TURNKEY











Mission Statement

TURNKEY Technologies Limited (hereinafter called "TURNKEY") works as a multi-sector professional services provider with assets of knowledge, experience and solutions. We are committed to integrating green and sustainability principles into all aspects of our projects.

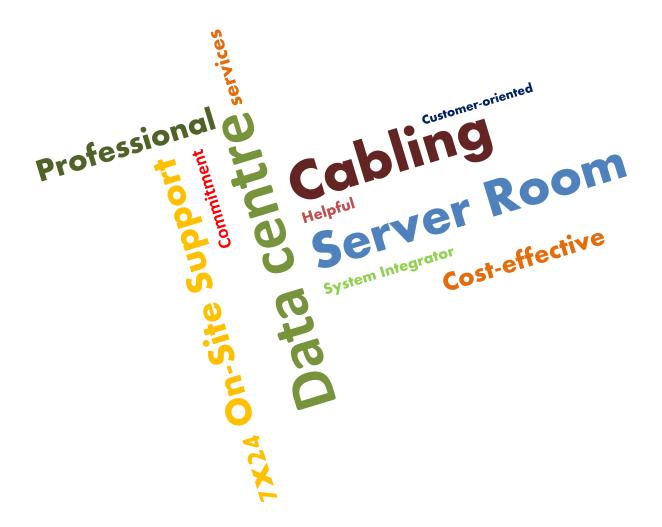
TURNKEY aims to achieve the satisfaction of client requirements in the execution of each service provided and aims to instill a culture of continual improvement and turnkey solutions to benefit our clients.



Who We Are

TURNKEY is a professional Data Centre E&M Infrastructure Services Provider based in Hong Kong, and is able to offer the optimum turnkey solutions on all challenging projects.

Our diverse skills and services have been applied to both standard and tailored products. We can ensure the quality, value, innovation, management and excellence of service to all our clients from institutes, SMEs, multi-national corporations and public listed corporations in Hong Kong and Macau. We can provide a range of services from System Integrators all the way to major IT infrastructure service projects.



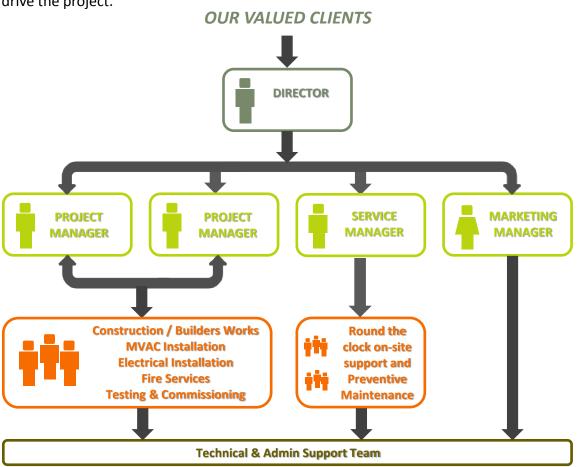
Who We Are

Our Team

TURNKEY's Specialist Team is experienced and accustomed to servicing our client's high standards. The team members have many assets, including:

- Proven integrated E&M Infrastructure design and management expertise and experience, having successfully completed numerous projects of similar scale and complexity.
- Strength in providing creative and unique designs specializing in Data Centre projects.
- The ability to provide fully personalized service.
- Full authority and capability to make decisions to direct and drive the project.





What We Do

TURNKEY strives to provide comprehensive consultancy services and turnkey solutions for Mission Critical Facilities:



Our Differentiation

TURNKEY is able to provide excellent all round services to our clients. Below are selected areas of our differentiation:

TURNKEY's strength not only to have strong track record in the design and build projects, but also including

- Availability of extensive specialist expertise and knowledge in-house.

TURNKEY offers an alternative, fresh and unique design approach including

- reative and specialized planning solutions that work.
- Tunique design options that excite and entertain your guests.
- Individual design solutions that are specific to your project.

TURNKEY will reduce the project expenditure

- Will cost evaluate all specified materials.
- Will incorporate cost effective solutions wherever feasible.
- Introduce flexible planning concepts to reduce costs.

TURNKEY provides a personal service

- A dedicated "Project Manager" actively involved from commencement to completion
- Will design and work for the client not ourselves.
- Team members "on call" during project.
- A compact expert team with extensive resources.
- Have gained extensive repeat clients.



Our Strength

TURNKEY acquires specialized equipment and strikes to provide comprehensive professional services to satisfy our Client's needs:

Dummy Load Test Services

To provide TPN 18kw rack mount type dummy loader for T&C services.

Thermal Scanning Services

To provide professional engineers, tools and FLUKE® thermal imaging services on all server room E&M facilities including a thermal imaging report and thermal images.

