 60255-26	IEC 61243-5	IEC 61243-5	IEC 61243-5
Voltage level	LRM	LRM	LRM	LRM	HR auf LRM	HR auf LRM
Display	LCD	LCD + LED	LCD + LED	LCD + (LED)	LCD	LCD
Indication for	Voltage present Maintenance test passed Overvoltage Asymmetric condition Broken lead	Voltage present Maintenance test passed Overvoltage Asymmetric condition Broken lead Aux. power missing	Voltage present Maintenance test passed Overvoltage Asymmetric condition Broken lead Aux. power missing	Voltage present Maintenance test passed Overvoltage Asymmetric condition Broken lead [Aux. power missing]	Voltage present Maintenance test passed Overvoltage Asymmetric condition	Voltage present Maintenance test passed Overvoltage Asymmetric condition
Relay output	-	2 changeovers	2 changeovers	{2 changeovers}	-	-
Self test	yes	yes	yes	yes	yes	yes
C2m	settable, 6 values	settable, 6 values	settable, 6 values	settable, 6 values	fixed	settable, 8 values
Un	1 - 52 kV	1 - 52 kV	1 - 52 kV	1 - 480 kV	1 - 52 kV	1 - 52 kV
Auxiliary power	-	24 ... 230 VAC/DC	24 ... 230 VAC/DC	{24 ... 230 VAC/DC}	-	-
Interface to IKI	Y-Cable	Y-Cable	Y-Cable	Y-Cable	-	Y-Cable
Accessories	Cable set	Cable set	Cable set	HV cable set	-	-

	Voltage measurement	Voltage amplifier
	Capdis-M	Capdis-4(o)
		
Item no.	2500785	2500307(2502073)
Application	Voltage measurement and monitoring	Voltage amplification
Norm	IEC 61243-5	IEC 61243-5
Voltage level	LRM	4x100 V, 0.5 VA
Indication for	LCD + LED: Voltage, frequency, alarms	-
Relay outputs	-	2 changeover contacts (-)
Auxiliary power	from S2+ or CAPDIS-4	24 ... 230 VAC/DC
Additional outputs	ModbusRTU optional	4x4...20 mA



We contribute to a safer society
by securing critical communication

We at AddSecure offer services that ensures that communication between users is effective and secure.
AddSecure regard IoT as so much more than just the Internet

WHAT WE DO

We provide Secure Critical Communications for life and business critical solutions.

- Fire, intruder and elevator alarms help protect lives, homes, businesses and assets.
- Secured monitored alarms ensures that Emergency Services and crisis teams respond properly and quickly to alarms, threats and emergencies.
- Buildings become safe, secure, efficient and sustainable.
- Power grids become safer, more efficient and sustainable.
- Transport and logistic companies become more efficient, productive and sustainable.

OUR OFFERING



Secure Critical Communications

Powering the entire Smart-suite.

- SIM Cards & VPN
- SIM Management
- Connecting IoT



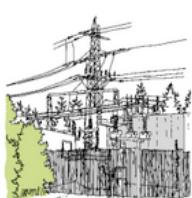
Smart Alarms

- Fire Alarm Services
- Intruder Alarm Services
- Elevator Alarm Services
- Technical Alarm Services



Smart Buildings

- Technical Alarm Services
- Elevator Alarm Services
- Security Remote Access
- Automation Remote Access



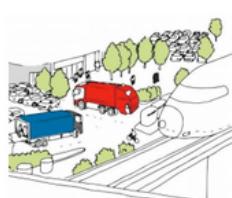
Smart Grids

- Power Measurement
- Power Fault Detection
- Power Communication
- Net Integrator
- Intruder Alarms
- Technical Alarms
- Customized Solutions



Smart Rescue

- Local Alert
- School Safety
- Public Rescue
- Dispatch Back Office
- Social Care Back Office
- Customized Solutions



Smart Transport

- Vehicles Management
- Driver Management
- Social Management
- Transport Management
- Trailer Management

BENEFITS OF SECURE CRITICAL COMMUNICATIONS



SECURITY

- Closed networks invisible on the internet based on VPN and Secure SIM
- End point authentication and access control
- Secure and monitored IoT communication



EFFICIENCY

- Quick integration of your IoT business
- Minimum time for administration of accesses, devices and networks
- Full scalability and ability to grow with customer needs



SIMPLICITY

- High automation level removes need for IT expertise and maximized
- Ease of use Merged SIM and VPN management
- Operator independent



RELIABILITY

- System availability 24/7/365
- 90% support pick-up within 60 seconds
- Monitored transmission path with full redundancy



CONTROL

- Real-time status overview of networks, subscriptions and costs
- Flexible notification system provides full awareness
- Easy activation and managing of SIM cards

AddSecure Link Policy Group

Internet out

Allows unlimited Internet access for all connections within the network. Communication sessions are always initiated from the connection.

Connection to Internet

Adds the possibility for selected connections to communicate with any Internet address. Communication sessions are always initiated from the connection.

Connection to public network

Adds the possibility for selected connections to communicate with defined Internet addresses. Communication sessions are always initiated from the connection.

Connection to Connection

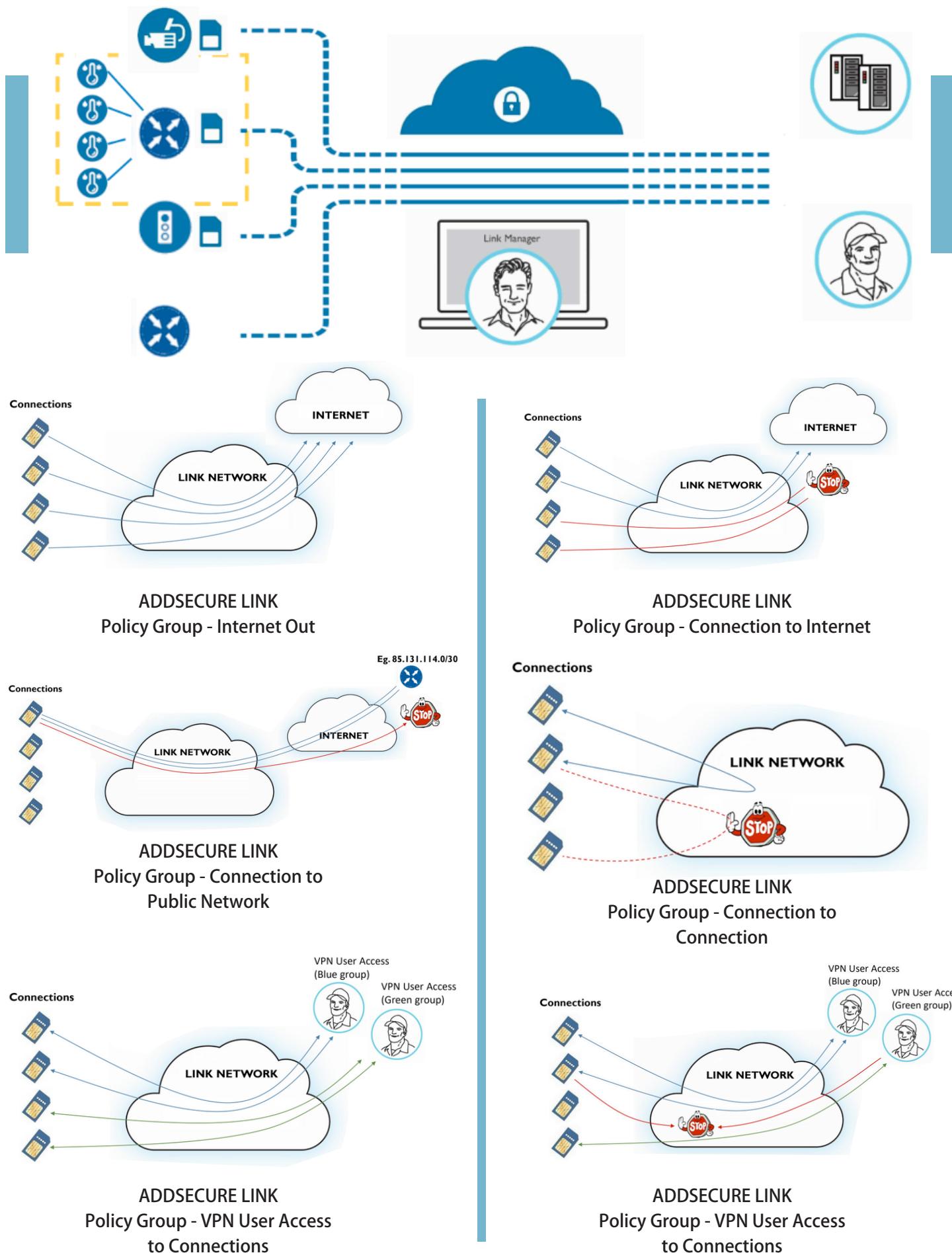
Allows selected connections to communicate with each other.

