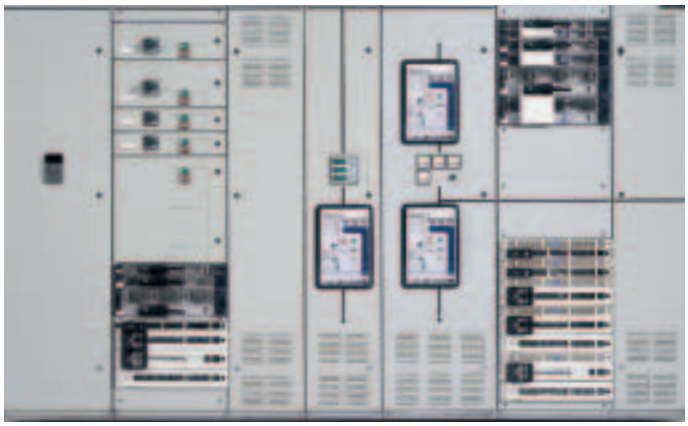
GE Consumer & Industrial
Power Protection

SEN Plus

Pan-European metalclad low voltage system

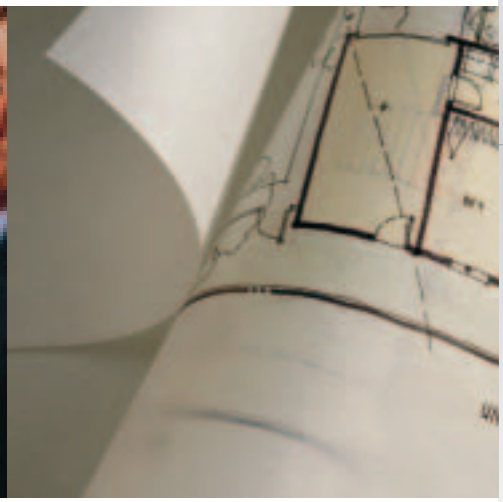
The heart of your business



GE imagination at work

Designed with *electrical and engineering contractors for the process industry, telecom and infrastructure markets*

When GE designed the new modular SEN Plus system, our customers were involved right from the beginning. Based on customer needs assessed from the derived target market segments, the new SEN Plus provides significantly increased flexibility, reliability, availability and value for money you can not ignore whatever your application.
SEN Plus type tested factory built assemblies are designed and manufactured in accordance with the highest quality of the internationally recognised standards applicable to low voltage equipment.



Due to the smart and simple design of the SEN Plus "lead times" are reduced significantly. The comprehensive range of SEN Plus system applications varies from withdrawable and fixed Power Centres with air circuit breakers, Distribution Panels in withdrawable, plug-in and fixed versions with moulded case circuit breakers and switch fuses to Motor Control Centres in withdrawable, plug-in or fixed technique for fuse/fuseless motor starter applications. Special adapters in different sizes enable combinations of fused load break switch units and motor starter applications in one column.
The equipment can be executed with a four or five phase busbar system fully shrouded to ensure maximum safety level for the operator.

SEN Plus

SEN Plus is the new name for GEAplus.

Designed with electrical contractors for electrical contractors

Buildings, machinery and processes

Commercial
- Small and large offices
- Warehouses
- Shopping malls
- Schools
- Hospitals
- Airports

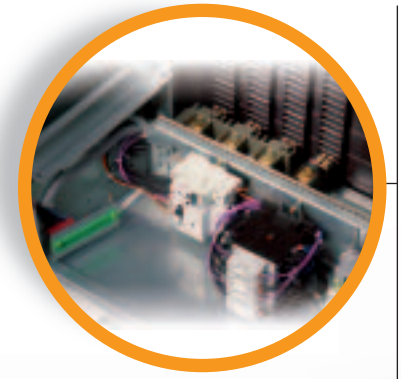
Industrial
- Printing
- Machinery
- Pharmaceutical
- Automotive, paper & pulp
- Chemical industry
- Marine

Utilities
- Water treatment plants
- Waste management
- Energy distribution (electricity, gas)
- Telecommunications
- Cable providers
- Public transport