Professional Power Quality Measurement & Logging Services

To provide an advanced power analyzing service by using a Power Analyzer: FLUKE® 435-II Series, which is the ideal portable power quality instrument providing advanced power quality functionality and energy analysis capabilities.

Battery Bank Health Checking Services

To provide a Professional Battery Bank Analyzer: FLUKE® BT520 Series, which is an ideal test tool for maintenance, troubleshooting and performance testing of individual stationary batteries and battery banks used in critical battery back-up applications.

Cable Testing and Certification Services

To provide an accurate and error-free certification by using The FLUKE® - DSX 5000 Cable Analyzer to enables testing and certification of twisted pair cabling and fiber. Making jobs easier to manage, and getting to system acceptance faster.











Our Collaboration

TURNKEY – through collaboration with architect, interior design specialists, authorized person, RSE and manufacturers we aim to offer the optimum turnkey solutions on all challenging projects. Shown below are our collaborations:



How We Work With Our Client

With our blend of experience and expertise, **TURNKEY** adopts a holistic approach to project development, using our complete spectrum of skills that cover all stages of the development cycle – all the way from preparing the business case and advising on related issues to devising and implementing the solution as well as providing ongoing support.

Most importantly, we are strongly supported by our honorable and strong **Business Partners**:



















Our Signature Clients (Hong Kong):



































































Our Signature Clients (Hong Kong):









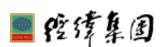








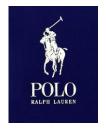


































Our Signature Clients (Macau Government Departments):







何東圖書館 Biblioteca Sir Robert Ho Tung







旅遊危機處理辦公室 Gabinete de Gestão de Crises do Turismo Tourism Crisis Management Office



澳門特別行政區政府 Governo da Reglão Administrativa Especial de Macau 文化產業基金

文化產業基金 Fundo das Indústrias Culturais



漢 门 員 易 投 質 证 進 同 Instituto de Promoção do Comércio e do Investimento de Macau Macao Trade and Investment Promotion Institute



個人資料保護辦公室

Gabinete para a Protecção de Dados Pessoais Office for Personal Data Protection





澳門特別行政區政府體育局 Instituto do Desporto do Governo da RAEM



中國-葡語國家經貿合作論壇(澳門)常設秘書處







民政總署 Instituto para os Assuntos Civicos e Municipais



廉政公署

Our Signature Clients (Macau):



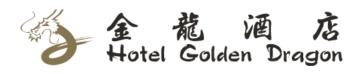
















vertive is a leading data centre infrastructure players in the industry to provide global manufacturing and mission critical facilities.

Vertiv's Liebert® ITA2™ UPS Systems:

The Liebert® ITA2TM is a fully-digital, highly reliable, double-conversion UPS solution that delivers clean and consistent power. This highly efficient solution is ideal for various deployments, whether it's IT racks, network closets, automation control systems, and precision instruments to small-sized control rooms among other edge applications.

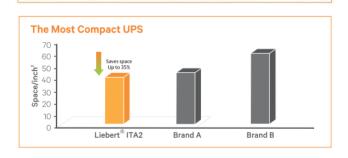
Key Features

- Robust structure with cutting-edge channelized airflow design
- Wide input voltage range, making it immune to grid interference
- Programmable output outlets/terminals with cascade protection to protect key devices during heavy load
- Integrated Ethernet port with HTTP protocol compatibility & streamlined remote monitoring
- Fasy to install, repair, and maintain
- Gravity sense LCD Display



5-10 kVA 16-20 kVA

The Most Efficient UPS Liebert® ITA2™ offers best-in-class efficiency of up to 96.3% over a wide range of load conditions, resulting in significant OPEX cost savings. ITA2™s integrated Smart Sleep technology in ECO mode provides a superlative efficiency of up to 99%. 100% 95.67% 96.24% 96.18% 95.92%



VERTIV is a leading data centre infrastructure players in the industry to provide global manufacturing and mission critical facilities.

Vertiv's Liebert® CRV Row-Based Cooling Unit:

Key Features

- Rack-sized Liebert CRV provides high capacity cooling in a small footprint
- Available in 20 or 35 kW air cooled and water/glycol cooled systems, and 40 kW chilled water cooled systems
- ☆ Horizontal airflow, suitable for raised or non-raised floors
- Features with the Liebert iCOM
 Control System to Monitor up to 10
 racks with 20 sensors (precisely
 controls air temperature, humidity
 and filtration in the surrounding
 racks)
- Adjustable airflow baffles on 24 in. (600mm)wide model maximize cooling to rack equipment, allowing the system to be positioned within the row or at the end of the row

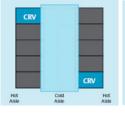


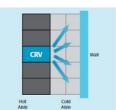


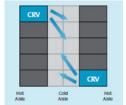


600mm (24") cabinet: 20 or 35kW air or water / glycol cooled; 40kW chilled water cooled

300mm (12") cabinet: 30kW chilled water cooled





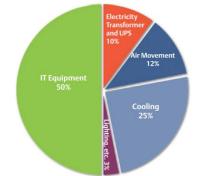


VERTIV is a leading data centre infrastructure players in the industry to provide global manufacturing and mission critical facilities.