VPN User Access to Connections

Adds the possibility for selected VPN user accesses to communicate with selected connections.

LINK SYSTEM ACCESS

Create networks behind your routers



SCADA INFRASTRUCTURE (RADIO/GPRS)

The GIO100 is an industrial and rugged cellular router creating a secure and robust link to your remote devices using 2G/3G/4G communication. It features both router capabilities for IP-connectivity as well as RTU-functionality with integrated I/O which is accessed by the IEC60870-5-104, DNP3, SIA DC09, SNMP or Modbus TCP protocol. The integrated I/O capabilities could easily be expanded by connecting other RTU/IED that support Modbus RTU, Modbus TCP, IEC60870-5-101 or IEC60870-5-104 protocol.

BENEFITS



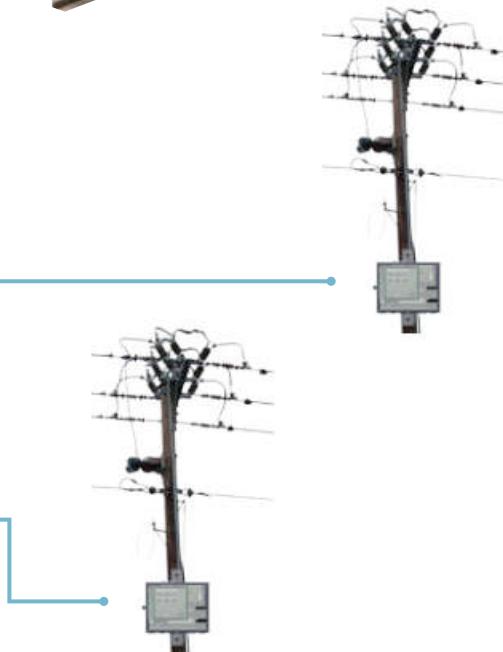
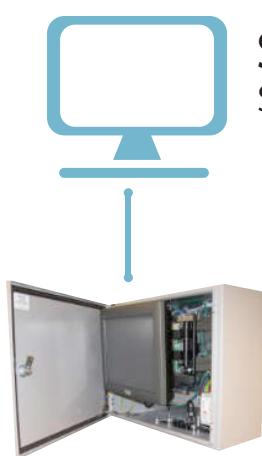
- Protocol IEC60870-5-104, IEC60870-5-101, SNMP (v1/v2c), IPSec,
- SIA DC09, DNP3, Modbus RTU and Modbus TCP
- 5 digital inputs
- 3 digital outputs
- 2 analogue inputs
- RS 232 and 485, USB, ETH

GIO100-RTU with 2G/3G/4G

AddSecure Smart Grids' SGC is a network data concentrator that enables totally control of circuit breakers, air break switches and similar equipment by connection to the SCADA system via standard protocol DNP3, IEC60870-5-101 or IEC60870-5-104. The SGC can be equipped with touch screen for additional locally monitoring and control. A concentrator is the gateway between SCADA and the outstations (substations) in the distribution network. The communication media between SGC and outstations can be realized in many ways with different technologies. Standard IP-based solution via for example fibre, Tetra and 2G/3G/4G can be provided. Also redundant communication solution for increased reliability in the network is possible.

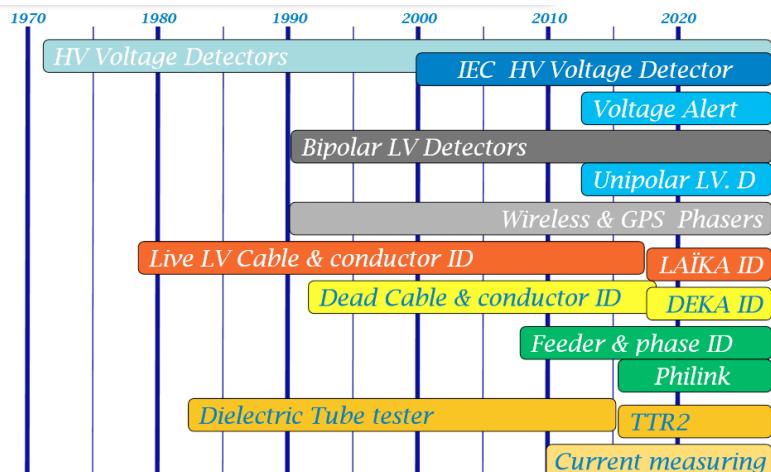
BENEFIT

- Protocol IEC60870-5-104, IEC60870-5-101, DNP3
- 18 digital inputs
- 14 digital outputs
- 8 analogue inputs
- Interface to Scada





THINK SAFE WORK SAFE HOME SAFE



SIBILLE FAMECA Electric is a major actor in electrical risk prevention equipment as well as construction and network management equipment.

As a member of the ESP division (Electrical Safety Products), SFE relies on the experience from its own manufacturing plants to offer its customers high-performance solutions for all three voltage fields (LV, MV and HV).

SFE focuses on innovation in order to provide solutions adapted to evolving global technological networks and thereby effectively optimizes power distribution and management.



