



UNITED ELECTRICAL SPECIALISTS, INC.



Company Profile

United Electrical Specialists, Inc. (UES) as incorporated in April 2012 with the vision of its shareholders to provide energy-efficient, cost effective, electro-mechanical solution to customers. The focus of the company is on industrial and energy market mainly on Food & Beverage, Water, Utilities, Electronics, Mining and Metal Industries. UES and its parent manufacturing facility - Total Power Bx Solutions, Inc., are continuously striving and developing locally- manufactured and fabricated products that have passed international standards like the IEC & UL, as part of its quality commitment to its customers. In 2018, the manufacturing facility located in Silang, Cavite was granted ISO 9001: 2015 certification.

Mission

To promote and develop safe, reliable and energy-efficient electro-mechanical equipment, technical schemes and methodologies, systemization, automation, energization and other related operation and maintenance services requirements.

To promote value chain efficiency in selling and procuring for trade and distribution of electro-mechanical components, equipment, devices, wiring configurations suitable to both local and foreign market

Vision

To be the number one locally-made energy-efficient solutions provider to the country's industrial and energy market.

Distributor of:



a Secure group company



Partner with



csia

control system integrators association

Product Offer:

- HV/MV, Oil/Cast resin, Indoor/ Outdoor Transformers
- MV Load Break Switch and Recloser
- MV Breakers, Protection Relay, CT and PT
- MV/LV Variable Frequency Drives and Softstarters
- Substation Equipment
- Type-Tested/Locally-fabricated MV/LV Switchgear, Distribution Panels, Motor Control Center (Draw-out & Fixed Type)
- Locally-manufactured MV/LV Synchronizing Panels
- Standard and K-rated LV Dry-type Transformers
- Busduct
- Cable Trays/Wireways
- MV/LV Filters and Capacitor Banks
- Modular Racks and Server Enclosures
- Data Racks/Open Bay Racks
- Automatic Transfer Switch (ATS)
- Manual Transfer Switch (MTS)
- KWH Meters
- Circuit Breakers
- Magnetic Contactors
- Surge Protection Devices (SPD/TVSS)
- Battery Bank and Cabinets

Specialized Offer:

- Substation Automation System (SAS)
- Industrial Automation (DCS, SCADA, HMI, PLC, RTU)
- Telemetry System
- Building Management System (BMS/BAS)
- Energy Monitoring System (EMS) or Automatic Meter Reading (AMR)
- MV Transformer Protection Relay Panel
- FDAS, CCTV, Access and Public Address System
- IP Video Intercom
- Door Entry System

*"Managing your energy wisely
anytime, anywhere"*

iSwitchgear

- Remote asset management of electrical equipment
- Real-time monitoring, alarms and events recording, data analytics, energy dashboard and reporting
- Improve safety and reliability of the system
- Predictive Maintenance Service (PMS)
- Ease access anytime, anywhere and integration to IOT
- Email and SMS alarm notification
- Cyber security

Functionality includes:

- Breaker status (opened/closed/tripped)
- Breaker position (connected/disconnected/test)
- Busbar temperature monitoring and status
- System and hardware alarms & faults (time-stamped)
- Automatic meter reading
- Load shedding (if applicable)
- Harmonics monitoring (if applicable)
- Battery charger and motor charger status
- Predictive maintenance page
 - Breaker TOU (run-hours, open/close count)
 - Generate PMS reports

Administrator

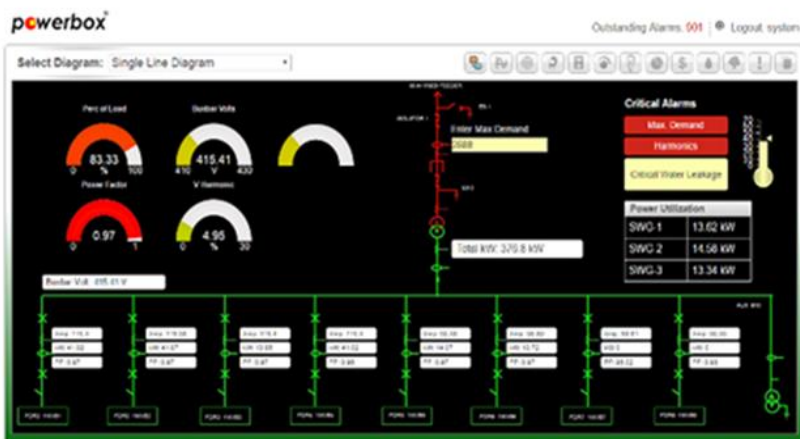
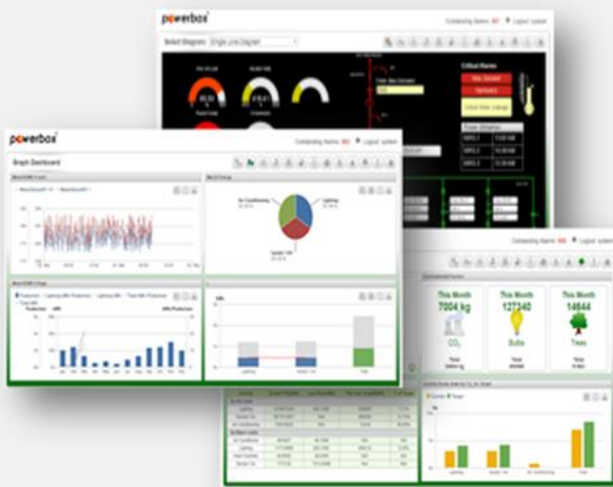
- Edit User
- Add/remove user
- Full access and edit configuration and database
- All operator access right

Standard features:

- Industrial PC with pre-programmed application to locally and remotely monitor embedded intelligent devices through real-time mimic diagram, analytics and reports.
- Industry standard communication protocol linking breakers, metering and protection relays.
- Self-diagnostic functionality through alarm and events recording
- Electrically operated breakers remotely.
- Email and SMS alarm notification

Operator

- View real-time mimic diagram, analytics, alarms/events, reports
- Navigate page, control and monitor



Substation

Protection & Relay Panel

Designed to protect MV Transformer

- Transformer Differential Protection
- Over/Under Voltage Protection
- Over/Under Current Protection
- Over/Under Frequency Protection
- Ground Fault Protection
- Metering and Annunciator
- DS and SF6 Breaker Control
- Lock-out relay & Alarm bell
- Substation SCADA integration
- Standard communication protocol (Modbus, IEC61850, DNP3.0)

Protection Functions:

- Short-circuit protection for two and three-winding transformer with integrated vector group and ratio adaptation
- Restraint against inrush of transformers overexcitation and CT saturation
- Overload protection with thermal characteristics for 2 windings/2 terminations
- Integrated annunciator and alarm bell
- Disconnect and SF6 breaker control
- Transformer monitoring (oil, pressure, buchholz relay)
- SCADA ready

Features:

- Relays self-diagnostics and reporting improves uptime and troubleshooting
- Breaker trip circuit monitoring improves the reliability of the breaker operation.
- Event and fault logging
- Oscillographic fault recording
- Phasor diagram viewer
- Programmable Input/Output
- Programmable LEDs for local indication
- Standard communication protocol, modbus, IEC61850, DNP3.0
- PC port for easy parameter setting
- Built-in front panel display

Protection



BZM Series Molded Case Circuit Breaker



Compact Simple Safe

Mid Range MCCB-
up to 400A, 50kA

- Compact
- The Dimensions
- Simple
- The Application
- Safe
- Protection
- Economic
- Value for money

BZM1: 16-125A up to 36kA
BZM2: 125-250A up to 36kA
BZM3: 250-400A up to 50kA

Technical Data

	BZME1	BZMB1	BZMB2	BZMC2
Rated short-circuit breaking capacity I_{cu} to IEC/EN 60947 operating sequence 0-t-CO, 400/415 V 50/60 Hz	18	25	25	36
		BZMB3	BZMC3	BZMN3
Rated short-circuit breaking capacity I_{cu} to IEC/EN 60947 operating sequence 0-t-CO, 240 V 50/60 Hz	I_{cu} kA	50	85	100
0-t-CO, 400/415 V 50/60 Hz	I_{cu} kA	25	36	50
0-t-CO, 440 V 50/60 Hz	I_{cu} kA	20	25	36

Comfort switching capacity	LZMC1-A...	LZMC2-A...	LZMC3-A...
400/415 V	36	36	36
440 V	30	30	30
525 V	12	12	12
690 V	8	8	8

Normal switching capacity	LZMN1-A...	LZMN2-A...	LZMN3-A...	LZMN3-...E...	LZMN4-...E...
400/415 V	50	50	50	50	50
440 V	35	35	35	35	35
525 V	20	25	25	25	25
690 V	10	20	20	20	20

Strong switching capacity	LZMS1-A...	LZMS2-A...	LZMS3-A...	LZMS3-...E...	LZMS4-...E...
400/415 V	70	70	70	70	70
440 V	35	65	65	65	65
525 V	20	36	36	36	36
690 V	10	20	25	25	35

Notes The stated switching capacity values are rated ultimate short-circuit breaking capacities (I_{cu})

Switching capacity C	NZMC1-A...	NZMC2-A...
400/415 V	36	36
440 V	30	30
525 V	12	12
690 V	8	8

Switching capacity N	NZMN1-A...	NZMN2-A...	NZMN2-E...	NZMN3-E...	NZMN4-E...
400/415 V	50	50	50	50	50
440 V	35	35	35	35	35
525 V	20	25	25	25	25
690 V	10	20	20	20	20

Switching capacity H	NZMH1-A...	NZMH2-A...	NZMH2-E...	NZMH3-E...	NZMH4-E...
400/415 V	100	150	150	150	150
440 V	35	130	130	130	130
525 V	20	50	50	50	50
690 V	10	20	20	25	35

LZM Series Molded Case Circuit Breaker



1000V insulation voltage
100% ratings at 50 deg C
 $I_{cu} = 100\% / I_{cs}$
25kA, 36kA, 50kA, 70kA
Fully adjustable I_{cu} / I_{cs}
Up to 500A TMD

NZM Series Molded Case Circuit Breaker



NZM - Compact Circuit-Breakers and Switch-Disconnectors up to 1600 A designed for global use

- Four frame sizes with four levels of switching capacity
- Rated voltage up to 1000VAC
- Rated current 20 -1600A
- Breaking capacity 25 - 150kA
- Thermal Magnetic / Electronic trip unit
- Magnetic and thermal release adjustable
- Universal accessories
- Diagnostics included

PLS..., PLHT Miniature Circuit

TECHNICAL SPECIFICATIONS	PLS6	PLSM	PLS6-DC	PLHT
Electrical				
Design according to	IEC/EN 60898	IEC/EN 60898	IEC/EN 60947-2	IEC/EN 60947-2
Rated Voltage -AC	230/400 V	230/400 V	-	230/400 V
Rated Voltage -DC (per pole)	48 V	48 V	250 V	60 V
Rated breaking capacity according to IEC/EN 60898	6 kA	10 kA	6 kA	
Ultimate Short circuit breaking capacity according to IEC/EN 60947-2				
Characteristic B,C				
$I_n = 20-63A$	10kA			25kA
$I_n = 80-100A$				20kA
$I_n = 125A$				15kA

Coloured Toggles per Rating	
6A	Green
10A	Red
13A	Blue
16A	Yellow
20A	White
25A	Black
32A	Grey
40A	Light Blue
50A	Light Green
63A	Light Yellow

Leads for ON/Off Position



IZMX Air Circuit Breaker



IEC/EN 60947	IZMX40		
Rated Current (In)	800A, 1000A, 1250A, 1600A, 2000A, 2500A, 3200A, 4000A (E type: 800A-2000A only)		
Type of circuit breaker	B	N	H
Rated impulse withstand voltage (Uimp, VAC)	12000	12000	12000
Rated insulation voltage (Ui, VAC)	1000	1000	1000
Rated operational voltage (Uo, VAC)	690	690	690
Ultimate breaking capacity (Icu, kA)	240V	66	85
	480V	66	85
	690V	66	75

Pushbutton and Indicating Lights

Pushbutton and Indicating Light A22

- In accordance with IEC/EN 60947 and VDE0660
- Modular structure is suitable for different application requirements
- They can be mounted without any need for tools
- Contact blocks are finger touch safe
- Up to 6 contact blocks can be mounted on each mounting location



The Innovative Technology Line Up

	Product Series	L to N Protection Mode	L to G & TT to G Protection Mode	Per 0 kA Range	Earliest Filtering Attenuation	Nominal Discharge Current (In)	Short-Circuit Current Rating (SCCR)	Alarm Contacts	audible Alarm	Surge Counter (Optional)	Warranty (years)	Discarded (Optional)	Enclosure Options (IEC/EN 61439)
PTE	Yes	Yes	48 - 400	40 dB	20 kA (2)	200 kA	Yes	Yes	Yes	20 (3)	Yes	4 & 4X	
PTX	Yes	Yes	48 - 400	No	20 kA (2)	200 kA	Yes	Yes	Yes	20 (3)	Yes	4 & 4X	
EQX	Yes	Yes	40 - 160	30 dB (4)	10 kA	100 kA	Yes	No	No	10 (3)	No	1	
XT 50/100	Yes	Yes (1)	50 - 100	No	20 kA (2)	100 kA	No	No	No	5	No	4X	

Notes

(1) 100 kA units only.

(2) 48, 65 & 80 kA per phase units rated 10 kA in.

(3) 480L, 600D, and 600V units rated 10 kA in.