Vertiv PEX CRAC Systems:

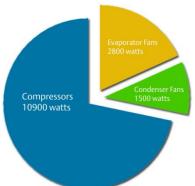
Key Performance Characteristics

T Energy Efficiency



Energy Consumption in your Data Centre

Space Savings



Liebert PEX Dual Module Downflow Unit

Energy Savings Engineered Into Each Component

- Communications and Monitoring
- System Supervision and Management
- Multiple Configurations

VERTIV is a leading data centre infrastructure players in the industry to provide global manufacturing and mission critical facilities.

Vertiv APM150 Modular UPS Solution:

Key Performance Characteristics

- Scalable, Flexible
- Hot-plug modular design improves availability
- Integral Intelligent power distribution and monitoring (Including Branch Circuit Monitoring)
- 96% high efficiency
- The highest power density UPS
- Easy Configurable, Dual-bus system
- Unity Input and output Power factor UPS
- Outstanding Input characteristics
- Excellent Overload capacity
- Advanced network management





VERTIV is a leading data centre infrastructure players in the industry to provide global manufacturing and mission critical facilities.

Vertiv Static Transfer Switch (STS):

Key Features

- Short transfer interval (less than ¼ cycle) and high reliability achieved
- Manual and automatic transfer optional
- Priority of input source can be programmable
- User friendly design with large LCD display
- International Safety standard complied
- Rack-like black appearance, compatible with main-string server and network equipment
- □ Default equipment with input surge suppressor
- Various communication port available for remote control





VERTIV is a leading data centre infrastructure players in the industry to provide global manufacturing and mission critical facilities.

Vertiv[™] Environet[™] Alert (DCIM Solutions) provides industry companies with critical facility monitoring software that is affordable and easy to use. This solution delivers superior monitoring, alerting, trending and data organization capabilities for companies in such verticals as healthcare, financial services, government and more, helping them protect and grow their business. Customers get monitoring, alerting and trending at a price that's right for their business.

Key Benefits:

- Increase your business flexibility Vendor neutral SNMP device management at no additional cost to run your business the way you need.
- Gain an affordable solution − Environet Alert is a budget-friendly solution, making it easy for SMBs and enterprises to deploy systems.
- Benefit from fast and easy configuration Manage your own system configuration and changes, eliminating the need for support touchpoints (optional service packages are available).
- Customize your data Set your own views with our modern user interface to focus on the data you need most for your job.
- Connect all operations Use our API to connect to remote DCIM and building management systems (BMS) for a more complete picture of your operations.









is the leading

provider of airflow management solutions in America with over 40 years experience in the industry.

TURNKEY is proud to introduce the **Airflow Management Systems.**

Data Clean® - Directional High Output Airflow Panel:

The DC-68-D is a 70 degree directional tile that will put the cold air directly into your server cabinet. A directional tile reduce air loss and the DC-68-D directional tile and it is a full 68% open area tile to maximize the amount of air to cool those high density servers.

The DC-68-D is also available with a sliding damper to adjust the volume of air required for your particular application and equipment load.

DC 68 Directional High Airflow Panel

Tile Specifications:

Dimensions: 600 x 600 x 55mm

Weight: 8.8 kg

Materials: Cast Aluminum

Open Area: 68%

Available with sliding damper



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TURNKEY is proud to introduce the **Airflow Management Systems.**

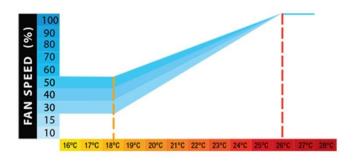
Data Clean® - Air Boost:

The New Airboost EC controller manufactured by EBM was designed specifically to control and monitor up to 4 EC-Fans and is equipped with 1.8" Mono LCD and Touch Sense Technology. Set minimum or idle fan speed from 15% to 100%, depending on desired airflow. They come with both manual control and remote temperature controlled features and can regulate the fan speed according to temperature signals received from up to 3 remote temperature sensors. The Airboost EC allows BMS connection to provide low and high temperature alarm information and have been used to cool upwards of 15kW server loads.



Air Boost Panel

Airboost EC Temperature Controlled:



^{*}The graph shows the relationship of fan speed to temperature

The remote temperature control will automatically adjust the fan speed, based on temperature changes. The Airboost EC controller by EBM was designed specifically to control and monitor up to 4 EC-Fans and is equipped with 1.8" Mono LCD and Touch Sense Technology. Set minimum or idle fan speed from 15% to 100%, depending on desired airflow.

