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Experts in ultrafast gas analysis and handling

EMT Datasheet Collection

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Asserolyz-IR Handheld SF6 Analyser

Experts in ultrafast SF6 gas analysis and handling

The Asserolyz-IR handheld, multi-parameter SF6 gas analyser, brings laboratory performance to the field.

Switchgear, GIS and other compartments housing SF6 require a specific purity of SF6 to ensure optimal operation and to ensure full quenching of discharges.

The EMT Asserolyz-IR is designed to provide operators quick, accurate and reliable analysis of SF6 gas for the following applications:

- Ensuring SF6 purity and concentration is inline with OEM guidelines for safe and efficient use of the asset
- Detecting and measuring SF6 breakdown/ decomposition contaminants
- Ensuring safety and wellbeing of operators working with SF6 and its breakdown byproducts

Armed with this data, utilities have a greater understanding of the current and potential long-term condition of their assets.

Reliable analysis allows utilities to better plan maintenance schedules to ensure reduced downtime and unplanned outages.

Features

- Accurate, stable and repeatable readings
- Lightest instrument in the market at 1.8Kg (4lb)
- Up to 8 gases measured simultaneously
- Easy to use – 1 button operation
- ppm SF6 Leak detection option
- Interference free IR sensing technology
- Lower life time costs due to reduced service requirements from IR technology
- Less SF6 wastage – less than 1Ltr gas used

For more information or a demonstration contact **sales@emt.global** or visit **www.emt.global**

Asserolyz-IR Handheld SF6 Analyser

Technical Specification

Gases Measured and Options	**Gas**	**Range**	**Repeatability**
	SF6 Purity	60-100%	+/-0.5% FS[1]
	Dewpoint	-60 - 20°C	+/-0.5°C at -30°C
	HF	0-200ppm	+/-5% FS[1]
	SO2 Hi	0-500ppm	+/-2% FS[1]
	CF4 Lo	0-4000ppm	+/-2% FS[1]
	CF4 Hi	0-60%	+/-1% FS[1]
	CO	0-1000ppm	+/-5% FS[1]
	H2S	0-100ppm	+/-5% FS[1]
	R12	0-250ppm	3% of FS[1]
	AIR	0-50%	1% of FS[1]

Physical Specification	**570mm (22.4") x 250mm (9.8") x 90mm (3.5")** **1.5KG (<4lbs)**
Power Supply	**90-240VAC (50/60Hz) Input** **Li-Ion Rechargeable battery >8hr operation**
Screen	**4.3" LCD Touchscreen Interface**
Datalogging	**>1000 sample results (exportable as .CSV file)**
Input Gas Pressure	**Max 10Bar**
Operating Condition	**-20°C to 40°C (-4°F to 104°F)**
SF6 Leak Option	**Detection limit 3gm/year**
Optional Accessories Include	**Shoulder harness, robust flight carry case, gas collection bags for waste gas**

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Zerowaste SF6 Analyser

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Experts in ultrafast SF6 gas analysis and handling

The Zerowaste portable, multi-parameter SF6 gas analyser, brings laboratory performance to the field. With pump back capability to ensure zero waste of SF6.

Switchgear, GIS and other compartments housing SF6 require a specific purity of SF6 to ensure optimal operation and to ensure full quenching of discharges.

The EMT Zerowaste SF6 analyser is designed to provide operators quick, accurate and reliable analysis of SF6 gas for the following applications:

- Ensuring SF6 purity and concentration is inline with OEM guidelines for safe and efficient use of the asset
- Detecting and measuring SF6 breakdown/ decomposition contaminants
- Ensuring safety and wellbeing of operators working with SF6 and its breakdown byproducts

Armed with this data, utilities have a greater understanding of the current and potential long-term condition of their assets.

Reliable analysis allows utilities to better plan maintenance schedules to ensure reduced downtime and unplanned outages.

