

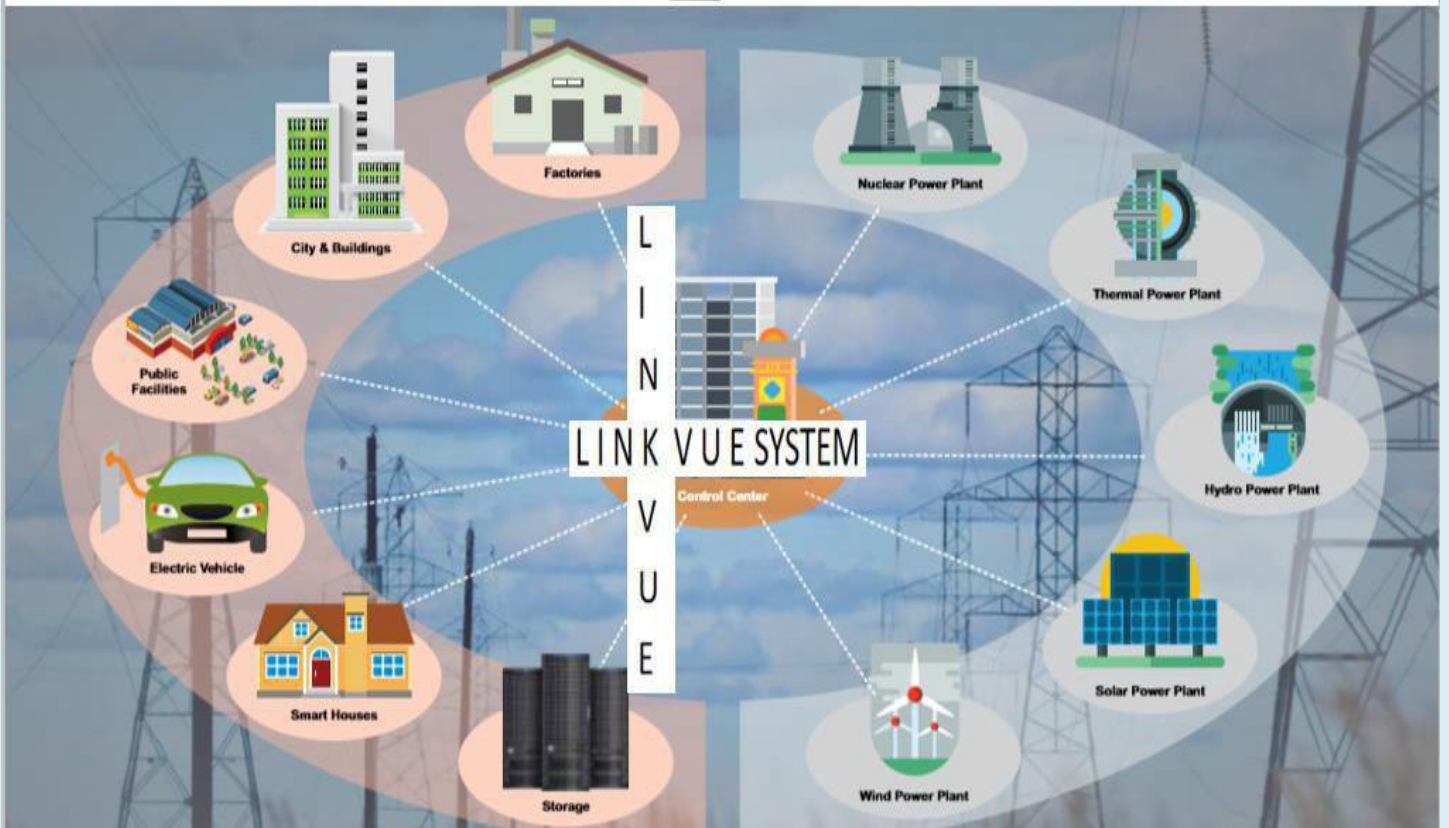


Link Vue

INT: INDIA/AUSTRALIA



Right Solution Partner for your Problems  A Genuine Approach Latest Technologies Adoption



India

Australia

Link Vue System Pvt Ltd (A Genuine Approach & Technology Company)



Link Vue System Pvt Ltd (A Genuine Approach & Technology Company)



Link Vue System Pvt Ltd (A Genuine Approach & Technology Company)



Solution Partner for your every Customers
with Technolgy and Genuine Products



We offer end to end engineering solutions from project conceptualization, engineering design, Constancy with incorporates our own In-house Singapore brand of Ethernet M2M connectivity wide range of products with International industries approvals of CE, FCC & ROHS standards, Moreover We are the strategic partners, sole distributors for world' leading Enterprise ICT & Industrial class Surveillances security products from products selection to project commissioning services for industries assisted with onshore & offshore 24X7 service support Link Vue System Private Limited - India established to provide premier Integrated solutions for Industrial & Enterprise Grade Ethernet Connectivity / Wireless WLAN, GSM Technology incorporates value added supply services & End to End support for Govt.& small to large businesses to plan, build deploy & manage their Industrial Automation SCADA communication control, Ethernet LAN/WAN networks System infrastructure, CCTV Surveillances, Access Control as per their standards - all within their stipulated budget and cost effective solution.

With our extensive knowledge & rich industry hands-on experience in the Networks communication & Industrial Automation arena, we continuously innovate and upgrade our products range aimed the varied applications needs of our customers, we maintain high quality standards for our offering products which we have received many quality and testing certifications from industries internationalcertifications bodies.

<p>VIRTUALIZATION Centralization. Consolidation. You've got a long list of what ifs" and "must haves." We'll sit down with you and really listen to your needs, then design systems that perform optimally, increase productivity and reduce costs.</p> <p>IT & INDUSTRIAL COMMUNICATION BRAINS Our clients are supported by our staff of experts plus a resource network of Level 1 to Level 3 engineers. We'll make sure we address your problems economically and strategically We perfect your systems before you even see them.</p> <p>IMPLEMENTATION AND SUPPORT We don't drop off the parts and walk out the back door We manage the project through implementation and then follow up to make sure everything is working correctly. We see value when it's built into long-term success.</p> <p>Who is Link-Vue? We are, of course It's our passion to deliver peace of mind. Learn more about Link-Vue integrated IT products and solutions</p>	<p>Services & Supports</p> <ul style="list-style-type: none"> • AMC / CAMC • IT Technical Support Help Desk • Server Implementation • Hardware Repair Services • Software Configuration • Architecture & Implementation • Problem Remediation& Rectification •Hardware Repair Services • Project design & consultancy • Asset Management • Warranty Services
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Performance Enabling Solutions

- Advanced CCTV Surveillances & Access control Security on Ethernet Platform
- Industrial & Enterprise Networking LAN/WAN, Wireless WLAN & GSM Data Loggers.
- IP Security Collaboration I Messaging Mission Critical Data Storages NAS /GRID
- Industrial Automation DCS I PLC I SCADA HMI I Industrial Computers Products & Implementations
- Consultancy in Enterprise and Industrial Automation Networks Design
- Sourcing of best Components Supply from in-house brand/ customized based on the project requirements for industrial and enterprise connectivity and automation verticals.
- IT Data Centre and ICT Products Infrastructure Management.

City Surveillance

Empowering Vigilance



Activate Windows
Go to Settings to activate Windows.





Take your equipments online

The next generation IIoT platform

marc is our next generation GSM/LAN based IIoT platform with built in apps for **assets and equipment** for managing efficiency, uptime, productivity, condition monitoring, control, preventive & predictive maintenance.

marc.gateway
High speed wireless communication with offline storage

marc
Redundant & fault tolerant cloud
Secure & Scalable

marc
Actionable analytics
Real-time Monitoring
Customized reports & trends

marc.gateway
High speed wireless communication
Offline data storage

Supported Protocols - Modbus TCP/IP, Modbus RTU, MQTT, https

Applications	Why IIoT?
Energy & Utility <ul style="list-style-type: none"> Energy Management Transformer Monitoring Industrial Motor HVAC Monitoring Solar Energy Audit Energy Audit Water Management Water Audit 	<ul style="list-style-type: none"> Efficiency Uptime Productivity Availability Service Condition Alert Prevention Prediction
Plant & Process <ul style="list-style-type: none"> Equipment or Asset Monitoring Process Monitoring Machine Monitoring OEE Other Agriculture, Vehicle Weather Smart City Custom Application development 	

*Access Window
Go to settings to activate*

**Design for harsh industrial environments
stable and reliable**

- ✓ Industrial Level 4
- ✓ IP40 protection
- ✓ CE, FCC certified
- ✓ Anti-EMI



LINK VUE

RELIABLE NETWORKS



Industrial & Commercial Managed Gigabit POE / Unmanaged Switches & Media Convertors Models Series

More than 100 different RJ45 Copper & LC/ST/SC Fiber ports models available.

Physical Characteristics

Housing: Aluminum Alloy material with IP40 Protection
Very light weight
Rack mount , wall mount & Din Rail

Interfaces

Console Port: rs-232(RJ45 connector)
Web GUI Interfaces
Alarm Contact: 1 replay outputs, supports IP/MAC conflict



Power

Input Voltage: 220V AC (110-240V AC)@2A / (12-24) VDC Redundant dual inputs
Plug-In Terminals: 5 Cores 5.08mm Terminals
Overload Current Protection: Present
Reverse Polarity Protection: Present
Redundant Protection: Present
Connection: 1 removable 6-pin terminal blocks

Environmental Limits

Operating Temperature: -40 + 85 degree C
Storage Temperature: -40 + 85 degree C
Ambient Relative Humidity: 5%-95% (non-condensing)

EMS

EN61000-4-2 (ESD) Level 3
EN61000-4-3 (RS) Level 3
EN61000-4-4 (EFT) Level 3
EN61000-4-5 (Surge)Level 3
EN61000-4-6 (CS) Level 3
EN61000-4-16(Common-mode Conduction) Level 3
Shock: IEC 60068-2-27
Free Fall: IEC 60068-2-32
Vibration: IEC 60068-2-6
EMI: FCC CFR47 Part 15, EN55022/CISPR22, Class A
Industry: I EC60068-2-6, I EC60068-2-27, I EC60068-2-32
Rail: EN501 55, EN501 21 -4
Traffic: NEMA TS-2



**5 Years
International Warranty**

BMS Network Infrastructure System



- Backbone Routing & switching
- LAN & WAN Controllers to PLC connectivity.
- CCTV Surveillances, Access control temaserver.
- & Fire Alarm connectivity.
- Servers & Workstation implementations:
- IT Data Center management & control monitoring
- Network Monitoring Systems (NMS) Implementation.

Oil, Gas & Process Industries



- CCTV Surveillances security incorporates.
- Ethernet LAN Networks infrastructure parameter boundary for Refinery division.
- CCTV Solution for Explosion & hazardous zone areas.
- Explosion Proof (ATEX) approved CCTV for pipeline automation.

Solar Surveillances Scada Network Systems



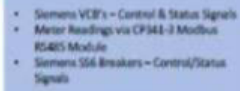
- CCTV Surveillances Plant field Area.
- SCADA Control room implementation.
- Ethernet Communication, Fiber optics splicing
- All Kind of LAN / WAN Implementations.
- GSM Data Loggers & RTU Communication.
- GSM celluiler, Serial, Ethernet Data logger for solar power application.
- Progameble using IEC 61131-3 languages.

Power Networks Infrastructure

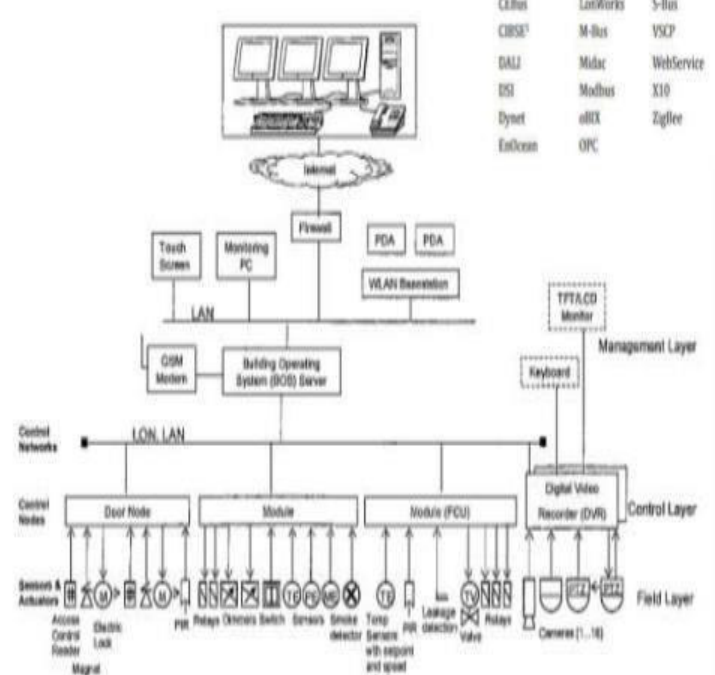


- Real IT & Industrial connectivity people with hands-on live experience.
- Custom solutions built around your systems and processes.
- End-to-end application support.
- Ongoing client support & One team of experts for all IT needs.
- Same engineers work with you before and after the sale.
- Documentation of delivered solutions.
- Networking LAN & WAN, Security, Collaboration, Messaging Backup, Archiving, Disaster Recovery/Business Data storages NAS /GRID.