(4) Optional

(5) With On-Line Registration



Surge Protection Devices (SPD/TVSS)

Equalizer 2 Series Specifications

Description	EQ 2 Series
kA per Phase	50, 80, 100, 160
Surge protective device type	UL 1449 4th Edition and CSA Type 1 and Type 2 (dependent on feature options)
Nominal discharge current rating (In)	20kA
Short-circuit current rating (SCCR)	200kA
Protection modes	Single-phase L-N, N-G, L-G, Split-phase L-N, N-G, L-G, L-L, Wye L-N, N-G, L-G, L-L, Delta L-G, L-L
Three-phase WYE system voltages available (4W + G)	120/280, 240/415, 277/480, 347/600
Three-phase DELTA system voltages available (3W + G)	240, 480, 600
Split-phase voltages available (3W + G)	120/240
Single-phase voltages available (2W + G)	120, 240, 277, 480

LVSG – xEnergy (Fully Type Tested/Design)

POWERED WITH
EATON xEnergy
TECHNOLOGY
Under license of Eaton



Features:

- Enclosures for side-by-side and stand-alone cabinets
- Degree of protection IP31 or IP55
- Main busbar up to 5000A
- 2 Main busbar systems are possible in each section
- Clear separations into functional areas from form 1 to form 4 to provide even better protection for people and equipment
- Widths of 425, 600, 800, 850, 1000, 1100, 1200 and 1350 mm
- Height 2000 mm
- Color RAL 7035 (other colors upon request)
- Network types TN-C, TN-C-S, TN-S, TT, IT
- Type-tested switchgear assemblies in accordance with IEC/EN 61439
- Optimized for 3 and 4 pole switchgear from Eaton





Variable Frequency Drives

ACS580

The ACS580 is an all-compatible ABB general purpose drive, offered in a range of wall-mounted drives, drive modules and cabinet-built drives. It turns complicated to simple to control processes efficiently. One product, many applications, ACS580 drives include all the essential components for typical light industry applications, with a scalable offering from 0.75 kW to 500 kW. The drive is ready to control compressors, conveyors, mixers, pumps and fans, as well as many other variable and constant torque applications.

Mains connection

Voltage and power range	3-phase, U_N , 380 to 480 V, +10%/-15% ACS580-01: from 0.75 up to 250kW ACS580-04: from 250 up to 500kW ACS580-07: from 75 up to 500kW
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Frequency	from 48 to 63 Hz
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Power factor	$\cos\phi=0.98$
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Efficiency (at nominal power)	98%
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Motor connection

Voltage	0 to U_N , 3-phase
Frequency	0 to 500 Hz
Motor control	Scalar and vector control
Torque Control	Torque step rise time: <10 ms with nominal torque Non-linearity: $\pm 5\%$ with nominal torque
Speed control	Static accuracy: 20% of motor nominal slip Dynamic accuracy: 1% seconds with 100% torque step

Environmental limits

Ambient temperature	
Transport	-40 to +70 °C
Storage	-40 to +70 °C
Operation area	ACS580-01: -15 to +50 °C. No frost allowed R1 to R9 from +40 to +50 °C with derating ACS580-04: -15 to +55 °C. No frost allowed R10 to R11 from +40 to +55 °C with derating ACS580-07: 0 to +40 °C. No frost allowed R6 to R11 from +40 to +50 °C with derating
Cooling method	
Air-cooled	Dry clean air
Altitude	
0 to 1,000 m	Without derating
1,000 to 4,000 m	With derating of 1% / 100m
Relative humidity	5 to 95%, no condensation allowed
Degree of Protection	ACS580-01: IP21 as standard; IP55 as option (frames R1 to R9) ACS580-04: IP00 as standard; IP20 as option (frames R10 to R11) ACS580-07: Cabinet-built frames R6 to R9: IP21 as standard; IP42 and IP54 as options Cabinet-built frames R10 to R11: IP42 as standard and IP54 as option



ACH580

Comprehensive climate control, effortless operation the next evolution of climate control sets new standards both in simplicity and reliability. It can be integrated with any motor. It communicates in the languages you and your system already know. It exceeds specifications in mission critical environments. It provides productivity through comfort in commercial buildings. And the best part? All you need to do is to set it up and focus on what counts. Introducing the ACH580 drives for HVAC.

Mains connection

Voltage and power range	3-phase, 380 to 480 V, +10/-15% (0.75 to 250kW), auto-identification of supply voltage
Frequency	from 48 to 63 Hz
Power factor	$\cos\phi=0.98$
Efficiency (at rated power)	98%

Motor connection

Voltage	3-phase, from 0 to supply voltage
Frequency	0 to 500 Hz
Motor control	Scalar and vector control
Supported Motor types	Asynchronous motor, permanent magnet motor (vector), SynRM (vector)

Environmental limits

Ambient temperature	
Transport	-40 to +70 °C
Storage	-40 to +70 °C
Relative humidity	-15 to +50 °C; 5 to +95% no condensation allowed
Output current	Rated current available at 0 to 1000 m reduced by 1% per 100 m over 1000 to 2000 m 2000 to 4000 m, please consult ABB
Degree of Protection	IP21 (UL type 1) or IP55 (UL type 12)

Softstarters

PSTX

The PSTX combines many years of research and product development with extensive knowledge of application specific requirements and needs. It is our latest advancement in motor control and protection and adds new functionality and increased reliability.

- Three-phase controlled
- Operational voltage: 208-690 VAC
- Wide rated control supply voltage: 100-250 V, 50/60Hz
- PSTX rated operational current: 30 to 1250 A (inside-delta: 2160 A)
- Both in-line and inside delta connection
- Coated circuit boards protecting from dust, moist and corrosive atmosphere
- Detachable keypad rated IP66 (Type 1, 4X, 12)
- Graphical display with 15 languages for easy setup and operation
- Built-in bypass for energy saving and easy installation
- Built-in Modbus RTU for monitoring and control
- Support for all major communication protocols
- Analog output for measurement of current, voltage, power factor etc.



Normal start In-line connected	PSTX30	PSTX37	PSTX45	PSTX60	PSTX72	PSTX85	PSTX105	PSTX142	PSTX170
(400 V) kW	15	18.5	22	30	37	45	55	75	90
IEC, max. A	30	37	45	60	72	85	106	143	171
(440-480 V) hp	20	25	30	40	50	60	75	100	125
UL, max. FLA	28	34	42	60	68	80	104	130	169



Normal start In-line connected	PSTX210	PSTX250	PSTX300	PSTX370	PSTX470	PSTX570	PSTX720	PSTX840	PSTX1050	PSTX1250
(400 V) kW	110	132	160	200	250	315	400	450	560	710
IEC, max. A	210	250	300	370	470	570	720	840	1050	1250
(440-480 V) hp	150	200	250	300	400	500	600	700	900	1000
UL, max. FLA	192	248	302	361	480	590	720	840	1062	1250

PSE

The new generation PSE is a true general purpose softstarter. It's a perfect balance between high starting capacity and cost efficiency. Now featuring built-in fieldbus

Main benefits

- Keep your motor safe with built-in motor protections
- Fast and easy set-up with illuminated, language-neutral display
- Eliminate water hammering with torque control
- Reduce energy losses with built-in bypass
- NEW Built-in modbus

Main features

- Rated operational current: 18 to 370 A
- Operational voltage: 208-600 V AC
- Control supply voltage: 100-250 V AC



Normal start In-line connected	PSE18	PSE25	PSE30	PSE37	PSE45	PSE60	PSE72	PSE85	PSE105
(400 V) kW	7.5	11	15	18.5	22	30	37	45	55
IEC, max. A	18	25	30	37	45	60	72	85	106
(440-480 V) hp	10	15	20	25	30	40	50	60	75
UL, max. FLA	18	25	28	34	42	60	68	80	104



Normal start In-line connected	PSE142	PSE170	PSE210	PSE250	PSE300	PSE370
(400 V) kW	75	90	110	132	160	200
IEC, max. A	143	171	210	250	300	370
(440-480 V) hp	100	125	150	200	250	300
UL, max. FLA	130	169	192	248	302	361



BOSCH

Fire Alarm Systems

Bosch cares about safety. We design all of our products to assure users that their lives will not only be protected, but quickly and effectively saved. A swift response by the fire detection system is absolutely crucial for alerting services and getting help. And because all our products can be combined, a complete solution can be built from just one source.