LIVE WORKING and TEST



Hotline Equipment



Conductor Cover



Ladder



TAG5000
Phase Comparator



TAG330
HV Voltage Detector



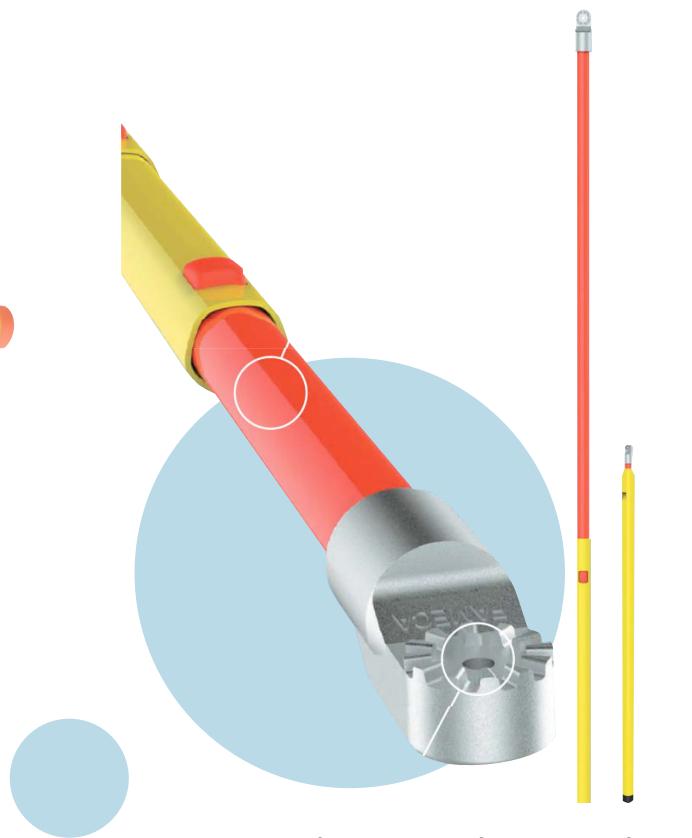
TAG220
Voltage Detector



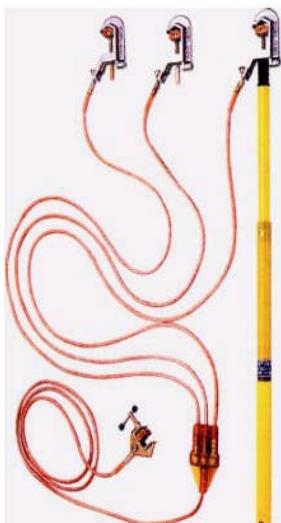
TAG780D LV Voltage Detector
TAG780R with Phase Rotation



Vector Proximity
Proximity Voltage Detector



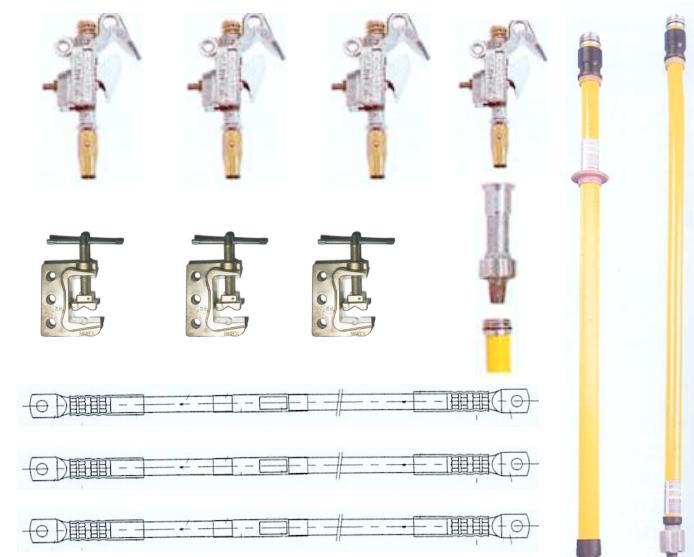
Multipurpose Telescopic Stick



Grounding Cable



PICOU 250/400
LV-MV Hydraulic Spiking-Cutting Cable



Earthing Set MV

TOOLS/K3



Insulation and Working Gloves

GC0-41, GC1-36, GC2-36
Insulating composite gloves
length 36cm standard

GC3-80
Insulating composite gloves
length 80cm



Flash & Grip : GCA-80
Composite and arc
flash gloves standard



TC402B (Helmets)



TP05B3
Safety Glasses for Live Line Working



Insulating Mats



C99-ISOL

Safety shoes with insulating 20kV
Fully non Metal

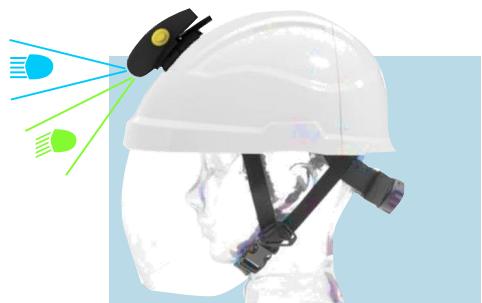


Arc Flash suit

Battery & test indicators



SMART MUTE



VES
Electrical Safety Kit





CNPT240-1-MV-NG
Full case 50 to
240 mm² without TC



FC3000
Live LV feeder and
Cable Identifier



FC2310
Cable and Phaser Identifier For
De-Energized Three Phase Cables



C-PROBELV
Ammeter for Low Voltage
Single Core, Insulated Cable



GDDTORS
Short-Circuiting Equipment



HTAG
High Voltage Detector



LECTOR
Medium Voltage Indicator

For detail information:



do.com

CABLE PREPARATION TOOL

www.alroc.fr

At the heart of our manufacturing process, a know-how of 70 years in the metal working, mould design, gravity cast makes of ALROC a recognized specialist in the alloy transformation. ALROC is committed to an ongoing investment process. In order to integrate new production methods and innovating technologies thus enabling short delivery terms and a competitive position on local and international market.



CWB/18-60



- Remove the outer semi-conductor
- Diameter ø18 - 60 mm
ø0.709 - 2.362 in
- No silicon needed
- Fine tuning of the blade with a 'click' for each 1/10 mm
- Very smooth finish over the insulation
- Adjustable length of semiconductor cutback :
25-30-40 mm / 0,984-1,181-1,575 in

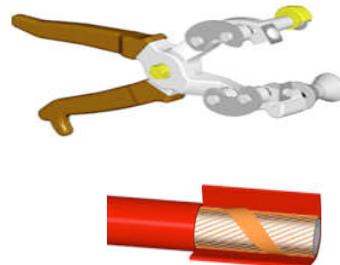


MF3/60

- Capacity 16-40mm, 16-58mm Ø
- 3-core cable 3x240 Remove the insulation
- Single core cable 240² Remove Outer sheath & insulation
- Single core cable 300² Remove Outer sheath & insulation
- Alat ini berfungsi untuk mengupas outer sheath yang 1 core, semi conductor, insulasi dan connes

PG5 HTB 3535

- Capacity 69-95mm Ømm
- 3-core cable 3x240 Perform The Outer Sheath
- Nama alat ini adalah tang PG HTB untuk mengupas PE, PVC, PR dan rubber sheath dari kabel medium voltage, khusus untuk kabel 3-core, 240 s/d 300 mmsq



