

Schneider Electric

Multifunction Numerical Relay (IED) Product Portfolio

MiCOM series

MiCOM

- **Modular Integrated Communicable Overall Management IED**

Micom - Introduction

- The MiCOM range of relays offers varying levels of functionality and hardware options to best suit the protection requirements, and allows the customer to choose the most cost effective solution for their application.
- The 10, 20, 30 and 40 series hardware platforms are the building blocks of the MiCOM protection relay range providing the capability for a wide variety of protection, control, measurement, monitoring and communication functions.
- The versatile hardware allows for application in many installations and a common relay management software (MiCOM S1 Studio) makes for easy configuration and application.
- Numerous integrated communication protocols allow easy interfacing to most substation control or SCADA systems.

MiCOM Comprehensive Protection Solution

- Generation

 - Integrated Generator Protection

- Utility

 - Distance Protection

 - Line Differential

 - Transformer Management

 - Bus bar Protection

 - Stand Alone Breaker Fail Protection

 - Directional/Non-Directional Over current

 - Feeder Management and One Box Solutions

MiCOM - Pxxx

Protection Solutions

MiCOM Px 1 x	=	Basic
MiCOM Px 2 x	=	Standard
MiCOM Px 3 x	=	Advanced with Bay Control
MiCOM Px 4 x	=	Advanced

MiCOM Comprehensive Protection Solution

- Industrial

- Motor Management

- Interconnection Protection

- Railway

- Feeder Management

- Transformer Management

- Distance Protection

MiCOM Protection portfolio

P900 Frequency Protection Relays

P800 Autoreclose Relays

P700 Busbar Protection Relays

P600 Transformer Protection Relays

P500 Line Differential Relays

P400 Distance Protection Relays

P300 Generator Protection Relays

P200 Universal Motor Protection Relay

P100 Feeder Management Relays

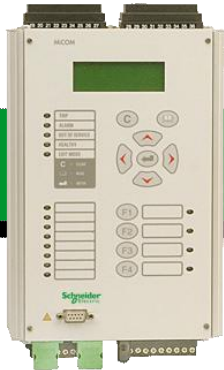


MiCOM Relays

Hardware & Software Platforms



40 Series



30 Series



20 Series



10 Series

Platform

P x10 Series

Enhanced version launched – P111Enh

- **P11x: Universal Over current protection for main or back-up protection on LV or MV systems**
- CT or Dual powered variants available.
- Price vs. technical features
- Wide range of protection function with Auto reclosure option
- Communication : Modbus RTU & IEC 60870-5-103
- Breaker control : HMI & DCS/SCADA
- MiCOM S1 Studio supported.
- Three level password protection
- Front USB Port / Rear RS485
- Good amount of SOE, FR and DR

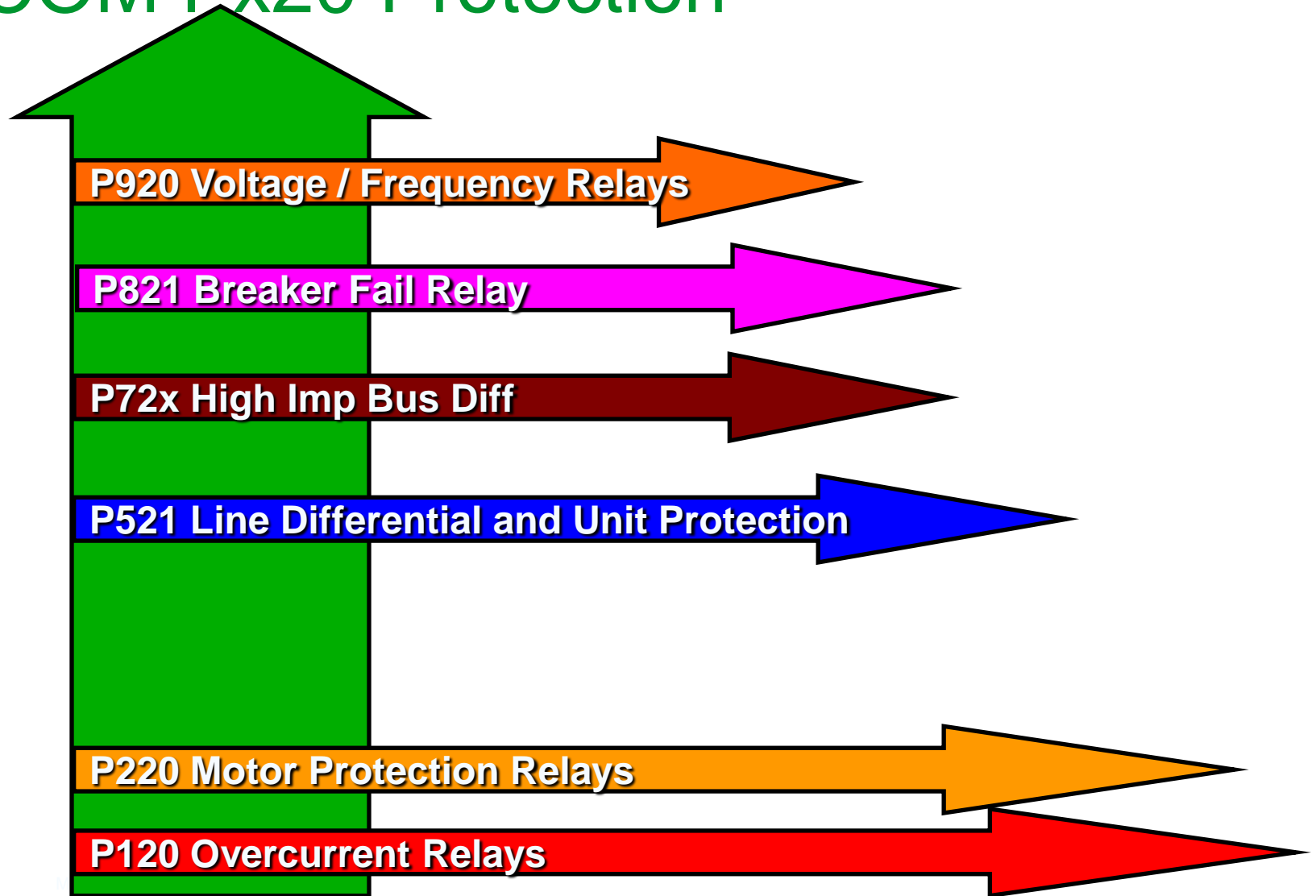
- **P21x – Cost efficient LV motor protection**



P x20 Series

- P12x: Universal Over current protection for main or back-up protection on MV and HV systems
- P22x: Motor Protection Series for LV and MV systems
- P52x: 2 terminal Line Differential protection for MV and HV systems with multiple communication options
- P72x: Dedicated high impedance differential protection
- P821: Dedicated Breaker Failure Protection suitable for HV and MV systems
- P92x: Voltage and frequency protection suitable for generators, motors and feeders

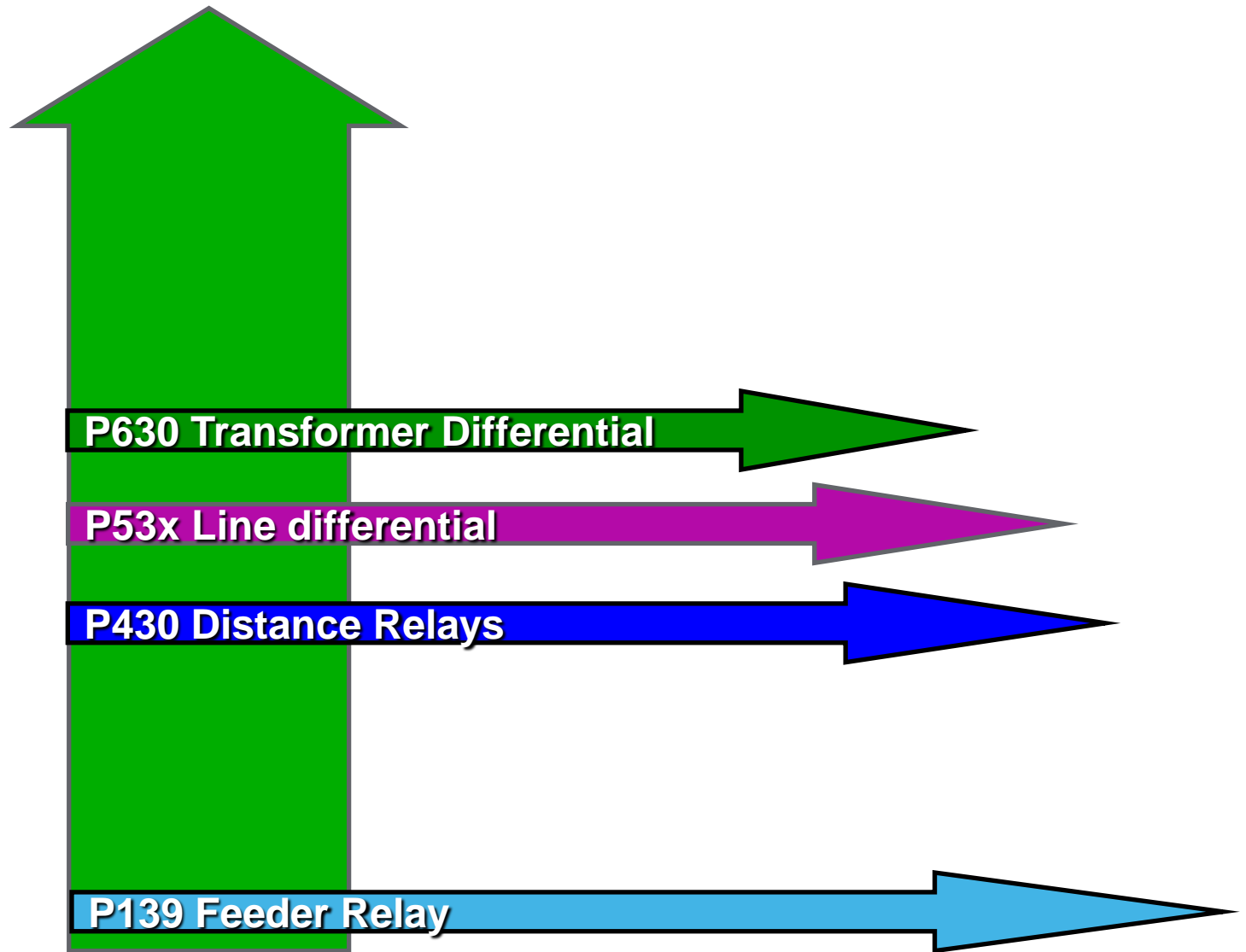
MiCOM Px20 Protection



P x30 Series

- P13x: Feeder management relays and one box solution for MV and HV systems (including railway feeder)
- P43x: Distance protection for MV and HV systems and rail catenary requirements
- P53x: Line differential protection for MV and HV systems
- P63x: Differential protection for transformers, generators and motors (including railway transformers).