Features

- Analyse up to 10 gas parameters simultaneously
- Laboratory accuracy in the field
- The lightest "pump back" SF6 analyser only 17Kg / 37.5Lbs
- fully automatic operation – connect and walk away for safe distance operations
- Works on wide operating inlet pressures from 0.1 Bar up to 12 Bar
- ppm SF6 Leak detection option
- Interference free IR sensing technology
- Lower life time costs due to reduced service requirements from IR technology
- Fully portable operation with >10hr battery life
- Fully compliant with all current IEC & CIGRE test methods

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Zerowaste SF6 Analyser

Technical Specification

Gases Measured and Options	**Gas**	**Range**	**Repeatability**
	SF6 Purity	60-100%	+/-0.5% FS[1]
	Dewpoint	-60 - 20ºC	+/-0.5ºC at -30ºC
	HF	0-200ppm	+/-5% FS[1]
	SO2 Hi	0-500ppm	+/-2% FS[1]
	CF4 Lo	0-4000ppm	+/-2% FS[1]
	CF4 Hi	0-60%	+/-1% FS[1]
	CO	0-1000ppm	+/-5% FS[1]
	H2S	0-100ppm	+/-5% FS[1]
	R12	0-250ppm	3% of FS[1]
	AIR	0-50%	1% of FS[1]

FS1: Full Scale (of Measuring Range)

SF6 Leak Detection	**Detection Limit**	3 gm/year
	Technology	NDIR

Screen	4.3" LCD Touchscreen Interface

Standard Gas Inlet Pressure	1 to 10 Bar (14PSI to 145PSI)

Optional Pressure Capability	0.1 to 12 Bar
	1.4 to 174 PSI

Battery	**Operating Time**	>10 hours
	Power Supply	100-240V - 50/60Hz
Operating Environmental Conditions	**Temperature Range**	-20ºC to +50ºC (-4°F to +122°F)
	Humidity	0-95%RH non-condensing
Physical Specifications	**Weight**	17kg (37.5lbs)
	Maximum Dimensions	L500 x W300 x D470 mm (19.11" x 12" x 18.5")
Datalogging	**Type**	Exportable as CSV file
	Capacity	1000 results

Hose Purge Option	Pre-sample hose purge to remove latent moisture in sample hose for more accurate H2O measurements
Leak Detection Probe Option	Detection limit 3gm/year
CMS Continuous Monitoring System Option	Continuous 24/7 analysis capability for long term asset conditioning

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Zerowaste Rapide+ Ultrafast SF6 Analyser

Experts in ultrafast SF6 gas analysis and handling

Testing → Analysis → Results → 1 MINUTE

Zerowaste Rapide+ The FIRST 1 minute SF6 Analyser – always ready for testing.

Ideal for maintenance teams undertaking extensive testing programmes where manpower, time and costs are all priorities.

The EMT Zerowaste Rapide + is designed to provide operators ultrafast analysis of up to 10 gas parameters in just 1 minute for the following applications:

- Ensuring SF6 purity and concentration is inline with OEM guidelines for safe and efficient use of the asset
- Detecting and measuring SF6 breakdown/ decomposition contaminants
- Ensuring safety and wellbeing of operators working with SF6 and its breakdown byproducts

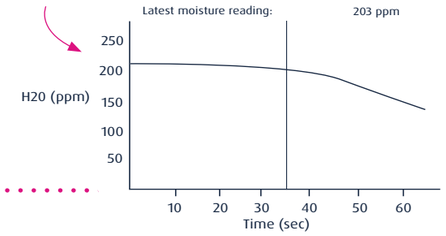
The Zerowaste Rapide+ enhanced analysis speed allows for increases in operator efficiency and productivity.

This enhanced efficiency and productivity enables greater volumes of testing to be performed providing utilities with a comprehensive understanding of the current and potential long-term condition of their assets.

Fast, accurate and reliable analysis allows utilities to better plan maintenance schedules to ensure reduced downtime and unplanned outages.

In addition to the already market leading specifications, the new additional features of the Rapide+ include:

- 5x more productivity over standard SF6 analysers
- Large 7" multifunction colour display with new easy to use software.
- Ultrafast ONE minute analysis.
- Low maintenance and reduced cost of ownership.
- Easy to verify and check calibration with EMT Verify Cal Gas Kits
- Compliant to new IEC 60376 (2018) & IEC 60480 (2019) standards.
- Lightweight, long battery capacity with improved serviceability.
- Leak detection probe option
- CMS Continuous Monitoring System option
- Intelligent, real time moisture/dewpoint graph



For more information or a demonstration contact **sales@emt.global** or visit **www.emt.global**

Zerowaste Rapide+ Ultrafast SF6 Analyser

Technical Specification

FS1: Full Scale (of Measuring Range)

