

UniGear Type ZS4

Air-insulated double busbar switchgear with 4 compartment partitioning



UNIGEAR TYPE ZS4

UniGear Type ZS4. The right choice for every application.

Versatile and adaptable

The UniGear type ZS4 makes a full-scale concept available. With the versatile panel variants, almost every conceivable switchgear configuration can be implemented.

Special panels adapted to fulfil the requirements of double busbar systems round off the range.

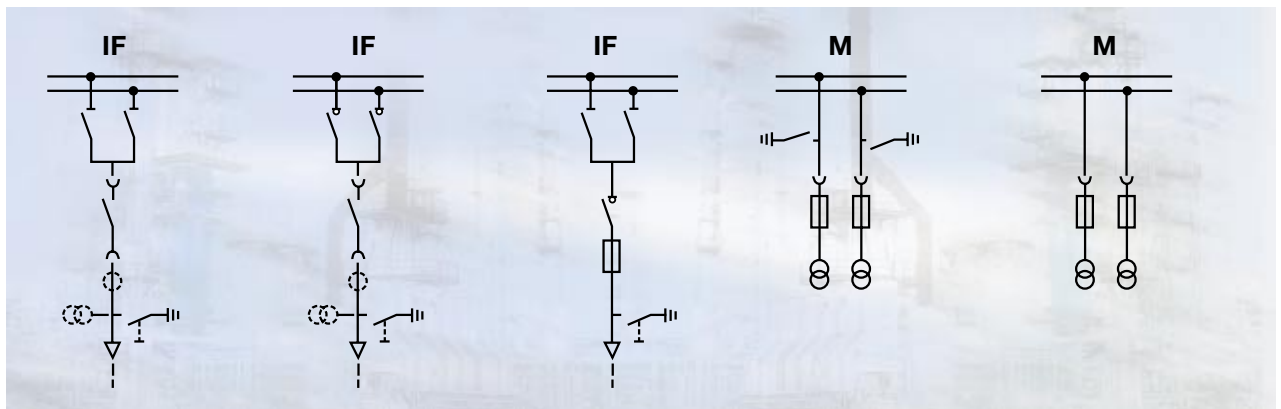
The UniGear type ZS4 panels feature partitioning between the busbars, the circuit-breaker and the cable terminations. The generously dimensioned low voltage compartment is designed to accommodate modern control and protection devices or conventional control and protection systems.

Typical panels

- IF Incoming feeder / tee-off
- M Metering
- C Bus coupler
- BT 1 Sectionaliser busbar 1
- BT R Sectionaliser riser
- BT2 Sectionaliser busbar 2

Versatile and adaptable

- Flexible
- Comprehensive range of panels and switching devices
- Compact
- Safety for personnel
- Easy maintenance
- Universally usable
- Extendable
- Economical

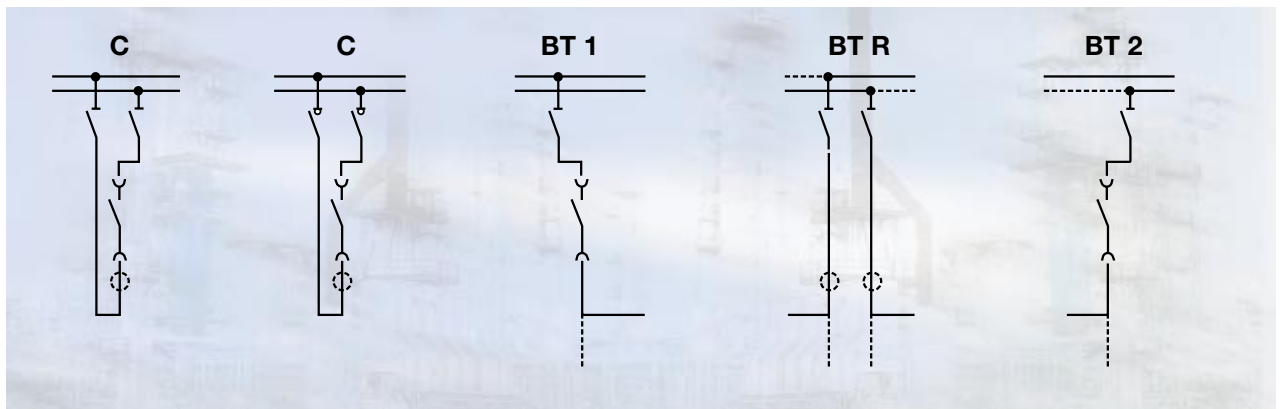


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In service wherever electrical energy is