Temperature sensor behavior (shown below) *Complete: 100% at 26C, 60% at 22C, ON at 18C, OFF at 16C



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TURNKEY is proud to introduce the **Airflow Management Systems.**

Data Clean® - Sliding Door:

The ideal solution for both cold and hot aisle containment designs. Combining cost effectiveness with ease of installation, the no threshold design eliminates tripping hazards. Frame components arrive pre-assembled and easily connect to the header rail which secures the assembly together. Integrated slide-locks simplify door installation onto the frame.

The Sliding Doors reduces data center operating costs by improving thermal efficiency and reducing IT equipment intake temperatures, which enhances both equipment life and reliability.



DC Modular Aluminium Sliding Door



is the leading

provider of airflow management solutions in America with over 40 years experience in the industry.

TURNKEY is proud to introduce the **Airflow Management Systems.**

Round 4" Rack Mount Grommet

Designed to seal 4" (102 mm) cable openings in new and existing server rack cutouts to block bypass airflow and maximize cooling system efficiency within the rack.

- The Split feature of the HotLok Round Rack Mount Grommet allows product installation or removal without disturbing cables
- The Grommets contain no loose or partially fastened parts, which can become separated or fall into the rack
- The Grommets are impact resistant and durable
- HBT Membrane Layer ensures maximum air containment
- HotLok products are compliant with directive 2002/95/EC of the European Parliament and the Council on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electric Equipment (RoHS)
- The Grommet features a membrane support structure



Round 4" Rack Mount Grommet



KoldLok Integral - Model #1010

Overall size: 11" x 8 1/4" x 1 5/8"

Grommet usable cable opening size: 8" x 4"

Grommet total cable opening size: 8" x 5"

Maximum Cutout Size (Interior Mount): 9 1/4" x 6 3/4"



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provider of airflow management solutions in America with over 40 years experience in the industry.

TURNKEY is proud to introduce the **Airflow Management Systems.**

HotLok[™] Blanking Panel

Key Characteristics

- Snap-spring design offers durable, 99.97+% effective seal
- Tool-free, snap-in installation and easy-pull removal for any EIA-310-E standard openings using ergonomically designed finger grips
- 1U Panels stack 10 high and 2U Panels stack 20 high for easy storage and ready availability
- Upsite Temperature Strip colored-coded temperature ranges indicates potential hotspots by color based on ASHRAE Standard

Full Rack Modular Blanking Panels

- Flexibility Multiple U sizes (1U and 2U blanking panels; 3U, 9U and 12U blanking sheets)
- For a quick and simple installation
- Can be re-used and re-configured as necessary
- Utilizes ABS sheets that do not sag or require attachment to the rails (used for larger blanking areas)









HotLok Blanking Panels:

- 42U Kit (Included)
- 36U Kit (Excluded)

serverLIFT established in 2002, is the premier IT equipment handling solutions provider, with a strong focus on a safe and efficient way to handle servers and other IT equipment in the data center.

ServerLIFT® Heavy-Duty Electric SL-500Xi Server Lifter (500 lb. Capacity):

Unique Features

- Built-in Easy Glide Shelf
 - Adds 6" of lateral movement into rack
 - Fits into standard 19" racks
 - Heavy-duty platform resists sagging and twisting with a 500lb. Load
- Compact Design
 - Slim 24" wide base easily navigates narrow aisles
 - Fit through standard size doorways (under 6 feet tall)
 - · Ideal for cold aisle containment
- Smart Controls
 - Precise height adjustment with proprietary micro-processor controlled lifting system
 - Dual side controls allow a single operation to align equipment while facing the rack



Early Leak System Apparatus is to protect key installations and assets from intrinsic or extrinsic damages caused by a liquid (oil included) leak.

ELSA is a manufacturer specialized in early warning leak detection system for both Conductive Liquids and Non-Conductive Hydrocarbon Liquids, focusing on research and innovation with advanced features including: Fail-Safe Loop Back, Anti-False Alarm and Monitor Leakage Level Remotely

Features:

The Flagship Digi-FLex:

The Digi-Flex series upgrades from the standard series, offering fully customisable capabilities that build efficient, real-time-monitoring liquid leak detection systems. This series also includes oilspecific products like reusable hydrocarbon sensing cables; zero-false-alarm, ultrasensitive mini sensor modules; and thin-film (~0.1mm) oil-on-water detection modules etc. All systems boast a Fail-Safe Loop-Back feature, allowing continued detection even in the event of any cable break. But that's hardly all.