AVENAR Panel. AVENAR panel 2000 and 8000 is the innovative fire alarm panel platform offering unparalleled connectivity and scalability from small to large-sized installations. Users can now fully control safety equipment such as voice alarm, door controls, and more, directly on the panel display via e-Matrix feature. The systems are future-proof and fully backwards compatible for sustainable investments, keeping costs for extensions and retrofits at a minimum.



Fully controllable via graphic user interface (GUI) directly on fire panel. As a technical novelty, the e-Matrix graphic user interface (GUI) offers full control via a 7-inch screen. The intuitive interface provides a clear status overview of connected fire protection equipment and evacuation zones. e-Matrix also controls voice alarm, door control as well as HVAC (heating, ventilation and air-conditioning). It enables safety managers to optimize protection by monitoring automatically triggered



AVENAR Panel 8000

evacuations and offers the possibility to interfere manually when required.

All you need to detect, report and visualize a fire. management. These products allow you to realize a tailor-made and comprehensive concept for almost any project, without neglecting aesthetics, standards or market requirements. Bosch has an extensive range of addressable and conventional products in the fields of fire detection, voice alarm and risk.

Automatic fire detectors

We offer a broad range of intelligent automatic detectors with high reliability, used for premises and items with a medium or high concentration of valuable assets. Various detection technologies ensure early, state-of-the-art fire detection with practically no false alarms.



Manual call points

Our range includes single-action and double action manual call points which can be employed in our addressable Local Security Network (LSN) as well as in conventional technology. Both large and small design types are available for different applications.



Sounders and strobes

When every second counts, sounders and strobes for local alarm actuation will signal the occurrence of a fire. Indoor and

outdoor variants as well as uninterruptible versions and signaling devices that combine visual and acoustic alarms in just one device complete the range. Alarm indicators for fire detectors in false floors and ceilings are also part of the portfolio. They have a low power consumption and will give you distinct advantages.

Interface modules

Input, output or combined high- and low-voltage relays for the controlled activation of a group of signaling devices and for the connection of conventional peripherals: The interface modules in the 420 Series have been specifically developed for connecting to the Local Security Network improved version, which will help you optimize your fire detection scenario.



Uninterruptible Sounders

The FNM-420U Series, available in indoor and outdoor variants, never fail to perform with their low power consumption and high volume, significantly reducing operating costs. With their own high-performance energy source, they ensure non-stop notification, and enable fast responsiveness and steadfast operation

AVIOTEC: Video-based fire detection

Bosch's video-based fire detection system represents the next generation in threat-detection capabilities. Utilizing a unique, scientifically tested physical detection model, Bosch technology spots fires and disturbances, predicts behavior to reduce false alarms and speeds up reaction times – helping you stop threats before they spread. AVIOTEC, is VdS- and CSIRO-certified and the perfect answer for facilities used for industry, transportation, warehousing and adjoining outdoor areas to minimize detection time with low false alarm rates.



Scan this QR Code to find out More about Bosch Fire Alarm Systems.



Public Address and Voice Alarm Systems

With more than 90 years of experience in designing and developing communication products, Bosch has established unrivaled leadership in the field of public address and voice alarm systems.

A public address and emergency sound system must deliver exceptional performance and reliability. Bosch has provided systems and components for major transportation terminals, houses of worship, public buildings, office buildings, schools and shopping malls around the world. Our solutions that include PRAESENSA, PAVIRO and PLENA VAS cover huge multi-site to small application area.

PRAESENSA. The new standard in Public Address and Voice Alarm (PAVA) systems from Bosch. PRAESENSA provides high-quality audio for music or messaging to every area in your building and is controlled via the intuitive graphical user interface on the call station touchscreen, or via personalized software running on a tablet or PC. Easy to install and highly cost-efficient, this advanced Public Address and Voice Alarm system brings peace of mind to a new level.

Fully IP-based and fully-featured, this is a state-of-the-art Public Address and Voice Alarm system. Installation and integration are straightforward, and it delivers great audio quality with an easy-to-use interface. PRAESENSA uses IP-connectivity and a smart power concept with integrated redundancies to give you an extremely cost-efficient system, equally suited to either centralized or decentralized topologies.

PAVIRO. A unique, high-quality Public Address and EN54-certified Voice Evacuation System that also delivers professional quality sound, thanks to its premium 24-bit digital processor, superior digital-to-analog converters, and outstanding Signal-to-Noise Ratio (SNR). Its highly adaptable system architecture makes it ideal for small- to mid-sized offices, regional airports, mid-sized hotels, factories, schools, and department stores.



PLENA VAS. The PLENA Public Address and Voice Alarm System range is an ideal evacuation, message and background music solution for a variety of locations, such as schools, hotels, shopping centers, factories, offices and similar applications where public safety is essential. The system is designed to be an easy-to-use announcement and emergency sound solution. The system features a standalone and plug-and-play concept ideal for entry applications. The system can also include a specially designed fireman's panel.



IP-connected and fully-featured



Scan this QR code to find out more about Bosch Public Address and Voice Alarm Systems.



EasyPact EXE

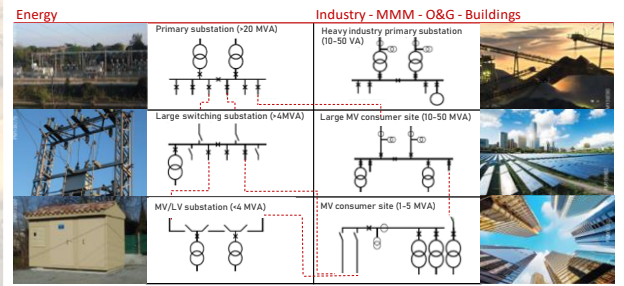
Indoor MV Vacuum Circuit Breaker up to 36 kV

EasyPact EXE is a range of vacuum circuit breakers designed to connect building infrastructure (heating, ventilation, lighting, etc.) and industrial plant processes (MV motors, MV/LV substations, furnaces, etc.) to the power grid, and to protect people and equipment.



EvoPact HVX-O

EvoPact HVX-O offers a wide range of performance levels. It controls heavy-duty tasks in harsh conditions, low temperatures, and vibrations under normal, inductive, and capacitive loads.