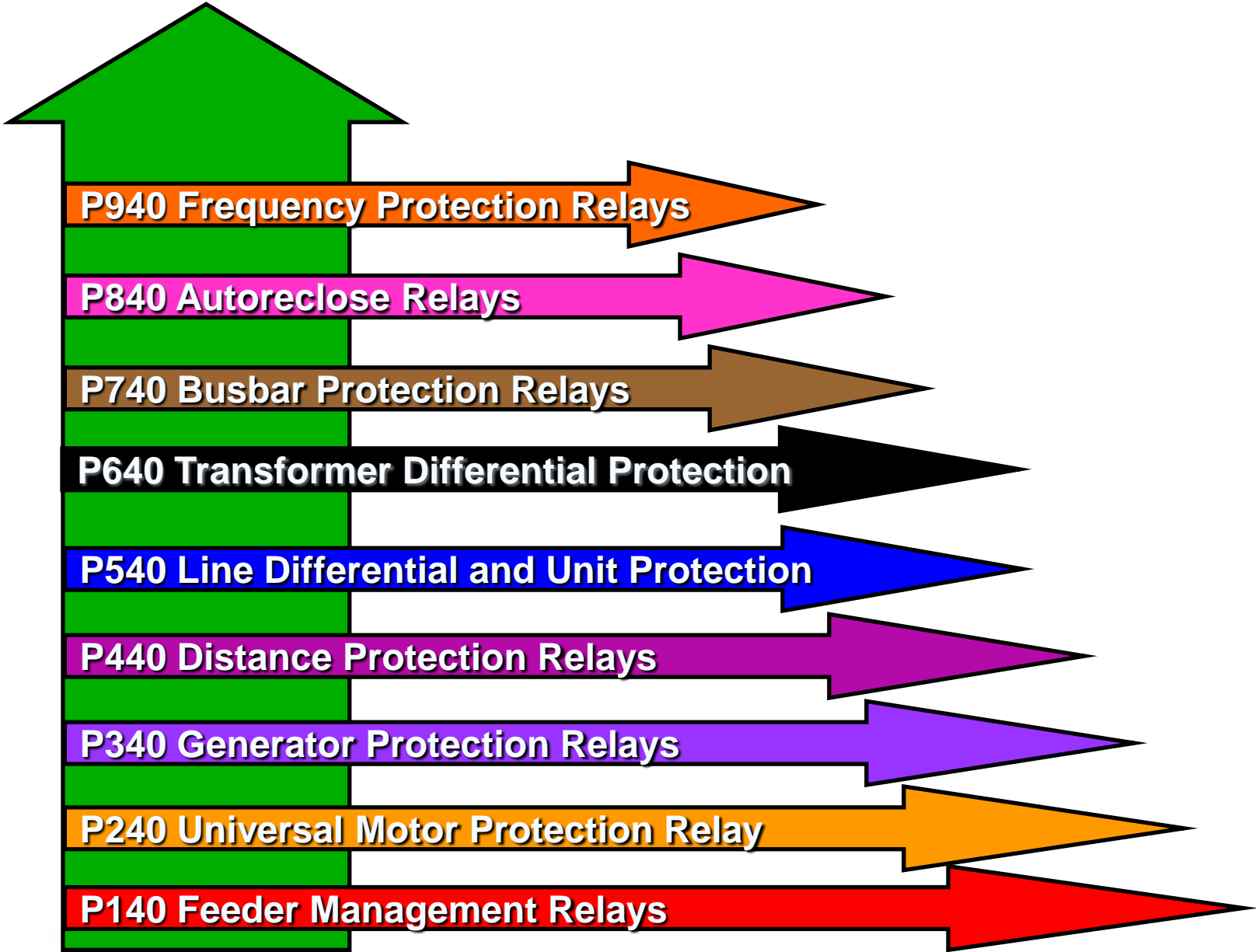
MiCOM Px30 Protection



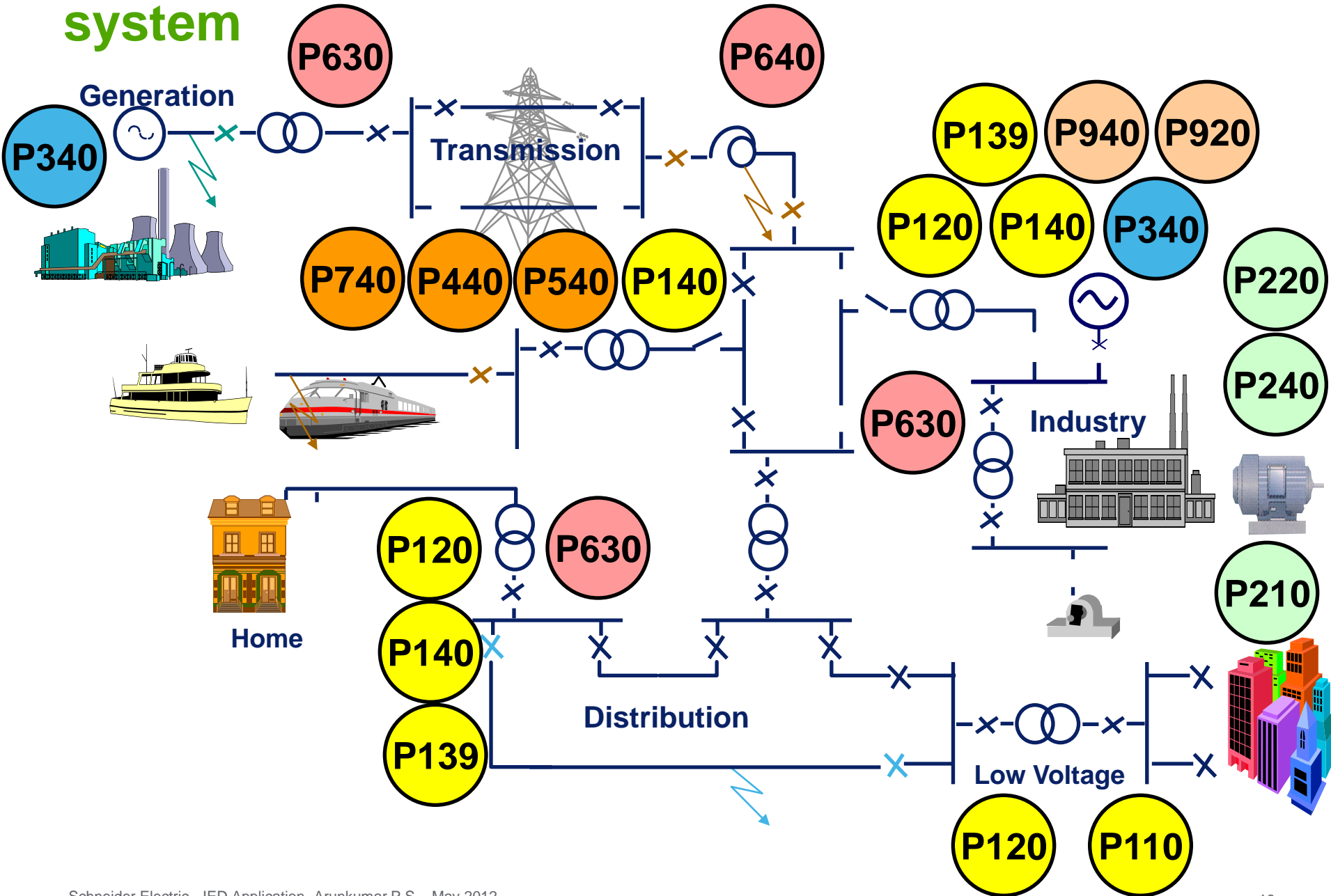
P x40 Series

- P14x: Feeder management relay suitable for MV and HV systems
- P24x: Rotating Machine Management relay for application on a wide range of synchronous and induction machines
- P34x: Generator protection for small to sophisticated generator systems and interconnection protection
- P44x: Full scheme Distance protection relays for MV and HV systems.
- P54x: Line Differential protection relays for HV systems with multiple communication options as well phase comparison protection for use with PLC.
- P64x: Differential protection for transformers.
- P74x: Numerical Bus bar protection suitable for application on MV and HV bus bars
- P84x: Multifunction terminal IED with professional autoreclosing and CB failure functions.