Technical data

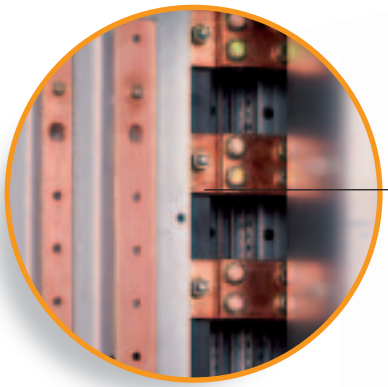
Electrical data		
Rated operational voltage	Ue	690Vac / 600Vdc
Rated frequency		40-60 Hz
Rated insulation voltage	Ui	1000V
Rated current horizontal busbars		1000 up to 4000A
Rated current vertical busbars		850 up to 1900A
Rated shorttime withstand current busbar system	Icw	Max. 80kA 1s
Rated impulse withstand current busbar system	Ipk	Max. 176kA
Mechanical data		
Dimensions	Height	2000, 2200 mm *(other on request)*
	Depth	600, 800 mm
	Width	400, 500, 600, 800, 1000 and 1200 mm
Modularity in height of functional units		In steps of 25 mm = (E)
Standard module sizes		4E up to 36E
Maximum stacking density per column		80E

Great benefits

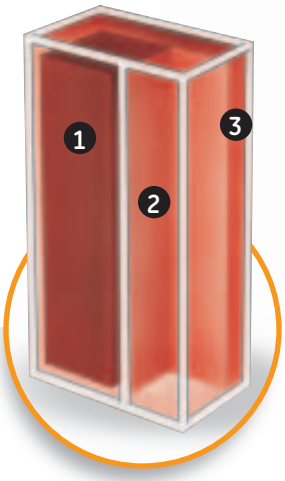


For your safety
- Short-circuit proof and fatigue free self-aligning stabs secure a high safety level during operation.

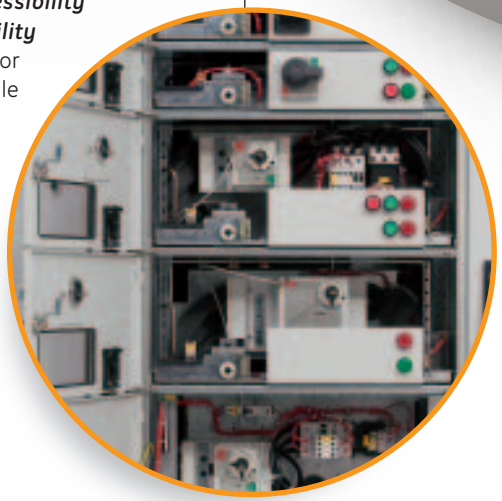
Easy commissioning at site
- Main busbar separation links are accessible from the front



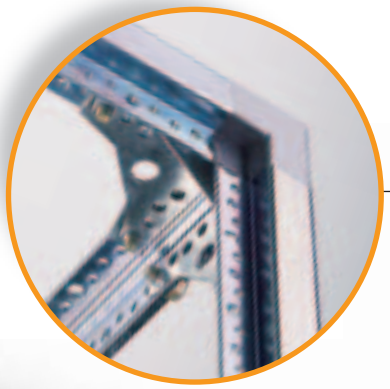
1. Equipment zone
2. Cable zone
3. Busbar zone



Optimum accessibility and surveyability
- 135/180° door opening angle

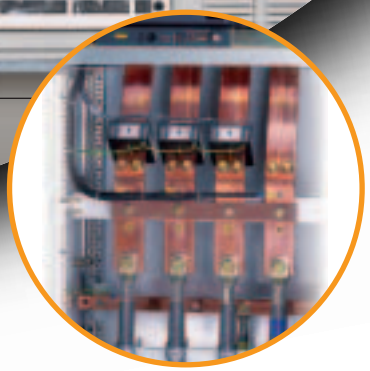


For your safety
- Finger proof shrouds and barriers prevents accidental contact with hazardous parts.



Rigid frame construction

- Non welded self supporting construction made out of just 3 basic parts
- Zinc-plated
- No sharp edges
- Doors and covers in 2mm sheet steel powder painted



Fast and easy cabling

- Through pre-configured copper links or directly to the switchgear or terminal strips
- Cable trays for servicing of all cables are provided as standard
- Vertical PE/PEN bar
- Special cable requirement up to Form 4b Typical 7 as per BSEN 60439-1 (termination for each functional unit with own integral glanding facility)

Flexibility
- Adjustable module separation sheets enables simple upgrade of the Form of segregation of the functional units.