Gases Measured and Options	**Gas**	**Range**	**Repeatability**
	SF6 Purity	60-100%	+/-0.5% FS[1]
	Dewpoint	-60 - 20ºC	+/-0.5ºC at -30ºC
	HF	0-200ppm	+/-5% FS[1]
	SO2 Hi	0-500ppm	+/-2% FS[1]
	CF4 Lo	0-4000ppm	+/-2% FS[1]
	CF4 Hi	0-60%	+/-1% FS[1]
	CO	0-1000ppm	+/-5% FS[1]
	H2S	0-100ppm	+/-5% FS[1]
	R12	0-250ppm	3% of FS[1]
	AIR	0-50%	1% of FS[1]

Hose Purge Option	Pre-sample hose purge to remove latent moisture in sample hose for more accurate H2O measurements
Leak Detection Probe Option	Detection limit 3gm/year
CMS Continuous Monitoring System Option	Continuous 24/7 analysis capability for long term asset conditioning

Battery	**Operating Time**	>10 hours
	Power Supply	100-240V - 50/60Hz
Operating Environmental Conditions	**Temperature Range**	-20ºC to +50ºC (-4°F to +122°F)
	Humidity	0-95%RH non-condensing
Physical Specifications	**Weight**	17kg (37.5lbs)
	Maximum Dimensions	L500 x W300 x D470 mm (19.11" x 12" x 18.5")
SF6 Leak Detection	**Detection Limit**	3 gm/year
	Technology	NDIR
Screen	7" Full Colour Touchscreen	
Standard Gas Inlet Pressure	0.1 to 10 Bar (1.4 to 145 PSI)	
Optional Pressure Capability	0.1 to 12 Bar	
	1.4 to 174 PSI	

Datalogging	**Type**	Exportable as CSV file
	Capacity	1000 results

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Moisture Pro Portable Dew Point Meter

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Experts in ultrafast SF6 gas analysis and handling

Accurate & smart survey meter for fast, reliable and accurate moisture determination in dry air, SF6 or alternative gas assets.

High moisture levels in dry air, SF6 or alternative gas assets such as switchgear or breakers can lead to reduced asset life or potential catastrophic failure of the system.

The EMT Moisture Pro enables engineers to perform fast and accurate moisture surveys, to determine if further more detailed gas analysis is required.

An inbuilt pressure sensor also provides extra functionality for engineers to reference check their integrated analogue pressure gauges.

With smart features such as inbuilt 5MP camera, Bluetooth and predictive dew point analysis, the EMT Moisture Pro provides engineers with enhanced capability and efficiency.

Features

- **Portability –** Lightweight, hand held instrument for greater access & flexibility
- **Sensitivity –** Accurate measurements to -100°C Dewpoint (1ppmV)
- **Flexibility -** 8 hours continuous on one charge
- **Ease of Use -** Intuitive, easy to use touch screen operation
- **Smart Features:**
  - Predictive Dew Point
  - Integrated 5Mpxl Camera
  - Bluetooth Enabled
- **Additional Measurements –** integrated pressure & temperature sensors
- **Enhanced Data Logger –** records test result, operator notes and photos of test points from inbuilt camera

Benefits

+ Measure Dew point, temperature and pressure on one device to save time on site
+ Integrated camera to add visual records to your reporting process
+ Predictive dew point analysis feature reduces time to final result increasing efficiency
+ Hand held, light weight design increases flexibility and ergonomics whilst working
+ Large 3.5" backlit colour touch screen with intuitive presentation ensures ease of use

Option: wireless printer used to print the measurement results on site. Perfect solution for quick audits.

For more information or a demonstration contact **sales@emt.global** or visit **www.emt.global**

Moisture Pro Portable Dew Point Meter

Technical Specification

Measuring Range	**Standard:** -100 ... +20 °C Td
	Pressure*: 0 ... 1.5 MPa(g)
	Temperature: -30 ... +50 °C, -22 to 122°F
Dew Point Sensor	QCM + Polymer
Temperature Sensor	Pt100
Pressure Sensor	Piezo resistive type
Accuracy	**Dew point:** +/- 1 °C Td (0 ... 20 °C Td) +/- 2 °C Td (-60 ... 0 °C Td / +20 ... +50 °C Td) +/- 3 °C Td (-100 ... -60 °C Td)
	Temperature: +/- 0.3 °C
	Pressure: 0.5 % FS
Measured units (selectable)	°C Td • g/m³ • mg/m³ • g/m³atm (@zero pressure) • mg/m³atm (@zero pressure) • ppmv • g/kg (@ reference pressure) • °C Tdatm (@ zero pressure) • % RH
Operating Pressure	-1 to 15 Bar (g), -14 to 217psi
Measured gas (Medium)	SF6, Air, CO2 and N2