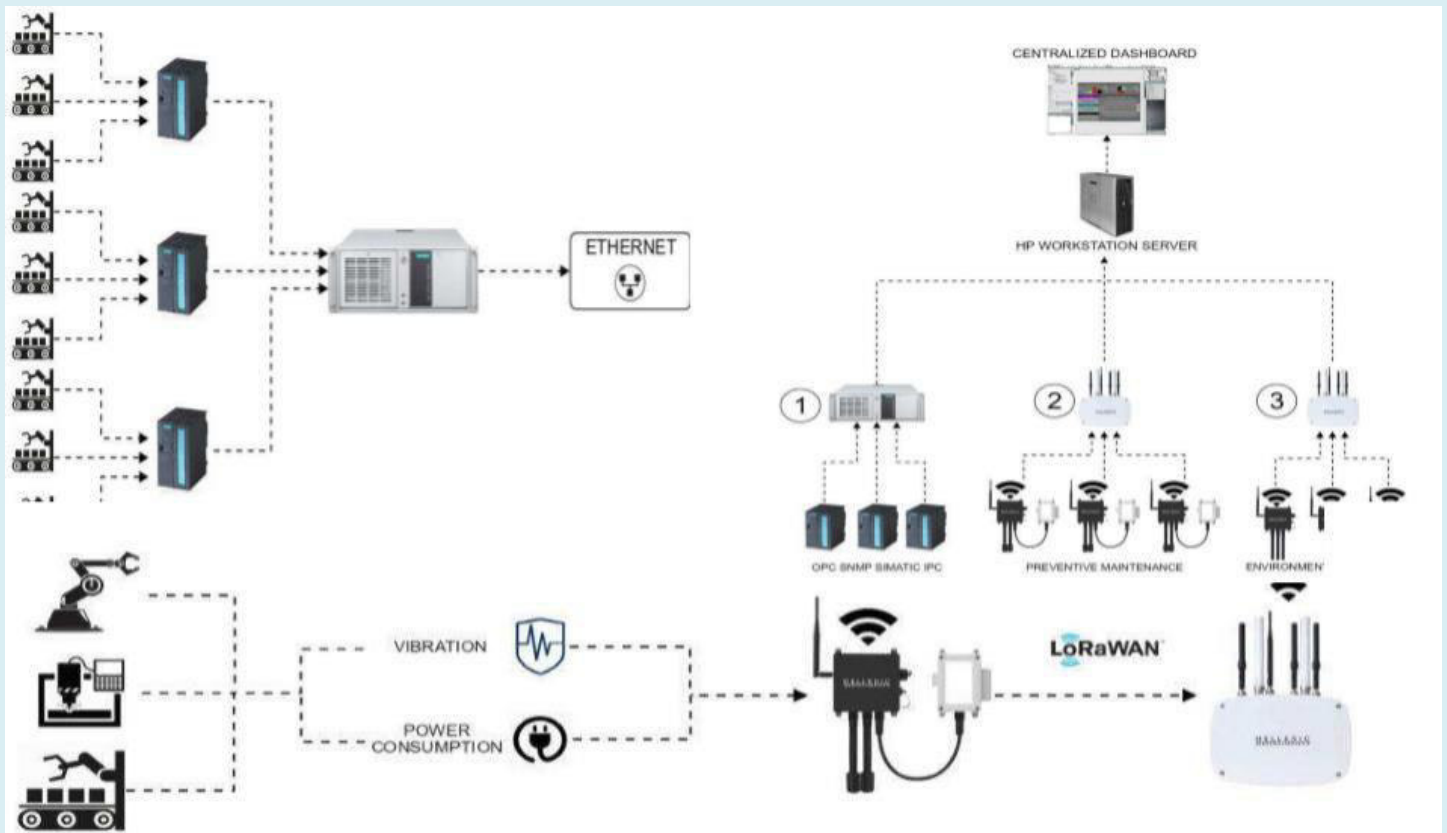
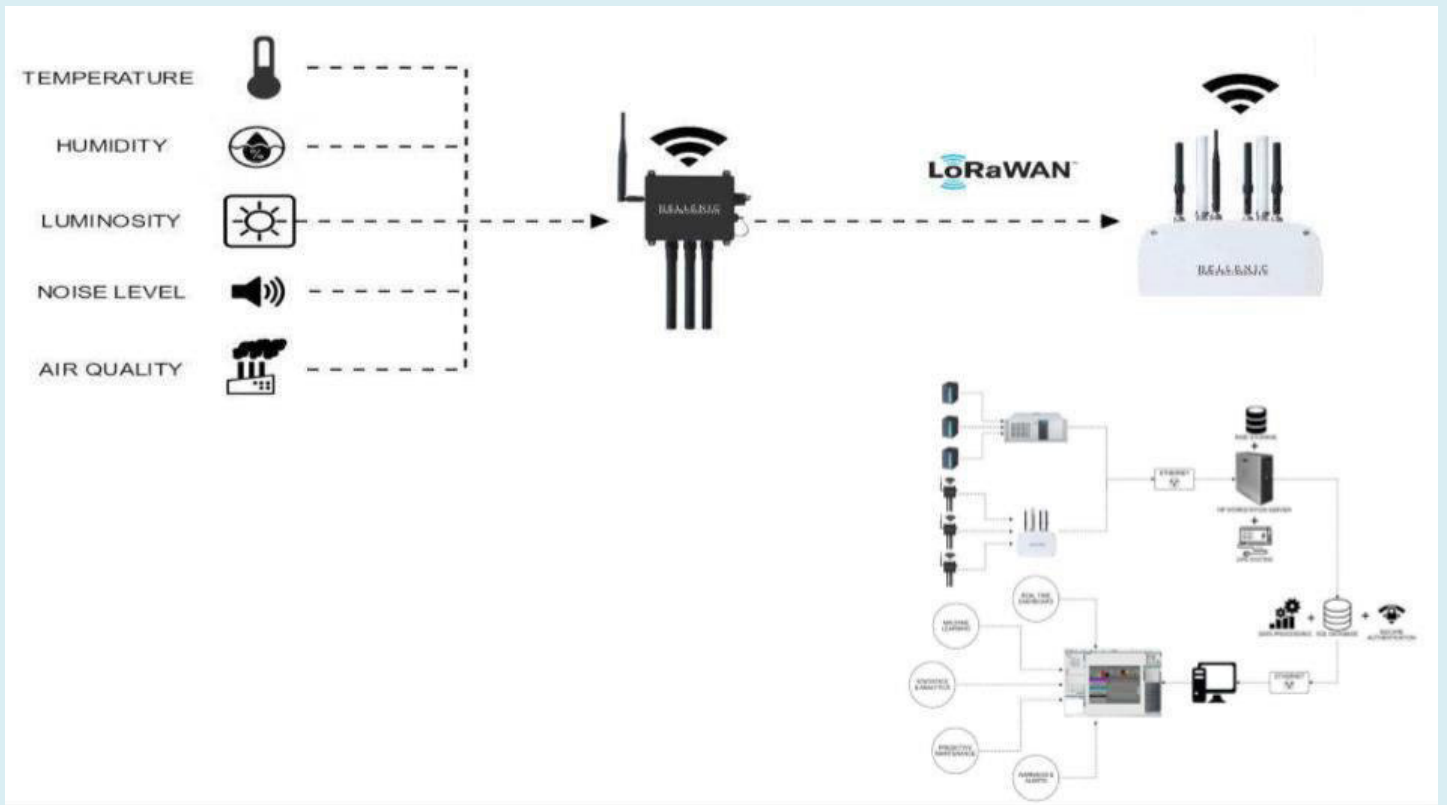
CONTROL ROOM



Standards and Protocols



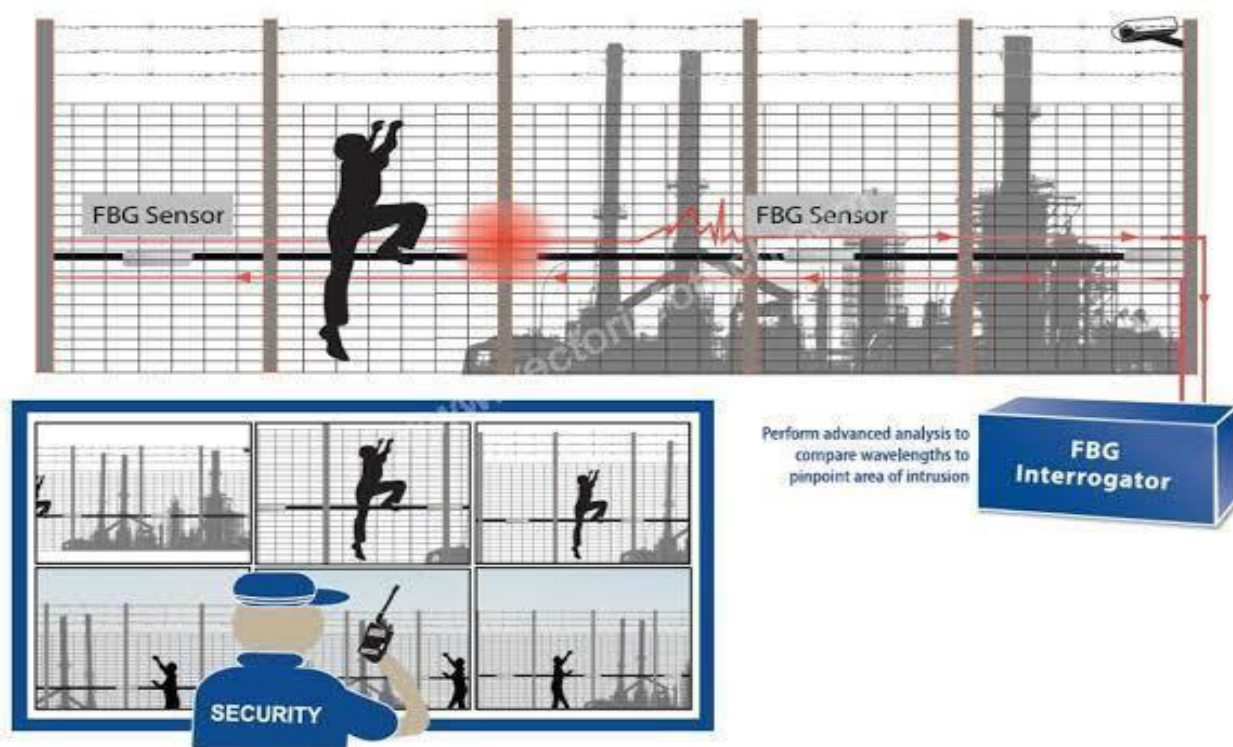
Standards and Protocols		
BACnet	KNX	OpenTherm
C-Bus	LonTalk	OpenWebNet
CEBus	LonWorks	S-Bus
CIBSE ¹	M-Bus	VSCP
DALI	Modac	WebService
DS	Modbus	X10
Dynet	oBIX	ZigBee
EnOcean	OPC	



PERIMETER INTRUSION DETECTION SYSTEM (PIDS) SECURE YOUR PREMISES

Perimeter Intrusion Detection System (PIDS) is designed to protect assets within a perimeter by detecting intruders attempting to gain access and blocking such access using the control station. Blue Star R&R offers robust and reliable solutions for accurate detection of such unauthorized entry and protection of assets against these threats. The company's turnkey solutions can detect any unauthorized physical intrusions across the perimeter, assess the situation and track intruders for future actions. Features such as instant alarm generation and control by reporting to central monitoring station make it easier to manage such situations,

PIDS solutions from Link Vue Systems Pvt Ltd are based on microwave technology, Optical Fiber Cable (OFC) or video cameras. These can be fence mounted, buried underground or can be tailored for specific needs, based on customer requirements. Seamless integration of PIDs with other security systems adds one more layer of comfort for the customer. This security system is well suited for military bases, government facilities, oil refineries, Petrochemical plants, power plants, sea ports, airports, VIP residences, Storage yards and so on.



Link Vue System Trading Products Portfolio



www.linkvuesystem.com

Protocon-P7M: Modbus RTU to Modbus TCP/IP



Protocon-P7M

A gateway for your Building Automation solution



Protocon-P7M is a cost effective solutions to connect equipment's with similar communication Protocols and physical Media.

Protocon-P7M is a product from Sunlux that allows users to integrate new and existing Modbus/RTU serial devices to TCP/IP network-based devices. The gateway server allows MODBUS/TCP based Controllers and applications to communicate and interoperate with serial MODBUS RTUs.

Supporting

- RJ45

nodes



Ethernet port

- 2 x RS485, 1 x RS232 port supports upto 30 nodes.

Protocols supported

- Modbus RTU, Modbus TCP/IP

Mapping data points Supported

- Maximum 500 data points

Applications

- Energy Management with Building Automation Systems
- Integrated metering of HVAC systems and chillers

PRODUCT ORDERING INFORMATION:

MODEL	INTE	ORDER CODE
Protocon-P7M: Modbus RTU to Modbus TCP/IP	1 x RS485	P7M-P1
	2 x RS485	P7M-P2
	2xRS485, 1 x RS232	P7M-P3

TECHNICAL SPECIFICATIONS	
Input power	Input Voltage 12V DC, 300 mA, 11W
Environmental	Operating Temperature 0 ° C to 55 ° C (Standard); Humidity 10-90% non-condensing
Processor	CPU Fan less - Cortex Controller Software malfunction protection Watchdog timer
Interfaces	Modbus Slave Choice of 2 - RS485 ports, 1 x RS232. 1 PFC input . RJ45-Ethernet (Modbus TCP/IP)
Communication	1x RS-485 (Screw-terminal) 10/100 Mbps Ethernet with auto-negotiation Serial port supports either 2-wire or 3-wire EIA-485 Baud rates from 2.4 to 115.2 kbps. The baud rate can be set with Web based Configuration Configuration software for data points mappings
Software	
Data points	Maximum 500 data points.
Enclosure type	Sheet metal
Weight	225 Grams approximately
Dimension:	90MM (L) X 82MM (H) x 20mm (D)

Note: Mapping configuration Supported per unit ranges from min 1 to max 500 points.