- switched
- distributed and
- applied



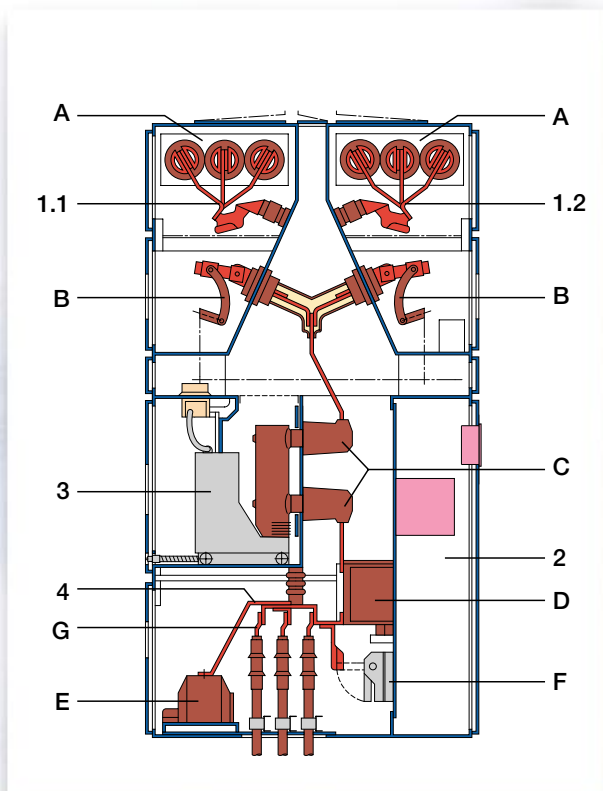
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This panel cross-section makes the difference visible:

Clear separation of the functional compartments for busbars I and II, the circuit-breaker and cable termination compartments.

Grouped around these core functions, there are

- the low voltage compartment with the secondary systems,
- the operating mechanisms for the switching devices, and
- the passive safety facilities in form of pressure relief flaps.



Compartments

- 1.1 Busbar 1
- 1.2 Busbar 2
- 2 Low voltage
- 3 Circuit-breaker
- 4 Cable

Main components

- A Busbar system
- B Busbar disconnector
- C Insulating spouts
- D Current transformer or combination sensor
- E Voltage transformer
- F Earthing switch
- G Cable termination



Metalclad

- Four sheet steel enclosed functional compartments
- Operation of all switching devices with the door closed
- Earthed metal shutter in front of the tulip contacts
- Resistant to arc faults
- UniGear type ZS4 belongs to the ABB UNiQue range of air-insulated switchgear

Disconnecter

- Effective interlocks between disconnecter, circuit-breaker and earthing switch
- Insulating guard plates can be inserted with the doors closed
- Optional manual or motor-operated mechanisms



Structure and equipment

- Modular design
- High variance in configuration of the system
- High strength of enclosures and doors (operator safety) from special bending and folding techniques
- Especially compact design
- Joining of panels by screwed busbar connectors
- All standard cable sealing ends can be installed
- Various connection variants for capacitor bars can be implemented

UNIGEAR TYPE ZS4

Delivery

- Type tested, factory-assembled and routine tested panels
- The transport units are individual panels
- Suitable packaging for the mode of transport



Installation

- By skilled trained personnel
- Ceiling height ≥ 3500 mm
- Installation on foundation frame or raised false floor
- Simple joining of panels with prefabricated busbars
- Easy access and generous space available for cable work

Inspection and maintenance

- In normal service conditions, UniGear type ZS4 is low maintenance switchgear
- Intervals for inspection are determined by specified criteria
- Inspections predominantly comprise visual examination and functional testing

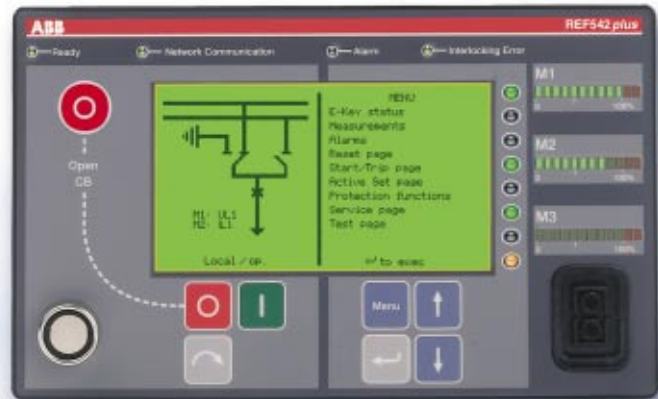
Tests

- Tests to VDE and IEC standards

UNIGEAR TYPE ZS4

Digital bay control and protection unit REF542 plus

- Protection
- Measuring
- Control and operation
- Interlock logic and
- Monitoring



Integration in host control systems for

- Remote monitoring
- Remote control
- Remote parameterisation and protection settings
- Remote measurement
- Event storage
- Monitoring of all switching devices
- Fault recorder data analysis



Measured value acquisition

- The measured data can be acquired both
- with modern current and voltage sensors, and
- with conventional current and voltage transformers.