Operating Parameters	**Medium Temperature:** -30 ... +70 °C / **Ambient Temperature:** 0 ... +40 °C / **Ambient Humidity:** 0 ... 80 % rH
Transport & Storage	**Transport Temperature:** -30 ... +70 °C **Storage Temperature:** -20 ... +50 °C
Weight	3 kg (7lb) (complete set in transport case)
Process Connection	G1/2" for direct sensor connection, Measuring chamber with R21 quick coupling
Battery	**Operating time on one charge:** ~8 h / **Charging time until full:** ~3 h
Interface	USB-C (charging and data transfer), wireless printer
Display	3.5" color LCD Touch screen
Camera	Integrated 5.0 Megapixel
Logger	Integrated mass storage for 100 Million values

*at least 0.3 MPA is needed for the measuring chamber supplied with the instrument. For low pressure measurements below 0.3 MPa please choose the by-pass measuring chamber.

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SF6 Verify Gases

Experts in ultrafast SF6 gas analysis and handling

The EMT Verify range of precision SF6 gas verification products set the industry benchmark in quality and stability for proving your SF6 analysis results

Regular analysis of gas purity within SF6 assets provides utilities with an understanding of the health of the asset; therefore, it is critical the results are accurate and reliable.

EMT Verify Gases offer complete peace of mind by ensuring the results generated from gas analysers are accurate and reliable.

Suitable for use with any brand of SF6 gas analyser, the EMT verify range of gas standards are produced to NIST traceable standards and provided with NIST traceable certificates of analysis.

Provided in an easy-to-use kit format, the EMT Verify range of gases allows in the field performance testing of your analyser to verify it is working to specification.

Simple to use, efficient and confidence generating, the EMT Verify gas kit is an essential accessory for any SF6 gas analyser.

emt
asset protection specialists

Energy Maintenance Technologies Ltd
Unit A6a Barton Industrial Estate
Barton le Clay
Bedfordshire MK45 4RP
Tel: +44 7976 900214
Tel: +44 7976 927262
www.emt-uk.com

CERTIFICATE OF ANALYSIS

Date: July 31, 2015
Order Number:
Lot Number:

Customer: Energy Maintenance Technologies Ltd
Use Before: 10/31/2016

Component	Specification (+/- 10%)	Analytical Result (+/- 2%)
Sulfur Dioxide	75 PPM	77 PPM
Nitrogen	Balance	Balance

Cylinder Size: 2.0 Cu. Ft.
Contents: 58 Liter

Valve: 5/8" -18UNF
Pressure: 500 psig

NIST Weight Certificate Number(s): 240756-1

The calibration gas prepared by EMT is considered a certified standard. It is prepared by gravimetric or partial pressure techniques. The calibration standard provided is certified against EMT's G.M.I.S. (Gas Manufacturer's Intermediate Standard) which is either prepared by weights traceable to the National Institute of Standards and Technology (NIST) or by using NIST Standard Reference Materials where available.

TECHNICAL RECOMMENDATIONS
For best results, use the following procedure when using Reactive Gas Mixtures and always use the shortest length possible of Teflon Tubing between the Cylinder Regulator Hose Barb and the Gas Detection Instrument. Turn the regulator on before connection is made with the cylinder, allowing any trapped air to be purged from the regulator. Be sure to turn the regulator off as soon as sufficient flow has been established. Always ensure delivery tubing is compatible with the Gas. Do not store this cylinder with the regulator installed due to possible leakage or long-term reaction with internal components of the regulator. Follow instrument manufacturer's instruction manual.