ELSA Digi-Flex
3L-DF/TP 12' Touch Screen Panel



ELSA Digi-Flex Control Panel 3L-DF/SP



ELSA Digi-Flex Control Panel 3L-DF/SDP



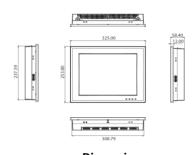
ELSA Digi-Flex Sensor Module 3L-DF/SM50

Early Leak System Apparatus is to protect key installations and assets from intrinsic or extrinsic damages caused by a liquid (oil included) leak.

ELSA Digi-Flex 3L-DF/TP 12' Touch Screen Panel

The digital touch screen panel comes with a propriety software with features like SMS notifications, history log up to 5000 events, and precise leak showcase via floor map.





ELSA Digi-Flex

Dimension: 3L-DF/TP 12' Touch Screen Panel 325mm(L)*253.8mm(H)*58.4mm(D)

Features:

- Pin-Point Leak Location Precisely, tolerance +/-1m. (indication by RED DOT).
- History/Event Log: 5,000 events based on FIFO basis. 9
- "Freezing" of selected zone(s) during maintenance/repair and no fault message 9 generated.
- Readily connect to Mobile network / dialer for SMS fault notification (Optional) P
- Modbus/TCP (Optional). P
- Ability to Zoom-In onto each floor plan map. 9
- Max. 50 Zones monitoring and display function. 9
- Monitor up to 10 units of 3L-DF/SDP. 9
- Systems able to monitor up to an accumulated Sensing Cable length of 5,000m 9 (500m x 10 units) for LLDS OR up to 1,500m (150m x 10 units) for HLLDS application.
- True Digital Leak sensitivity setting (threshold level 1 to 9) applicable to LLDS only. 9 eg: Level 1 ~ 3cm; Level 9 ~ 50cm of liquid detected.
- Modbus information is capable to show leak sensitivity level, thus the user will know 9 the amount of water presence at the point of detection.
- Redundancy: Fail-Safe Loop Back or Token Ring connection capability. (continues to P detect leaks even cable break at 1st meter of sensing cable)

Early Leak System Apparatus is to protect key installations and assets from intrinsic or extrinsic damages caused by a liquid (oil included) leak.

ELSA Digi-Flex Control Panel 3L-DF/SP

The 3L-DF/SP is able to support up to 40 sensor modules, 2000 metres of sensing cables, and a 1-9 detection sensitivity setting.



ELSA Digi-Flex Supervising Panel: 3L-DF/SP & Digi-Flex Sensor Module: 3L-DF/SM50-LD

Features:

- **3L-DF/SP** is a Supervising panel to monitor and directly power each 3L-DF/SM50-LD sensor modules linked (up to 40 units).
- Reliable frequency modulation is used for the digital communication between the panel and the modules.
- Precision to locate leak location: +/-1m or 0.5%
- Redundancy: Fail-Safe Loop Back or Token Ring connection feature built-in. (continues to detect leaks even cable break at 1st meter of sensing cable).
- LCD Display: Backlight with LCD of 4 lines x 20 English characters
- Sound Alarm: 90dB max. buzzer with silencing button
- System Menu: Access to Event Log, System Reset, Configuration Mode
- Multiple leak alarms simultaneously: Yes
 (No. of simultaneously leak = No. of 3L-DF/SM50-LD sensor modules in use).
- Max accumulated length of sensing cable up to 2,000m.
- ₹ 3L-DF/SP Box dimensions: Rugged ABS UL-VO case of L222 x W146 x H55mm.
- Zone names setup: By PC-software (input each zone name up to 35 characters).
- First-In-First-Out (in case overflow)

Early Leak System Apparatus is to protect key installations and assets from intrinsic or extrinsic damages caused by a liquid (oil included) leak.

ELSA Digi-Flex Control Panel 3L-DF/SDP

The 3L-DF/SDP is a leak locating panel that can support up to 10 sensor modules, with an accumulated sensing cable length of 500 metres, complete with common and visual LED alarm.