MiCOM Px40 Protection



MiCOM protection covers all areas of the power system



VAMP series

VAMP

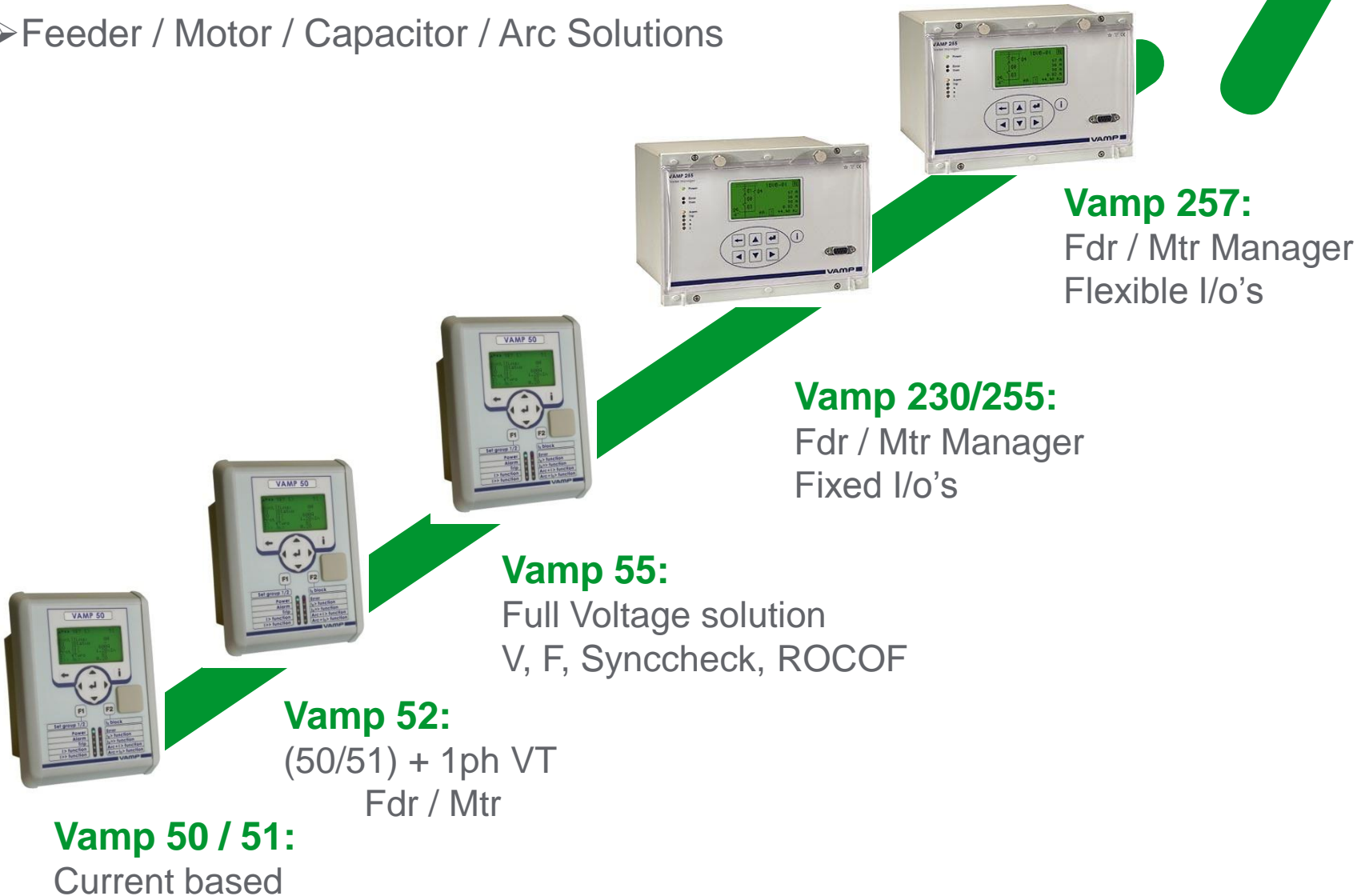
- **V**aasa **A**rc **M**onitoring and **P**rotection IED.

Vamp ???

- ◆ Optimized IEC61850 solution for LV/MV system.
- ◆ Optimized one-box
- ◆ Stand alone/centralized Arc detection
(growing market)
- ◆ Arc detection integrated in relays
- ◆ Profibus & SPA bus communication

Vamp Product range for Schneider

➤ Feeder / Motor / Capacitor / Arc Solutions



VAMP products

Targeted Products

- ▶ Products for feeder, motor, V&f and Arc protection application

- ▶ **50 Series:**

- ◆ **50** (non-dir O/C)
- ◆ **51** (non-dir. O/C + autoreclose)
- ◆ **52** (Motor or Directional feeder protection-67N)
- ◆ **55** (Voltage & frequency based protection)

- ▶ **Arc protection devices:**

- ◆ **120/ 121** units & **221** System

- ▶ **200 Series:**

- ◆ **230** (Directional Feeder or Motor)
- ◆ **255** (Directional feeder or motor with extended I/O)
- ◆ **257** (Dir. Fed or motor with flexible I/O extension, high end complement of 200 feeder/motor)



Vamp 50 Series



- Feeder Protection
- Motor Protection
- IEC 61850 with GOOSE Messaging
- Integrated Arc Protection

VAMP 50 Series

Features

- ▶ Compact case solution with USB front port.
- ▶ Big display with mimic/bay control
- ▶ Modbus, IEC101, IEC 103, DNP 3, Spa bus, Profibus , IEC61850, Modbus TCP/IP, DNP3 TCP/IP (10MBps) (100MBps CA June 2010)
- ▶ Optional rear ports:
RS232, RS485, fibers, RJ45
- ▶ In-/outputs: Base 2DI / 4DO.
- ▶ Additional card : 4 DI / 1DO.
- ▶ Control relays 1 Alarm, 1 Internal Fault.
- ▶ Analog inputs: 4 CTs (50/51), 4CTs / 1VT (52) or 4VTs (55)
- ▶ Optional Arc flash protection (2 sensors)
- ▶ Optional mA output
- ▶ Optional remote RTD box** (up to 12 RTDs)

Bay mimic



Arc sensors or more I/O option



Rear ports options

**Remote RTD -VEO12 Ax



Vamp 50

Features

OC/EF

V50 + 79 + 99

V51 + 67N

V + F + 25

	VAMP 50	VAMP 51	VAMP 52	VAMP 55
Analog inputs	3 x I 1 x Io	3 x I 1 x Io	3 x I 1 x Io 1 x U	4 x U
Digital inputs	2 (6)	2 (6)	2 (6)	2 (6)
Trip relays	4 (5)	4 (5)	4 (5)	4 (5)
Control relays	2	2	2	2
mA output	Option	Option	Option	Option
Arc protection	Option	Option	Option	Option
Front port	USB	USB	USB	USB
Optional rear port	RS 485 RS 232 Fibre Ethernet	RS 485 RS 232 Fibre Ethernet	RS 485 RS 232 Fibre Ethernet	RS 485 RS 232 Fibre Ethernet
External RTD input module	Option	Option	Option	Option

Vamp 50

Protection functions

- 3-phase overcurrent: $I>$, $I>>$, $I>>>$ (50/51)
- Earth fault: $I_0>$, $I_0>>$, $I_0>>>$, $I_0>>>>$ (50N/51N)
- Thermal overload (cable): $T>$ (49F)
- Broken conductor: I_2/I_1 (46)
- Circuit breaker failure protection: CBFP (50BF)
- Inrush detection: I_{f2} (68)
- Latched trip (86)
- Arc protection : $I> / I_0>$, $L>$ (50ARC/50NARC) (option)

Vamp 51

- Based on VAMP 50 with following complementary functions
 - 3-phase overcurrent: $I>$, $I>>$, $I>>>$ (50/51)
 - Earth fault: $I_0>$, $I_0>>$, $I_0>>>$, $I_0>>>>$ (50N/51N)
 - Thermal overload (cable): $T>$ (49F)
 - Broken conductor: I_2/I_1 (46)
 - Circuit breaker failure protection: CBFP (50BF)
 - Inrush detection: I_{f2} (68)
 - Latched trip (86)
 - Arc protection : $I> / I_0>$, $L>$ (50ARC/50NARC) (option)
 - **5 Shot Autoreclosing.**
 - **8 Programmable stages**

Vamp 52

- 3-phase overcurrent: I>, I>>, I>>> (50/51)
- Earth fault: I0>, I0>>, I0>>>, I0>>>> (50N/51N)
- Thermal overload (cable): T> (49F)
- Broken conductor: I2/I1 (46)
- Circuit breaker failure protection: CBFP (50BF)
- Inrush detection: If2 (68)
- Latched trip (86)
- Arc protection : I> / I0>, L> (50ARC/50NARC) (option)
- 5 Shot Autoreclosing.
- 8 Programmable stages
- **Directional earth-fault, I0φ>, I0φ>> (67N)**
- **Residual voltage, U0>, U0>> (59N)**
- **Intermittent earth fault protection (67NT)**
- **Over- and undervoltage protection (59, 27), single phase**

50 Series – Protection functions

IEEE/ANSI code	IEC symbol	Function name	Note
50/51	3I>, 3I>>, 3I>>>	Overcurrent protection	
46	I ₂ >	Current unbalance protection in feeder mode	
46	I ₂ >	Current unbalance protection in motor mode	Only VAMP 52
47	I ₂ >>	Phase reversal / incorrect phase sequence protection	Only VAMP52 available when application option is in motor protection mode.
48	I ₂ >>	Stall protection	
66	N>	Frequent start protection	
49	T>	Thermal overload protection	
37	I<	Undercurrent protection	Only VAMP52
50N/51N	I ₀ >, I ₀ >>, I ₀ >>>, I ₀ >>>>	Earth fault protection	
67NT	I ₀ >	Intermittent transient earth fault protection	Only VAMP52 available when measurement option is U ₀
67N, 50N/51N	I _{0φ} >, I _{0φ} >>	Directional or non directional earth-fault, low-set stage, sensitive, definite or inverse time	
59N	U ₀ >, U ₀ >>	zero sequence voltage protection	
59	U>, U>>, U>>>	Single-phase overvoltage protection	Only VAMP 52 available when measurement option is 1LL (line-to-line voltage) or 1LN (phase-to-neutral voltage).
27	U<, U<<, U<<<	Single-phase undervoltage protection	
51F2	I ₂ >	Second harmonic O/C stage	

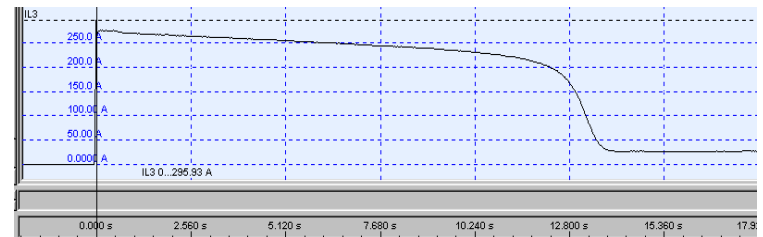
IEEE/ANSI code	IEC symbol	Function name	Note
50BF	CBFP	Circuit-breaker failure protection	
99	Prg1...8	Programmable stages	Only VAMP51/52
50ARC/ 50NARC	ArcI>, ArcI ₀₁ >	Optional arc fault protection (with an external module)	
99	Prg1...8	Programmable stages	Only VAMP51/52
50ARC/ 50NARC	ArcI>, ArcI ₀₁ >	Optional arc fault protection (with an external module)	