Designation			Dimension and electrical characteristics								
Phase Distance (mm)				145	150	185	185	210	210	240	275
Rated voltage	Ur	kV	12	*	*	*	*	*	*	*	*
			17.5	*	*	*	*	*	*	*	*
Rated frequency	fr	Hz	50/60	*	*	*	*	*	*	*	*
Rated short duration power frequency withstand voltage ¹	Ud	kV	28	*	*	*	*	*	*	*	*
			38	*	*	*	*	*	*	*	*
Rated lightning impulse withstand voltage	Up	kV	75	*	*	*	*	*	*	*	*
			95	*	*	*	*	*	*	*	*
Rated short-circuit breaking current	Isc	kA	20	*	*	*	*	*	*	*	*
			25	*	*	*	*	*	*	*	*
			31.5	*	*	*	*	*	*	*	*
Rated duration of short-circuit	tk	s	3	*	*	*	*	*	*	*	*
Rated normal current	Ir	A	630	*	*	*	*	*	*	*	*
			800	*	*	*	*	*	*	*	*
			1 250	*	*	*	*	*	*	*	*
			1 600	*	*	*	*	*	*	*	*
			2 000	*	*	*	*	*	*	*	*
			2 500	*	*	*	*	*	*	*	*

Additional characteristics according to IEC 62271-100 are listed in the common characteristics section.

(1) Contact us for 42kV - 5min.©

Designation	Dimension and electrical characteristics									
Phase Distance (mm)	Ur	kV	12	150	210	210	275			
Rated voltage			17.5	*	*	*	*			
Rated frequency	fr	Hz	50/60	*	*	*	*			
Rated short duration power frequency withstand voltage ¹	Ud	kV	28	*	*	*	*			
Rated lightning impulse withstand voltage	Up	kV	75	*	*	*	*			
Rated short-circuit breaking current	Isc	kA	20	*	*	*	*			
			25	*	*	*	*			
			31.5	*	*	*	*			
Rated duration of short-circuit	tk	s	3	*	*	*	*			
Rated normal current	Ir	A	630	*	*	*	*			
			800	*	*	*	*			
			1 250	*	*	*	*			
			1 600	*	*	*	*			
			2 000	*	*	*	*			
			2 500	*	*	*	*			

Additional characteristics according to IEC 62271-100 are listed in the common characteristics section.

(1) Contact us for 42kV - 5min.©

Common characteristics

Rated voltage	Ur	kV	36
Rated power frequency withstand voltage	Ud	kV	70
Rated lightning impulse withstand voltage	Up	kV	170
Rated frequency	fr	Hz	50/60
Rated short-circuit withstand current	Isc	kA	up to 31.5
Rated normal current	Ir	A	up to 2000A
Rated line charging breaking current	I _l	A	10
Rated short-circuit withstand time	tk	s	3
Mechanical endurance			M2
Electrical endurance			E2
Rated cable-charging breaking current	Ic	A	50
Rated single capacitor bank breaking current	I _{sb}	A	400
Capacitive switching duty class	CZ		S1
Switching duty class			0-0.3s-C0-3min-C0
Operating sequence			0-C-0
Operation sequence stored in spring			≤15
Spring charging time	s		Motorized / Manual
Spring charging option			ms ≤ 45
Opening time	ms		ms ≤ 60
Closing time	ms		kpp 1.5
First pole to clear factor	kpp		ms ≤ 60
Break time	ms		ms ≤ 15
Maximum arcing time	ms		



Range	Code	EXE	20	1	B
EasyPact EXE	EXE				
Rated voltage	Value	Code	12 kV	12	
	Value	Code	17.5 kV	17	
Rated short-circuit breaking current	Value	Code	20 kA	20	
Rated normal current	Value	Code	630 A	6	
	Value	Code	800 A	8	
	Value	Code	1 250 A	12	
Basic function circuit breaker	Value	Code	145mm	A	
Standard	Value	Code	150mm	K	
	Value	Code	185mm	B	
	Value	Code	210mm	L	

Rated voltage (kV)	Value	Code	36	36
Rated short-circuit current (kA)	Value	Code	25	25
	Value	Code	26.3	26
	Value	Code	31.5	31
Rated current (A)	Value	Code	1 250	12
	Value	Code	2 000	20
Type	Designation	Code	Withdrawable	W
	Designation	Code	Fixed	F
Standard	Designation	Code	IEC	1
	Designation	Code	BIS (India)	3
Phase distance (mm)	Value	Code	254	A

Easergy P3

Network Protection Relays



Easergy P3 is a complete range of protection relays for medium voltage applications, including feeder, motor, transformer, and generator protection. It embeds all the latest communication protocols on serial or Ethernet links.

Based on more than 100 years of experience in network protection relays, Easergy P3 benefits from the reliability of Sepam, MiCOM and Vamp.



Unparalleled Efficiency



Better Connectivity



Enhanced Safety

- Simple selection and ordering with EcoReal MV
- Simplified configuration with the new eSetup Easergy Pro setting tool
- Faster delivery with on-the-shelf availability of standard configurations
- Simpler operation and maintenance with the EcoStruxure™ Power
- 9 communication protocols in one box, including IEC 61850
- Increased number of inputs and outputs for more possibilities
- Embedded arc protection
- Built-in virtual injection testing
- Compliant with international standards (i.e. IEC 60255-1)

Easergy P3 contains

Two main devices, each with specific functions to address your needs in a one-box design, regardless of application

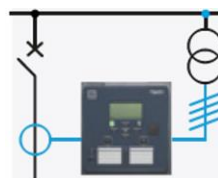
Feeder

Transformer

Motor

Generator

Easergy P3 Standard

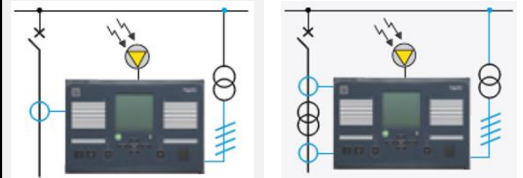


P3U10

P3U20

P3U30
with directional O/C
with voltage protection

Easergy P3 Advanced



P3F30

with directional

P3L30

line differential and distance

P3T32

with differential

P3M30

P3M32

with differential

P3G30

P3G32

with differential

CEWE INSTRUMENT

a Secure group company

The next generation power monitoring device

Elite 500

The Elite 500 series includes devices with advanced power monitoring capabilities, which can be used for standalone device monitoring and power quality analysis as part of BMS, process industrial controls and SCADA systems. It also offers data logging, control I/Os and modular communication with multiple protocols for third party system integration. Based on the application, Elite 500 allows customers to select conventional type CT or Rogowski coil input, which can be directly connected to the meter without the need for any additional integrator.