TeleMON™ - Telemetric Monitoring System

Key Features

- ✓ MQTT support over 10/100 fast Ethernet (RJ45) or over built in 3G/4G Modem. Data encrypted with TLS
- ✓ Modbus RTU support on 2 x RS485 ports
- ✓ Modbus TCP support on 10/100 Fast Ethernet (RJ45)
- ✓ Device level security with TPM 2.0, Secure Boot
- ✓ Ruggedized (shock and vibration resistant) for challenging mobile and manufacturing environments
- ✓ Can be powered by 24V DC
- ✓ Provision for onboard data logging with real time stamp with configurable periodicity
- ✓ Configuration available through integrated web server

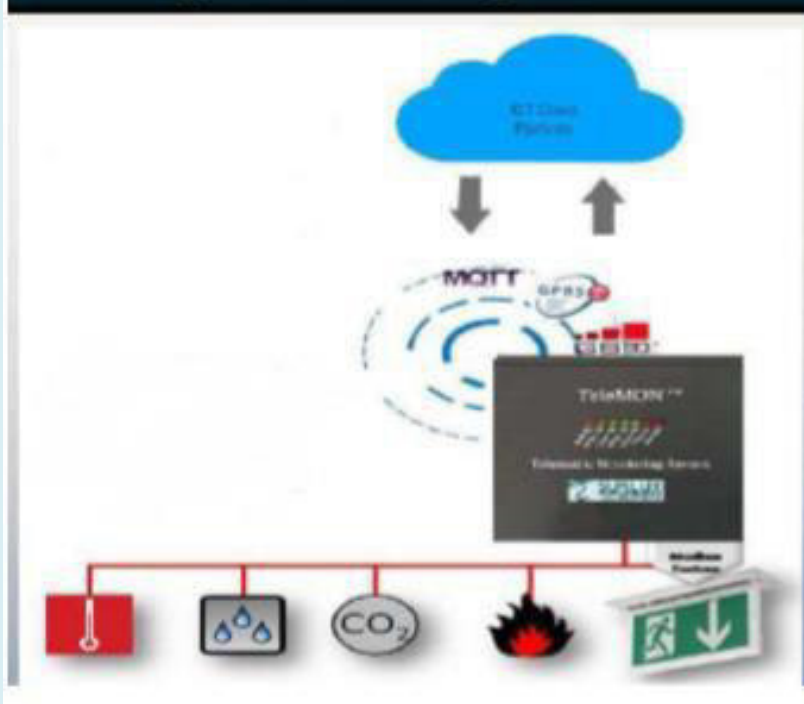


General Description

TeleMON™ is an industrial grade x86 based gateways. Telemon gateway provides two RS485 serial interface for Modbus RTU protocol, an ethernet interface for Modbus TCP and transfers the data to the cloud using MQTT (SSL/TLS) over 3G or 4G cellular modem or ethernet Interface. TeleMON gateway acquires data from legacy devices and modern sensors analyzes and make the data available at the cloud which would provide a platform for various applications like remote asset management, centralized monitoring etc.

TeleMON is specifically designed to implement data collection systems which operate according to the Internet of Things (IoT) paradigms; It allows bidirectional communication between field equipment and the Cloud software platform. All the data transferred to the cloud are encrypted with Transport Layer Security (TLS). It is possible to configure the MQTT message structure in order to better adapt to the different MQTT Brokers available (Amazon AWS, Mosquito etc.)

Typical Network Diagram



Protocol Specifications

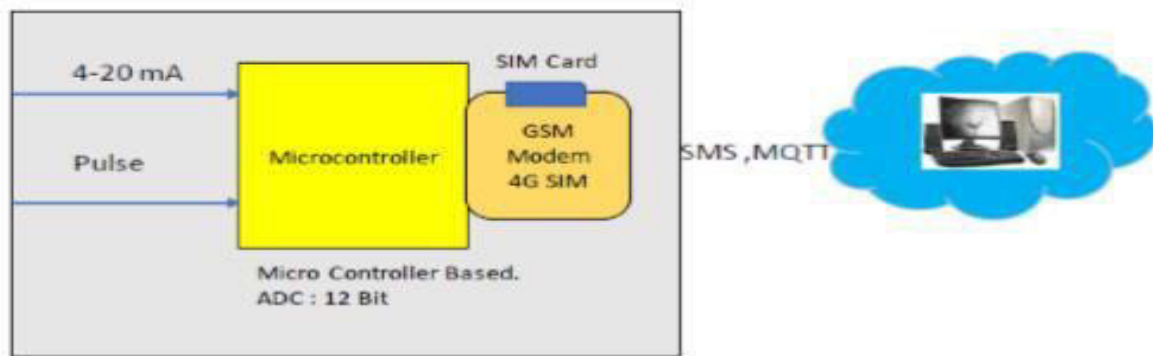
Modbus

- ✓ TCP / RTU Support
- ✓ Holding Register, Input Register, Discrete Inputs, Coils supported
- ✓ Support for function code FC 0x01,0x02,0x03,0x04
- ✓ Serial Baud rate support from 9600 -115200

MQTT

- ✓ TLS 1.2 Certification supported
- ✓ MQTT using OpenSSL
- ✓ Connection and reconnection with configurable QOS level (0,1,2), DUP and Keep Alive Timer supported
- ✓ Publish and Subscribe support with configurable QOS levels (0,1,2)

Ultra Sonic Sensor DASq and GSM Communication



Supply Voltage: 24 VDC
Dimension : 75 x 75x 30 mm
Communication 4G
Protocol : MQTT to MCC room.

Communication Cables



Fiber Optics

- ☐ Armored Fiber Optic Cable
- ☐ LIU Box
 - ☐ Din Rail type
 - ☐ Wall Mount
- ☐ Patch Cords
 - ☐ Ruggedized Patch Cord
 - ☐ Armored Patch Cord
- ☐ Onsite FO Splicing Service



Serial Device Servers



USB To RS-232/485/422



1-Port RS-232/485/422 to Ethernet



2-Port RS-232/485/422 to Ethernet



Ethernet-Modbus Gateway to 4-Port RS-485/422



8 Port 232/485/422 to Ethernet



16 Port 232/485/422 to Ethernet

Protocol Converters

Protocol	CAN Open	CC Link	DeviceNet	Ethernet IP	Modbus RTU	Modbus TCP	Profibus	Profinet
CAN open	✓	✓	✓	✓	✓	✓	✓	✓
DeviceNet	✓	✓	✓	✓	✓	✓	✓	✓
Ethernet IP	✓	✓	✓	✓	✓	✓	✓	✓
Modbus RTU	✓	✓	✓	✓	✓	✓	✓	✓
Modbus TCP	✓	✓	✓	✓	✓	✓	✓	✓
Profibus	✓	✓	✓	✓	✓	✓	✓	✓
Profinet	✓	✓	✓	✓	✓	✓	✓	✓
M-Bus	-	-	-	-	✓	-	-	-



CANopen

M-Bus

CC-Link

DeviceNet

Modbus

Modbus

Ethernet/IP

Profinet

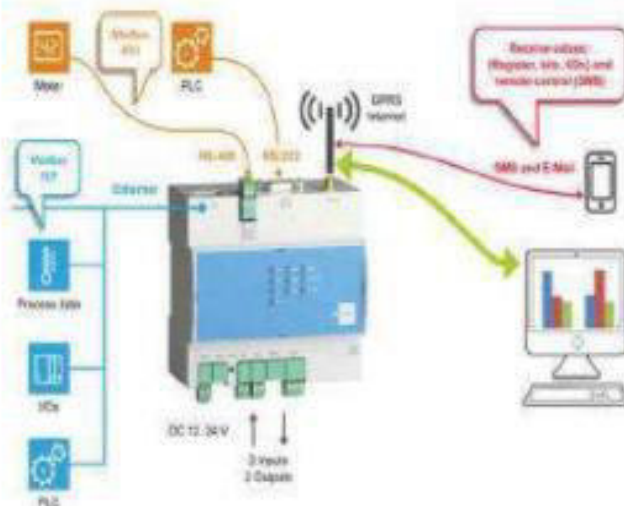
I-IOT Products



GSM Modems



I-IOT Router



Profibus Products

The **PROFIBUS Tester 5** BC-700-PB is a powerful diagnostic and troubleshooting tool for testing the cables, measuring the signals and analysing the communication of PROFIBUS networks.

Combination of signal tester, storage oscilloscope, protocol analyzer, master simulator and cable tester functionality in a single diagnostics tool



Profibus HUB



Profibus Terminator



Profibus Repeater



Profibus Cable Stripper



Profibus Connector



Profibus Tester

EKS Engel; Germany	<ul style="list-style-type: none"> Fiber Optic Media Converter's DIN rail mounted MINI Patch panels
Elesta GmbH, Switzerland	<ul style="list-style-type: none"> Relays with Forcibly Guided Contacts
Fint, Norway	<ul style="list-style-type: none"> Gateway for HART/ FF/ PROFIBUS PA / MODBUS Wireless HART Embedded Gateways for HART/ FF/ PROFIBUS PA / MODBUS
Helmholz, Germany	<ul style="list-style-type: none"> Profibus Connectors with & w/o LED/ PG Port Profinet RJ45 Connector Profibus DP-DP Coupler Profibus 2/4/6 way repeaters MPI Module CAN Bus Module REX 100/ REX 200/REX 250 – Remote Access & Maintenance solutions Profinet Switches PN-PN Couplers

Smart Grid & Smart City Solution

Our Product based on Industrial Protocol Development, Application Programming Interface and Software Platforms for Data Acquisition, Data Analysis and Data Monitoring for Numerous Industrial Applications. We always touch to Help Industries to Implement Concepts With Workable Solutions For Efficiency Improvement, Application Monitoring And Effective Control Processes, Systems And Machines. Our Product not only limited with Protocol Gateways, RTUs & SCADA we have recognized Products in the domain of Energy Management System as well as Power Factor Control prepared product list with our strong basket.

Smart Grid & Smart City Solution



Smart cities depend on a smart grid to ensure reliable energy efficient and quality power Distribution System. Smart Grid is Digitalization of Power Transmission and Distribution System.

Major areas of concern in the power distribution sector are high AT&C loss and poor power distribution reliability. To address these problems accurate measurement, diagnosis and Local remedial action is essential.

The reliability of power is measured in the terms of SAIFI and SAIDI which requires solution based on real time monitoring and Control.

The Feeder Remote Terminal Unit (FRTU) for SAIFA /SAIDI measurement is required at primary substation to our data from status Input devices of breakers or protection relay viz O/C & E/F, CMRs, Multifunction Transducers (MFTs), discrete transducers for analogdata The FRTUs shall be interfaced with the substation equipment, communication equipment, power supply distribution boards;

Along with effective Monitoring, FRTU should also incorporate self-healing and logic for taster restoration of supply even in the absence of control Centre SCADAIntelligent Protocol Gateways in Smart Grid combine the Functionality of Traditional Protocol Converters and IoT Gateways, TheseGateways not only help in interoperability between various equipment supporting difforart Protocols as per Functional requirements.But also support clustering data processing. Processing, network security and Many connectivity Options

RS Consultancy is Pioneer in Engineering and Development of Smart Grid Solutions in Partnership with Global Market Leader in IoT Hardware Advantech Co. Ltd, we Offer indigenized Solutions with.

- Intelligent FRTU
- Smart Grid IoT Gateway
- RSK PGA Smart Utilities

Architecture



Smart Grid Edge Gateway

RSK-PGA Smart Grid Edge Gateway is the Combination of Highly Rugged and Best in Market Hardware from Advantech Taiwan and Our RSK-PGA API, our configuration utility is User Friendly and User can easily configure protocols mapping through interface software for all supported protocols like IEC-104, DNP 3.0, IEC-103, DLMS etc. It also uses IED configuration files to import complex IEC 61850 data structures and same for other intelligent device libraries...

Features and Benefits

Configuration software RSK-PGA	<ul style="list-style-type: none"> Mapping is possible for all protocols from single interface Many-to-Many, Many-to-One, One-to-Many protocol conversion is possible.
Diagnosis	<ul style="list-style-type: none"> Diagnosis for Modbus TCP/IP, Modbus RTU, IEC-104, IEC-103, IEC-101, DNP 3.0, DLMS and IEC 61850 networks are available via the configuration utility.
Import Configured IED files	<ul style="list-style-type: none"> All IED data structures are available for convenient mapping to other protocol registers.
Modbus TCP/IP Client/Server support	<ul style="list-style-type: none"> Enables multiple Modbus TCP/IP devices or SCADA devices to interface with IEC 61850 devices simultaneously.
IEC1050 Client/Server support	<ul style="list-style-type: none"> Enables multiple IEC devices or SCADA devices to interface with different protocol devices simultaneously.
IEC-104 Client/Server support	<ul style="list-style-type: none"> Enables multiple IEC-104 devices or SCADA devices to interface with IEC 61850 devices simultaneously.
IEC-101 Client/Server support	<ul style="list-style-type: none"> Enables multiple IEC-101 devices or SCADA devices to interface with different protocol devices simultaneously.