Vamp 50 – Recorder functions

- Eight (8) fault logs per protection stage
- 200 latest events.
- Disturbance recorder
 - Waveform or trend mode possible
 - 32 Samples/cycle max
 - Comtrade format



Inrush current captured in waveform mode
(32, 16 or 8 samples/cycle)



Start current of an induction motor ($6xI_N$, 13 s)
captured in trend mode (e.g. 10 ms, 20 ms, 200 ms)

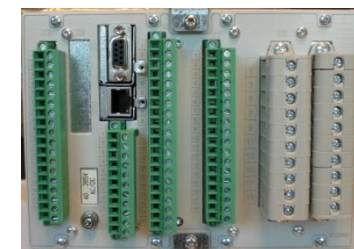
Vamp 200 Series



- Feeder Protection
- Motor Protection
- Capacitor Protection
- Fault locator
- Power quality
- IEC 61850 Compliant with Goose Messaging
- Integrated Arc Protection

Features

- ▶ Semi-modular case (~40TE)
- ▶ RS232 front port
- ▶ Big display with mimic/bay control
- ▶ Modbus, IEC101, IEC 103, DNP 3, Spabus, Profibus*, IEC61850, Modbus TCP/IP, DNP3 TCP/IP (10Mbps)
- ▶ Optional rear ports: RS232, RS485, fibres, RJ45
 - ◆ 230/255: Port 1: 232 / Port 2 optional
 - ◆ 257: Port 1&2 optional
- ▶ In-/outputs – Extensive
- ▶ 5CT/3VT
- ▶ Disturbance recorder
- ▶ Power Quality
- ▶ Fault locator
- ▶ Optional Arc flash protection (2 sensors)
- ▶ 4 Optional mA outputs for 230/255
- ▶ Optional remote RTD box (up to 12 RTDs)



Rear view 230 & 257



LED extension with add. LED panel VAM 16D

Vamp 200

VAMP 257, VAMP 255 and VAMP 230 are almost the same product.

The only difference is the amount of digital inputs/outputs and analogue inputs!

	VAMP 257			VAMP 255	VAMP 230
Analog measurement	5 x I 3 x U			5 x I 3 x U	5 x I 3 x U
Digital inputs	18 (+2)	22 (+2)	30 (+2)	18 (+2)	6 (+2)
Output relays	9	19	13	9	7
Self-supervision contacts	1			1	1
Memory	Non-volatile			Non-volatile	Non-volatile
Number of events - default - scalable range	200 50...2000			200 50...2000	200 50...2000
Native IEC61850	x			x	x

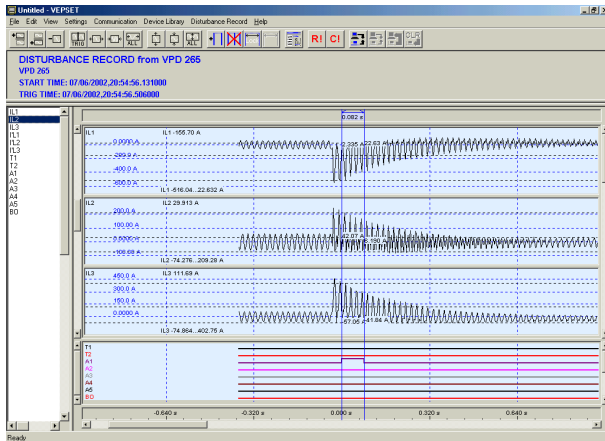
Feeder Mode – Protection Functions (230, 255, 257)

- Three stages of phase overcurrent (50/51)
- Non-directional ground-fault, 2 stages (50/51N)
- Directional phase overcurrent, 4 stages (67)
- Directional ground-fault, 2 stages (67N)
- Broken conductor, I2/I1 (46)
- Inrush and cold-load pick up (68)
- Thermal overload with memory tracing (49)
- Undercurrent/loss of load (37)
- Reverse power (32)
- Over and under voltage, 3 stages (59,27)
- Residual voltage relays, 2 stages (59N)
- Over and under frequency, 4 stages (81)
- Rate of change of frequency, df/dt
- CBFP (50BF)
- 5-shot auto-reclose (79)
- Synchro-check (25)
- 8 programmable stages
- Arc protection (option)

Motor Mode – Protection Functions (230, 255, 257)

- Overload, short-circuit, mechanical jam (50/51)
- Non-directional ground-fault, 2 stages (50/51N)
- Directional overcurrent, 4 stages (67)
- Directional ground-fault, 2 stages (67N)
- Current unbalance (46)
- Thermal overload with memory tracing (49M)
- Undercurrent/loss of load (37)
- Reverse power (32)
- Phase reversal (47)
- Frequent starts (66)
- Stall/blocked rotor (48)
- Over and under voltage, 3 stages (59,27)
- Residual voltage relays, 2 stages (59N)
- Over and under frequency, 4 stages (81)
- Speed Switch (14)
- External RTD's, up to 12 (Trip or alarm, 38,49)
- CBFP (50BF)
- 8 programmable stages
- Emergency Restart (blocking)
- Arc protection (option)

Disturbance Recorder – 200 Series



▶ 12 channels

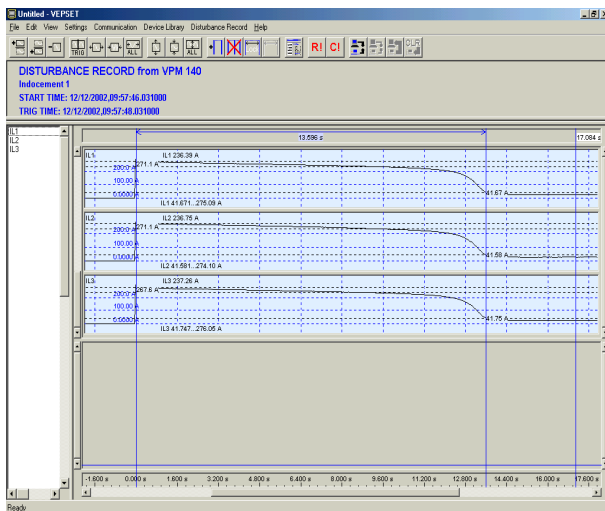
▶ Waveform or trend – Comtrade format

Two recording modes available Waveform mode

32 or 16 or 8 samples / power cycle

Harmonics up to 15th or 7th or 3rd order recorded

Used when exact transient data and phase angle information is needed

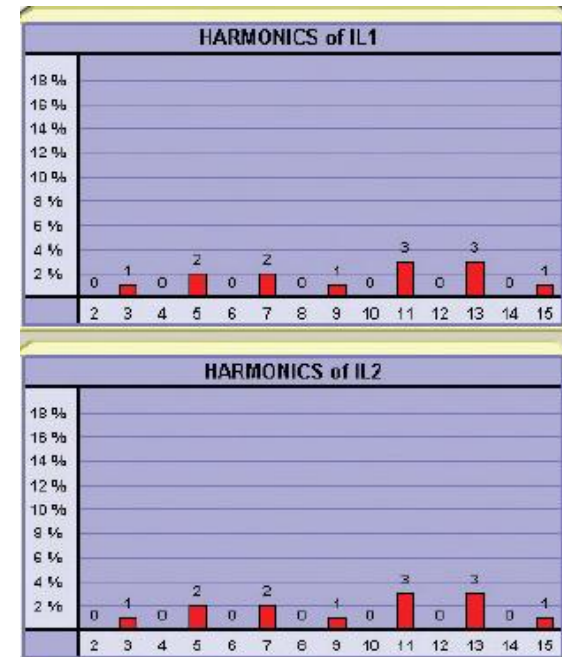
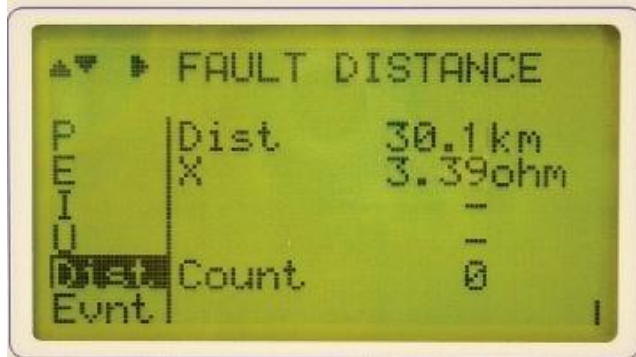
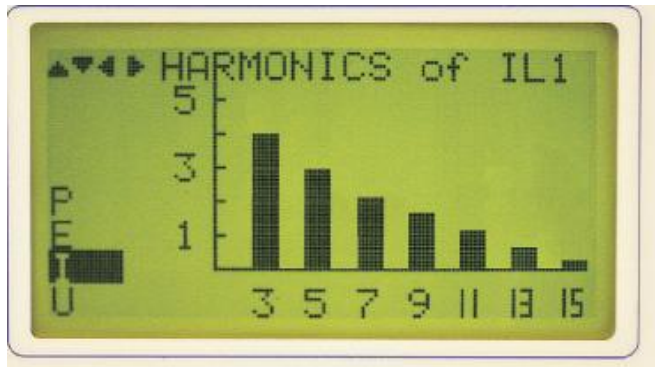