Analyst:

The EMT Verify gas starter kit comprises of:

- 1x SF6 Verify gas cylinder
- 1x H2O Verify gas cylinder
- 1x SO2 Verify gas cylinder
- 1x Cylinder regulator
- 1x Soft carry case

For more information or a demonstration contact
sales@emt.global or visit **www.emt.global**

EMT SF6 Verify Gases

Technical Specification

Cylinder Specification	58Ltr non-refillable aluminium cylinder with 5/8" -18UNF (C10) connection Dimensions: 10.8cm dia x 36.2cm tall (4.25" x 14.25") Weight: 1Kg (2.2lb) (116Ltr cylinder available on request)
SF6 Specification	Concentration: 99.9% Vol Accuracy: +/- 1% Gas certification period: 5 Years
H20 Specification	Concentration: 200ppm Accuracy: +/- 2% Gas certification period: 5 Years
SO2 Specification	Concentration: 75ppm Accuracy: +/-2% Gas certification period: 3 Years

EMT Verify works with:

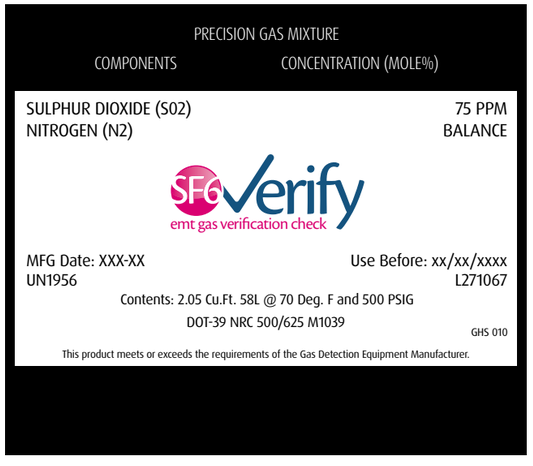
asserolyz-IR SF6 Analyser

IR zerowaste SF6 Analyser

Zerowaste Rapide+

EMT Verify products are compatible with all leading SF6 Analyser brands

We use the highest quality cylinders in the industry, which meet and exceed all customer criteria and appropriate regulatory authority standards.



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Smartfill MFU SF6 Filling and Topping Up System

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Experts in ultrafast SF6 gas analysis and handling

Smartfill MFU expertly and accurately measures, controls and monitors SF6 gas during filling and topping up of SF6 compartments.

The filling up and topping of SF6 compartments can use large volumes of gas over an extended time period creating potential issues such as:

- Safety of people
- Time and resource
- Line freezing
- Repeatability of filling quality/human error
- Arc flashover
- Cost and downtime

The Smartfill MFU addresses and solves these issues by utilizing a range of market leading features.

Using mass flow technology, the Smartfill MFU is able to provide controlled and accurate filling or topping up of compartments.

With datalogging technology, the Smartfill MFU addresses the fundamental requirements of the T&D market to record how much SF6 has been transferred into compartments giving an understanding of SF6 inventory in the network.

Features

- Portable and fully automated operation
- Easy to use
- Simple operation via set parameters
- Accurate filling precision utilising mass flow technology
- No leakage.... No wastage
- Automatic datalogging for usage transparency and audit
- Smartweigh option for integrated weighing scales
- Wifi connectivity for safe distance/ remote operation
- Variable flow rates for application specific control

For more information or a demonstration contact **sales@emt.global** or visit **www.emt.global**

Smartfill MFU SF6 Filling & Topping up System

Technical Specification

Operation	High flow rate up to 50 Kg/hr – Filling
	Low flow rate up to 15 Kg/hr – Topping Up
Accuracy	MFC 1% of FS
	Pressure sensors 0.5 % FS
	Max inlet pressure : 10 Barg
	Min inlet pressure : 2 Barg
Control	Simply press "Go" and Smartfill carries out its filling and topping up protocols with complete automation and precision

Safety	Emergency stop – auto shut down
Hoses	Stainless Steel braided hoses with Swagelok gas secure fitting
Certifications	Leak test certificate (He leak test 10^{-4} SCCS)v
	Calibration certificate Pressure sensors + MFC
	Pressure test certificate (10 Barg)
Power Supply	AC power 110/230VAC 50/60Hz
	Battery – 5hrs

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EMT Digital Pressure Gauge Range

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Experts in ultrafast SF6 gas analysis and handling

The EMT Digital Pressure Gauge series offers 0.25% of span accuracy, while the laser welded stainless steel sensor and socket make this product suitable for use with a wide variety of pressure media in demanding industrial applications.