SBA

- 3-core cable 3x240 perform cut on the armour
- Cable's strip hanksaw, untuk memotong plat armour

GRI

- Single core cable 240² Remove Bonded Semikonduktor
- Single core cable 300² Remove Bonded Semikonduktor
- GRI adalah untuk melepas sisa bonded semi-conductor yang masih menempel, dengan cara seperti mengasah pelan-pelan

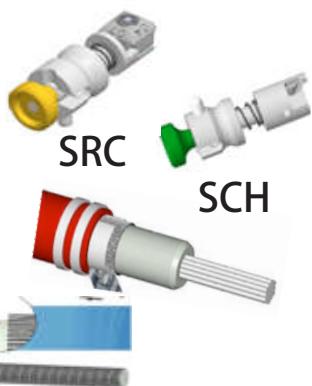


CWB 18/60 FEP

- Capacity 16-60mm Ø
- Single core cable 240² Remove Bonded Semikonduktor
- Single core cable 300² Remove Bonded Semikonduktor
- Alat ini tidak perlgi pelumas khusus, ini khusus untuk semikonduktor yang type bonded, tapi alat ini juga bisa dipakai untuk yang non bonded semikonduktor yang usia sudah sangat tua (antara lapisan insulasi dan semiconductor sudah sangat menempel sekali, bisa digunakan alat ini)

CWB 28/60 FEP

- 3-core cable 3x240; Single core cable 240/300, SRC; Remove the Palable semi-con
- 3-core cable 3x240, single core cable 240/300; SCH : Perform XLPE Chanfer
- SRC adalah model memotong seperti buah apel dengan cara memotong ulir tanpa putus, alat ini adalah bagian terpisah dari MF2 ataupun MF3
- SCH model memotong insulasi seperti es cone, fungsinya agar memasang elastimol tidak merusak insulasinya





PETZL®

www.petzl.com

Each Petzl product is designed to meet a precise need found in the real world. Our product development process favors simple, ergonomic and reliable solutions in order to introduce innovative products that reflect the evolution of activities.

PETZL Professional — Verticality



Harnesses

Simple to use, comfortable, with numerous accessories and technically suitable to the requirements of the work they are designed for, Petzl harnesses are the standard in terms of safety and efficiency for workers at height.



VOLT®



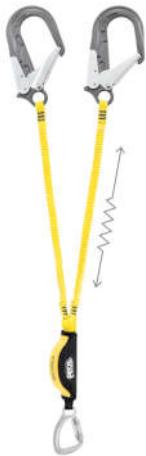
NEWTON



AVAO® BOD



LIFT



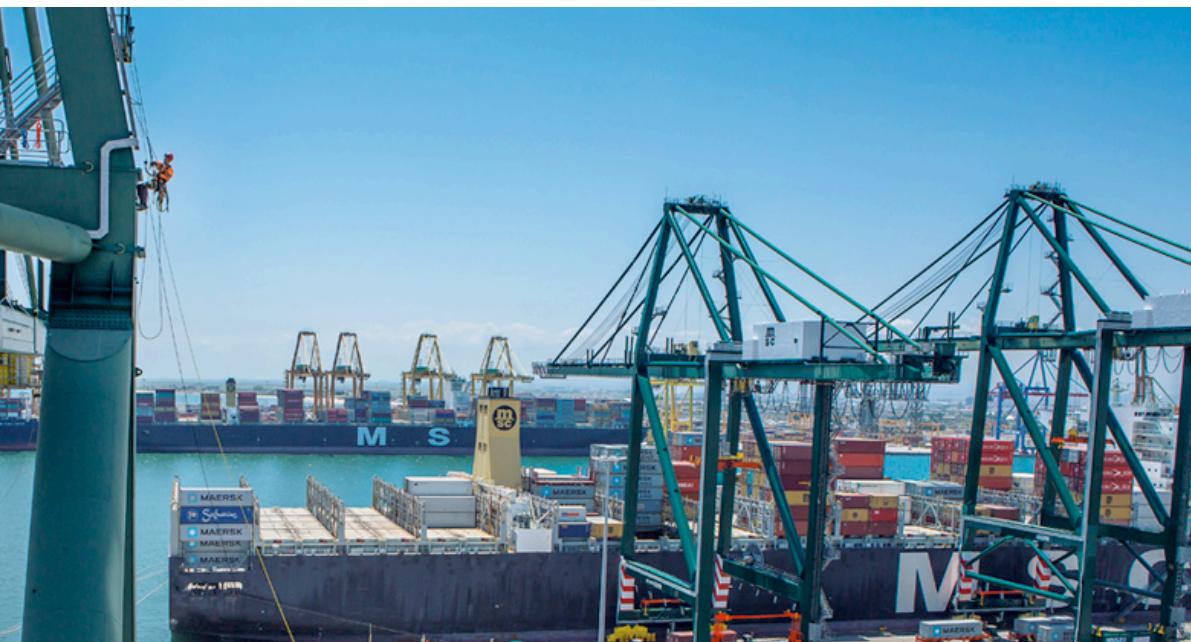
Lanyards and Energy Absorbers

Whether for work positioning or to have an energy absorber that limits the force transmitted to the user in case of a fall, Petzl offers a complete line of lanyards for different applications.



ABSORBICA-Y

GRILLON HOOK



Helmets

Essential for work at height and certain industrial activities, helmets give the user effective protection from falling objects, or if the person himself falls.



VERTEX®



VENTVERTEX®

Available Color:

Red	●	White	○
Green	●	Orange	●
Black	●	Yellow	●
		Blue	●

MATERING, INSTRUMENTATION, & TRANSDUCER

www.chauvin-arnoux.com



Chauvin Arnoux®, the Group's eponymous core brand, offers a very broad range of portable measuring instruments for industry, the tertiary sector, housing, government departments, etc.

INSULATION TESTER

C.A 6550, C.A 6555 10 kV / 15 kV



- Wide measurement range from 10 kΩ to 30 TΩ
- Fixed or programmable test voltage from 40 V to 10/15 kV
- 5 mA charging current
- Large backlit LCD screen with digital display, bargraph and R(t)+u(t) , i(t) and i(u) graphs
- Automatic calculation of DAR / PI / DD /ΔR (ppm/V) ratios
- Multiple test modes: voltage ramp and step with "burning", "early break" and "I-limit" modes

- 3 Iters to optimize measurement stability
- Calculation of R at a reference temperature
- Storage of 80,000 measurements and Real-time Clock
- Optically-isolated USB communication for transfer onto PC and report generation with the DataView® software

CA.6417 Earth Clamp

- Diameter clamp 35 mm
- Measure Ground voltage, leakage current, and impedance
- Loop resistance measurement from 0.01 to 1500 Ohm
- Measurement of grounding inductance from 10 to 500 uH
- Measurement of leakage current from 0.2 mA to 40 A