Average mode

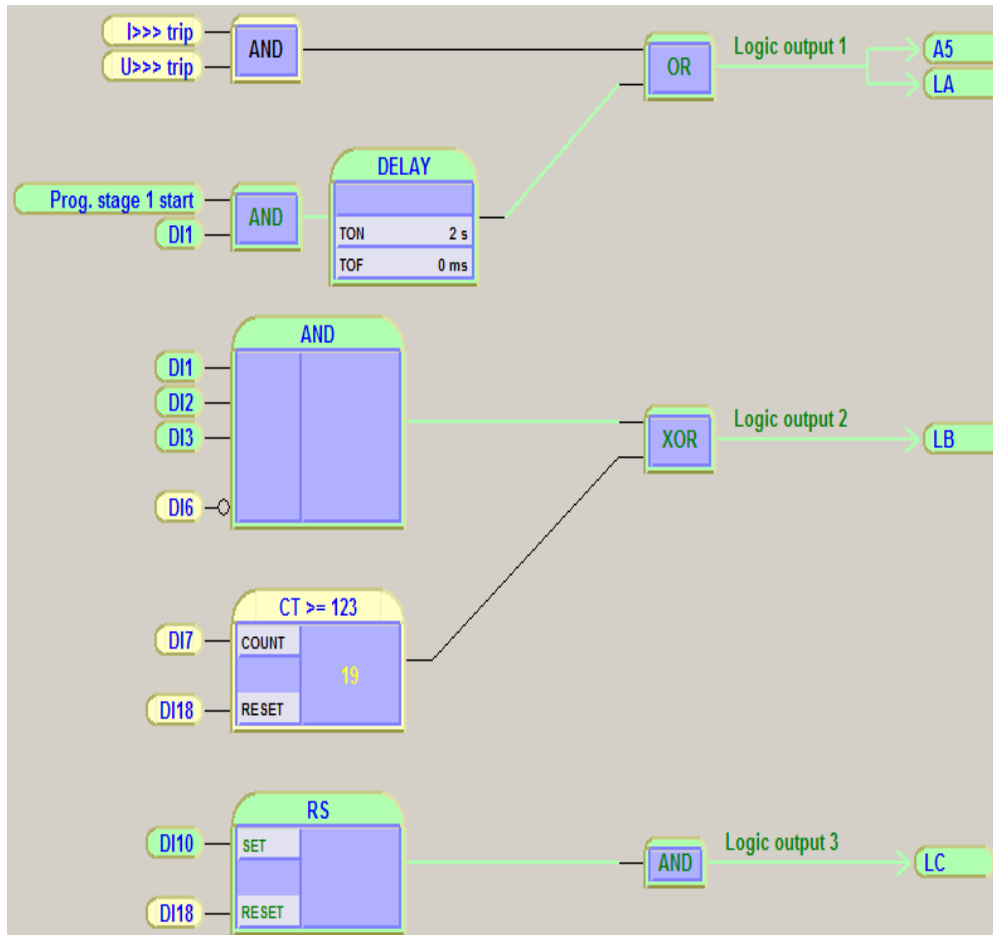
1/10 ms, 1/20 ms, ... 1/1min average RMS value sampling

Used for outgoing feeders, motors, and any application where slowly varying variable fluctuations are of interest

Power Quality Assessment & Fault Locator



Programmable Logic



- ▶ Graphical logic
- ▶ AND, OR, NOT, XOR, TIMERS, Memory
- ▶ Configuration, download and upload to/from relay using VAMPSET
- ▶ On-line updating, useful, for example, debugging

Communication



Sepam Series

Sepam protection relays

a range of solutions for all applications



Sepam series 10
Basic solutions
for simple applications



Sepam series 20
Simple solutions
for standard applications



Sepam series 40
High-performing solutions
for demanding applications



Sepam series 60



Sepam series 80
Intelligent solutions
for custom applications

Sepam protection relays

For your peace of mind



I. Solutions

II. Modularity

III. Performance

IV. Simplicity

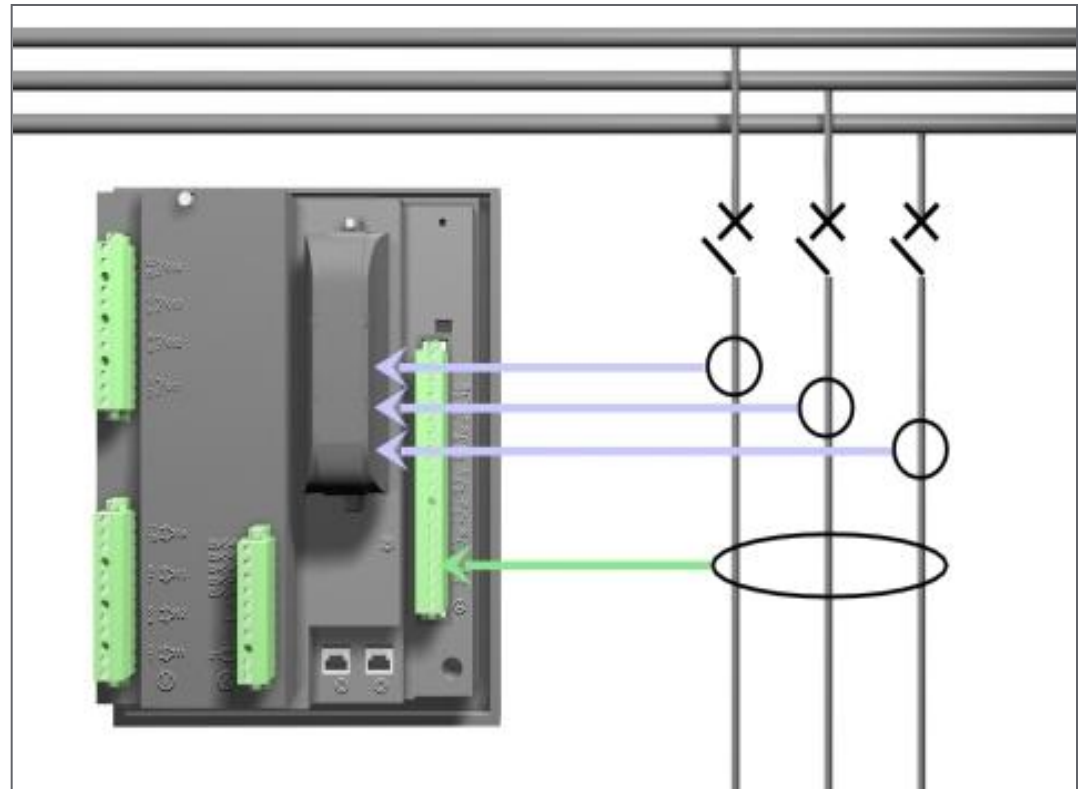
Sepam protection relays

a range of solutions for all applications

		Sepam range				
		series 10	series 20	series 40	series 60	series 80
Current		Yes	Yes	Yes	Yes	Yes
Voltage			Yes			
Phase & Earth basic protection		Yes	Yes	Yes	Yes	Yes
Directional protection				Yes	Yes	Yes
Synchro-check					Yes	Yes
Differential protection						Yes
Display	2 lines of characters	Yes				
	Basic UMI + remote UMI		Yes	Yes	Yes	Yes
	Advanced UMI		Yes	Yes	Yes	Yes
	Mimic based UMI				Yes	Yes
Removable S/W cartridge					Yes	Yes
Input / Output (up to)		4 / 7	10 / 8	10 / 8	28 / 16	42 / 23
Temperature sensor (up to)			0 / 8	0 / 8 / 16	0 / 8 / 16	0 / 8 / 16
Multiprotocol communication port (up to)		1 rear	1 front / 1 rear	1 front / 1 rear	1 front / 1 rear	1 front / 2 rear
Communication protocol	Modbus RTU	Yes	Yes	Yes	Yes	Yes
	IEC 60870-5-103	Yes	Yes	Yes	Yes	Yes
	DNP3		Yes	Yes	Yes	Yes
	Modbus TCP/IP		Yes	Yes	Yes	Yes
	IEC 61850		No GOOSE	No GOOSE	Standard GOOSE	Customized GOOSE
Ethernet high availability communication				RSTP	RSTP	RSTP
Logic equation editor				Yes (100 operators)	Yes (200 operators)	Yes (200 operators)
Logipam (Ladder language)						Yes
RoHS / Conformal coated - EIA 364-65A IIIA		Yes	Yes	Yes	Yes	Yes
Marine / IEC 61508 - SIL2 / ATEX certification						Yes

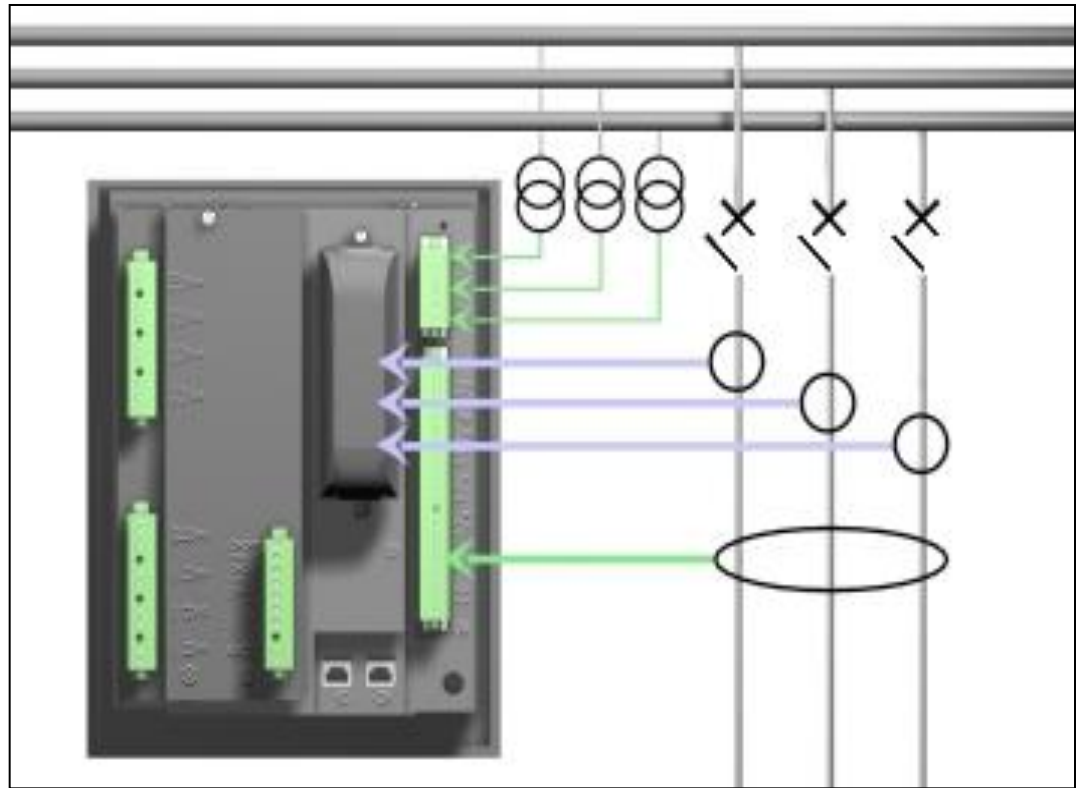
Sepam series 20

- Current or voltage metering according to the application
- 10 logic inputs / 8 relay outputs
- 1 communication port
- 8 temperature sensor inputs