Modularity
- Increased stacking density in the equipment zone due to apertures in the shrouds of the vertical riser at intervals of 25mm.

Modules with single or multi compartment door
- Control and indication components mounted on the instrument in the door.
- Operating handles of the main isolating devices behind the door or on front of the door with interlocking facility.

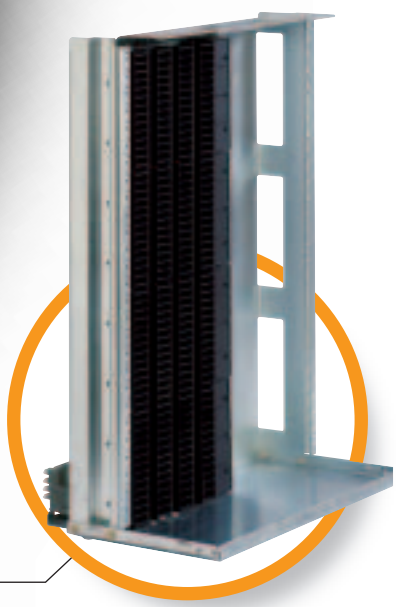
VPS modules
- For modular components on DIN-rails
- Mounting plates

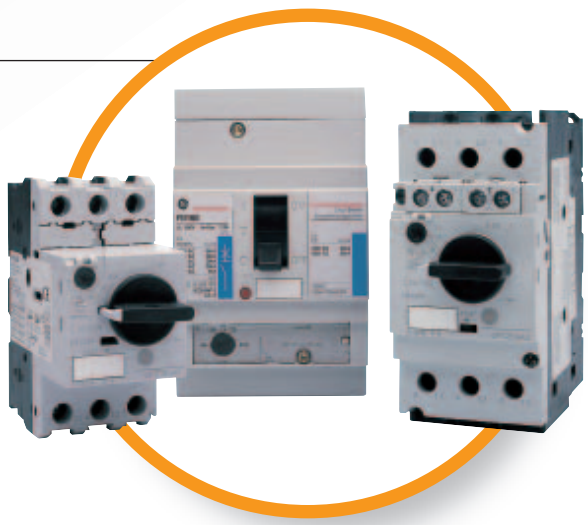
Increased short circuit strength of the vertical riser system

- Fully rated 3 and 4 pole system match to the fault rating of the main horizontal busbar system

Distribution and Control applications in one column

- Standard adapters in 2 different heights ensures combinations of standard 3 and 4 pole fuse load break switch units and motor starters in one column.





Complete system integration

- Functional units match with the new range of IEC 947 designed and tested, and rated industrial components.

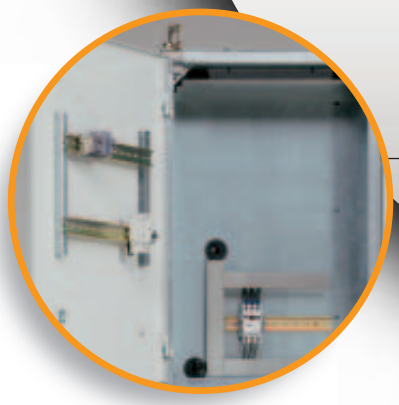
Great benefits

Cost competitive

- Power center configurations with moulded case circuit breakers and load break switches allow solutions for all customer needs.

High flexibility

- According your specific needs all available modules (fully withdrawable, plug-in, VPS and HSE loadbreakswitch units) can be combined in the same column.



User friendly

- The optional mounting frame allows all kind of individual installations inside of the control compartement door.

Compact design

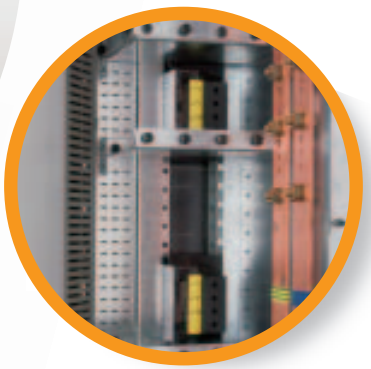
- The use of moulded case circuit breakers offers compact, space saving solutions with a high density and an optimum price-performance ratio.