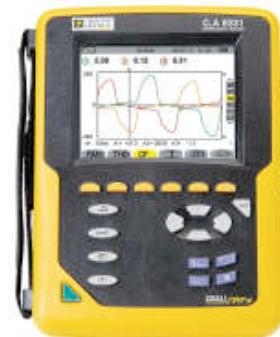
F600 Series Current Clamp

- AC, DC and Auto AC/DC TRMS Multimeter Clamp
- Current: 2000 A AC / 3000 A DC, Voltage 1000 V AC/DC
- Clamp diameter 60 mm

CLAMP METER



POWER QUALITY ANALISER



- measure all the required voltage, current and power parameters for a full diagnosis of electrical installations
- capture and record all parameters, transients, alarms, and wave forms simultaneously
- easy way to use
- 4 input voltages and 3/4 input currents
- Voltage ratio up to 500 kV and Current ratio 100 mA to 6.500 A (including inrush mode)
- Harmonics from 0 to the 50th order, phase
- Communication: USB type B
- Power Supply: 9,6 NiMH rechargeable battery, 1,9 kg weight
- Electrical safety: IEC 61010 1.000 V CAT III / 600 V CAT IV

TOWER LEG GROUND RESISTANCE TESTING



CA.6472 & CA.6474

- Measurement range: 0.001 Ω to 99.99 k Ω
- Resolution: 0.001 Ω to 10 Ω
- Voltage: 16 to 32 VRMS
- Frequency: 41 Hz to 5,018 Hz
- Ground-rod resistance measurement: 0.01 Ω to 100 k Ω
- IP53 protection

Type of Measurements

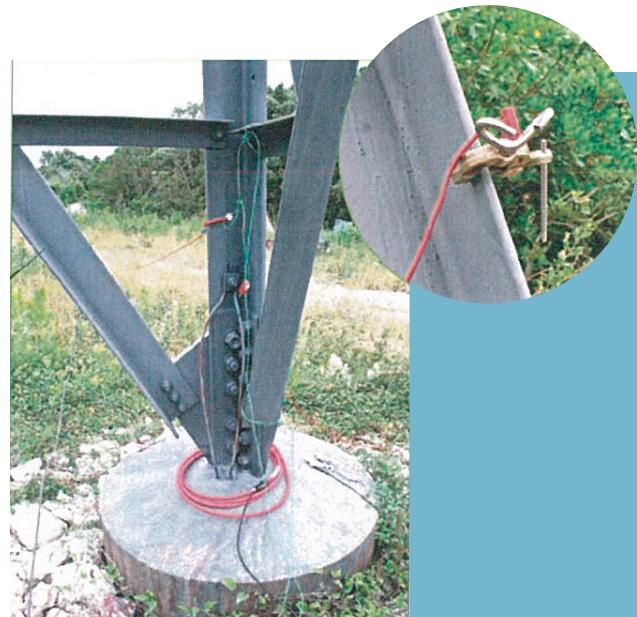
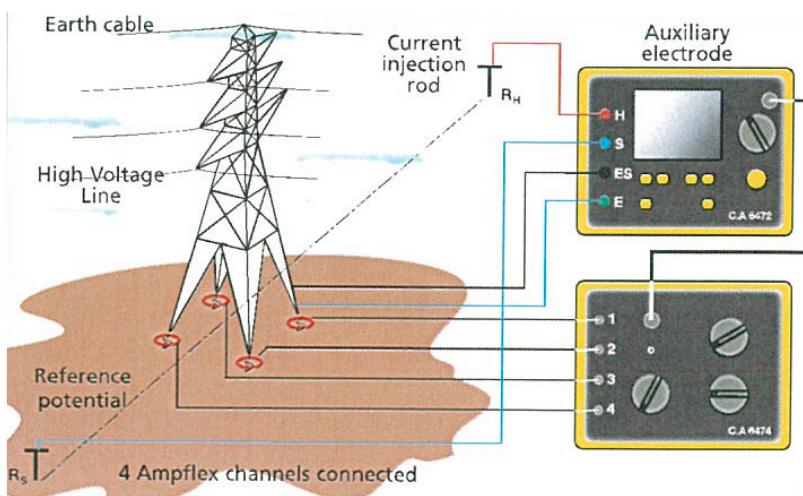
Global earth of pylons

Earth resistance of each of the pylon's footings

Quality of the overhead protective earth cable connection

Active measurement (injection by the C.A 6472)

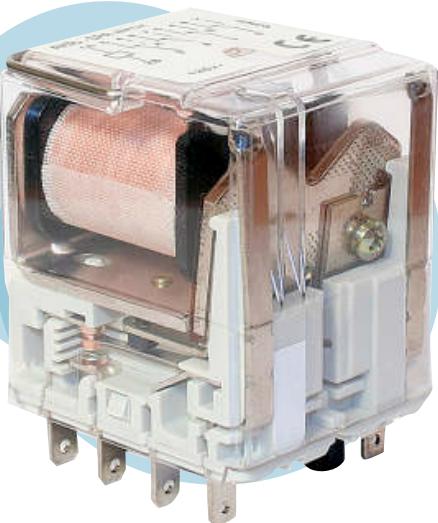
With Software DataView for Running test and Result report



THE REFERENCES FOR INDUSTRIAL RELAYS



AUXILIARY RELAY



Monostable step relay

Instantaneous contacts

- Rated current: 10 A
 - Number of contacts: 4 CO
 - Type of contacts: AgCu₃
- DC coil
- DC voltage: 24Vdc
 - Operating range: 0.75 to 1.37 Un
 - Consumption: < 1 W in continuous operation
 - Control signal: continuous or pulsed (> 50ms)

FLASH RELAY

Flashing frequency: 55 to 90 pulses / min (fixed frequency)
Instantaneous contact

- Rated current: 12 A
- Number of contacts: 2 CO
- Type of contacts: AgCdO

AC/DC coil

- AC/DC voltage: 24, 48, 110, 230
- Operating range: 0.8 to 1.2 Un
- Consumption: 5 W



ENERIUM, POWER MONITOR



Networks	: LV / MV / HV
Format	: 96x96 mm or 144x144 mm, with/without display
Multi Energy	: Electrical, Water, gas, temperature
Inputs and outputs	: Analogue and/or digital (pulses or alarms)
Recording	: Time/date stamped of min and max values
	Up to 8 load curves, 1s to 60 minutes mean values
	Up to 4 trend curves: 5, 10, 12, 15, 20, 30, 60 minutes mean values
Storage capacity	: Up to 34 days with 10 minutes average values
Alarms	: up to 16 alarms, recording of 64 last events
Harmoics	: up to rank 50
Qualimetry	: EN 50160, log of 1024 events
Communication	: Optical, RS485, Ethernet