Protocol Support

<ul style="list-style-type: none"> IEC-61850 IEC-60870-5-104 IEC-60870-101 IEC-60870-103 DNP 3.0 MODBUS RTU/TCP/IP OPC DA OPC UA DLMS MQTT
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Sample Protocol Conversion

<ul style="list-style-type: none"> IEC 61850 to Modbus Modbus to IEC 61850 Modbus to IEC 104 Modbus to IEC 103 IEC 101 to IEC 104 IEC 61850 to IEC 101 IEC 61850 to IEC 104 IEC 103 to IEC 104 DLMS to IEC 104 DLMS to Modbus

Architecture



Hardware Details

UNO2790-R0H-PCA

- Intel® Atom™ x86T5920 CPU and 4GB DDR3C RAM
- Compact Form Factor Design
- 2GB 4GB/E storage onboard
- 2 x RS-232C isolated serial ports
- 2 x 10/100 Base-T Ethernet ports
- 1 x Mini-PCIe for Wi-Fi/GPS/GPRS
- Wide Operating temperature: -40 ~ 80°C



DCU1001-R0H-PCA

- Intel® Atom™ B860H CPU
- DDR3 2GB/E RAM
- 1GB 2GB/4GB card for system storage
- 1 x Micro SD Slot
- 2 x RS-232C isolated serial ports
- 2 x 10/100 Base-T Ethernet ports
- 1 x Mini-PCIe for Wi-Fi/GPRS
- Operating Temperature: -40 ~ 80°C



DCU1001-R0H-PCA

- Intel® Atom™ B860H CPU and 2GB/E 2GB/E RAM
- Storage 1GB/E Flash 1/2GB
- 4 GB for Card for data logging
- 2 x RS-232C
- 2 x 10/100 Base-T RJ-45 ports
- Support dual CAN slots for communication redundancy
- Wide Operating temperature: -40 ~ 80°C



Specifications – IEC 103 Client

- Time synchronization

Process information in Monitor direction	<ul style="list-style-type: none"> • Time-tagged message • Time-tagged message with relative time • Measurement I • Time-tagged measurement with relative time • Measurement II
Process information in Control direction	<ul style="list-style-type: none"> • Control Command • Clear Fault, Reset Fault, Faulty Data OK
Configurable Parameters (Client and server)	<ul style="list-style-type: none"> • IEC Address • ASDJ Address

Specifications – IEC 101 Client/Server

- Multiple Master Support
- Observation of Events
- Time synchronization

Process information in Monitor direction	<ul style="list-style-type: none"> • Single Point Information (M_SP_NA, S) • Single point information with time tag (M_SP_TA, S) • Double point information (M_DP_NA, S) • Double point information with time tag (M_DP_TA, S) • Measured Value, Normalized Value (M_ME_NA, S) • Measured Value, Normalized Value with time tag (M_ME_TA, S) • Measured Value, Broken Value (M_ME_NL, S) • Measured Value, Broken Value with time tag (M_ME_TL, S) • Measured Value, Short feeding point value (M_ME_NC, S) • Measured Value, Short feeding point value with time tag (M_ME_TL, S) • Single point information with time tag (CPNCTInfo (M_SP_TA, S) • Double point information with time tag (CPNCTInfo (M_DP_TA, S) • Measured Value, Normalized Value with time tag (CPNCTInfo (M_ME_TA, S) • Measured Value, Broken Value with time tag (CPNCTInfo (M_ME_TL, S) • Measured Value, Short feeding point value with time tag (CPNCTInfo (M_ME_TL, S)
Process information in Control direction	<ul style="list-style-type: none"> • Single Command with time tag (C_SC_TA, S) • Double Command with time tag (C_DC_TA, S) • Clock synchronization command (C_CL_NA, S) • General interrogation command (C_IC_NA, S) <p>(Interlock execute, select and measure, persistent or pulse type command, short pulse duration, long pulse duration)</p>
Configurable Parameters (Client and server)	<ul style="list-style-type: none"> • IP Address • Port No. • ASDJ Address • Cause of Transmission (COT) • Cycle Message Interval • Information Object Address

Specifications – DNP 3.0 Client/Server

- Time synchronization

Configurable Parameters (Client and server)	<ul style="list-style-type: none"> • IP Address • Port No. • Station Address • Destination Address
Data Type	<ul style="list-style-type: none"> • Digital Input • Digital/Binary Output • Analog Input • Analog Output • Double Input
Command	<ul style="list-style-type: none"> • Analog Output Command • Digital Output Command • Time Synchronization Command

Specifications – SNTP/NTP Client

The gateway supports a Simple Network Time Protocol (SNTP/NTP) client service that can synchronize the gateway's time by periodic update requests to a Coordinated Universal Time (UTC) system.

Specifications – IEC 104 Client/Server

- Multiple Master Support
- Sequence of Events
- Time synchronization

Process Information to Monitor direction	• Single Point Information (M_SP, NA, 1)
	• Single point information with time tag (M_SP_TA, 1)
	• Double point information (M_DP, NA, 1)
	• Double point information with time tag (M_DP_TA, 1)
	• Measured Value, Normalized value (M_ME, NA, 1)
	• Measured Value, Normalized Value with time tag (M_ME_TA, 1)
	• Measured Value, Normalized Value (M_ME_ND, 1)
	• Measured Value, Normalized Value with time tag (M_ME_TD, 1)
	• Measured Value, Short floating point value (M_ME_MC, 1)
	• Measured Value, Short floating point value with time tag (M_ME_TC, 1)
Process Information to Control direction	• Single point information with time tag (CPTTowords (M_SP_TS, 1)
	• Double point information with time tag (CPTTowords (M_DP_TS, 1)
	• Measured Value, Normalized Value with time tag (CPTTowords (M_ME_TS, 1)
	• Measured Value, Normalized Value with time tag (CPTTowords (M_ME_TS, 1)
	• Measured Value, Short floating point value with time tag (CPTTowords (M_ME_TS, 1)
	• Single Command with time tag (CJC_TA, 1)
	• Double Command with time tag (CJC_TA, 1)
	• Clock synchronization command (CJC_NA, 1)
	• General Interrogation command (CJC_NA, 1)
	• Select before execute, select and execute, prohibit or pulse type command, short pulse duration, long pulse duration)
Configurable Parameters (Client and server)	• IP Address
	• Port No.
	• ASCII Address
	• Cause of Transmission (COT)
	• Cycle Message Interval
	• Information Object Address

Modbus TCP/IP-Client/Server

The Modbus TCP/IP driver allows multiple independent, concurrent Ethernet connections. The connections may be Clients, servers, or a combination of both Clients and servers.

Modbus Commands Supported (Client and server)	• Read Holding Registers
	• Preset Single Multiple Holding Registers
Configurable Parameters (Client and server)	• Gateway IP Address
	• Read from Register
Configurable Parameters (Client only)	• Write Start Register (ADDR)
	• Gateway Modbus Read/Start Address
Status Data	• Gateway Modbus Write Start Address
	• Minimum Command Delay
Command List Parsing	• Response Timeout
	• Reply Count
	• Command Error Handler
	• Error codes reported individually for each command
	• High level status data available from Modbus TCP/IP Client through Server
	• Each command can be individually enabled or disabled, with only on-line change is available

Specifications – DLMS Client

- DLMS version 2, also as per the GDS standard

Configurable Parameters (Client and server)	• Client Address
	• Authentication
	• Password
	• Physical Server Address
	• Logical Server Address
	• Logical Server Address

Specifications – IEC 61850 Client

- Supports up to 20 IEDs
- Send commands from the PLC to the IED using Control Types
 - Direct with Normal Security
 - Select Setpoint Operate with Normal Security
 - Direct with Enhanced Security
 - Select Setpoint Operate with Enhanced Security

SCS/MS supported	IEC 61850 SCS/MS
Reporting	• Buffered Report Control Block (BRCB)
	• Unbuffered Report Control Block (URCB)
Control	• Direct with Normal Security
	• IED with Normal Security
Logical Nodes	• Direct with Enhanced Security
	• IED with Enhanced Security
Configurable Parameters	• IED 61850 Logical Nodes, including Logical
	• Status for IEDs/Power Plants and Logical Nodes for Wind Power Plants
Status Data	• MMS Command Delay
	• Status available per node
	• Report and GOOSE status available

Battery Chargers for Grid TIE and OffGrid with Solar Panels

4KW Battery With Inverter



Solar Panel



Canapoy



Descriptions	Specifications
Battery configuration	51.2V -80 Ah
Capacity of Individual Cell	3.2 V - 80 Ah
Type of Cell	Prismatic
Cell Chemistry	LFP
Nominal Capacity	80 Ah
Nominal Voltage	51.2 V
Voltage Range	40.8 V ~ 58.4V
Total Energy	4096Wh
Configuration	16S 1P
Charging Current	Recommended 0.3C , .5C Maximum (40Amp)
Discharging Current	0.5C standard, 0.95C Max. Discharging(76Amp)
Recommended Discharging Cut-off Voltage	43.2 V
Charging Time	Around 2~3 hours (@0.5C)
Maximum Pulse Discharge Current	350 A (for 2 Sec.)
Cycle Life @ DOD 80%	≥ 2000 Cycles @25°C
Self Discharge rate	< 3% / 30 Days (standard charge 100% SOC & store at 25°C)
Working Temperature Range	-20°C~65°C; humidity ≤ 85% (Discharging) 0°C~50°C; humidity ≤ 85% (Charging)
Storage Temperature Range	-20°C~45°C
Battery Case Material	Metal
Battery Pack Weight	Net Wt. – 40 Kg (Approx)
Battery Pack Dimensions	400x360x250mm (LXWXH)

Descriptions	Specifications
With Packing Dimensions	TBD*
Battery Link	16S
Output Discharging Voltage Nominal	51.2V
Operating Humidity	0% - 90%
Storage Temperature	-20~45°C
Storage Humidity	0% - 90%
Protection Parameters	
Over Charge cut off Voltage	58.4 V
Deep Discharge cut off Voltage	40 V
Short Circuit Protection	Yes
Over Charge Protection	Yes
Cell Balancing	Passive Balancing/Active Balanceing
Communication	As per customer requirement
Degree of Protection	IP 66

Parameter	5KVA/48VDC
Grid Charger	
Grid Voltage Sync Range	170V-260V(±5V)
Grid Frequency Sync Range	50Hz±6%
Charger Peak Efficiency	Higher than 90%
Max Grid Import Power Capacity	Double of Inveter capacity dependent on battery charging current
Max Battery Amp(Charging)	5A to 20A selectable
Self Consumption	Lower than 4%
Recommended DG/GRID Capacity	Double of Inverter Capacity
SOLAR CHARGE CONTROLLER	
Controller Type	DSP
Charge Controller Type	MPPT
Charger Topology	BUCK
MAX PV Connection Capacity	5 KWP
No of MPPT Channels	1
Per Channel PV Capacity (Nominal/ Peak)	5 KWP
Max. Open Circuit PV Volts (Voc)	150 V
MPPT Voltage Range	65-130V
Minimum PV Voltage	65 V
Max I/P Amps per channel	104 A

Max Battery Amps during PV charging	Full Capacity in Boost Mode / Current Control in Float Mode as per Battery AH
Max Battery Amps during PV charging	LMLA, VRLA, SMF, Ni-Cd,Lifepo4: Charging Profile can be configured as per the battery requirement
Peak Charging Efficiency	Higher than 94% Upto 98%

Parameter	5KVA/48VDC
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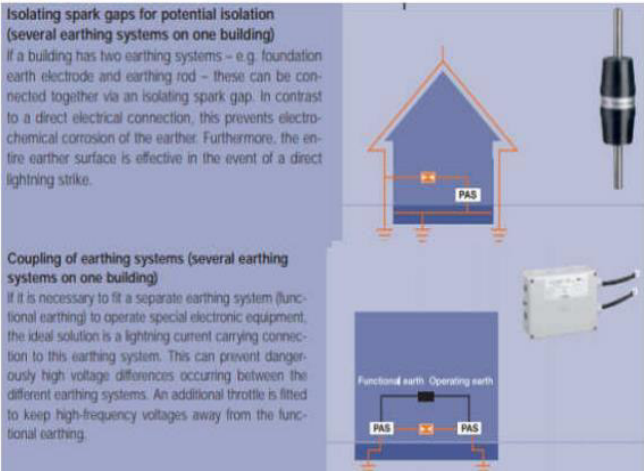
Inverter

Controller Type	DSP
Switching Element	IGBT
Nominal Battery Voltage VDC	48
No of Phases/Connection Type	1Ph , 3 Wire- LNE
Nominal Output Voltage	230V AC $\pm 2\%$
Output Frequency	50Hz $\pm 0.5\%$
Continues Output Power	4000 WP
Out put Amp	17A
Voltage Regulation (Stand Alone)	$\pm 2\%$
Frequency regulation (Stand Alone)	$\pm 0.5\text{Hz}$
THD	THD less than 4%
Out Put Waveform	Pure Sine Wave
Galvanic Isolation	In built Isolation Transformer at Inverter Output
Output Power Factor	0.8 Lagging
Peak Efficiency (Full Load)	Higher than 85%
Overload capacity	125% FOR 60 SEC, 150% FOR 5 SEC / Can be customized
DG Compatibility	Available
Auto Bypass feature	Available
Grid Export Mode	Available, Enable/Disable Options available
Anti Islanding Function	Available, In Compliance with IEC 62116
Compatible IEC standards	IEC -61683:1999- As per MNRE Requirement

Parameter		5KVA/48VDC
Configuration		
Modes Available		3: Hybrid , Grid Export, Stand Alone
Battery Buffer Setting		Selectable from 25%,50%,75%
MPPT Modes		2
Indications		
LED		Grid On, PV On, Grid Charger On,, Load On Grid, Load On Battery , Fault
LCD Display Parameters		
Load Status		Load on,Batt Grid CHRG Grid Sharing
INPUT GRP		Voltage/Current frequency
Inverter GRP		Voltage/current
O/P GRP		Voltage/Current frequency
Solar GRP		PV Vol, Curr PV Power, PV Energy
Battery GRP		Voltage Status Current CH, Current DISC
Dash board		Input KW Output, KW,Solar KW
Faults		Recent 6 fault since last, reset
Alarm		Audible For Fault And Warnings
PROTECTIONS		
PV		Reverse Polarity Indication, optional- Surge Protection
Battery		Over/ Under Voltage, Over Charge , Optional - Reverse Polarity ,Over Temp
Grid		Over/ under Voltage, Over/ Under Frequency, Optional - Surge Protection
Load		Overloads, Short circuit
Circuit Breakers		Grid Input MCB, Battery Input MCB, PV Input MCB, Load Rotary Switch
Temperature		Inverter Over Temperature (optional)

Parameter	5KVA/48VDC
Enclosure	
Degree of Protection	IP 66
Cooling	Forced Fan Cooling
Noise	<50dB
Color	SLATE 7015
Termination	Bottom
Weight	115 KGS
Dimension	W : 345 mm D: 650 mm : H: 740 mm
Environmental	
Temperature Range (Operating)	0 to 50°C
Temperature Range (Storage)	-10 to 50°C
Altitude (max)	1000 m
Humidity	0-95% NON Condensing
Compatible IEC standards	IEC- 60068-2-1, IEC-60068-2-2, IEC-60068-2-14, IEC-60068-2-30- As per MNRE Requirement
Connectivity	RS-232/GSM

Spark gaps are intended to provide galvanic isolation between electrical installation parts where direct connections are not permitted. The galvanic isolation prevents not only electrochemical corrosion but provides also a connection capable of carrying lightning current. For connecting different earthing systems, the aim being to make optimum use of all earthers for lightning protection equipotential bonding.