Protection against maloperation

- With a digital control unit or
- with conventional control systems.

UNIGEAR TYPE ZS4

Optimum switching

of the connected loads by selection of various switching devices

Available switching devices

VD4

Vacuum circuit-breaker Mechanical mechanism

- Circuit-breaker for all applications in power distribution.
- The even distribution of the arc base points on the entire surface of the contacts facilitates maximum efficiency at all current levels.
- The epoxy resin poles protect the interrupters from physical or electrical damage.



HD4

SF₆ circuit-breaker

- Circuit-breaker for all applications in power distribution.
- SF₆ pole with Autopuffer opening system.
- The combination of forced and current-dependent quenching agent flow facilitates maximum efficiency at all current levels.
- Full dielectric strength and up to 30% of rated breaking capacity at zero pressure.
- The poles can be fitted with a gas pressure monitoring device.



VM1

Vacuum circuit-breaker Magnetic actuator

- The vacuum circuit-breaker is fitted with mechanism with magnetic actuator.
- The magnetic actuator performs the switching functions (opening and closing).
- All functions (tripping, switching, loading of energy and testing for reliability) are performed by the integrated electronic controller.
- Fitted with multi-voltage power pack for AC and DC auxiliary voltage.



V-Contact

Vacuum contactor

- Optimum solution for the start-up of motors, switch-over of phase enhancers and use of an instrument transformer up to 12 kV.
- Fitted with medium voltage fuses to DIN and BS standards on request.
- Facility for installation of a single phase voltage transformer to supply the mechanism circuits.
- Availability of operating mechanisms with electrical or mechanical latching.
- Fitted with multi-voltage power pack for AC and DC auxiliary voltage.



TECHNICAL DATA

UniGear Type ZS4

Rated voltage	kV	12	17.5
Operating voltage, max.	kV	12	17.5
Rated power frequency withstand voltage	kV	28	38
Rated impulse withstand voltage	kV	75	95
Rated frequency	Hz	50/60	50/60
Rated current of busbar	A	...3150 ¹⁾	...3150 ¹⁾
Rated current of tee-off	A	...3150 ¹⁾	...3150 ¹⁾
Rated short-circuit making current	kA	...80	...80
Rated short-time current 3 s	kA	...31.5	...31.5
Rated short-circuit breaking current of the circuit-breaker	kA	31.5	31.5
Protection class of enclosure		IP 4x	IP 4X
Protection class with CB compartment door open		IP 2X	IP 2X
Site altitude	m	...1000	...1000

Dimensions and weights

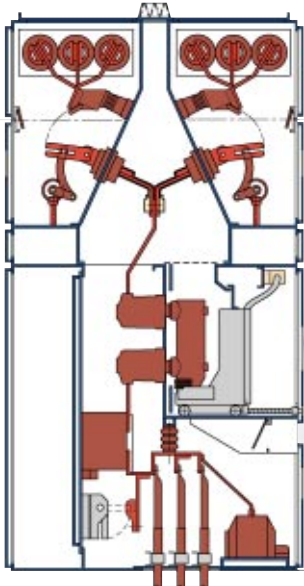
Rated current for tee-off	A	≤ 1250	≥ 1600
Height	mm	2750	2750
Width	mm	650	1000
Depth	mm	1500	1500
Switchroom height, min.	mm	3500	3500
Weight, approx. ²⁾	kg	1050	1600

Ambient temperature

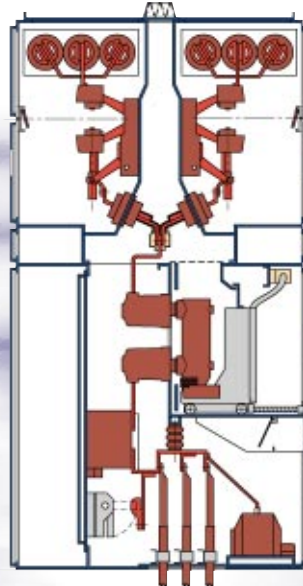
Maximum	°C	+ 40	+ 40
Maximum 24 hour average	°C	+ 35	+ 35
Minimum	°C	- 5	- 5