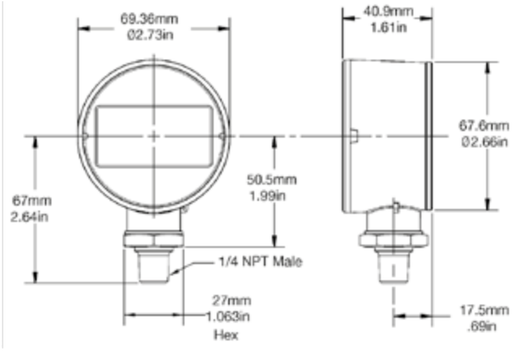
The EMT Digital Pressure Gauge (DPG) is a must for any engineers' tool box. Suitable for any SF6 installation, the EMT DPG provides accurate and repeatable pressure measurements and is the perfect reference measurement when checking pre-existing analogue pressure gauges, which may have been in-situ for many years un-calibrated. The EMT DPG can also be used as a 3rd party reference during the filling and top-up process of SF6 assets, to ensure the system is filled to the correct pressure.

IP67 ingress protection rating means the EMT Digital Pressure Gauge is suitable for hose directed water spray such as equipment wash down. Nine pre-programmed engineering units of measurement to read pressure in units applicable to the process or familiar to the technician using the gauge.

The EMT Digital Pressure Gauge comes standard with many features such as: tare, min and max memory, programmable custom engineering units, and pressure ranges from -1 to 1600 bar.

Features

- 0.25 % terminal point accuracy
- 5 Digit LCD display with new large 12 mm character size
- New Bar Graph Display (20 segment)
- Nine engineering units of measure plus one user programmable unit
- Capable of measuring gauge, vacuum and compound ranges from and –1 bar through 1600 bar
- IP67 weatherproof enclosure
- CE compliant, RoHs compliant, UL 61010-1(approval pending)
- The versatile and economical choice for a wide variety of applications



For more information or a demonstration contact
sales@emt.global or visit **www.emt.global**

EMT Digital Pressure Gauge Range

Technical Specification

Accuracy	F.S. standard, 0.25 %
Display	LCD
Backlight	Optional
Engineering Units	psi, bar, inHg, cmHg, mmHg, kPa, MPa, kg/cm2, ftH2O and customer defined unit
Ranges	–1 to 1600 bar, gauge, vacuum and compound ranges available
Enclosure Material	Case & Back: Polycarbonate/ABS
Window	Polycarbonate Enclosure
Rating	IP67 Protective
Boot	Black

Size	70 mm dia., 41 mm deep, 67 mm centerline to end of ¼ NPT thread
Connection	1/4 NPT to QC8F Quick Connect. Other options on request.
Battery	Two AA alkaline batteries
Battery Life	2000 hours minimum Battery Life (dependant on battery quality)
Operating Temp	-20 °C to 60 °C, (-4 °F to 140 °F) ambient temperature
Storage Temp	**Batteries installed:** -20 °C to 60 °C, (-4 °F to 140 °F) **Batteries removed:** -20 °C to 80 °C, (-4 °F to 176 °F)
Functions	3 Key available with multi press functionality
Agency Approvals	CE (heavy industrial), ASME B40.7

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SF6 Gas Cylinder Heater Blanket

The EMT SF6 gas cylinder heater blanket range solves the issue of unused SF6 gas left in cylinders; reducing wastage and costs.

The issue of residual SF6 gas left inside gas cylinders poses a variety of problems for the electrical industry:

- Reduced cylinder pressure when topping up compartments means additional cylinders are used
- Additional costs associated with greater SF6 cylinder usage and stock holding
- Residual SF6 gas is costly to send to waste processing or to consolidate

The EMT range of cylinder heater blankets solves these issues.

Utilising Formula 1 racing technology, the EMT heater blanket heats the cylinder causing residual SF6 to evaporate.

The controlled heating process increases pressure in the cylinder, enabling greater gas recovery and efficiency of the cylinder.

Over multiple maintenance tasks, this increased efficiency amounts to considerable savings when compared to the cost of buying additional gas cylinders

Features

- Utilises advanced Formula 1 racing technology
- Durable and weather resistant for extended periods in the field
- Mildew, mold & fire resistant
- Available in standard or custom sizes
- Weatherproof digital display temperature control system
- Displays in Celsius or Fahrenheit
- Insulated for greater efficiency
- Blanket restraints in Velcro or optional nylon & quick release buckles
- Digital set points with security lockout capability
- Meets NEC427.23 & CE73/23/EEC standards

For more information or a demonstration contact **sales@emt.global** or visit **www.emt.global**