Activate Windows
Go to Settings to activate Windows.

Surge and Protect

Power Surges and How to Protect Yourself

The Issue

WHAT IS A "POWER SURGE"?

A power surge, or transient voltage, is a sudden and unwanted increase in voltage that can damage, degrade or destroy the sensitive electronic equipment in your home or business.

CAUSES

The National Electrical Manufacturers Association (NEMA) estimates that 60-80% of surges are created within a facility, such as when large appliances, like air conditioners, turn on and off. Surges can also originate from the electric utility company during power grid switching. Lastly, the most powerful surges can be caused by lightning.

IMPACT

A spike in voltage can be harmful to electrical devices in your home if the increase is above the device's intended operating voltage. This excess voltage can cause an arc of electrical current resulting in heat that damages the electrical components. Repeated small-scale surges may slowly damage your electronic equipment and shorten the life of appliances and electronics involved.

The Solutions

POINT-OF-USE SURGE PROTECTION DEVICES

Protect only the items that are directly plugged into the device from most electrical surges. It does not suppress or arrest a surge but diverts the surge to ground. Use point-of-use surge protectors that have an indicating light and/or audible alarm that alert when it needs replacement.

SERVICE ENTRANCE SURGE PROTECTION DEVICES

Mounted in or on your main electrical panel or at the base of the electric meter, this device provides protection for your entire electrical system. This device covers components that cannot be connected to a point-of-use device, such as outlets and light switches.

REMINDERS

- No surge protection device can handle a direct lightning strike. The best surge protection is to unplug devices from the wall if you suspect a surge might be coming.
- Power strips do NOT provide surge protection. Be sure you are relying on the appropriate device for protection.
- Power strips and surge suppressors don't provide more power to a location, only more access to the same limited capacity of the circuit into which it is connected.

Activate Windows
Go to Settings to activate Windows.

UL SPD Types - Per 1449 4th Edition

Type 1- One port. permanently connected SPDs, except for watt- hour meter socket enclosure, intended for installation between the secondary of the service transformer and the line side of the service equipment overcurrent device, as well as the load side, including watt-hour meter socket enclosures and Molded Case SPDs intended to be installed without an external overcurrent protective device. Type 1 SPDs for use in PV systems can be connected between the PV array and the main service disconnect.

DIN-RAIL SPDs are open Type 1.

Type 2- Permanently connected SPDs intended for installation on the load side of the service equipment overcurrent device, including SPDs located at the branch panel and Molded Case SPDs.

Type 3 - Point of utilization SPDs, installed at a minimum conductor length of 10 meters (30 feet) from the electrical service panel to the point of utilization, for example cord connected, direct plug-in receptacle type and SPDs installed at the utilization equipment being protected. See marking in 80.3. The distance (10 meters) is exclusive of conductors provided with or used to attach SPDs.

Note: type 2 and 3 SPDs were previously known as TVSSs,

Type 4 - Component Assemblies - Component assembly consisting of one or more Type 5 components together with a disconnect (integral or external) or a means of complying with the limited current tests in 44.4.

Type 1, 2, 3 Component Assemblies - Consists of a Type 4 component assembly with internal or external short circuit protection.

Type 5 - Discrete component surge suppressors such as MOVs that may be mounted on a PVVB connected by its leads or provided within an enclosure with mounting means and wiring terminations. V/U_n ----nominal system voltage.

A nominal value assigned to designate a system of a given voltage class in accordance w ANSI CB4,1. Typical voltages include 120, 208, 240, 277, 347, 480, 6000 Vac.

V --- Voltage Protection Rating

A rating selected from a list of preferred values as given in Table 63.1 of UL 1449 4th Edition and assigned to each mode of protection. The value of V is determined as the nearest highest value taken from Table 63.1 to the measured limiting voltage determined during the surge test using the combination wave generator at a setting of 6 kV, 3kA. It is also known as let-through voltage.

Guide to Surge Protection Devices (SPDs): selection, application and theory

The following common terminologies, as recognised by BS EN 61643/IEC 62305 are used throughout SPD specifications in order to aid correct selection and are defined as follows:

Nominal Voltage U_n is the line voltage to Earth a.c. voltage of the mains system (derived from the nominal system voltage) for which the SPD is designed to is the voltage by which the power system is designated -e.g. 230V.

Maximum Continuous Operating Voltage U_c is the maximum RMS voltage that may be continuously applied to the SPD's mode of protection e.g. phase to neutral mode. This is equivalent to the SPD's rated peak voltage.

Temporary Overvoltage U_T is the stated test value of momentary voltage increase or overvoltage that the power SPD must withstand safely for a defined time. Temporary overvoltages, typically lasting up to several seconds, usually

originate from switching operations or wiring faults (for example, sudden load rejection, single phase faults) as well as mains abnormalities such as ferro-resonance effects and harmonics.

Impulse Current I_{imp} is defined by three parameters, a current peak with a charge and a specific energy typically simulated with the 10/350 μ s waveform to represent partial lightning currents. This waveform is used with peak I_{imp} current value stated. for the mains Type 1 SPD Class I test and typically for data telecom SPD Test Category D.

Nominal Discharge Current I_{nspd} is a defined nominal peak current value through the SPD, with an 8/20 μ s current wave shape. This is used for classification of mains SPDs (Class II test) and also for preconditioning of SPDs in Class I and Class II tests.

Maximum Discharge Current I_{max} is the peak current value through the SPD, with an 8/20 μ s wave shape. I_{max} is declared for mains Type 2 SPDs in accordance to the test sequence of the Class II operating duty test. In general, I_{max} is greater than I_{nspd} .

Combined Impulse Test with Open Circuit Voltage U_{oc} is a hybrid 1.2/50 μ s voltage test combined with an 8/20 μ s current. The test is performed using a combination wave generator where its open circuit voltage is defined as U_{oc} , typically 6kV 1.2/50 μ s for the mains Class III test and up to 4kV 12/50 μ s for signal/telecom Test Category C. With an

value of U_{oc} (3kA 8/20µs for the mains Class I test and up to 2kA 8/20µs for signal telecom Test Category C). With both voltage and current test waveforms, the combined impulse test is designed to stress all technologies used within SPDS

Voltage Protection Level Up is the key parameter that characterises the performance of the SPD in limiting the transient overvoltage across its terminals. Allow protection level value (also known as let-through voltage) is therefore particularly critical for the effective protection and continued operation of electronic equipment. The peak voltage protection level U_p is declared when the SPD is tested with its stated nominal discharge current in for the peak current peak of imp) and is also declared when the SPD is subject to combined impulse test mains Class test for Type 3 SPDS) as well as data telecom Test Categories C and B. **Modes** refer to combinations of conductors in which transient overvoltage can occur (e.g. as a result of flashover). Lightning transients are generally disturbance with respect to Earth common mode), whilst switching transients are disturbances between line/phase and neutral (differential mode). During propagation mode conversion can occur (e.g. as a result of flashover). Hence transients can exist simultaneously between any combinations of conductors. Electronic systems now pervade almost every aspect of our lives, from the work environment, through filling the car and even shopping at the local supermarket. As a society, we are now heavily reliant on the continuous and efficient running of such systems. The use of computers, electronic process controls and telecommunications has 'increased exponentially' during the last two decades. Not only are there more systems in existence the physical size of the electronics involved has reduced considerably. This reduction in size means less energy is required to damage components.

The operation of electronic systems can be severely affected by lightning activity during thunderstorms or electrical switching events. Both can cause very short duration increases in voltage on mains power and/or data

Communication/signal/telephone lines, with potentially devastating consequences. These increases in voltages are called surges or transient over voltages, all sorts of electronic equipment are at risk such as

- Computers
- Building management systems
- PABX telephone exchanges • CCTV equipment
- Fire and burglar alarms
- Uninterruptible power supplies • programmable logic controllers (PLCS)
- Plant sensors, telemetry and data acquisition equipment
- Weighbridge installations

A lightning surge is severe enough to present a risk of loss of life through fire and/or electric shock hazards through a dangerous flashover. This can occur when the surge voltage exceeds the withstand rating of the cable insulation or equipment. The home environment has also evolved everyday activities rely on electronic equipment. Products such as plasma televisions home theatre equipment alarms. microwaves and washing machines are all vulnerable to voltage surges. Protecting all home electronic equipment is simple with the qualified installation of a surge protection device. Products such as LCD screens. computer networks. data servers and industrial equipment including PLCs provide essential services now crucial to business operational productivity. Protection against the effects of voltage surges in business today is no longer an option, it has become a necessity.

Circuit breakers/fuses are not designed to provide overvoltage protection

Fuses and circuit breakers (aka Overcurrent Protective Devices (OCPDs) are designed to protect your home business equipment and possibly even your life from an event such as a short circuit or overload,

The Surge Protective Device (hereafter referred to as an SPD) is specifically designed to protect equipment from events such as extremely short duration high voltage spikes. These voltage spikes or transients are everyday occurrences and can be caused by anything from switching on a lamp to lightning storm. Most spikes are of low energy. Some spikes



Monoblock Single-Pole SPD

SPT25-XXX/1(S)

Class I • Class II • Type 1 • Type 2

Location of Use: Main Distribution Boards
 Network Systems: TN-S, TN-C, TT
 Mode of Protection: L-PE / N-PE
 Surge Ratings: $I_{imp} = 25 \text{ kA (10/350 } \mu\text{s)}$
 $I_n = 25 \text{ kA (8/20 } \mu\text{s)}$
 IEC/EN Category: Class I+II / Type 1+2
 Protective Elements: High Energy MOV
 Housing: Monoblock Design
 Compliance: IEC 61643-11:2011
 EN 61643-11:2012



Monoblock Multi-Pole SPD

SPT25-XXX/2(S)

Class I • Class II • Type 1 • Type 2

Location of Use: Main Distribution Boards
 Network Systems: TN-S
 Mode of Protection: L-PE / L'-PE, N-PE / N'-PE
 Surge Ratings: $I_{imp} = 25 \text{ kA (10/350 } \mu\text{s)}$
 $I_n = 25 \text{ kA (8/20 } \mu\text{s)}$
 IEC/EN Category: Class I+II / Type 1+2
 Protective Elements: High Energy MOV
 Housing: Monoblock Design
 Compliance: IEC 61643-11:2011
 EN 61643-11:2012



Monoblock Multi-Pole SPD

SPT25-XXX/3(S)

Class I • Class II • Type 1 • Type 2

Location of Use: Main Distribution Boards
 Network Systems: TN-C
 Mode of Protection: L-PE / L'-PE
 Surge Ratings: $I_{imp} = 25 \text{ kA (10/350 } \mu\text{s)}$
 $I_n = 25 \text{ kA (8/20 } \mu\text{s)}$
 IEC/EN Category: Class I+II / Type 1+2
 Protective Elements: High Energy MOV
 Housing: Monoblock Design
 Compliance: IEC 61643-11:2011
 EN 61643-11:2012



Monoblock Multi-Pole SPD

SPT25-XXX/4(S)

Class I • Class II • Type 1 • Type 2

Location of Use: Main Distribution Boards
 Network Systems: TN-S
 Mode of Protection: L-PE / L'-PE, NPE / N'-PE
 Surge Ratings: $I_{imp} = 25 \text{ kA} (10/350 \mu\text{s})$
 $I_n = 25 \text{ kA} (8/20 \mu\text{s})$
 IEC/EN Category: Class I+II / Type 1+2
 Protective Elements: High Energy MOV
 Housing: Monoblock Design
 Compliance: IEC 61643-11:2011
 EN 61643-11:2012



Monoblock Multi-Pole SPD

SPT25-XXX/1(S)+1

Class I • Class II • Type 1 • Type 2

Location of Use: Main Distribution Boards
 Network Systems: TT, TN-S
 Mode of Protection: L-N / L'-N, N-PE
 Surge Ratings: $I_{imp} = 25 \text{ kA} / 50 \text{ kA} (10/350 \mu\text{s})$
 $I_n = 25 \text{ kA} / 50 \text{ kA} (8/20 \mu\text{s})$
 IEC/EN Category: Class I+II / Type 1+2
 Protective Elements: High Energy MOV and GDT
 Housing: Monoblock Design
 Compliance: IEC 61643-11:2011
 EN 61643-11:2012