Primary data logger

Logging of up to 20 energy channels values, with integration period 5, 15, 30 & 60 minutes

~15000 parameter-days capacity at 30-minute interval

Secondary data logger

Logging of up to 20 instantaneous values with integration period 1, 2, 5, 10, 15 & 30 minutes

~35000 parameter-days capacity at 30-minute interval

-Configurable parameters:

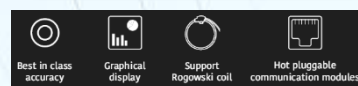
- 8 time-of-use tariffs (TOU), 8 Seasons, 8-day types, DST dates, 6 billing history
- Logging daily energy snapshots values up to 90 days
- Alarms and event logging

Up to 31st individual harmonic component measurement

Up to 63rd total harmonic distortion (THD) measurement

K-factor, Crest Factor, TDD, sequence components

Power quality features including voltage sag, swell



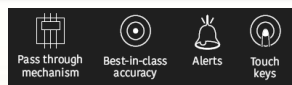
Technical specifications

	Conventional
Electrical	
Connection type	LV 3P4W / HV 3P4W / 1CT 3PT / LV 3CT / HV 3P3W
Measurement voltage range	35 V to 500 V (L-L) max, 20 V to 300 V (L-N) max
Measurement current range	10mA-6 A (configurable)
Starting current range	1mA
Frequency	50/60 Hz
Burden	Current circuit: < 0.2 VA/phase @ 1A & 5A Voltage circuit: < 0.2 VA/phase
Sampling rate	156 samples / cycle / channel
Accuracy	
Energy	Class 0.25 / class 0.55
Voltage, Current, Power	0.2% for measurement range

Elite 100 & Elite 300

Multi-line three phase panel meter

The Elite series is a multi-line three-phase digital panel meter for reliable and accurate true-RMS measurement of electrical parameters (voltage, current, power, frequency etc.) for industrial and commercial applications. It is available in two display types, LED display (Elite 100) and LCD display (Elite 300), with MODBUS communication, pulse output or alarm output as an option.



Technical specifications

Measuring voltage range	20 V to 500 V
Auxiliary power supply range	40 to 300 V AC / DC
Accuracy Class	
Voltage (V), Current (A)	±0.5% FS
Power	±0.5% FS (at unity PF)
Power factor (PF)	±0.005
Frequency (F)	±0.1 Hz
Active energy	Class 0.5s (acc. To IEC 62053-22)
Reactive energy	Class 2 (acc. To IEC 62053-23)
CT/PT(VT) ratio	Field-programmable primary and secondary values PT(VT) primary up to 2000kV, CT primary up to 15000 A
Protection degree (as per IEC 60529)	Front fascia: IP 54 default / IP 65 with gasket (optional)

ProQ100

High precision, comprehensive power quality measurements

ProQ100 is a true innovation, combines precision class revenue metering with leading edge power quality measurement.



precision class



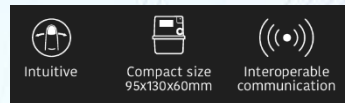
graphical display

IEC
61850

in-built support

Saral

Direct connected credit meter



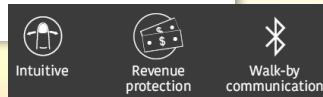
Saral is compact single phase direct connected intelligent credit' meter for domestic, small commercial metering applications including net metering. Its enhanced revenue protection features coupled with inter-operable communication protocol makes it an ideal choice for distribution companies. The meter offers an accurate and reliable metering solution for measurement of electrical energy in a single phase 2-wire network and ensures revenue assurance.

Technical specifications

Electrical	
Connection type	Direct connected
Wiring configuration	Single phase, two wire
Voltage range	230/240 V (P-N)
Current range	5-30A, 10-60A, 10-100A
Accuracy class	1.0
Mains frequency	50 / 60 Hz
Burden	
Voltage circuit	< 0.5W and 1 VA
Current circuit	<0.1 VA
Compliance	
Standards	IS 13779, IEC 62052-11, IEC 62053-21, IS 15959
Meter constant	6400 imp/kWh, 3200 imp/kWh, 1280 imp/kWh
Environmental	
Ingress protection	IP 54
Surge withstand	10 kV
Humidity	95% non-condensing
Temperature	-20°C to +60°C (operating)
Measurement	
Energy types	Active and apparent
Energy registration	Forwarded, import and export
Tariff	Up to 8 rate registers
	Up to 8 time zones
	Seasons, weekdays, and holidays
Maximum demand	Configurable in 6 rate registers

Saral 305

Three-phase direct-connected credit meter



Saral 305 is a new generation, three-phase, direct-connected meter from the Saral family. It is an accurate and reliable metering solution for measurement of electrical energy in three-phase, four-wire networks. It optimises a utility's revenue cycle through remote meter reading. The special revenue protection measures make it valuable for theft-prone areas.

Technical specifications

Electrical	
Connection type	3-phase 4-wire, direct connected
Rated voltage	230 V (Option for 240V)
Current range and Accuracy	5-100 A, Class 1.0
Frequency	50 Hz, $\pm 5\%$ or 60 Hz, $\pm 5\%$
Metrology LEDs	Two LEDs for active and reactive/apparent energy
Burden	
Voltage circuit	< 1W/1.5 VA per phase
Current circuit	< 0.1 VA per phase
Standards Compliance	IEC 62052-11, IEC 62053-21, IEC 62053-24, IEC62056-21
Features	
Tariff rate registers	Up to 8 rate registers, for configured energy channels
Maximum demand	Up to 2 types, configurable across 8 registers
Load survey	Up to 90 days profiling for 10 parameters with 30 min IP
Communication options	Optical port for local communications and Built-in BLE (Bluetooth Low Energy) for wireless reading & Terminal fitted modem (Skyline T45) for remote communication Optional RS 485 communication support
Protocol	IEC 62056 (DLMS), Optional Modbus over RS 485
Pulse I/O	Options: Two pulse output or One pulse output & one pulse input Pulse output rating: 40V-240V AC/DC @200mA Pulse input rating: 230V AC
Dual Register	Separate energy registers for mains and DG (Diesel Generator)

bticino

D45 SYSTEM



Digital call entrance panel



Audio Intercom



Switchboard operation as a comprehensive alarm management device: alarm receipt, recording and storage functions.



NEW DIGITAL CALL ENTRANCE PANEL

ITALIAN DESIGN WITH HIGH-END MATERIAL

PROTECTION DEGREE IP54 means it is also suitable for critical environments

PROTECTION AGAINST MECHANICAL IMPACT IK07 means resistant to vandalism

INSTALLATION OF UP TO:

- 4000 apartments
- 800 handsets per riser
- 80 entrance panels per riser
- 16 switchboards
- 100 riser shunts
- 1 km distance for colour video installation

MINIMAL OVERALL DIMENSIONS:
just 1.5 cm depth in flush-mounted
Anti-Tamper sensor for better security

COMPLEXES WITH LARGE NUMBER OF APARTMENTS

- Anti-tamper function on all indoor handsets
- Possibility to connect an additional camera to the switchboard
- Intercom between all the apartment of the riser
- SOS pushbutton on all indoor handsets
- Lift control function

MAIN INTERFACE



NEW TOUCH SCREEN INTERNAL UNITS

ITALIAN DESIGN WITH HIGH-END MATERIAL cover plate in metal finishing

WIDE TOUCH SCREEN DISPLAY
The screen occupies a large part of the device in line with current consumer electronics trend