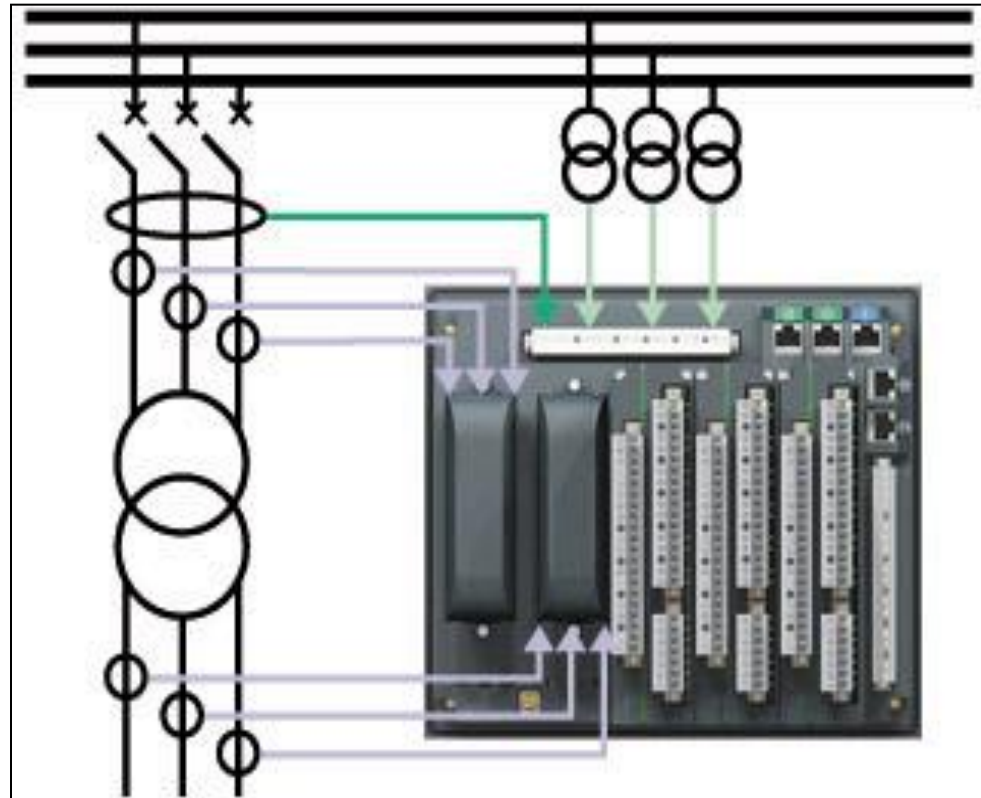
Sepam series 40

- Current and voltage metering for all applications:
 - all measurements available
 - directional protection functions
- 10 logic inputs / 8 relay outputs
- logic equation editor
- 1 communication port
- 16 temperature sensor inputs



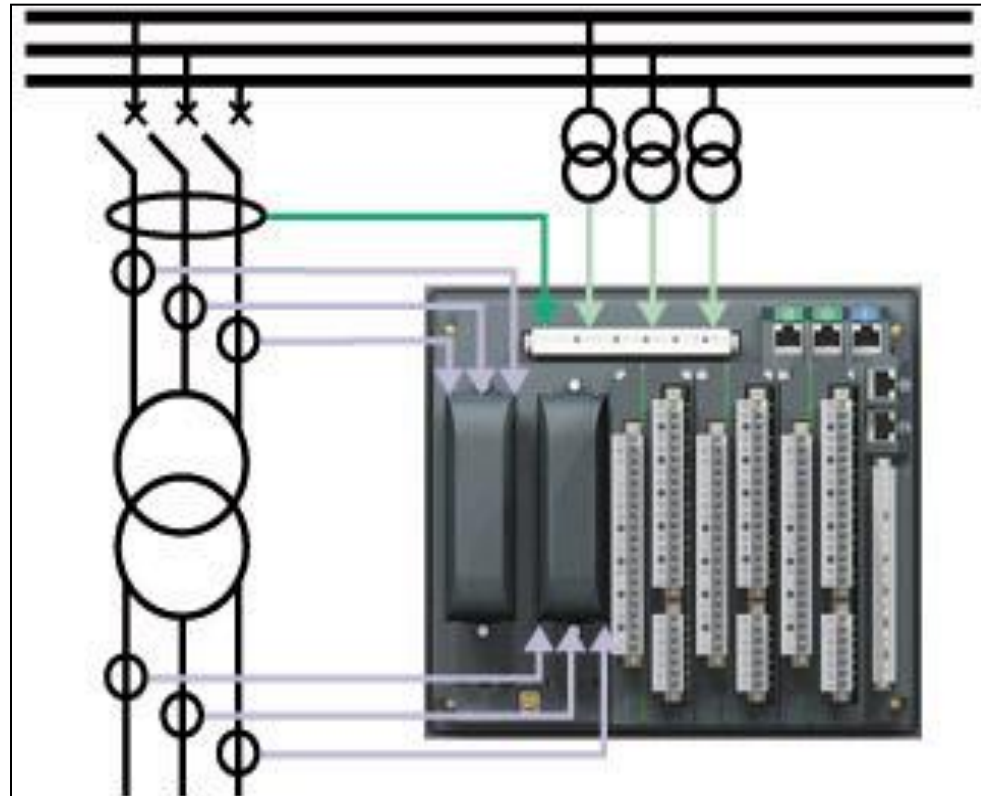
Sepam series 60

- Multiple metering:
 - all measurements available
 - directional and REF protection functions
- 28 logic inputs / 16 relay outputs
- logic equation editor
- 1 communication port
- 16 temperature sensor inputs
- Memory cartridge and backups
- Local control via mimic-based UMI
- Synchro-check
- Automatic transfer



Sepam series 80

- Multiple metering:
 - all measurements available
 - directional and differential protection functions
- 42 logic inputs / 23 relay outputs
- logic equation editor
- 2 communication port
- 16 temperature sensor inputs
- Memory cartridge and backups
- Local control via mimic-based UMI
- Optional Logipam programming software
- Synchro-check
- Automatic transfer



Sepam protection relays

For your peace of mind



I. Solutions

II. Modularity

III. Performance

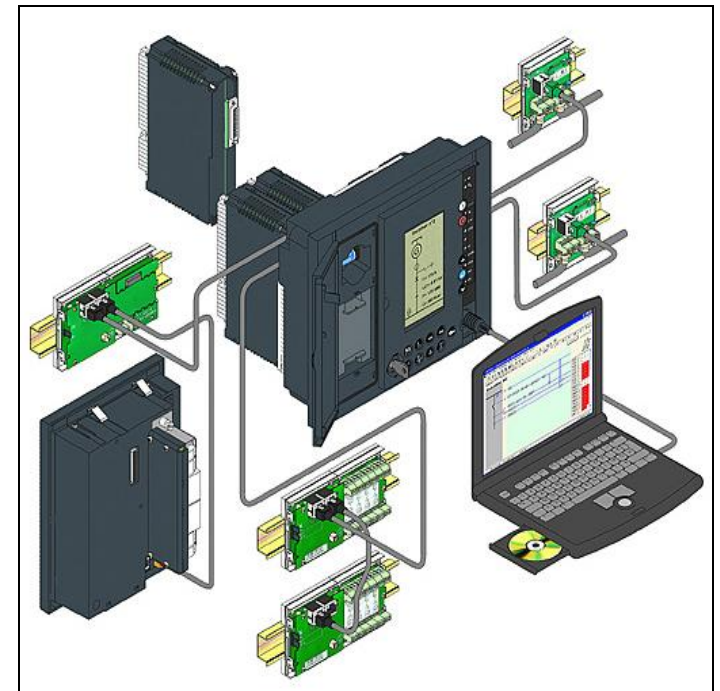
IV. Simplicity

Architecture modulaire Sepam



Functional enhancement
by optional modules

- To specifically fit your needs
- To evolve in step with your installation



SEPAM SERIES 20/40 MODULES(LIMITS)

Sepam series 20 / series 40
maximum configuration

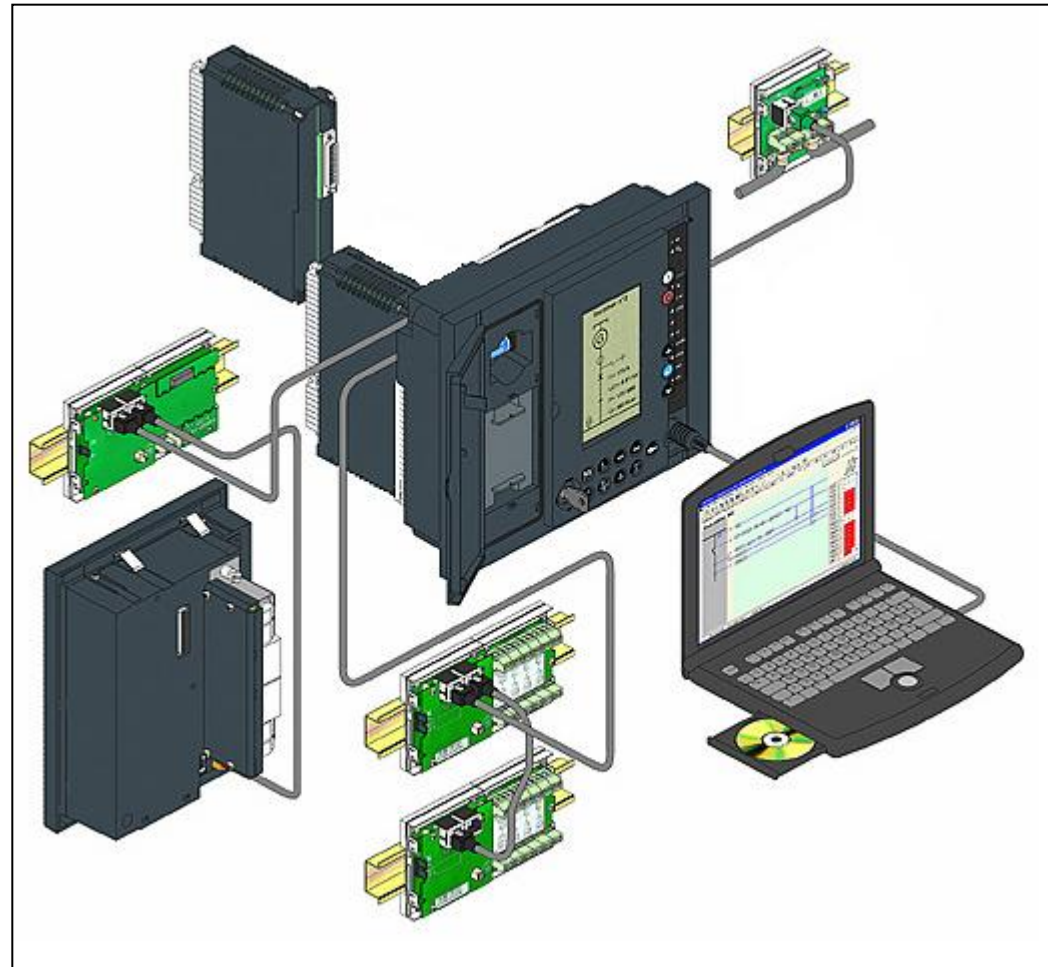
- 10 inputs / 8 outputs
(1 MES114 module)
- 1 analog output
(1 MSA141 module)
- 1 communication ports
(1 ACE interface)
- Temperature sensor inputs
 - Series 20: 8 inputs
(1 MET148-2 module)
 - Series 40: 16 inputs
(2 MET148-2 modules)