Monoblock Multi-Pole SPD

SPT25-XXX/3(S)+1

Class I • Class II • Type 1 • Type 2

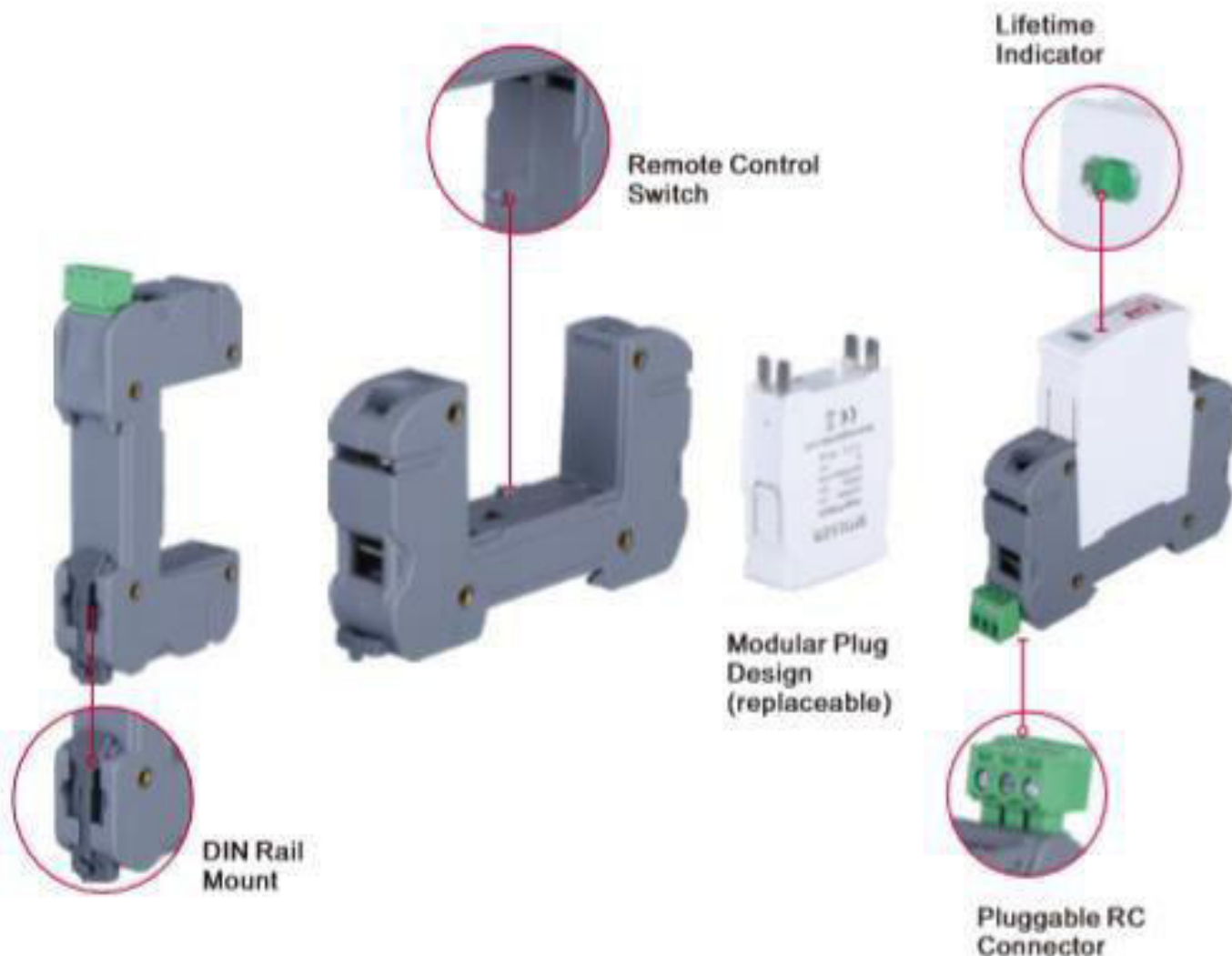
Location of Use: Main Distribution Boards
 Network Systems: TT, TN-S
 Mode of Protection: L-N / L'-N, N-PE
 Surge Ratings: $I_{imp} = 25 \text{ kA} / 100 \text{ kA} (10/350 \mu\text{s})$
 $I_n = 25 \text{ kA} / 100 \text{ kA} (8/20 \mu\text{s})$
 IEC/EN Category: Class I+II / Type 1+2
 Protective Elements: High Energy MOV and GDT
 Housing: Monoblock Design
 Compliance: IEC 61643-11:2011
 EN 61643-11:2012



New Modular Single Pole & Multi-pole Surge Protective Devices

New Housing Design Features

- Contemporary design
- Low residual protection level
- Lifetime indicators
- Redesigned thermal disconnection
- Patented protection technologies
- No external back-up fuse required up to 315 A
- Vibration and shock withstand capability
- Space-saving design
- Easy replacement
- Patented module locking mechanism
- Meets IEC/EN and UL 1449 4th Edition



Type 1/Type 2 SPD



SPT12.5-XXX/1(S)



SPT12.5-XXX/2(S)



SPT12.5-XXX/3(S)



SPT12.5-XXX/4(S)



SPT12.5-XXX/1(S)+1



SPT12.5-XXX/3(S)+1



SPT12.5-PVXXX-(S)

Type 2 SPD



SPT40-XXX/1(S)



SPT40-XXX/2(S)



SPT40-XXX/3(S)



SPT40-XXX/4(S)



SPT40-XXX/1(S)+1



SPT40-XXX/3(S)+1



SPT40-PVXXX-(S)

Pluggable Multi-Pole SPD for Photovoltaic Systems

SPT40-PVXXX-(S)

Class II • Type 2 • Type 1CA

Location of Use: String box, Inverter

Mode of Protection: (DC+)-PE, (DC-)-PE, (DC+)-(DC-)

Surge Ratings: $I_{\Delta n} = 20\text{kA}$ (8/20 μs)

Rated \Rightarrow up to 40kA (8/20 μs)

IEC/EN/UL Category: Class III/ Type 2/ Type 1CA

Protective Elements: High Energy MOV

Housing: Pluggable Design

Compliance: IEC 61643-31:2018

EN 50539-11:2013+A1:2014

UL 1449 4th Edition



In-line SPD for Coaxial & RF Systems

SPT CP BNC

C1 • C2 • C3

IEC/EN Category: C1/C2/C3

Protection: Impedance Matched

Maximum Operating:

Voltage: 70, 180, 280 V

Maximum Peak Power: 40, 125, 300 W

Frequency Range: DC – 2.6 GHz

Surge Discharge Ratings: I_n : 10 kA, I_{max} : 20 kA

Impedance: 50 Ω

Insertion Loss: < 0.4 dB

Return Loss: > 20 dB

Termination: BNC Type (F-F, M-F)

Housing: In-line Installation, Shielded Enclosure

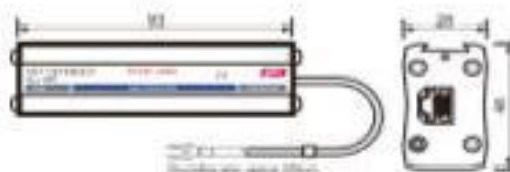
Compliance: IEC/EN 61643-21



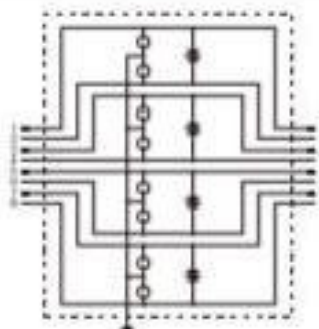
SPTs for Telecommunication and Data Networks

The "PoE Surge Protector" permits the use of Power over Ethernet with nominal currents of up to 1 A. It can be snapped directly onto the hat rail and uses it to create the necessary equipotential bonding. Alternatively, terminal protection using a separately connectable

- Support for Power over Ethernet + up to 1 A (PoE+ according to IEEE 802.3at)
- CAT 6A in the channel according to ANSI/TIA/EIA-568
- For installation in conformity with the lightning protection zone concept at the boundaries from 0-2 and higher



Dimensions



Basic circuit diagram

Modular SPD for Single Pair

SPT-DC Series

D1 • C1 • C2 • C3

IEC/EN Category: D1/C1/C2/C3

Mode of Protection: Longitudinal, Transverse

Coarse Protection: 3 Terminal GDT

Voltages: 5, 12, 15, 24, 30*, 48, 60, 110 V DC

Frequency Range: 30 MHz

Surge Discharge Ratings: I_n : 10 kA, I_{max} : 20 kA, I_{imp} : 2.5 kA

Series Load Current: 1 A

Enclosure: DIN 43880 2/3 TE, DIN Rail Mount

Terminals: Stranded to 4 mm²

Housing: Modular Design

Compliance: IEC/EN 61643-21

UL 497B 4th Edition



LED Light for Outdoor Conditions

SHV LED GLOWING THE FUTURE

LED FLOOD LIGHTS

Designed to deliver high efficiency and reduced wattages, LED Flood Lights create single, directional, low-glare and glare lighting for a variety of outdoor applications, including landscape, architectural, public safety, retail and residential complexes, and more.

Details	SHV-FL100	SHV-FL150	SHV-FL180	SHV-FL190
Input Power	30W	60W	100W	150W
Input Voltage	AC100-300V, 50Hz			
Color Temperature	3000K-6500K			
CRI	More than 80			
Beam Angle	120 deg			
Lumens	2700	5400	9000	13600
Operating Temperature	-20 deg to 60 deg centigrade			

Uses : Handings, Display Booths, Showrooms, Mall, Gardens.

LED PANEL LIGHTS

LED panel lights provide smooth and uniform light edge to edge for a clean, modern look. These are specially designed to meet every indoor lighting need.

Details	SHV-PL100	SHV-PL150	SHV-PL180	SHV-PL190
Input Power	30W	60W	100W	150W
Input Voltage	AC100-300V, 50Hz			
Color Temperature	3000K-6500K			
CRI	More than 80			
Beam Angle	120 deg			
Lumens	2700	5400	9000	13600
Operating Temperature	-20 deg to 60 deg centigrade			

Uses : Residential, Office, Showrooms, Commercial, Hotel, Shopping Mall.

SHV LED GLOWING THE FUTURE

LED TUBE LIGHTS - T5 & T8

LED tube is a reliable option for energy saving in lighting portfolios. Incorporated with premium LED chips and optical lenses, SHV LED tube lighting provides high efficiency and low maintenance cost, making it a perfect choice for commercial and industrial lighting.

Details	SHV-T505	SHV-T509	SHV-T5015	SHV-T8006	SHV-T8018
Input Power	5W	9W	18W	9W	18W
Input Voltage	AC100-300V, 50Hz				
Size (F.L.)	1	2	4	2	4
Color Temperature	3000K-6500K-6500K				
CRI	More than 80				
Beam Angle	120 deg				
Lumens	510	1020	1800	1000	2000
Operating Temperature	-20 deg to 60 deg centigrade				

Uses : Residential, Office, Commercial, Office, Hotel.

LED STREET LIGHTS

SHV LED street lights provide high efficiency and low maintenance cost, making it a perfect choice for commercial and industrial lighting. SHV LED street lights are designed to meet every outdoor lighting need.

Details	SHV-SL100	SHV-SL150	SHV-SL180	SHV-SL190
Input Power	30W	60W	100W	150W
Input Voltage	AC100-300V, 50Hz			
Color Temperature	3000K-6500K			
CRI	More than 80			
Beam Angle	120 deg			
Lumens	2700	5400	9000	13600
Operating Temperature	-20 deg to 60 deg centigrade			

Uses : Street Lighting, Commercial, Office, Hotel.

SHV LED GLOWING THE FUTURE

LED BULBS

Every Light fixture benefits from a well-chosen light bulb. Improvements over the years have made LED light bulbs a very good choice. LED bulbs offer both practical and aesthetic advantages over other light sources. They are energy efficient, long lived, and give clear, consistent light.

Details	SHV-B05	SHV-B09	SHV-B15	SHV-B18	SHV-B27
Input Power	5W	9W	15W	18W	27W
Input Voltage	AC100-300V, 50Hz				
Color Temperature	3000K-6500K				
CRI	More than 80				
Beam Angle	120 deg				
Lumens	2700	5400	9000	13600	27000
Operating Temperature	-20 deg to 60 deg centigrade				

Uses : Residential, Office, Showrooms, Office, Hotel.

Solar Street Lights

SHV LED solar street lights provide high efficiency and low maintenance cost, making it a perfect choice for commercial and industrial lighting. SHV LED solar street lights are designed to meet every outdoor lighting need.

Details	SHV-SL100	SHV-SL150	SHV-SL180	SHV-SL190
LED Light Wattage	30W	60W	100W	150W
Battery (Ah)	40	40	75	100
Charging Time (hrs)	5	5	5	5
Autonomy (Days)	1-2	1-2	1-2	1-2
Warranty (Batteries)	2	2	2	2
Warranty (System)	2	2	2	2

THE WORLD OF SOLAR LIGHT & LED LIGHTING. SHV LED.

SHV LED GLOWING THE FUTURE

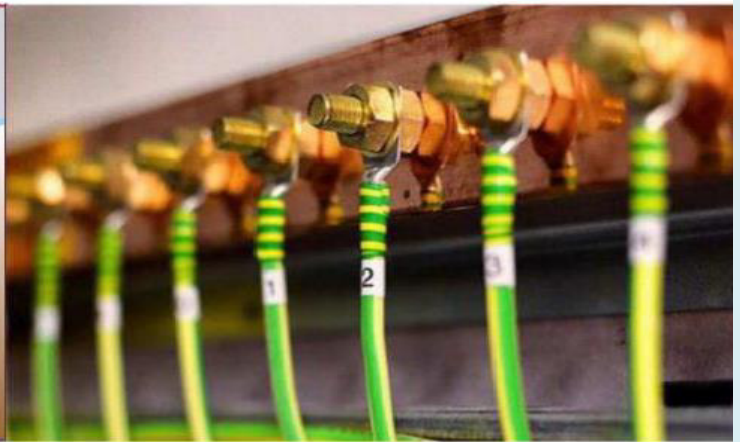
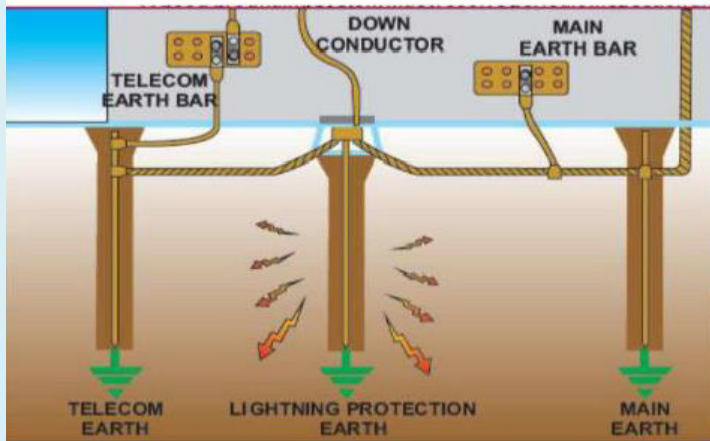
AN ISO CERTIFIED COMPANY

SHV LED is a reliable option for energy saving in lighting portfolios. Incorporated with premium LED chips and optical lenses, SHV LED tube lighting provides high efficiency and low maintenance cost, making it a perfect choice for commercial and industrial lighting.