Best Product



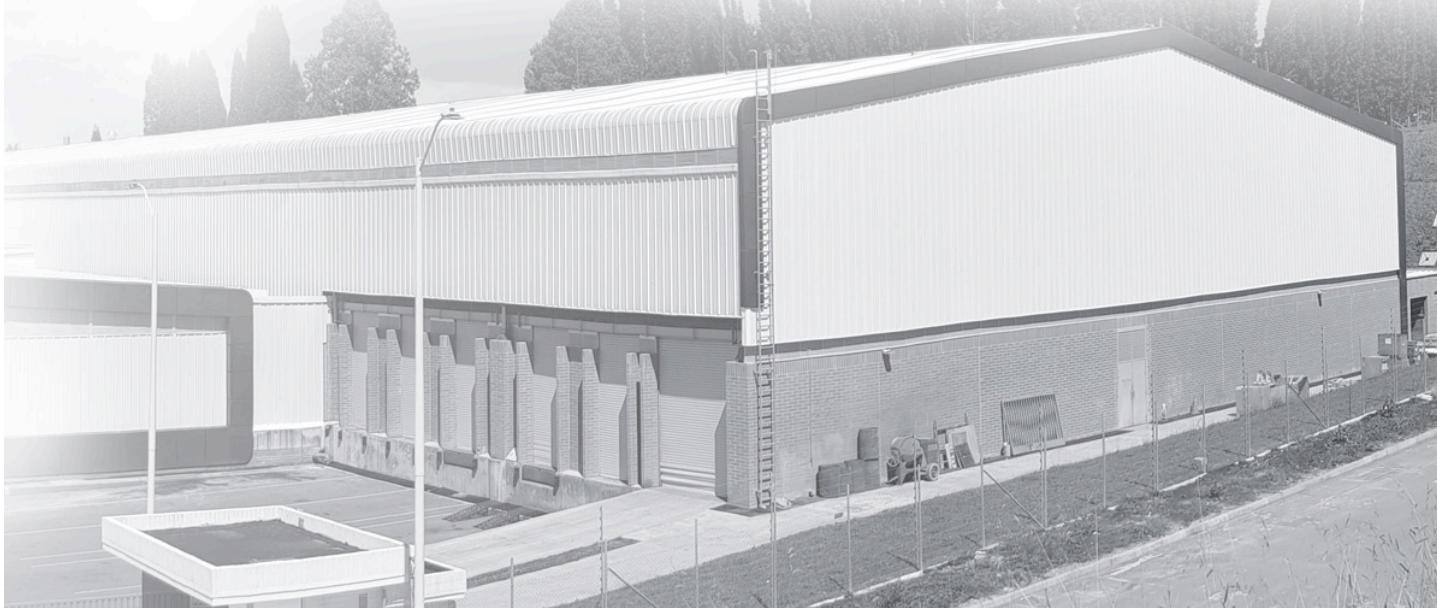
MAPxxx, POWER QUALITY MONITOR

- Networks : 3-Phase voltage, HF (2 MHz) transients, currents
- Format : 160 x 240 x 90, without display
- Compliant : with the EN61000-4-30, Standard Class A
- Detection : of their fault location direction (up/downstream) for product with current
- Analysis of transients: with a high variable sampling frequency 2 MHz
- Flicker measurement: Ift, Pst, Plt
- Storage capacity: 128 Mb
- Calculation parameter: voltage, frequency, unbalance, THD, harmonics, Power Harmonics Flicker, Voltage signalling, Power P,Q,S, Power Factor, displacements factors ($\cos \Phi$ dan $\tan \Phi$), Power Loss
- Harmonics : up to rank 50
- Qualimetry : EN50160 Standard
- Communication : RS232, Ethernet, GSM, CL poet

TRANSDUCER TRIAD 2

- Connection on single phase, 3-phase balanced or 3-phase unbalanced 3/4 wires
- 41 Measurable electrical values (depending on model)
- Accuracy class down to 0.1%
- Up to 4 analogue outputs
- Ethernet or RS485 output option
- Product status LEDs on front panel
- Mounting on DIN rail or panel
- Factory programmable on request
- Configurable with TRIADJUST 2 software via optical head, Ethernet or RS485
- Diagnosis of the installation and display of measured value via the TRIADJUST 2 software
- Tropicalization option





DIGITAL ELECTRONIC SECTIONALIZER WITH RF 15kv, 27kv OR 35kv

www.celsa.com.co



1 PHASE / 3 PHASE SECTIONALIZER

The CELSA interchangeable electronic sectionalizer is an automatic tripping device that can sectionalize failure on down-stream protected circuits from the main recloser or breaker. It does not have the capability to interrupt failure currents. it works based on the actuation of the recloser up-stream under the previously configured actuations setting. Once the recloser actuations number has been reached, and while the recloser is still open, the sectionalizer "opens" itself, isolating the circuit that still shows a failure current to the recloser, which now can close one more time and re-establish the power to the rest of the free circuit under its coverage and control. If the fault is temporal, the sectionalizer inner operation circuit I automatically initialized after a pre-established length of time.



- Current range 4 to 200 A
- Fault count events 1-4
- Restart time 1-99 sec
- IP 66
- Nominal frequency 50/60 Hz

- Manufacturing standard and test ANSI C37.63
- Nominal voltage of system 15 - 27 – 38 kV
- Acting current range (1.6 l nominal) 6 to 320 A
- Basic level of insulation (BIL) 110/125/150/170/200 kV
- Visual Indicator : a LED is used to indicate the functional state of the equipment: absence of current, nominal current or trip current

FWT Tools and Communication Tools

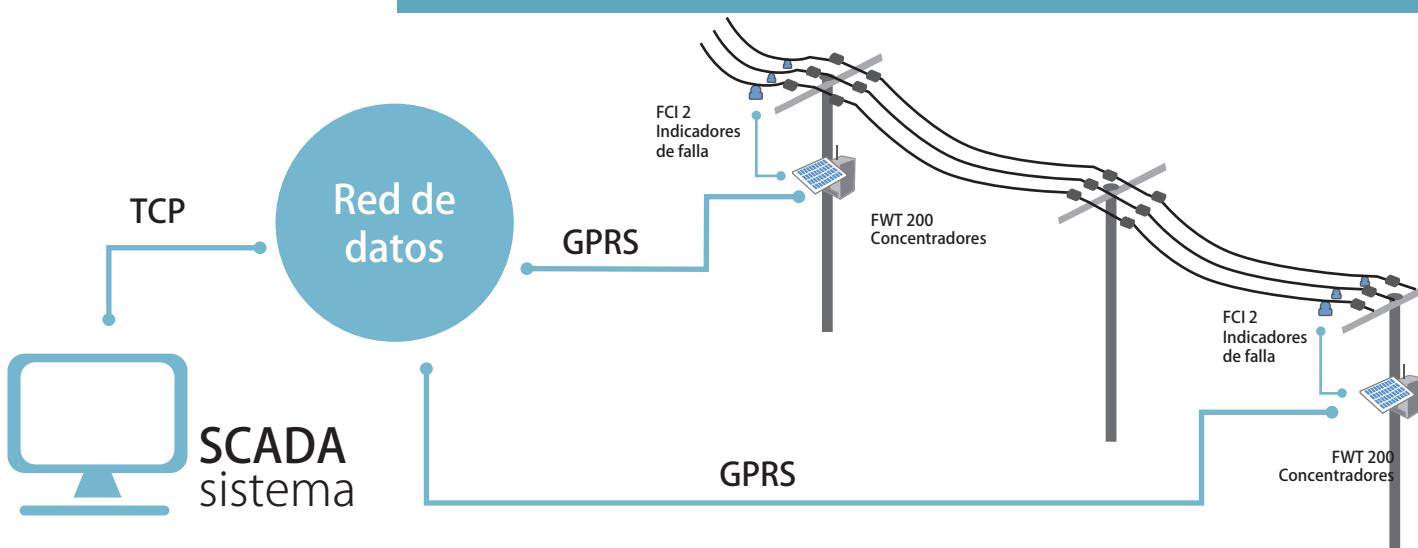
- The FWT is an autonomous portable device to query and configure the SIX DG RF, either wireless or using a connection cable. It has a RTC (real time clock) for register time and date, and a non-volatile memory with enough capacity to store all the data gathered from the field.
- COMMUNICATION PORT IP67: it includes a port used for configuration or, when using a simulation equipment, making a quick diagnostic of the Sectionalizer
- CURRENT READ: the instant current value in the circuit can be read using the FWT wireless terminal
- STATISTICS: Registers and stores the number of permanent and transitory events that were detected