ELSA Digi-Flex Control Panel: 3L-DF/SDP & Digi-Flex Sensor Module: 3L-DF/SM50-LD

- Maximum length of sensor circuit (including jumper cable and diversions): 4000m
- Maximum length of sensing cable per sensor module: 50m
- Number of sensor module on same circuit: 40
- Precision to locate leak location: +/- 1m or +/- 0.5%
- Maximum voltage on circuit wires: 15VDC
- Input voltage: 100-240VAC or 12-24VAC/VDC (Optional)
- Power consumption: 4.5VA or 4W
- Alarm dry contact/relay: Operation SPDT, Switch current 0.5A at 250VAC, 1A at 30VDC
- Serial communication interface (Modbus Protocol): RS485-two-wire, ESD & surge protected as per IEC 6100-4-5
- Compatible sensing cables: 3L-LS, 3L-AS, 3L-AD
- Compatible supervising panels: 3L-DF/SP
- Touchscreen interface (Human Machine Interface HMI): Optional multi-zone touchscreen of 3L-TP/12 connectable via RS485 to 3L-DF/SDP
- Size of 3L-DF/SDP: 4 modules MS36 DIN-Rail (Dim: L=86 x W=70 x H=58mm) (Optional: IP65 Wall Mount Box)
- Size of 3L-DF/SM50-LD: Rugged UV stable Polyamide encapsulated case with UL-94-V-0 approved (Dim: L=75 x W=16 x H=15. comparable to the size of a "AA" battery)
- Operating ambient temperature: 0° to 40°C (indoor installation only)
- Storage temperature: -20° to 70°C
- Humidity: 5% to 95% non-condensing
- FMC emission: IEC61000-6-3(2001)-Electromagnetic compatibility. Generic emission standard for residential, commercial & light industrial environment
- FMC immunity: IEC61000-6-1(2001)-Electromagnetic compatibility. Generic immunity standard for residential, commercial & light industrial environment.

Early Leak System Apparatus is to protect key installations and assets from intrinsic or extrinsic damages caused by a liquid (oil included) leak.

ELSA Digi-Flex Sensor Module 3L-DF/SM50

The 3L-DF/SM50 is a sensor module used in conjunction with above Digi-Flex control panels, and allocated sensing cables (up to 50 metres per module).



ELSA Digi-Flex Supervising Panel: 3L-DF/SP & Digi-Flex Sensor Module: 3L-DF/SM50

- 3L-DF/SP is a Supervising panel to monitor and directly power each 3L-DF/SM50 sensor modules linked (up to 40 units).
- Reliable frequency modulation is used for the digital communication between the panel and the modules.
- Precision to locate leak location: +/-1m or 0.5%
- Redundancy: Fail-Safe Loop Back or Token Ring connection feature built-in. (continues to detect leaks even cable break at 1st meter of sensing cable).
- LCD Display: Backlight with LCD of 4 lines x 20 English characters
- Sound Alarm: 90dB max. buzzer with silencing button
- System Menu: Access to Event Log, System Reset, Configuration Mode
- Multiple leak alarms simultaneously: Yes (No. of simultaneously leak = No. of 3L-DF/SM50 sensor modules in use).
- Max accumulated length of sensing cable up to 2,000m
- 3L-DF/SP Box dimensions: Rugged ABS UL-VO case of L222 x W146 x H55mm.
- 3L-DF/SM50 Box dimensions: Moulded in ABS case of L50 x W38 x H25mm. IP67 rated.
- Zone names setup: By PC-software (input each zone name up to 35 characters).
- First-In-First-Out (in case overflow)

Early Leak System Apparatus is to protect key installations and assets from intrinsic or extrinsic damages caused by a liquid (oil included) leak.

ELSA Digi-Flex Mini Sensor Module 3L-DF/SM50-LD

The 3L-DF/SM50-LD is a mini sensor module designed for conductive liquids. Capable of sensing up to 50 metres of cable, it also comes with a visual alarm via LED indicator.



ELSA Digi-Flex Supervising Panel: 3L-DF/SP & Digi-Flex Sensor Module: 3L-DF/SM50-LD

- 3L-DF/SP is a Supervising panel to monitor and directly power each 3L-DF/SM50-LD sensor modules linked (up to 40 units).
- Reliable frequency modulation is used for the digital communication between the panel and the modules.
- Precision to locate leak location: +/-1m or 0.5%
- Redundancy: Fail-Safe Loop Back or Token Ring connection feature built-in. (continues to detect leaks even cable break at 1st meter of sensing cable).
- LCD Display: Backlight with LCD of 4 lines x 20 English characters
- Sound Alarm: 90dB max. buzzer with silencing button
- System Menu: Access to Event Log, System Reset, Configuration Mode
- Multiple leak alarms simultaneously: Yes (No. of simultaneously leak = No. of 3L-DF/SM50-LD sensor modules in use).
- Max accumulated length of sensing cable: up to 2,000m:
- ₹ 3L-DF/SP Box dimensions: Rugged ABS UL-VO case of L222 x W146 x H55mm.
- 3L-DF/SM50-LD Box dimensions: Rugged UV stable Polyamide encapsulated case with UL-94-V-0 approved. Dim: L75 x W16 x H15mm. (comparable to the size of a "AA" battery)
- Zone names setup: By PC-software (input each zone name up to 35 characters).
- First-In-First-Out (in case overflow)

Early Leak System Apparatus is to protect key installations and assets from intrinsic or extrinsic damages caused by a liquid (oil included) leak.

ELSA Digi-Flex Mini Sensor Module 3L-DF/SM50-HC

The 3L-DF/SM50-HC is a hydrocarbon (oil) sensor module connected to our cut-to-length hydrocarbon sensing cable.



