



# Prefabricated Distribution Compact Substation



Prefabricated Distribution Compact Substation

**INDKOM** Engineering Sdn Bhd  
An ISO 9001 company



# MV Ring Main Unit & LV Feeder Panel

## MV Ring Main Unit

The Indkom IDCS distribution compact substation utilizes a medium voltage ring main unit (MV RMU) for its electrical connection. Filled with SF6 gas and sealed permanently, the switchgear and busbars assembly is enclosed in a totally welded gas-tight stainless steel enclosure.

The performance obtained meets the IEC standard of "Sealed Pressure System". The RMU is equipped with a gas pressure indicator with readings independent of the ambient temperature.

The 11kV MV RMU uses two load break and one fuse switch.



## LV Feeder Panels

Other than the medium voltage ring main unit (MV RMU), the Indkom IDCS distribution compact substation utilizes low voltage feeder panels to complete the electrical connection. These LV panels are DIN-type, fully-shrouded and are manufactured in accordance with DIN 43623 standards. Under normal operating conditions when accessing the internal set-up of the substation, the panels are able to provide protection up to IP2x.



# IDCS Distribution Compact Substation

## Application

The Indkom IDCS distribution compact substation is well-suited for installation in urban areas where space is a premium. The IDCS provides safety for the public as well as easy maintenance for servicing. It is designed to withstand the surrounding temperature, humidity, rain as well as solar radiation and condensation. Under these conditions, the IDCS is able to withstand the dielectricity and thermic isolation. The IDCS is entirely factory-prefabricated and tested, making installation on site easy and fast. With the life expectancy of 15 years, under normal operation, the IDCS distribution compact substation is practically maintenance free.

## Design and Structure

Indkom's innovative design of the medium voltage/low voltage IDCS 1000/500 model is well suited for the present and future needs. Every unit is factory-tested and contains the following:

- a metal enclosure with compartments
- a 11kV SF6 insulated ring main unit (RMU) for connection to the 11kV network and also for the protection of the medium and low voltage (MV/LV) transformers
- a fully shrouded LV switchboard
- MV/LV connections.

The roof of the substation is

designed to support loads up to 250kg/m<sup>2</sup>, and is removable should the need arise. Ventilation apertures are also incorporated into the structure to enable natural ventilation. All doors of the substation utilize a three-point linkage controlled by an aluminium weather-proof handle with padlock facilities.

The RMU is connected directly to the distribution transformer through single core XLPE cables for easier and faster installation; and separable elbow connectors are used for termination. As for connection of the DIN LV distribution board, it is coupled to the distribution transformer through insulated busbars.

## Enclosure

The IDCS distribution compact substation's enclosure is completely prefabricated for installation on a concrete base. With a protection degree of IP35, it has the following features:

- base made of hot-dipped galvanized C-channel steel to ensure rigidity for easy transportation and installation
- pickled-oil sheetmetal for the overall body in 3mm thickness and epoxy powder coated.

## Internal Arrangement

Inside the IDCS distribution compact substation's enclosure, there is 3 separate compartments for safety purposes. The arrangements within are as follows:

- a compartment for the RMU
- a compartment for the distribution transformer
- a compartment for the low voltage (LV) feeder pillar

The protection degree between each compartment is IP3.

## Customized Designs

The Indkom IDCS distribution compact substation can be designed and customized to different sizes and configurations to fulfill the customers' requirements.

## International Standards

The Indkom IDCS distribution compact substation conforms and meets the requirements of these international bodies:

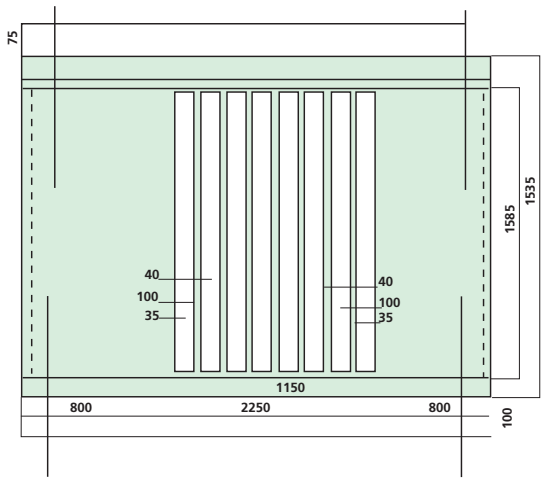
- IEC-1330 from the International Electrotechnical Committee.