Easy and safe operation

- A special mechanism allows full operation of the module while the door is closed. This ensures the maximum safety level for the operator.

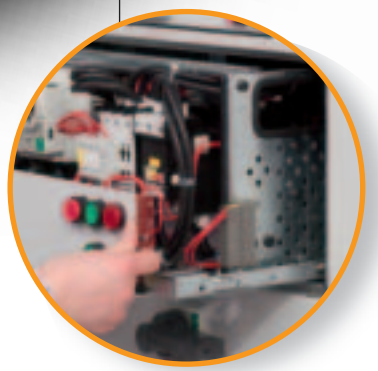
Easy to connect

- The 24 pole auxiliary contact plug is designed to facilitate the easy connection of the control cabling.



For your safety

- The fully withdrawable design can be provided with internal separations up to form 4b (type 7).



High availability

- The fully withdrawble module design allows a fast replacement of the modules.

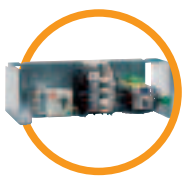
Standard applications Control Center - Plug-in modules

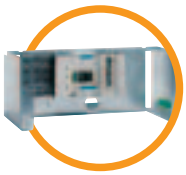
Functions with fuses (DIN) at 400Vac

Motor starter DOL		Motor starter Reverse		Motor starter Star/Delta		Feeder [3 pole]		Feeder [4 pole]	
Max.load in [kW]	Module size in [E]	Max.load in [kW]	Module size in [E]	Max.load in [kW]	Module size in [E]	Current in [A]	Module size in [E]	Current in [A]	Module size in [E]
18.5	5	11	5	37	8	160	2	160	4
37	8	37	8	55	8	250	3	250	6
90	18	45	12	90	18	400	6	400	10
132	24	55	18	200	30	630	6	630	10
220	36	90	24	220	36				
		132	30						
		220	36						

Functions with fuses (DIN) at 690Vac

Motor starter DOL		Motor starter Reverse		Motor starter Star/Delta		Feeder [3 pole]		Feeder [4 pole]	
Max.load in [kW]	Module size in [E]	Max.load in [kW]	Module size in [E]	Max.load in [kW]	Module size in [E]	Current in [A]	Module size in [E]	Current in [A]	Module size in [E]
22	5	11	5	15	8	160	2	160	4
45	8	30	8	37	8	250	3	250	6
55	12	37	8	132	18	400	6	400	10
132	18	75	24	220	30	630	6	630	10
220	18	132	24						
		220	30						





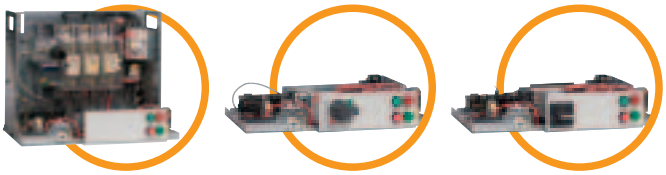
Functions with circuit breaker at 400Vac

Motor starter DOL		Motor starter Reverse		Motor starter Star/Delta		Feeder [3 pole]		Feeder [4 pole]	
Max.load in [kW]	Module size in [E]	Max.load in [kW]	Module size in [E]	Max.load in [kW]	Module size in [E]	Current in [A]	Module size in [E]	Current in [A]	Module size in [E]
30	4	30	4	30	4	63	4	63	8
37	5	55	18	55	24	160	8	160	8
55	10	90	24	90	30	400	10	400	10
220	18	110	30	110	36	630	18	630	18
		220	30	200	36				

Functions with circuit breaker at 690Vac

Motor starter DOL		Motor starter Reverse		Motor starter Star/Delta		Feeder [3 pole]		Feeder [4 pole]	
Max.load in [kW]	Module size in [E]	Max.load in [kW]	Module size in [E]	Max.load in [kW]	Module size in [E]	Current in [A]	Module size in [E]	Current in [A]	Module size in [E]
11	10	11	10	15	10	63	8	63	8
30	10	30	10	75	24	160	8	160	8
75	18	75	18	132	24	400	24	400	24
132	18	160	24	220	36	630	24	630	24
220	18	250	36	250	36				