ELSA Digi-Flex Supervising Panel: 3L-DF/SP & Digi-Flex Sensor Module: 3L-DF/SM50-HC

- 3L-DF/SP is a Supervising panel to monitor and directly power each 3L-DF/SM50-HC sensor module linked. (up to 40 Sensor Modules in series connection).
- Reliable frequency modulation is used for the digital communication between the panel and the modules.
- Precision to locate leak location: By each sensing cable length identification.
- Redundancy: Fail-Safe Loop Back or Token Ring connection feature built-in. (continues to detect leaks even cable break at 1st meter of sensing cable).
- LCD Display: Backlight with LCD of 4 lines x 20 English characters.
- Sound Alarm: 90dB max. buzzer with silencing button.
- System Menu: Access to Event Log, System Reset, Configuration Mode.
- Multiple leak alarms simultaneously: Yes (No. of simultaneously leak = No. of 3L-DF/SM50-HC sensor modules in use).
- Max accumulated length of sensing cable: up to 600m
- 3L-DF/SP Box dimensions: Rugged ABS UL-VO case. Dim: L222 x W146 x H55mm.
- Zone names setup: By PC-software (input each zone name up to 35 characters).
- First-In-First-Out (in case overflow)

Early Leak System Apparatus is to protect key installations and assets from intrinsic or extrinsic damages caused by a liquid (oil included) leak.

ELSA 3L-HCS Hydrocarbon Sensing Cable

The 3L-HCS is a reusable hydrocarbon sensing cable used to quickly detect non-conductive liquids such as diesel and other fuels. See catalogue for full range of features and specifications.



ELSA Hydrocarbon Sensing Cable: 3L-HCS

Characteristics & Performance:

- Sensing technology: Based on semiconductive elastomeric material swelling property when in contact with non-conductive liquids of hydrocarbon (such as Diesel, Fuel, Crude Oil & etc).
- No false alarm: It is non-sensitive to water, dirt, pressure, vibration & etc.
- Install environment: Suitable for industrial, outdoor or challenging environmental conditions. HCS cable is UV Resistance. Male/Female (M12) connectors are IP67 rated.
- High reliability: Upon detection of hydrocarbon liquids, it remain reusable after simple cleaning. It will reset automatically after the evaporation of volatile liquids such as gasoline or light naphtha.
- Safe design: Maximum voltage on sensing cable is limited to very low value which is at safe operation mode. Thus no risk of ignition when detected hydrocarbon liquids and is fully mitigated. Hazardous site is safe to operate with Zener Barrier connection as an option.
- Typical response time (Tested with 2m HCS cable):
 - Gasoline, Light Naphtha: about 4 min.
 - Diesel, Oil, Jet Fuel: about 10 min.
 - Crude Oi I: 30 to 60 min (depend on oil viscosity).
- Ambient temperature: -40°C to +85°C.
- Minimum bending radius: 80 mm.
- Typical diameter: 10 mm.

Early Leak System Apparatus is to protect key installations and assets from intrinsic or extrinsic damages caused by a liquid (oil included) leak.

ELSA 3L-LS Sensing Cable

The 3L-LS is a distance-type sensing cable used to detect water, slightly corrosive and conductive liquids.



ELSA Sensing Cable: 3L-LS

Characteristics & Performance:

- Application: Water and slightly corrosive conductive liquids
- To Diameter size: 6.3mm average
- Central core: Insulated AWG18 stranded copper wire for greater pulling resistance
- Sensing wires: Spirally-winded 2 x Black wires, semi-conductive polymer
- Carrier: Flame-retardant polymer material with greenish colour in high visibility
- Fire resistance: Non-flame propagating and self-extinguishing

3L-LS Sensing Cable Length:

Available in standard length of 1m, 3m, 7m and 15m (cut-to length is available upon request) 3L-LS SENSING CABLE CONNECTIONS/JOINTS:

3L-LS Sensing Cable Length:

- ™ M12 (14.5mm diameter) Male/female connector (i.e. all connections/joints is modular)
- Hot-Shrink-Tube approach is available upon request or as per requirement (i.e. all connections/joints is fix)

Early Leak System Apparatus is to protect key installations and assets from intrinsic or extrinsic damages caused by a liquid (oil included) leak.

ELSA 3L-AS Sensing Cable

The 3L-AS is a distance type sensing cable used to detect highly corrosive and conductive liquids i.e. 100% sulphuric acid.