¹⁾ Higher values on request

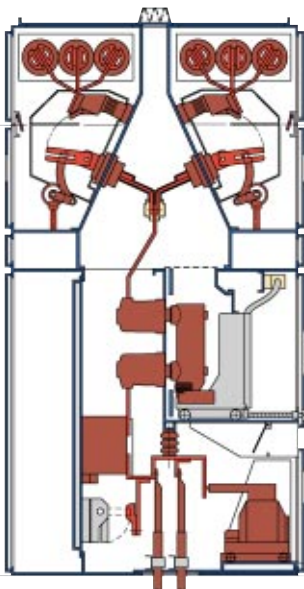
²⁾ Including VD4 withdrawable assembly



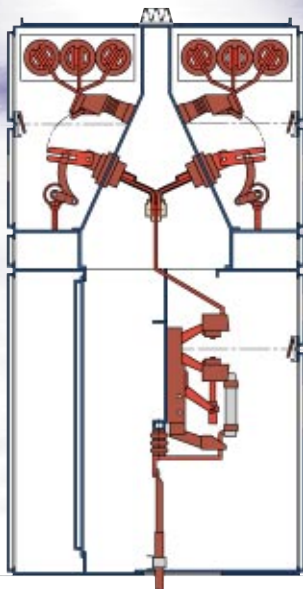
Tee-off, 12 kV, 1250 A, 31.5 kA with busbar disconnectors, VCB and fix connected voltage transformers



Tee-off, 12 kV, 1250 A, 25 kA with busbar switch-disconnectors, VCB and fix connected voltage transformers



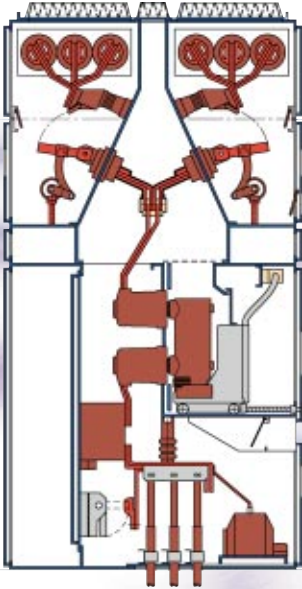
Tee-off, 17.5 kV, 1250 A, 31.5 kA with busbar disconnectors, VCB and withdrawable voltage transformers



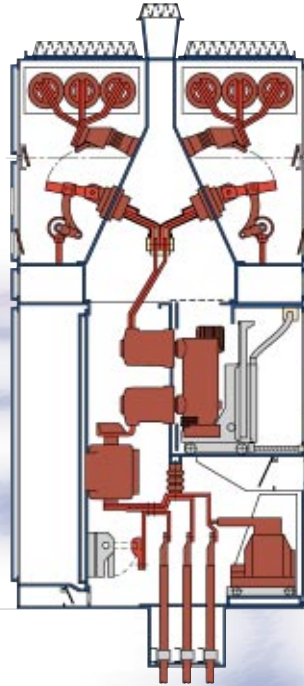
Tee-off, 12 kV, 1250 A, 31.5 kA with busbar disconnectors and tee-off switch-disconnectors with fuses

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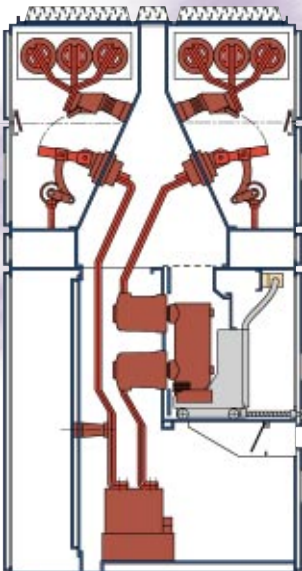
PANEL VARIANTS



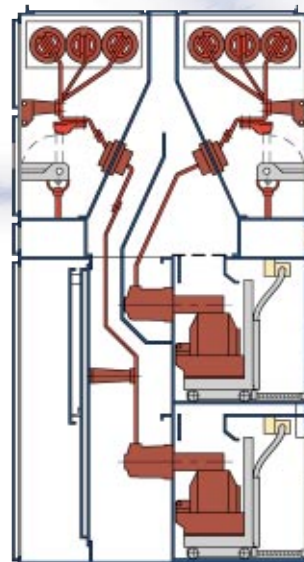
Incoming feeder,
12 kV, 2500 A, 31.5 kA
with busbar disconnectors,
VCB and fix connected
voltage transformers



Incoming feeder,
12 kV, 3150 A, 31.5 kA
with busbar disconnectors,
VCB and withdrawable
voltage transformers



Bus coupler, 12 kV, 2500 A, 31.5 kA
with busbar disconnectors,
VCB and fix mounted CTs



Busbar metering, 12 kV
with busbar earthing switches
and withdrawable voltage
transformers



ABB Calor Emag Mittelspannung GmbH

Oberhausener Strasse 33	Petzower Strasse 8
40472 Ratingen	14542 Werder (Havel) OT Glindow
DEUTSCHLAND	DEUTSCHLAND

Phone: +49(0)21 02/12-12 30, Fax: +49(0)21 02/12-19 16

E-mail: powertech@de.abb.com

Internet: <http://www.abb.de/calor>

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