Standard applications Control Center - Fully withdrawable modules

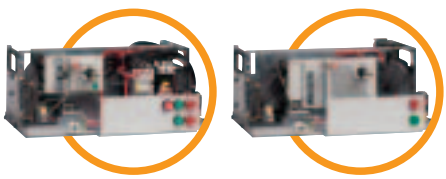


Functions with fuses (DIN) at 400Vac

Motor starter DOL		Motor starter Reverse		Motor starter Star/Delta		Feeder [3 pole]		Feeder [4 pole]	
Max.load in [kW]	Module size in [E]	Max.load in [kW]	Module size in [E]	Max.load in [kW]	Module size in [E]	Current in [A]	Module size in [E]	Current in [A]	Module size in [E]
18.5	5	11	5	37	10	160	2	160	4
37	10	37	10	55	10	250	3	250	6
90	24	45	12	90	24	400	6	400	10
132	36	55	24	200	36	630	6	630	10
220	36	90	30	220	36				
		132	36						
		220	36						

Functions with fuses (DIN) at 690Vac

Motor starter DOL		Motor starter Reverse		Motor starter Star/Delta		Feeder [3 pole]		Feeder [4 pole]	
Max.load in [kW]	Module size in [E]	Max.load in [kW]	Module size in [E]	Max.load in [kW]	Module size in [E]	Current in [A]	Module size in [E]	Current in [A]	Module size in [E]
22	5	11	5	15	10	160	2	160	4
45	10	30	5	37	10	250	3	250	6
55	12	37	10	132	24	400	6	400	10
132	30	75	30	220	30	630	6	630	10
220	36	132	30						
		220	36						



Functions with circuit breaker at 400Vac

Motor starter DOL		Motor starter Reverse		Motor starter Star/Delta		Feeder [3 pole]		Feeder [4 pole]	
Max.load in [kW]	Module size in [E]	Max.load in [kW]	Module size in [E]	Max.load in [kW]	Module size in [E]	Current in [A]	Module size in [E]	Current in [A]	Module size in [E]
30	5	30	8	30	10	63	5	63	6
37	5	55	12	55	12	160	5	160	6
55	12	90	24	90	24	400	10	400	12
220	24	110	30	110	30	630	10	630	12
		220	30	200	30				

Functions with circuit breaker at 690Vac

Motor starter DOL		Motor starter Reverse		Motor starter Star/Delta		Feeder [3 pole]		Feeder [4 pole]	
Max.load in [kW]	Module size in [E]	Max.load in [kW]	Module size in [E]	Max.load in [kW]	Module size in [E]	Current in [A]	Module size in [E]	Current in [A]	Module size in [E]
11	12	11	12	15	12	63	5	63	10
30	12	30	12	75	12	160	10	160	10
75	12	75	12	132	12	400	10	400	12
132	18	160	24	220	24	630	10	630	12
220	30	250	36	250	36				

Why SEN Plus?

Test and standards
Four pole type-tested assembly as per IEC 439-1/EN 60439-1 certified by KEMA
Enables a boundaryless environment
boundaryless

Dust and waterproof
IP30 up to IP54 as per IEC 529-1
Enables the erection of the equipment in a production environment
production environment

Internal form of separation
Up to Form 4B as per IEC 439-1
Enables safe modification under energised conditions
safe modifications

Compact
Increase functional floor space in building services
functional floor space

Smart and simple design
Secure fast deliveries
fast delivery

Durable surface protection
Shock and scratch resistant
Minimise damages during transportation
resistant

Maintenance free busbar system
Lower investment costs
lower investment

Ready for the e-commerce take-off
With the interactive CD-Rom you have the ability to compose and customise your own SEN Plus Power Centres, Distribution Boards and Motor Control Centres (design, calculate general arrangement drawings and purchase order tool).
e-commerce

GE Consumer & Industrial
Power Protection

40016

Power Protection (former GE Power Controls), a division of GE Consumer & Industrial, is a first class European supplier of low-voltage products including wiring devices, residential and industrial electrical distribution components, automation products, enclosures and switchboards. Demand for the company's products comes from wholesalers, installers, panel-board builders, contractors, OEMs and utilities worldwide

www.ge.com/eu/powerprotection

www.gepowercontrols.com

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GE imagination at work

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