SEPAM SERIES 60 MODULES (LIMITS)

Sepam series 60 maximum configuration

- 28 inputs / 16 outputs
(2 MES120 modules)
- 16 temperature sensor inputs
(2 MET148-2 modules)
- 1 analog output
(1 MSA141 module)
- 1 synchro-check
module MCS025
- 1 communication port
(1 ACExxx interface)



SEPAM SERIES 80 MODULES(LIMITS)

Sepam series 80 maximum configuration

- 42 inputs / 23 outputs
(3 MES120 modules)
- 16 temperature sensor inputs
(2 MET148-2 modules)
- 1 analog output
(1 MSA141 module)
- 1 synchro-check
module MCS025
- 2 communication ports
(2 ACE interfaces)



Sepam protection relays

For your peace of mind



I. Solutions

II. Modularity

III. Performance

IV. Simplicity



Sepam range performance



- Reliability & robustness
- Effective protection
 - Suited to each application
 - To specifically fit all the needs, from the simplest to the most comprehensive
- Accurate measurement & detailed diagnosis
 - Measuring all necessary electrical values
 - Network, machine & switchgear diagnosis
- Integral equipment control
 - Pre-defined & customizable control functions
- Remote operation

Sepam series 20 performance



- Phase and earth fault protection
 - Earth fault protection with 2nd harmonic restraint
 - Switching between groups of settings A & B
 - Logic discrimination, for a quick, selective tripping of the protection functions
- RMS thermal overload protection
 - Compensated by ambient temperature
 - Switching between 2 groups of settings according to operating conditions
- Loss of mains protection by ROCOF

Sepam series 40 performance



- Current and voltage metering
- Directional protection functions
 - Dir. earth fault, suited to all neutral earthing systems, impedant, compensated or isolated
 - Dir. phase overcurrent, with voltage memory and frequency tracking
 - Dir. power
- CT / VT supervision
- Logic equation editor, to program specific control functions

Sepam series 80 performance



- Transformer differential protection
 - for two-winding transformers
 - for transformer-machine units
- Comprehension motors and generators protection
 - differential protection
 - filed loss (underimpedance)
 - Pole slip
 - 100% stator earth fault
 - speed monitoring
- Customized tripping curve
- 2 communication ports
- Synchro-check
- Logipam programming software

Sepam protection relays

For your peace of mind



I. Solutions

II. Modularity

III. Performance



IV. Simplicity

Simplicity for all



● Saving design time

- simplified choice in a reduced and consistent range of relays and accessories
- compatible with various sensor types

● Easy to install

- compact base unit
- flexible architecture with remote modules

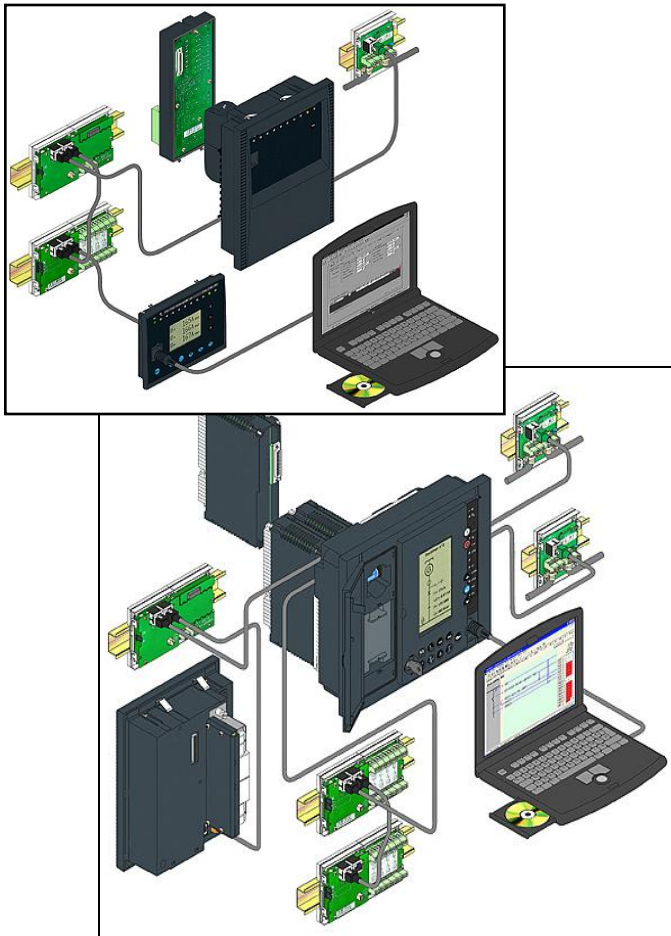
● Assisted commissioning

- ready to use after simple setting procedure
- user-friendly and powerful setting software

● User-friendly

- comprehensive data displayed on intuitive advanced UMI
- local control on mimic-based UMI
- customized UMI in the user 's language

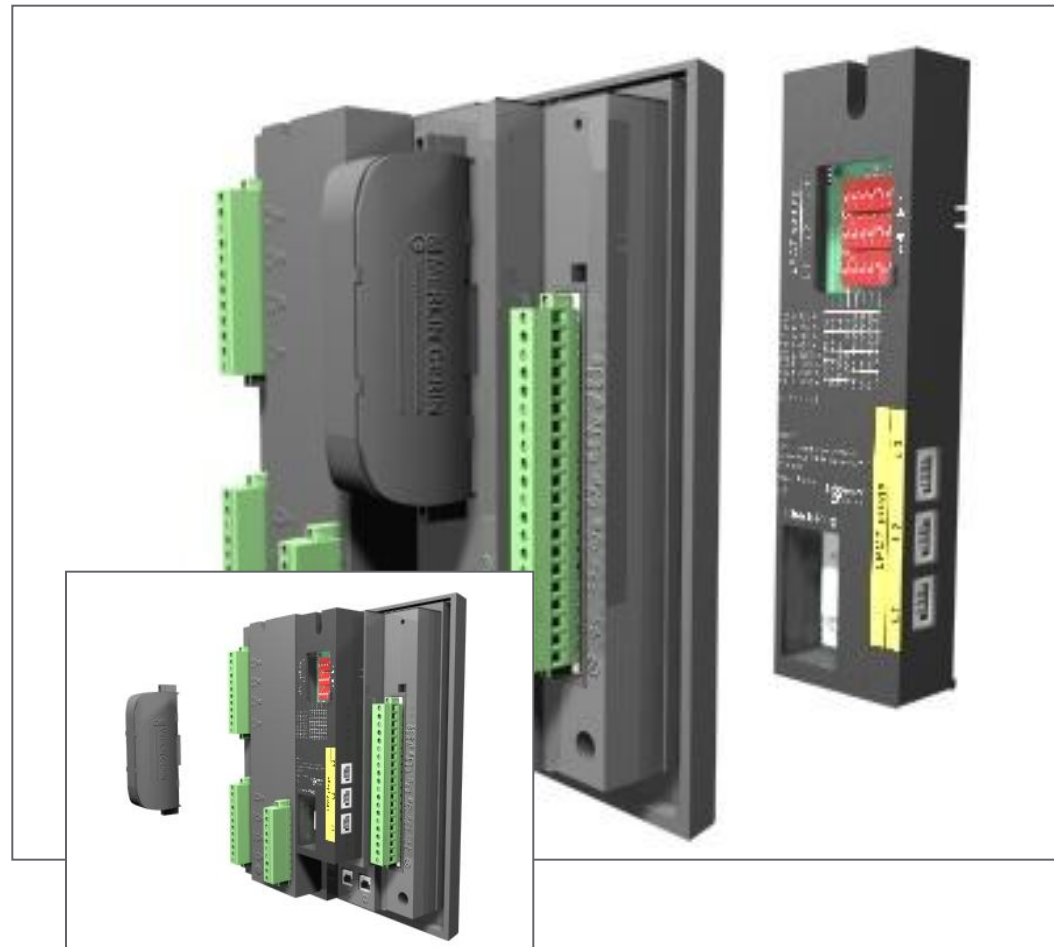
Simplified choice



- A consistent product range, organized by application
- Universal power supply, for Sepam and its logic inputs:
 - series 20/40: 24-250VDC & 110-240VAC
 - series 80: 24 to 250VDC
- Common optional modules and accessories for the whole Sepam range:
 - 1 temperature module compatible with Pt100, Ni120 or Ni100 RTDs
 - 1 analog output module (4-20mA, 0-10mA, 0-20mA)