Save Energy Save Earth

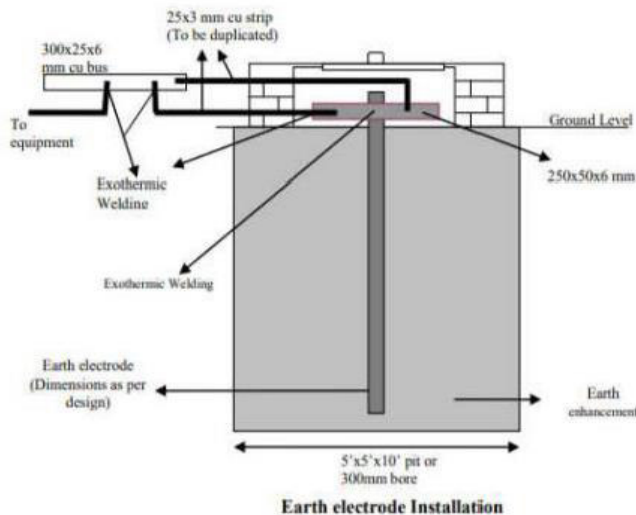
Regd. Office: SHV LED ENTERPRISES, 28/233, NARAYANAPURAM, CHENNAI-600115, India. Tel: 044-26222222, 044-26222223, 044-26222224, 044-26222225, 044-26222226, 044-26222227, 044-26222228, 044-26222229, 044-26222230, 044-26222231, 044-26222232, 044-26222233, 044-26222234, 044-26222235, 044-26222236, 044-26222237, 044-26222238, 044-26222239, 044-26222240, 044-26222241, 044-26222242, 044-26222243, 044-26222244, 044-26222245, 044-26222246, 044-26222247, 044-26222248, 044-26222249, 044-26222250, 044-26222251, 044-26222252, 044-26222253, 044-26222254, 044-26222255, 044-26222256, 044-26222257, 044-26222258, 044-26222259, 044-26222260, 044-26222261, 044-26222262, 044-26222263, 044-26222264, 044-26222265, 044-26222266, 044-26222267, 044-26222268, 044-26222269, 044-26222270, 044-26222271, 044-26222272, 044-26222273, 044-26222274, 044-26222275, 044-26222276, 044-26222277, 044-26222278, 044-26222279, 044-26222280, 044-26222281, 044-26222282, 044-26222283, 044-26222284, 044-26222285, 044-26222286, 044-26222287, 044-26222288, 044-26222289, 044-26222290, 044-26222291, 044-26222292, 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Earthing is Nothing less than Engineering



Maintenance Free Earthing installation as per IS3043(2018)

General Arrangements for Earth System



S.N.	Installations/ Current Capacity	IR Value Required	Soil Type/ Resistivity	Earth System
1.	House hold earthing/ 3kA	8 ohm	Normal Soil/ upto 50 ohm-mtr	Single Electrode
			Sandy Soil/ between 50 to 2000 ohm-mtr	Single Electrode
			Rocky Soil/ More than 2000 ohm-mtr	Multiple Electrodes
2.	Commercial premises Office buildings/ 5kA	2 ohm	Normal Soil/ upto 50 ohm-mtr	Single Electrode
			Sandy Soil/ upto 2000 ohm-mtr	Multiple Electrodes
			Rocky Soil/ More than 2000 ohm-mtr	Multiple Electrodes
3.	Transformers, substation earthing, LT line equipment/ 15kA	1 - 2 ohm	Normal Soil/ upto 50 ohm-mtr	Single Electrode
			Sandy Soil/ upto 2000 ohm-mtr	Multiple Electrodes
			Rocky Soil/ More than 2000 ohm-mtr	Multiple Electrodes
4.	Transformers, substation earthing, HT line equipment/ 40kA	less than 1 ohm	Normal Soil/ upto 50 ohm-mtr	Single Electrode
			Sandy Soil/ upto 2000 ohm-mtr	Multiple Electrodes
			Rocky Soil/ More than 2000 ohm-mtr	Multiple Electrodes
5.	Lightning arresters, extra high current applications etc./ 50kA	less than 1 ohm	Normal Soil/ upto 50 ohm-mtr	Single Electrode
			Sandy Soil/ upto 2000 ohm-mtr	Multiple Electrodes
			Rocky Soil/ More than 2000 ohm-mtr	Multiple Electrodes
6.	PRS, UTS, RTUs, FOIS, COIS, ATMs and data processing centre etc./5KA	less than 0.5 ohm	Normal Soil/ upto 50 ohm-mtr	Single Electrode
			Sandy Soil/ upto 2000 ohm-mtr	Multiple Electrodes
			Rocky Soil/ More than 2000 ohm-mtr	Multiple Electrodes

Maintenance Free Earthing Value Calculation & Costing Per PIT

Thumb Rule for Calculate Number of Earthing Rod

The approximate earth resistance of the Rod/Pipe electrodes can be calculated by:

Earth Resistance of the Rod/Pipe electrodes:

$$R = K \times \rho / L$$

Where:

ρ = Resistivity of earth in Ohm-Meter

L = Length of the electrode in Meter.

d = Diameter of the electrode in Meter.

$K = 0.75$ if $25 < L/d < 100$.

$K = 1$ if $100 < L/d < 600$.

$K = 1.2$ if $600 < L/d < 300$.

Number of Electrode if find out by Equation of $R(d) = (1.5/N) \times R$

Where:

$R(d)$ = Desired earth resistance

R = Resistance of single electrode

N = No. of electrodes installed in parallel at a distance of 3 to 4 Meter interval.

Example: Calculate Earthing Pipe Resistance and Number of Electrode for getting Earthing Resistance of 1 Ω . Soil Resistivity of $\rho=40$, Length=2.5 Meter, Diameter of Pipe = 38 mm.

Here:

$$L/d = 2.5/0.038 = 65.78 \text{ so } K = 0.75$$

• The Earth Resistance of the Pipe electrodes $R = K \times \rho / L = 0.75 \times 65.78 = 12 \Omega$

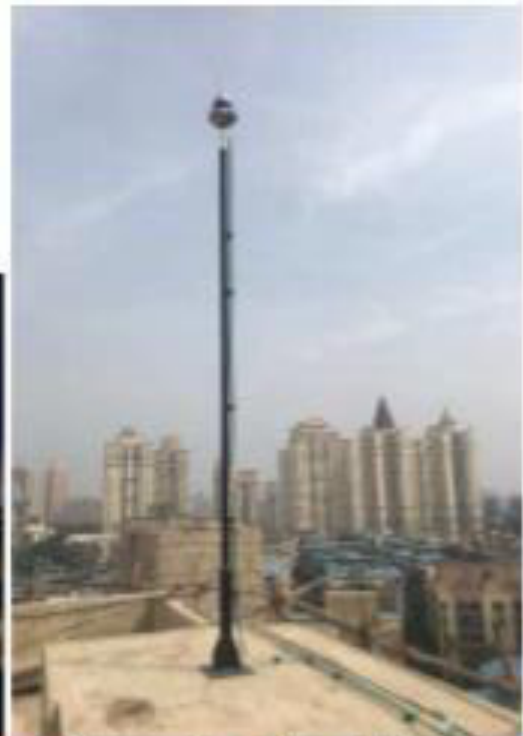
• One electrode the earth resistance is 12 Ω .

• To get Earth resistance of 1 Ω the total Number of electrodes required =

$$(1.5 \times 12) / 1 = 18 \text{ No}$$

- BOQ Per Earthing PIT
- 17.2mm Copper Bonded 3 Mtr ROD=1
- Earth Enhance Compound(Value 0.012 Ohm) Qty -30 KG
- Earthing Clamp Connector for Connecting FLAT STRIP/Conductor - 01
- Earthing Strip /Conductor as per Equipment Load /Fault Current -10 Mtrs
- High Quality Industrial Plastic PIT Cover

KORS BRAND ADVANCED SOLUTIONS FOR ELECTRICAL SAFETY EARTHING LIGHTNING ARRESTERSURGE PROTECTION



Conventional LA as per standard
IS 2309, IEC 62305, NBC 2016



Copper Bonded Rod
Inbuilt Customized
Connector



Lattice Copper Mat



Copper Plate



Copper Flexible Jumper



Copper Bonded Rod
4G Pattern



Copper Bonded Rod
With or Without Clamp



Cast Iron Pit Cover



FRP Pit Cover



PVC Pit Covers



PVC Pit Covers



PVC Pit Covers



HDPE FRP Pit Cover



DMC and PVC Insulator



Receptacle



Nut Bolt and Bimetallic Washer



Earthing Cable



Conventional Insulator



Test Link



Conduit Pipe



Mast

Graphite Mould



Mould Handle Clamp



Gloves

Exothermic Weld Powder & Steel Metal Desk



Flint Gun



Brush Soft & Hard



Slag Removal Tool

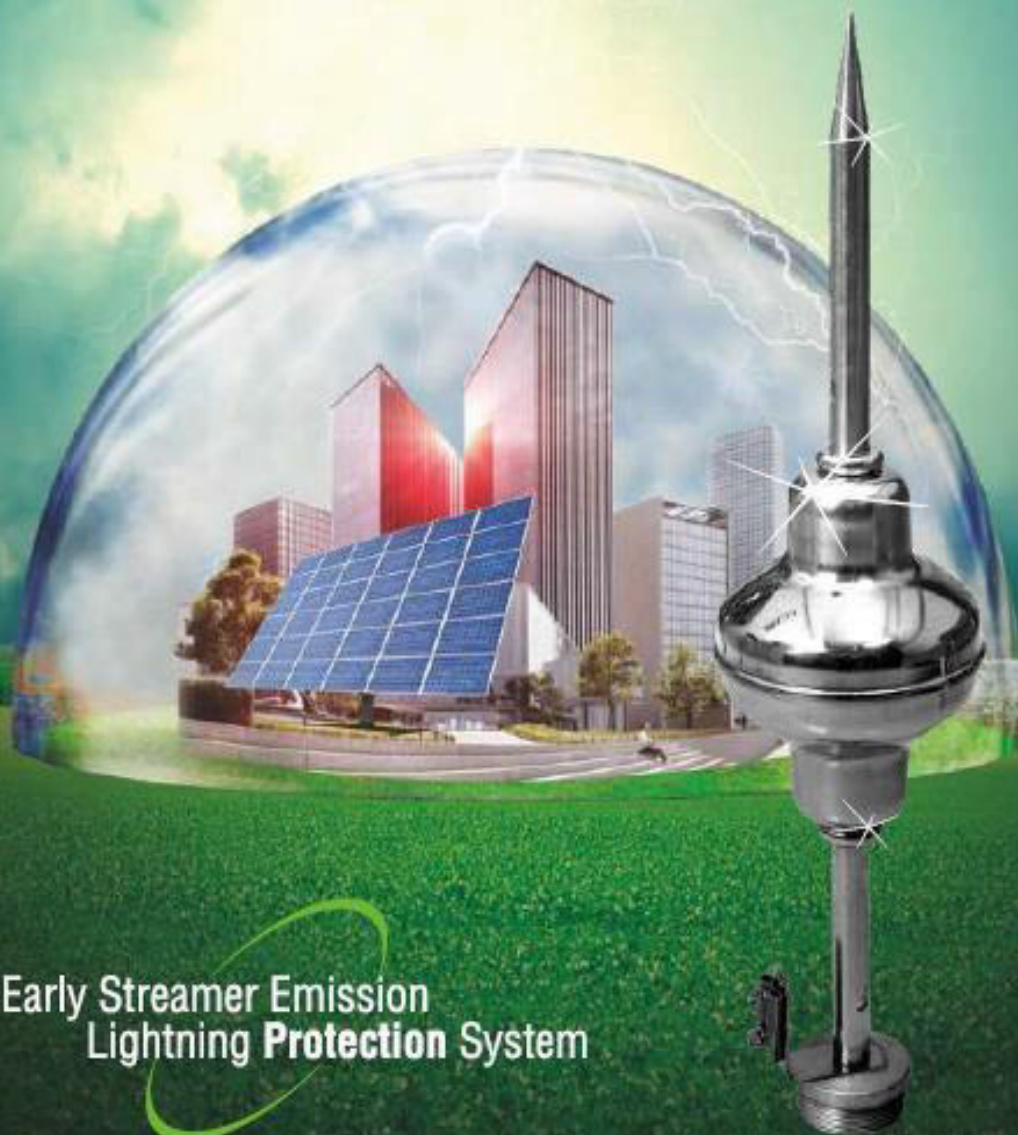


File Card

Flame Torch



**YOUR TRUST
OUR PROTECTION**



Early Streamer Emission
Lightning **Protection** System

PARATONEX LIGHTNING PROTECTION SYSTEMS

PARATONEX a pioneer in the design and manufacture of Lightning Rods, Surge Protection Device and Grounding Products, PARATONEX product ranges are of External protection (ESE Lightning rod and Faradisation), Internal protection (Surge protection device) and grounding/earthing products. With years of experience in the sector of lightning protection systems and after thoroughly studying the problems associated with lightning overtime, our company was established with modern lightning protection technologies. PARATONEX Lightning Protection products are available at the affordable cost and at the same time it offers higher quality than most other companies.