FWT 200

FWT 200

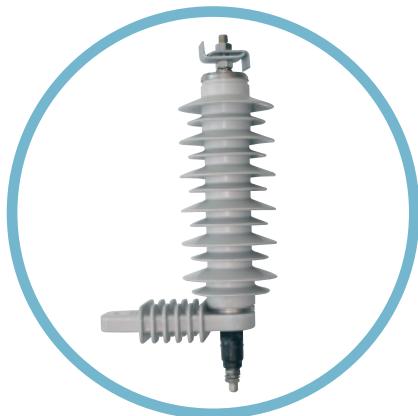
The data collector FWT200 for FCI – SIX has been developed to offer excellent operating features, low maintenance, configuration flexibility and vandal-resistant for pole installation. The data collector allows managing nine (9) SIX-DG (Sectionalizer), and reporting the information acquired through them to a web-server. For this propose, it uses a radio-frequency link for communication with SIX-DG and a GPRS link for the server communication. The data collector FWT200 allows different power supply options. The first option is the use of an external 220 VAC power source. The second option is to use solar panel. Both options supply the required energy to data collector operation and recharge an internal backup battery.



LEADERS IN THE ENERGY SECTOR

Developing, manufacturing and innovating electrical equipment in Medium and High Voltage, whereby have won public and private organizations awards in recognition of our quality and service.

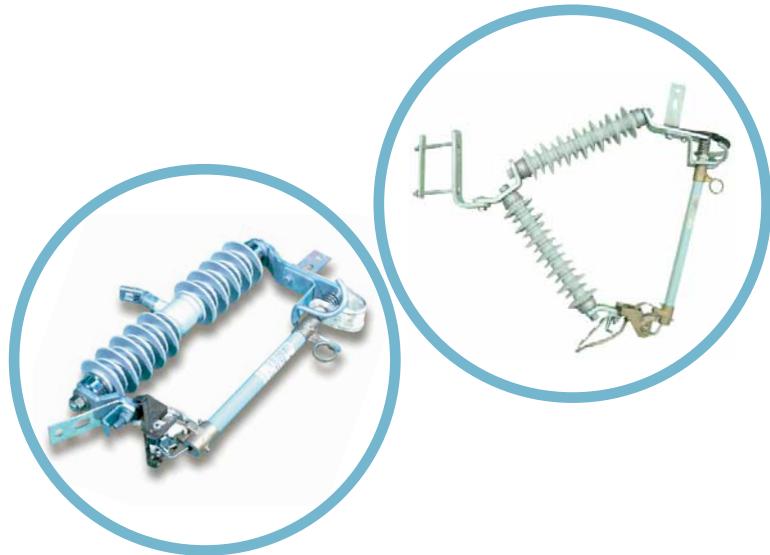
SURGE ARRESTER



- Rated voltage: 36 kV
- Rated Frequency: 50/60
- Rated Discharge Capacity (In, 8/20 μ s): up to 40 kA
- Material of Housing: Silicone rubber
- Short Circuit rating (Is, Frequency 50 Hz): 20 kA (rms) for 0.2 s
- Type of Polymer Housing: Direct Moulded
- UV Resistant Bond Energy: >3988 kJ/m

POLYMER CUT-OUT

- Rated voltage: 36 kV
- Rated frequency: 50/60 Hz
- Insulator material: Polymer
- Creepage distance: 926 mm
- BIL (Basic Insulation Level): 170 kV
- Bending moment: >250 Nm
- Rated current of the base: 300 A
- Rated current of fuse holder: 100 A



FUSE LINKS

POLYMER CUT-OUT

- Rated voltage: 24 kV
- System voltage: 24 kV
- Maximum voltage: 50 kV
- Insulator material: Polymer
- Bracket: Galvanis steel
- Connectors: Silver plated copper
- Creepage distance: 630 mm / 25,25 mm/kV
- BIL (Basic Insulation Level): 125 kV
- Bending moment: >250 Nm

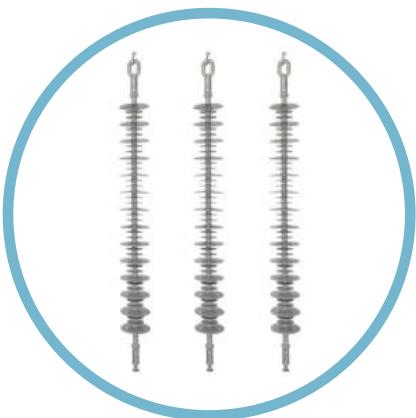


SURGE ARRESTER



- Rated voltage: 24 kV
- Basic Insulation Level (BIL): transformator 125 kV
- Rated Discharge Capacity (In, 8/20 μs): 10 kA
- Material of Hosuing: Silicone rubber
- Short Circuit rating (Is, Frequency 50 Hz): 20 kA (rms) for 0.2 s
- Type of Polymer Housing: Direct Moukded
- UV Resistant Bond Energy: >3988 kJ/M
- Partial Discharge: under 1.05 Vc

INSULATOR



- Isolators Suspension series, available for voltages from 15 kV to 132 kV, with standard terminations 11 and 16 and breaking loads of 40 kN, 70 kN and 120 kN
- Support insulators are available for voltages from 15 kV, 24 kV and 36 series for mechanical loads specified 6 kN and 8 kN.
- polymeric insulators are designed to hold on environmental adverse weather conditions (humidity, salinity, etc.) and high pollution, providing secure, reliable and high efficiency in their use for distribution networks of electricity

CURRENT-LIMITING FUSES

The current-limiting fuses are components whose main function is to protect electrical equipment such as distribution transformers, motors and capacitor banks against over currents

Available Type:

DIN rail: -D1, D2 and IB-IB-D3 to the current range of 2.5 A to 100 A
Models of IB-IB DG and DK series for the range of 2.5 A to 150 A
Models of the IB-F series, IB and IB-LP for current range 4 A to 250 A