7" & 10" TOUCH SCREEN INTERNAL UNIT

Stand-by key for power safe

Number keys and corresponding numbers

Alarm zone LEDs 1 to 8



3.5" WIDE SCREEN with alarm function

HANDS-FREE SCREEN INTERNAL UNITS

- WALL MOUNTING INSTALLATION
- SOS PUSHBUTTON
- INTERCOM
- DIRECT CALL TO THE SWITCHBOARD
- DOOR LOCK PUSHBUTTON
- DIRECT INTEGRATION WITH ALARM SENSORS
- FUNCTION AS DOOR CHIME

- SOS Key
- Monitor Key
- Switchboard Key
- Answer Key
- Door Lock Key

SWITCHBOARD

- Table Top Installation
- 7" LCD Display
- Able to communicate with Handset, Entrance Station and other Switchboard
- Alarm and Reception Management
- It manages building incoming calls and alarm



The integrated IP management software art. 323012 can provide the communication for calls between internal units and the switchboard. This software can be used only joined with D45/IP interface art. 323011

ENTRANCE PANEL CALL RECEPTION



CAMERA



ALARM



DOOR LOCK



INTERCOM



USER



CLASSE 100



- SUBTLE, COMPACT AND ESSENTIAL DESIGN for a perfect integration with house interior
- A white glass effect finishes to reinforce a cleanliness and pure effect
- FOR ALL PURPOSE : The wall range is conceived to give maximum of versatile in terms of installations and to offer the proper solution for all occasions
- Possibility to connect one push-button for Bell function



In addition to the extreme simplicity, the system offers

VERY GOOD PERFORMANCE

SYSTEM MAIN FEATURES

3900	Apartments
3900	Apartment video entrance panels
39	Risers with independent sound mode
5	Handsets per apartment
600 m	Distance between entrance panel and farthest internal unit

2 WIRE DOOR ENTRY SYSTEM

- 2 wire system – NON POLARIZED
- In refurbishment possibility to use the existing wires
- Possibility to complete the system with management switchboard

INTERNAL UNIT RANGE - SPRINT L2

New modern shape and design

- Call directly to Switchboard
- Door lock function
- Possibility to configure the second PB for an additional function
 - Call to switchboard, second door lock

3 level of volume adjustment

Wall mounted

Configuration by typical BT configurator (jumper)

Possibility to connect to the Push Button to function as Door Chime



CLASSE100|A12B



SIMPLE: BASIC DES FUNCTIONS ONLY
connection, door opening, call to switchboard, entrance panel activation, staircase light

INSTALLATIONS
Wall mounted installation with possibility of table mounting with table accessory (the same of CLASSE 100V12B)

COMPACT DIMENSIONS
140X90X27mm

CLASSE100|A12C



SIMPLE: BASIC DES FUNCTIONS ONLY
connection, door opening, entrance panel activation, staircase light, call to switchboard

INSTALLATION
Wall mounted installation with possibility of table mounting with table accessory (the same of CLASSE 100V12B)

DIMENSIONS
95X191X45 mm

CLASSE100|A12M



MULTIFUNCTION
Additional DES functions thanks to programmable push buttons (intercom, additional door-lock activation, additional activations...), call to switchboard

INSTALLATION
Wall mounted installation with possibility of table mounting with table accessory (the same of CLASSE 100V12B)

DIMENSIONS
95X191X45 mm

LINEA 100 - New power supply

Technical information

- 127V /230V
- 0,6 A
- 6 DIN Module

Limit:

- Distance: ~ 1 km for audio application
- 99 Internal unit plus new entrance panel (Possibility to go up to 3900 apartments with expansion modules and add. Power supply)



HIKVISION

IP Video Intercom



Common Features:

Excellent image performance

- High resolution & wide FOV
- WDR
- Night version

Easy configuration ways

Mobile APP

- Receiving video intercom calls
- Relay control
- Remote unlock the door
- Live view streaming
- History logs & alarm event logs

Indoor Station Family

			Screen size & Resolution	Screen material	Mobile APP	System
9 series indoor station	DS-KH9310 (B) series DS-KH9510 (B) series	7-inch 10-inch	1024x600	IPS LCD	✓	Android
Ultra series						
8 series indoor station	DS-KH8350 series DS-KH8520 series	7-inch 10-inch	1024x600	IPS LCD TFT LCD	✓	Linux
Pro series	6 series indoor station DS-KH6350 series DS-KH6320 series	7-inch	1024x600	TFT LCD	✓	Linux
Value series	6L series indoor station DS-KH6320-L series	7-inch	1024x600	TFT LCD	Not support	RTOS

Door Station Family

		Product type	No. of main indoor stations support	Material	Authentication	System
9 series apartment door station	DS-KD9633 series DS-KD9403 series DS-KD9203 series	All-in-one	500	Aluminium alloy / Acrylic	Face recognition / fingerprint / card / password	Android, Linux
8 series apartment door station	DS-KD8003 series DS-KD8023 series DS-KD8103 series	All-in-one	500	Aluminium alloy / Acrylic	Card / password	Linux
8 series modular door station	DS-KD8003 series	Modular	500	Aluminium alloy / stainless steel / Acrylic	Card / password	Linux
Pro series						
8 series villa door station	DS-KV8X13 series	All-in-one	1 / 2 / 4	Aluminium alloy / Acrylic	Card	Linux
6 series villa door station	DS-KV6X13 series	All-in-one	1	Plastic / Acrylic	Card	Linux

Modular Door Station

Modules with Stainless steel

Main Unit * IP version, Keypad module, Nametag module

Standard Modules

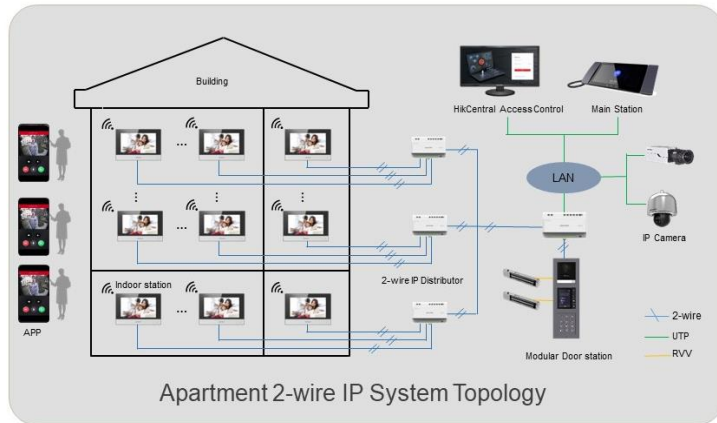
Touch & display module, EM reader module, M1 reader module, Indicator module, Blank module

Modular Door Station with Stainless steel

Modular Door Station

Stainless Steel 304 (Door station with new material), IK09 (Door station with new material), Configurable modularity, PoE, 2M, 180° WDR, Two locks control