5 POINT PLAN OF PROTECTION

CAPTURE
THE DIRECT
LIGHTNING
STRIKE

DISSIPATE
ENERGY INTO
THE
GROUNDING
SYSTEM

CREATION
OF A
BONDED
EARTHING
SYSTEM

PROTECTION
OF INCOMING
AC POWER
FEEDERS

PROTECTION
OF SIGNAL,
DATA AND
COMMUNICATION
LINES

RESEARCH & DEVELOPMENT

As one of the leading companies in the field of lightning protection, PARATONEX has invested heavily in field and laboratory testing as part of its ongoing commitment to research and development.

Throughout the product development of the PARATONEX, the proto-type models were subjected to intense testing under high voltage conditions. Following further refinements, the PARATONEX ESE air terminals were subjected to final testing by an independently accredited test laboratory which completed testing in full compliance with the French National standard NF C 17-102: 2011. The final testing of PARATONEX ESE terminals showed effective performance as defined in the standard.

PARATONEX 5 POINT PLAN OF PROTECTION

PARATONEX is trusted world leader for providing high quality direct strike lightning protection, surge protection and grounding solutions. By recognizing the importance of an integrated lightning protection strategy, PARATONEX has incorporated several major concepts into a Five point plan of protection:

1. Capture the direct lightning strike
2. Dissipate energy into the grounding system
3. Creation of a bonded earthing system
4. Protection of incoming AC power feeders
5. Protection of signal, data, telecommunication & communication lines

PARATONEX operates in every region of the world and supports the global market with an extensive distribution network, helping to ensure that PARATONEX products are available for any project, regardless of size or location.

Freedom Wire Connectors and Industrial Plug and Socket for High Power Equipment's

We are offering Advance and Allegiance Type Plug and Socket for Power ,Data and Communication Port this is very important and useful for Office,Conference Hall ,Data Centers ,Large Customer Handling Places like Hotels, Shopping Mall , Hospitals , Railway Station, Airports and other public places .

Indoor and out door purpose from 5Amps up to Max 400Amps Plug and Socket.

We are also offering Connectors for Power Cables wire Cable 1.5Sqmm to 6.00Sqmm Cable to Cable Free ,hanging, and Fixed Type Connections

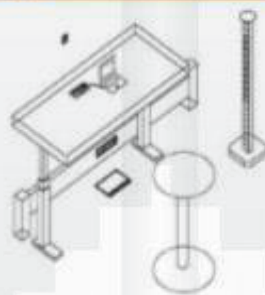
Application scene graph



bank front desk



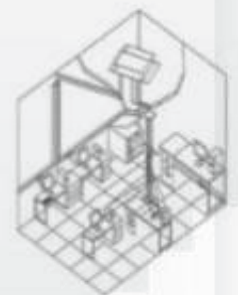
hospital



office liftable table



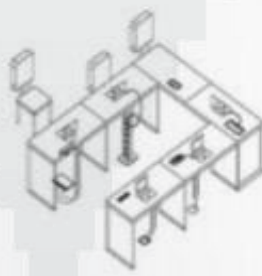
raised floor



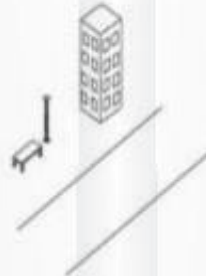
family living room



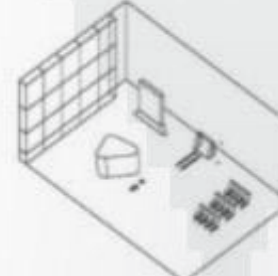
airport waitina room



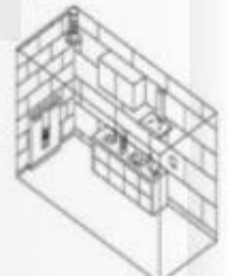
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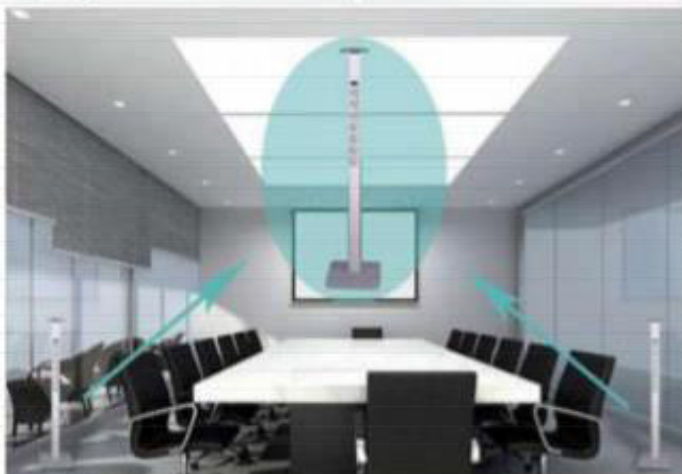
outdoor



airport



kitchen



PUD: Pop up socket



FZ-517B(Black color)



FZ-517W(whiter color)



FZ-517S(silver color)

FZ-517(B/W/S/G/H):Pop up ,3 socket with 2 damping;

FMD: Flush Mount Desktop



FZ-507S

Alu. Profile for under table



FZ-507B

Plastic Profile for under table



FZ-536

Hidden coverplate with outlets

Industrial socket



HTD-140-I

dia:140mm; Stainless steel



FZ-S66-I

IP68 power painted stainless steel stand pole



HTD-146K/KP-I

*lid:146*146mm square brass*

1.8 Industrial socket IP44 & IP67

IP67 Interlock switch socket



SF1372-4



SF1372

IP44 couper



IP44 Panel mounted socket



SF1431



SF1331



SF1531

IP44 Panel Angle mounted socket



IP44 Wall mounted socket



SF1311



SF1411



SF1411

IP67 couper



SF3322-9



SF3422



SF3522

IP67 Panel mounted socket



SF1332-9



SF1432



SF1532

IP67 Panel Angle mounted socket



SF5332-9



SF5432



SF5532

IP67 Wall mounted socket



SF1312



SF1412



SF1512

IP44 socket



SFS123



SFS123



SFS123

IP67 420A Large current sockets



SF4432

IP67 250A Large current sockets



SF2432

IP44 Low pressure sockets



SFD3231



SFD3331



SFD3232



SFD3332

2.6 Industrial plug

IP44 Plugs



SF1301



SF1401



SF1501

IP44 Wall mounted plug



SF1361



SF1461



SF1561

IP44 Concealed Plug



SF1351



SF1451



SF1551

IP67 Plugs



SF1302



SF1402



SF1502

IP67 Wall mounted plug



SF1362



SF1462



SF1562

IP67 Panel mounted plug



SF1352



SF1452



SF1552

IP44 Plugs



SFS120

IP67 250A Large current plug



SF2402

IP67 420A Large current plug



SF4402

IP44 Low pressure plugs



SFD1301



SFD1201



SFD1302



SFD1202

3.3 Quick connectors

Quick wire connectors

Electrical parameters: 400V/24A & 600V/20A ; Material: PC &PA66



FC773-102



FC773-106



FC773-108



FC773-253



FC773-255

Electrical parameters: 400V/32A; Material : PA66



FC221-414



FC221-415



FC222-413



FC222-414



FC222-415

Electrical parameters: 600V/32A;Material:PA66



FC223-3P



FC223-12P



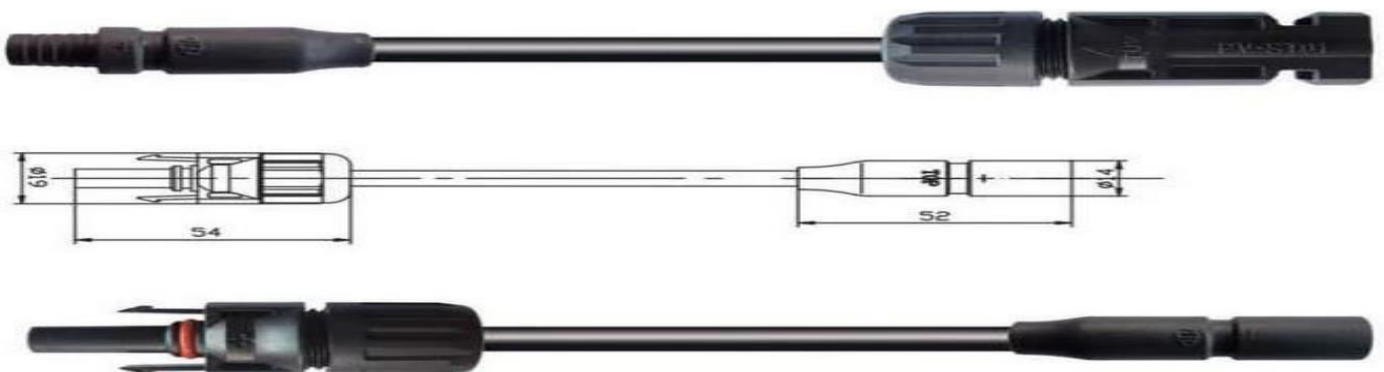
FC121



FC426



MC 4 Connectors DC Voltage 1500 V-1800V 30Amps



Electric Vehicle and Electric Vehicle Charging Connectors, Cable Harness

AC EV Charger Connector



Type 1 EV Plug (SAE J1772)



Type 2 Female EV Plug



Type 2 Male EV Plug

AC EV Charger Socket



Type 1 EV Socket



Type 2 Female EV Socket



Type 2 Male EV Socket

DC EV Charger Connector



CCS Combo 1 EV Plug



CCS Combo 2 EV Plug



CHAdeMO EV Plug

DC EV Charger Socket



CCS Combo 1 Inlet Socket



CCS Combo 2 Inlet Socket



CHAdeMO Inlet Socket



(EVA-American Standards EV Plug / Type 1 EV Plug With EV Cable)



(EVI-European Standards Female EV Plug / Type 2 Female EV Plug With EV Cable)



(EVFM-European Standards Female to Male EV Plug / Type 2 to Type 2 EV Charging Cable)



(EVAE-American Standards to European Standards EV Plug / Type 1 to Type 2 EV Charging Cable)



GB/T DC Charger Connector



GB/T DC Charger Socket

Product Introduction:



EV cable is a kind of flexible cable to connect electric vehicle with charging pile or power socket, high quality oxygen-free copper conductor ensures excellent conductive effect, TPE insulation material is soft and high strength, cable sheath is made from high-performance TPE, which possesses characteristic as weatherability, high/low temperature resistance, rub resistance, ect. The cable is soft, elastic, flex index and won't harden in low temperature. EV Cables for Electric vehicle conductive charging system are fit for Battery Electric Vehicle, Fuel Cell Vehicle(FCEV) & Hybrid Electric Vehicle(HEV). They are widely used in charging connection between electric vehicle and power supply, or used in Electric Vehicle charging facility & Charge interface.



AC EV Charging Cable



DC Fast Charger Cable

AC Single Phase (TUV)				
	3x2.5mm ² + 2x0.5mm ²	16Amp	450V/750V	Black Orange Green
	3x6.0mm ² + 2x0.5mm ²	32Amp		
	3x8.0mm ² + 2x0.5mm ²	40Amp		
	3x10mm ² + 2x0.5mm ²	63Amp		
AC Single Phase (UL)				
	3x14AWG + 1x18AWG	16Amp	600V	Black Orange Green
	3x10AWG + 1x18AWG	32Amp		
	2x8AWG + 1x10AWG + 1x16AWG	40Amp		
	2x8AWG + 1x10AWG + 1x16AWG	50Amp		
AC Three Phase (TUV)				
	5x2.5mm ² + 2x0.5mm ²	16Amp	450/750V	Black Orange Green
	5x6.0mm ² + 2x0.5mm ²	32Amp		
	5x10mm ² + 2x0.5mm ²	63Amp		
	5x13.3mm ² + 2x0.5mm ²	70Amp		
DC Fast Charger (TUV)				
	2x16mm ² + 1x25mm ² + 6x0.75mm ²	80Amp	750V/1000V	Black Orange Green
	2x35mm ² + 1x25mm ² + 6x0.75mm ²	125Amp		
	2x35mm ² + 3x6.0mm ² + 8x0.75mm ²			
	2x50mm ² + 1x25mm ² + 6x0.75mm ²			
	2x50mm ² + 3x6.0mm ² + 8x0.75mm ²	16Amp		
	2x70mm ² + 1x25mm ² + 6x0.75mm ²			
	2x70mm ² + 3x6.0mm ² + 8x0.75mm ²	32Amp		

Product Description:

- Conductor: Soft annealed stranded Bare Copper
- Insulation: 125°C halogen free TPE or TPU
- Filler: Cotton thread
- Cover: Non-woven fabrics
- Sheath: 125°C halogen free TPE or TPU
- Color: Black, Orange, Green

- Rated Voltage: AC 450/750V, DC 1000V
- Rated temperature: -25°C upto +125°C
- Voltage Test: 2.5KV AC /15min. No Breakdown
- Short circuit using temperature: +200°C 5s
- Crush Resistance: 5kN, 8kN/h, 220KPa, No Breakdown
- Flame Test: VW-1 test method comply with UL 2556



Type 1 Inlet Socket With Cable



Type 2 Male Inlet Socket With Cable



CHAdeMO Inlet Socket with Cable



Type 2 to Type 1 EV Socket EV Converter Cable



Type 1 to Type 2 Male Socket EV Converter Cable



Type 1 to Type 1 EV Socket EV Adapter Cable



CCS Combo 2 Plug With Cable



Type 1 to Type 2 EV Adapter Connector



CCS 1 to CCS2 EV Plug EV Adapter Cable



J1772 Type 1 Plug Dummy Holder



Type 2 Female Plug Dummy Holder



CHAdeMO Plug Dummy Holder

You are in Right Hand We are Right Partner For You
Genuine and Professional DEAL





Director:- Mr. Manish Khatri

Head Marketing & Sales:- Mr. Mahesh Chandra Manav

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