POWER ELECTRICS FOR RAIL APPLICATION

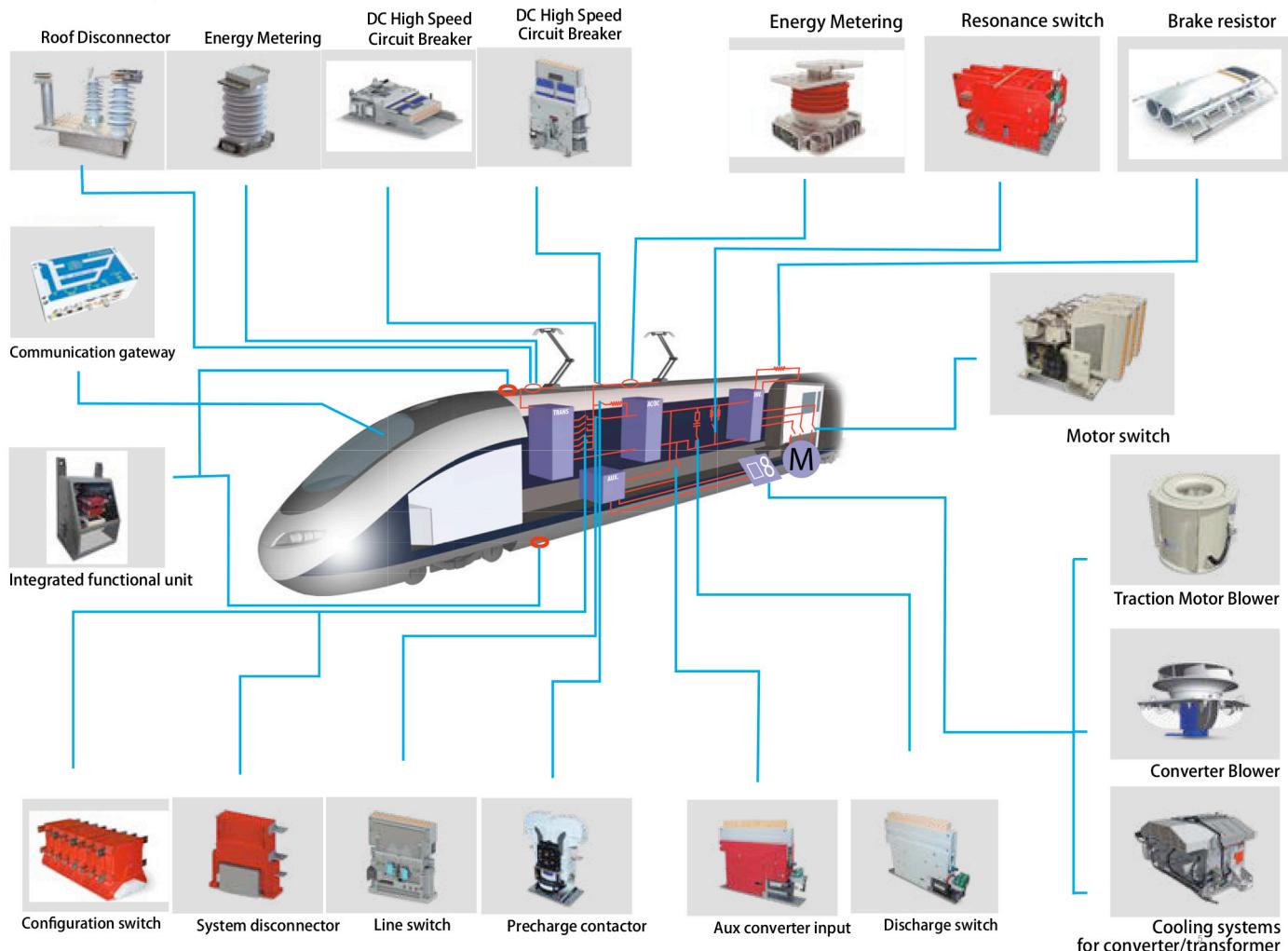


A GLOBAL LEADER IN
STATE-OF-THE-ART ELECTROMECHANICAL AND
ELECTRONIC COMPONENTS AND SYSTEMS FOR
RAIL VEHICLES, TRACTION POWER AND ENERGY
& INDUSTRY APPLICATIONS.

ON-BOARD APPLICATION COMPONENTS FOR

CONTACTORS
DC HIGH SPEED CIRCUIT BREAKERS
DISCONNECTORS
RESISTORS
ELECTRONIC TRANSDUCERS
FANS
SWITCHGEARS ON BOARD

A tailored solution for every traction component need



PROTECTION RELAYS

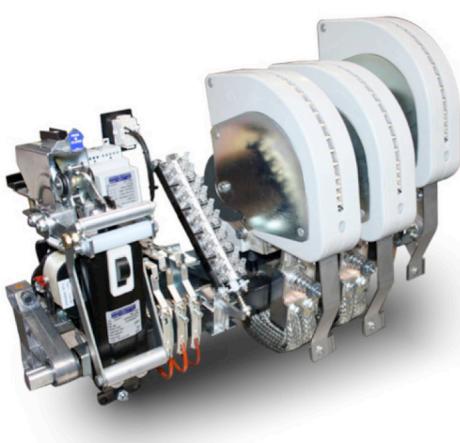
MC30-2T (GB310)

THREE PHASE + NEUTRAL CURRENT PROTECTION RELAY



General Characteristics

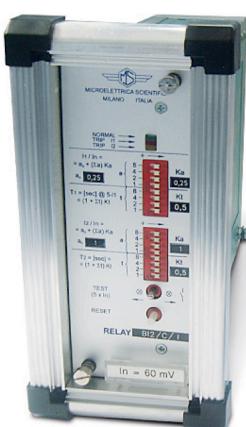
G-Base is the new generation of Microelettrica Scientifica's base-performance protection relays. This range is the ideal solution for protection and automation, thanks to its high configurability. It is based on the same powerful microprocessor adopted on high-performance G-Pro range. G-Base platform is based on a four-channel configuration, allowing it to be used for current and voltage protection functions. MC30-2T, part of the G-Base range, is a relay designed for the interface to the power distribution grid.



SWITCHES

General Characteristics

- The bar mounted modular extra heavy duty line, up to 1000V DC/AC application, up to 6000A/pole
- Stationary application only
- Up to 6 poles configuration, NO and NC poles direct arc blow out various aux contacts options
- Flexible control and adjustment configurations, total unit customization possible



A-LINE ANALOGUE RELAY

General Characteristics

The series of electronic analogic protective relays here below presented has been designed according to the most advanced technologies in order to obtain the highest reliability, accuracy and immunity to interference and is made with first choice components safely dimensioned and protected. The application of severe testing and quality control procedures guarantees the reliability of the product.



AEROS



Enertelindo

PT. Enertelindo Kencana

Office address:

Kompleks FATMAWATI MAS
Jl. RS. Fatmawati 20
Blok I Kav. 120C
Cilandak Barat, Jakarta 12430, INDONESIA

Tel: +62217699511

Fax: +62217654923

Email: project@enertelindo.com

Website: www.enertelindo.com

Mulyadi

HP : 0815-9025 255