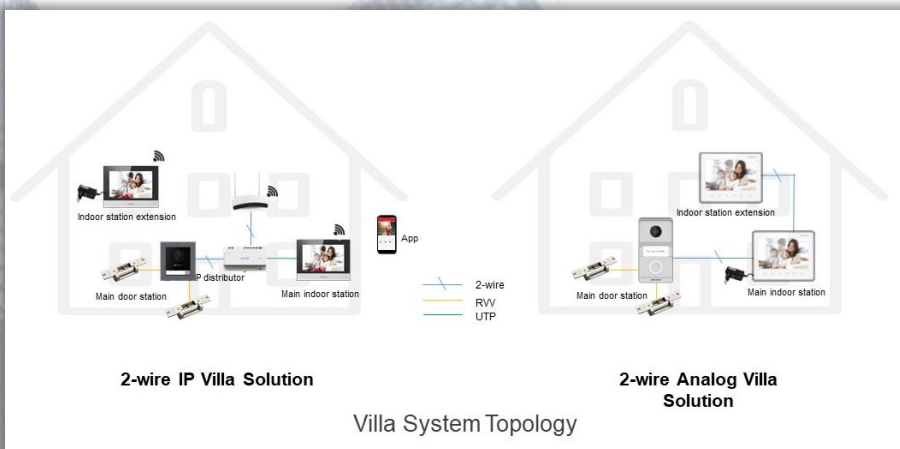
2-wire Video Intercom



Apartment 2-wire IP System Topology

2-wire IP Intercom Solution

2-wire IP Products			2-wire Analog Products (Villa)		
Modular Door Station		DS-KD8003 series (2-wire version)	2-wire Analog Door Station		DS-KV1101 series
2-wire IP Indoor Station		DS-KH6320 series	2-wire Analog Indoor Station		DS-KH1200 series
2-wire IP Distributor		DS-KAD706 series DS-KAD704 series			



2-wire IP Villa Solution

2-wire Analog Villa Solution

Villa System Topology



4-wire Analog Video Intercom



DS-KIS202T
DS-KIS203T
DS-KIS204T

Easy installation & configuration (Plug & Play)



Better image performance



- 2MP Sensor
- Wide field of view



- Night version



- WDR

		Door station water-proof	Indoor station Auto-capturing picture
DS-KIS202T	• DS-KB2411T-IM • DS-KH2220	⊗	⊗
DS-KIS203T	• DS-KB2421T-IM • DS-KH2220	⊙	⊗
DS-KIS204T	• DS-KB2411T-IM • DS-KH2220-S	⊗	⊙



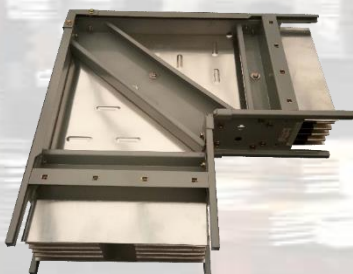
Automatic Transfer Switch

- Single motor or intelligent ATS controller
- For LV and MV applications up to 34.5 kV
- Electrically and mechanically interlocked



Busduct

- Rated IP 42 / IP 54 / IP 56
- 800-6300 A (Aluminum) and 1000-6300 A (Tin-plated copper)
- 99.9% ETP grade tin-plated copper and aluminum alloy for LV application
- Integral ground bus
- UL listed



Cable Tray

- Ladder type, closed type, and perforated type for LV and MV applications
- Tray depth 50-200 mm and tray width of 100-1000 mm
- Powder coated finish (RAL 9002 Beige or RAL 7001 Gray)
- 100% Galvanized materials
- UL listed



Capacitor Bank / Detuned Capacitor Bank

- Equipped with programmable power factor controller for automatic capacitor step switching and capacitor bank protection
- Detuned capacitor bank option for harmonic-polluted electrical network
- Fully-bolted construction, for indoor or outdoor application



Dry-type distribution transformer

- Up to 1 MVA, 120-480 V, single phase or three phase
- Aluminum or copper winding
- K-rated distribution transformers for harmonic-polluted electrical network



Enclose Circuit Breaker

- Swing-up cover with built-in support
- Adjustable brackets
- Push to lock with key
- Concealed hinge



Low Voltage Drives

- Up to 800 hp
- Applicable to simple machines, HVAC, simple machines, pumping and ventilation machines, complex, high power machines
- Easy to use design and simple operation



Low Voltage Switchgear

- Metal clad switchgear for indoor or outdoor application, with allotted busduct or cable compartment
- Draw-out or fixed type air circuit breaker up to 6300 A (600 V)
- Designed for easy access, maintenance and space savings
- Main bus rated up to 15,000 A
- Fully-bolted construction, for indoor or outdoor application



MV Switchgear

- Metal clad switchgear for indoor or outdoor application
- Vacuum circuit breaker up to 34.5 kV
- Designed for easy access, maintenance and space savings
- Equipped with protection relay for fault detection and earthing switch for safety
- Fully-bolted construction, for indoor or outdoor application

Motor Control Center

- Horizontal busbar rated up to 5000 A
- Additional safety barriers for internal segregation of functional units and bus works
- Total arc fault containment
- For indoor and outdoor applications

Panelboard

- Designed for easy access, maintenance and space savings
- Fully-bolted construction
- Heat-shrinkable tubes on busbars
- Phase barriers for added safety

Thermoplastic Panelboard

- Flush-mounted for residential use
- Up to 120 A main MCB rating
- Self-extinguishing and heat resistant frame and cover
- Insulated comb copper bus rated at 125 A

Data Rack / Battery Rack / Telecom Cabinet

- Custom-made enclosures for data centers and telecom equipment
- For indoor and outdoor applications



Product Offer:

- HV/MV, Oil/Cast resin, Indoor/ Outdoor Transformers
- MV Load Break Switch and Recloser
- MV Breakers, Protection Relay, CT and PT
- MV/LV Variable Frequency Drives and Softstarters
- Substation Equipment
- Type-Tested/Locally-fabricated MV/LV Switchgear, Distribution Panels, Motor Control Center (Draw-out & Fixed Type)
- Locally-manufactured MV/LV Synchronizing Panels
- Standard and K-rated LV Dry-type Transformers
- Busduct
- Cable Trays/Wireways
- MV/LV Filters and Capacitor Banks
- Modular Racks and Server Enclosures
- Data Racks/Open Bay Racks
- Automatic Transfer Switch (ATS)
- Manual Transfer Switch (MTS)
- KWH Meters
- Circuit Breakers
- Magnetic Contactors
- Surge Protection Devices (SPD/TVSS)
- Battery Bank and Cabinets

Specialized Offer:

- Substation Automation System (SAS)
- Industrial Automation (DCS, SCADA, HMI, PLC, RTU)
- Telemetry System
- Building Management System (BMS/BAS)
- Energy Monitoring System (EMS) or Automatic Meter Reading (AMR)
- MV Transformer Protection Relay Panel
- Fire Detection and Alarm System (FDAS)
- Closed-Circuit Television (CCTV)
- Public Address System (PA System)
- Voice Alarm System
- Door Entry System
- IP Video Intercom

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