ELSA Sensing Cable: 3L-AS

Characteristics & Performance:

- Application: Highly corrosive conductive liquids such as 100% Sulphuric acid
- To Diameter size: 6.3mm average
- Central core: Insulated AWG18 stranded copper wire for greater pulling resistance
- Sensing wires: Spirally-winded 2 x Black wires, semi-conductive fire-resistant fluoropolymer
- Fire resistance: UL910 (NFPA 262), highest Fire/Smoke standard

3L-AS Sensing Cable Length:

Available in standard length of 1m, 3m, 7m and 15m (cut-to length is available upon request)

3L-AS Sensing Cable Connections/Joints:

- M12 (14.5mm diameter) Male/female connector (i.e. all connections/joints is modular)
- The Hot-Shrink-Tube approach is available upon request or as per requirement (i.e. all connections/joints is fix)

Early Leak System Apparatus is to protect key installations and assets from intrinsic or extrinsic damages caused by a liquid (oil included) leak.

ELSA 3L-AD Sensing Cable

The 3L-AD is an Anti-Droplet sensing cable used to detect water, slightly corrosive and conductive liquids.



ELSA Sensing Cable: 3L-AD

Characteristics & Performance:

- Application: Anti-water droplets detection but require to detect larger amount of water or slightly corrosive liquids
- To Diameter size: 6.3mm average
- Continuity wires: Spirally-winded White & Red insulated with flame-retardant polymer
- Central core: Insulated AWG18 stranded copper wire for greater pulling resistance
- Sensing wires: Spirally-winded 2 x Black wires, semi-conductive polymer
- Carrier: Flame-retardant polymer material with greenish colour in high visibility
- Fire resistance: Non-flame propagating and self-extinguishing

3L-AD Sensing Cable Length:

Available in standard length of 1m, 3m, 7m and 15m (cut-to length is available upon request)

3L-AD Sensing Cable Connections/Joints:

- M12 (14.5mm diameter) Male/female connector (i.e. all connections/joints is modular)
- The Hot-Shrink-Tube approach is available upon request or as per requirement (i.e. all connections/joints is fix)

SENSAPHONE® has designed and built its full line of innovative remote environmental monitoring systems and early detection products since 1985 in Aston, Pennsylvania that quickly and effectively provide alerts to problems at your facilities.

Sensaphone Stratus EMS Monitoring System:

Sensaphone's cloud-based Stratus EMS allows you to monitor data center facilities and environments with the same degree of certainty you've come to expect from Sensaphone. Users can check critical conditions of their climate and equipment-sensitive commodities at any time.

The Stratus EMS monitors, delivers alarms, and data logs 64 input/output points from Modbus inputs in addition to 12 universal digital or analog inputs. It supports Modbus RTU/485 and Modbus TCP which make is capable of reading data from many IDF, PDU, UPS and Building Automation Systems. It takes the burden out of managing your system by giving you access to your readings from anywhere using a simple, powerful web-based interface. If there's a disruption, you'll be the first to know. Alerts can be sent straight to your mobile device—keeping you updated and giving you peace-of-mind wherever you are so you can remain focused on business as usual.

The Stratus EMS is available with an optional rack-mounted LCD that displays data onsite.









SENSAPHONE® has designed and built its full line of innovative remote environmental monitoring systems and early detection products since 1985 in Aston, Pennsylvania that quickly and effectively provide alerts to problems at your facilities.

Features:

- A supervised internet connection assures the Stratus EMS is online and monitoring at all times
- Store your sensor readings in "the cloud" to automatically protect against data loss and provide limitless information storage
- Notifies an unlimited number of people by e-mail, text message or voice phone calls in the event of an alarm
- Poll Modbus registers from other equipment via RS485 and TCP/IP
- 12 powered universal digital or analog inputs monitor temperature, humidity, water and more
- Temperature sensing range of -109° to 168
 °F | -85° to 76 °C
- Manage multiple units, make programming changes and access status conditions using a simple, powerful web-based interface
- Fits in a 1U rack space
- Up to 30 hours of extended battery backup life
- 2 relay outputs for manual or automatic switching
- API Data Interchange Formats: JSON, HTTPS, POST, REST web services, cURL
- Ability to use Sensaphone WEB600 and WSG30 as expansion modules









TURNKEY's Containment System provides tailor made and special measurements in order to cope with the Client's data centre environment.

Containment Systems

Aisle containment solutions increases cooling and airflow efficiencies by isolating chilled intake air from hot exhaust air. This reduces operational costs associated with cooling and attributes to higher equipment densities. Containment solutions can be designed in both hot and cold aisle configurations.

Hot-aisle containment systems are designed to isolate the hot aisle with vertical panels that direct hot exhaust air into the hot air return.

Cold-aisle containment systems are designed to isolate cold air with top panels that cover the aisle.

Benefits

- F Eliminates hot and cold air mixing
- Works in both a raised floor and slab environments
- Increases cooling capacity
- Less Investment & More Savings
- Saves energy and improves data center cooling efficiency



Contact Us

We welcome your participation to help us grow. For any queries or suggestions on our Services and Products of TURNKEY, please contact us:

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