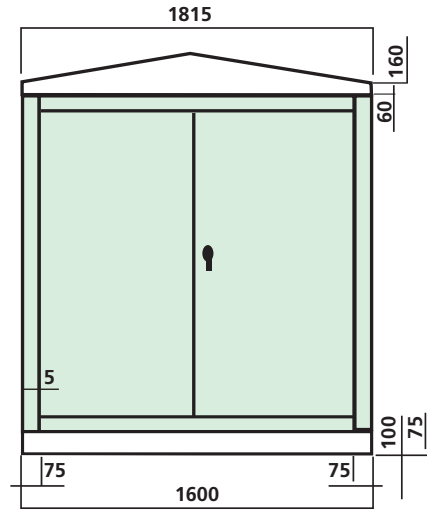
# Technical Specifications

Enclosure Characteristics	Body	Material type	pickled-oil sheetmetal	
		Thickness (mm)	3mm	
		Finishing	epoxy powder coating	
	Base	Material type	steel c-channel	
		Section (mm)	50mm x 100mm	
		Finishing	hot-dipped galvanized and painted	
	Ingress Protection	IP35, IEC 529, fully weather- and vermin -proof		
Construction	internal bolting and welded			
Transformer	Type	hermetically sealed		
	Losses	low loss		
	Terminations	HV - elbow connector silicone rubber (DIN specs), LV - direct busbar		
	Bushing	DIN 47636		
	Standards	IEC 76, IEC 726 & BS 171 LV		
	Capacities (KVA)	500, 1000		
	Voltage (kV)	11/0, 433kV		
Medium Voltage Switchgear	Type	ring main unit (RMU)		
	Insulation	SF6 gas		
	Tee-switch	fused		
	Standards	IEC 129, 265 & 694, BS 5311, 5463 & 5253		
	Rated Voltage (kV)	12		
	Rated Current (A)	Ring feeder	630	
		Tx feeder	200	
Low Voltage Feeder Pillar	Type	fused with linked incoming units, DIN or BS type option		
	Standards	to IEC 439		
	Busbar rating	1600A (1000KVA Tx), 800A (500KVA Tx)		
	Outgoingways	10 ways - 400A (rated)		
	Fuse	DIN or BS option		
	Metering equipments		3 x CTS, class1.0, 7.5VA	
			3 x ammeter & MD indicators	
		Power Factor meter		
	kWH meter, cl 2, 3-phase 4-wire (optional)			
	socket outlet and lighting			

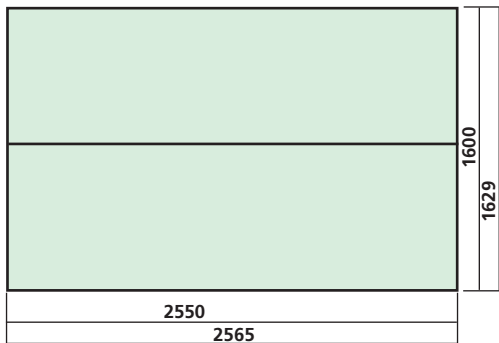
# Technical Drawings



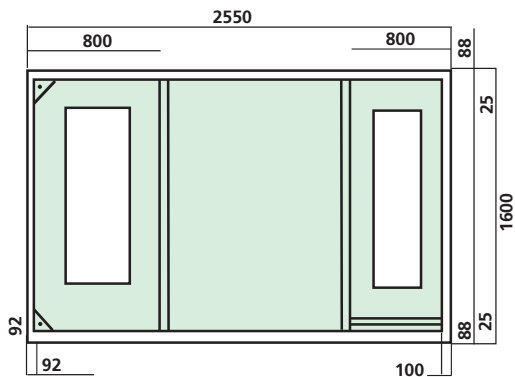
front view



side view

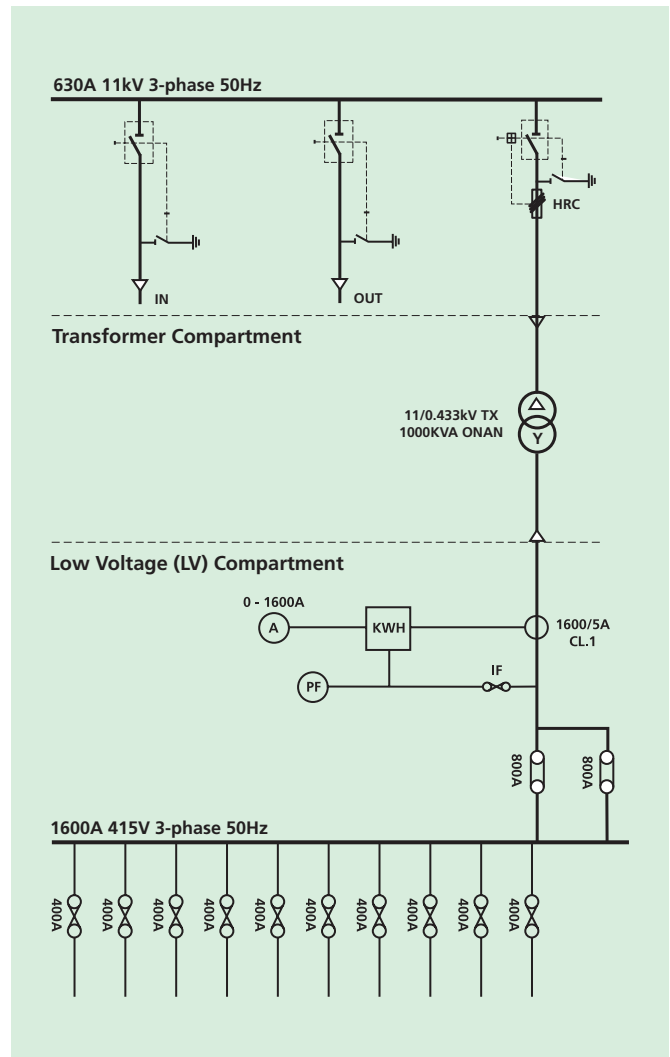


plan view



Mounting Screw  
M12x40 (4 nuts)

foundation hole and concrete base



single-line electrical circuit diagram

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