Phase current metering by CT or LPCT

- 2 types of sensors may be connected to Sepam via a specific connector:
 - 1A or 5A current transformers by CCA 630 or CCA634
- or
- LPCT sensors by :
 - CCA 670 for Sepam series 20 or Sepam series 40
 - CCA 671 for Sepam series 80
- LPCT (Low Power Current Transducer), developed according to the IEC60044-8 standard

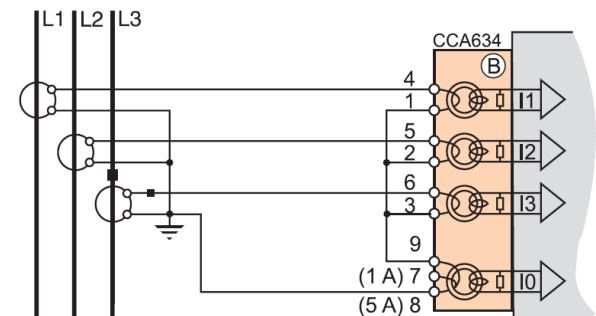
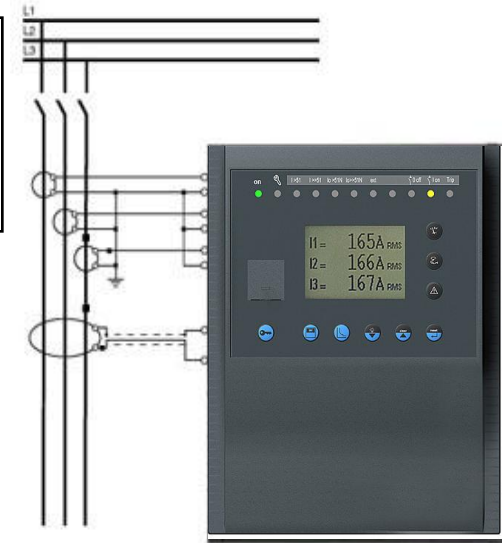
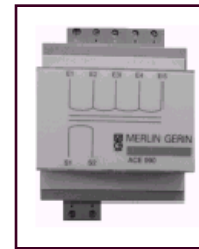
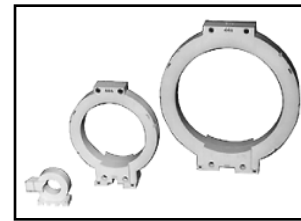


Residual current metering by CT or core balance CT

Residual current is metered by:

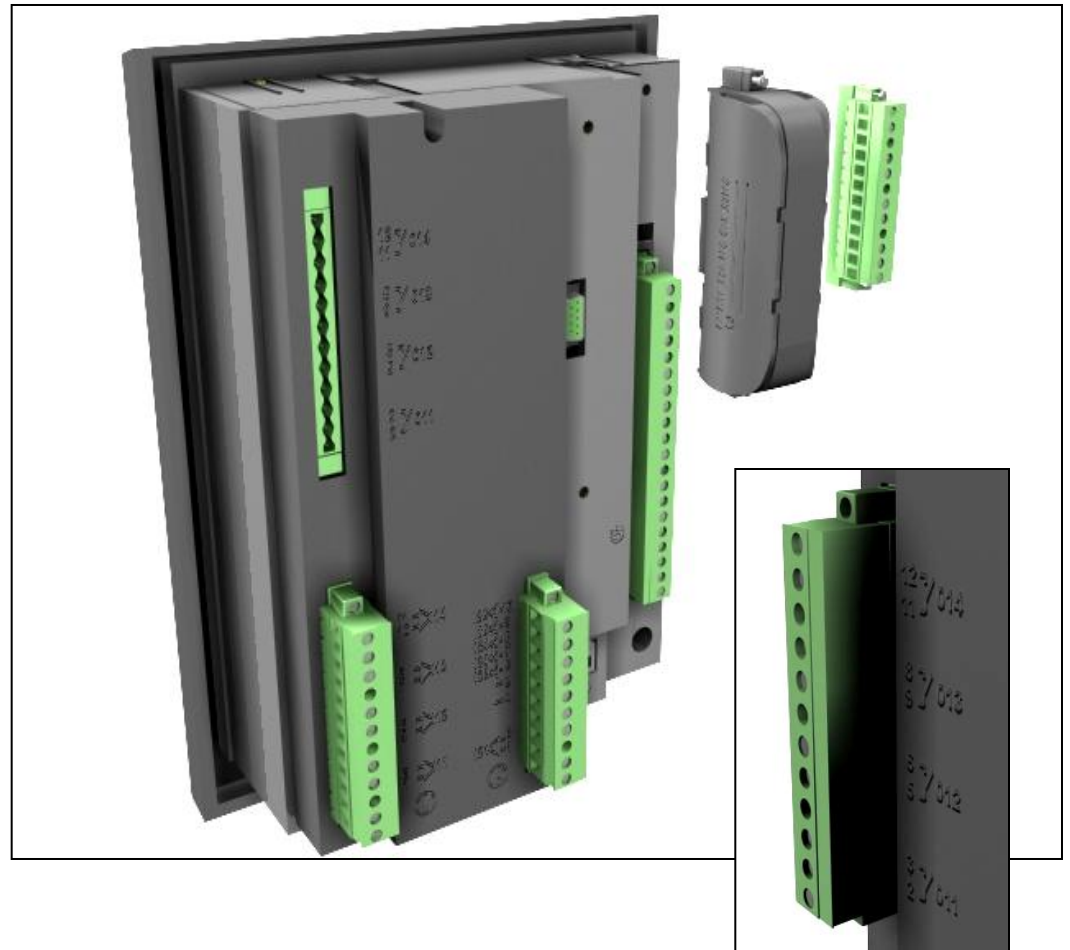
- Specific core balance CT, for accurate measurement (CSH120, CSH 200 or GO110)
- Other core balance CT with an ACE990 interface
- 1A/5A CT with an interposing ring CT (CCA630 + CSH30)
- 1A or 5A and residual current transformers in the same sensor (CCA634)

or calculated based on the 3 phase currents



Base unit easy to install

- Reduced installation constraints:
Sepam is compact, light, with a reduced depth
 - < 100 mm (series 20/40)
 - < 225 mm (series 80)
- Terminal and connector identification
- Disconnectable without any precautions



Addition of optional modules simplified

- Input / output modules mounted on the base unit
- Remote modules
 - assembly on DIN rail
 - connection via prefabricated cords fitted with RJ45 plugs

*To use at best
the available space!*

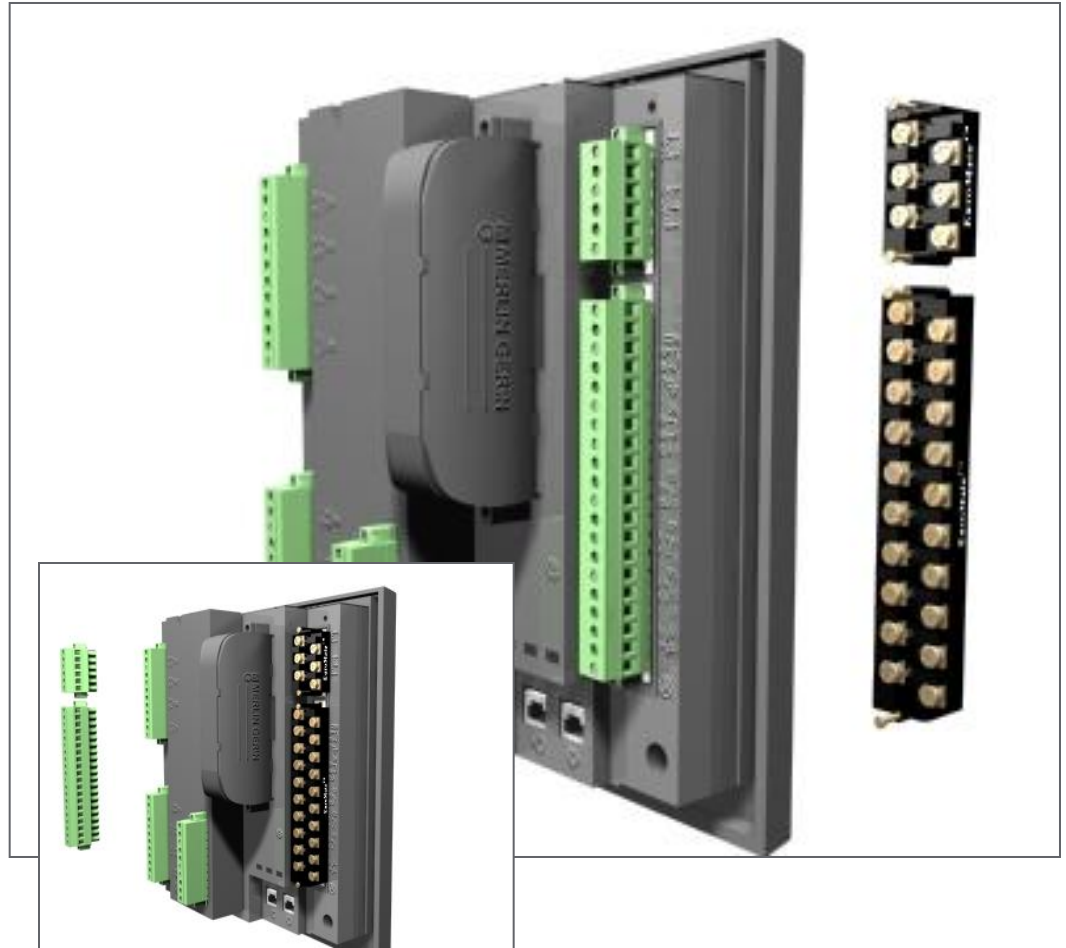


Two connection modes

Two types of auxiliary supply connectors are offered :

- Screw type
- or
- Ring lug type

*To suit your
connection habits*



Lead - seal accessory

To inhibit modification of parameter and protection settings, one lead-seal accessory is offered :

- AMT 852
- Sepam series 20, series 40 or series 80 with integrated advanced UMI



Simplified maintenance

Removable memory cartridge

- all Sepam characteristics in memory cartridge
- to put back Sepam into service quickly after faulty base unit replacement, without setting operation

For quick and safe maintenance operations!



Sepam protection relay: to win all across the board!



More solutions

More modularity

More performance

More simplicity

Thank You !