SF6 Gas Cylinder Heater Blanket

Technical Specification

Standard Sizes	17.7cm dia x 45.7cm tall (7" x 18"), 300 Watts, suitable for 13.1Kg (10Ltr) SF6 cylinders
Additional Sizes	20.3cm dia x 116.8cm tall (8" x 46"), 700 Watts, suitable for 63Kg (47Ltr) SF6 cylinders
Construction Materials	Additional custom sizes available on request
Power Supply	Dupont Cordura exterior, Urethane lined for water & tear resistance.
Power	120v or 220V 50/60Hz operation via 3m (10ft) rubber insulated cable. Plug type to be specified by client
Heating Capability	300 or 700 Watts Standard (custom power options available)
Enclosure Rating	Ambient to 50°C (122°F) (custom heating options available)
Optional Accessories	NEMA 4X (equivalent to IP65)

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Smartfill CTU SF6 Leak Management System

emt
Experts in ultrafast SF6 gas analysis and handling

Smartfill CTU is a unique SF6 “live top up” device designed for managing SF6 leaks to ensure critical assets remain operational.

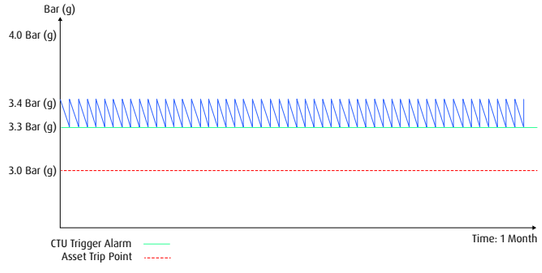
SF6 leak management presents an ongoing, complex issue for utilities globally.

Availability of skilled engineers, travel, training and increased gas usage results in higher secondary costs to the utility.

The goal is to ensure assets never fail and to keep the network operational, whilst keeping logistics and costs to a minimum.

The EMT Smartfill CTU achieves this goal via intelligently managed automated top-ups.

The Smartfill CTU is attached to the asset and manages the gas pressure within a small pressure range (e.g., 3.3 to 3.4 Bar).



The unit will “auto top-up” when pre-set lower limit pressure levels are reached, ensuring the asset never reaches the asset trip/alarm point.

Features

- 24/7 leak management system - no down time
- Reduces SF6 usage, costs and inventory
- Intelligent control system doses gas as required
- SMS capability alerts operators to low gas, issues with the unit, on/off time, and daily “heartbeat” update
- Portable, easy to use and fully automated operation
- Accurate top-ups utilising mass flow controller technology
- Automatic datalogging for usage transparency and audit
- Wi-Fi connectivity for safe distance/ remote operation

For more information or a demonstration contact
sales@emt.global or visit **www.emt.global**

Smartfill CTU SF6 Leak Management System

Technical Specification

Operation	Max flow rate: 18kg/hr
	Maximum outlet pressure: 10 Bar
	System activation limit: 0.1 Bar
Accuracy	MFC 1% of FS
	Pressure sensors 0.5% FS
	Max inlet pressure: 10 Barg
	Min inlet pressure: 2 Barg
Remote Control	Remote “take over” capability using in built VNC connection
	SMS option for daily top-up updates, system warnings, pressure issues and on/off status
Safety	“Traffic light” indicator to advise when filling up or safe to approach
	Safety pressure relief valve
Hoses	2x 6m Swagelok valved Stainless Steel braided hoses

Certifications	Leak test certificate (He leak test 10 -4 SCS)
	Calibration certificate pressure sensors)+ MFC
	Pressure test certificate (10 Barg)
Power Supply	AC power 110/230VAC 50/60Hz
	Backup battery, 1h
Enclosure/ Case	IP65 rated Peli-case
	Weight: 23kg
	Dimensions: 60cm x 49cm x 27cm

Optional accessory kit includes

- 30m (2x15m) IP67 power cable
- Smartfill CTU all weather pouch
- Space for CTU hoses, traffic light, temperature sensor and weighing scales

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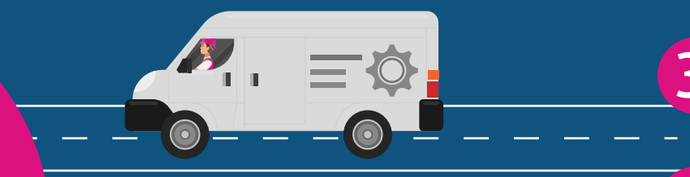
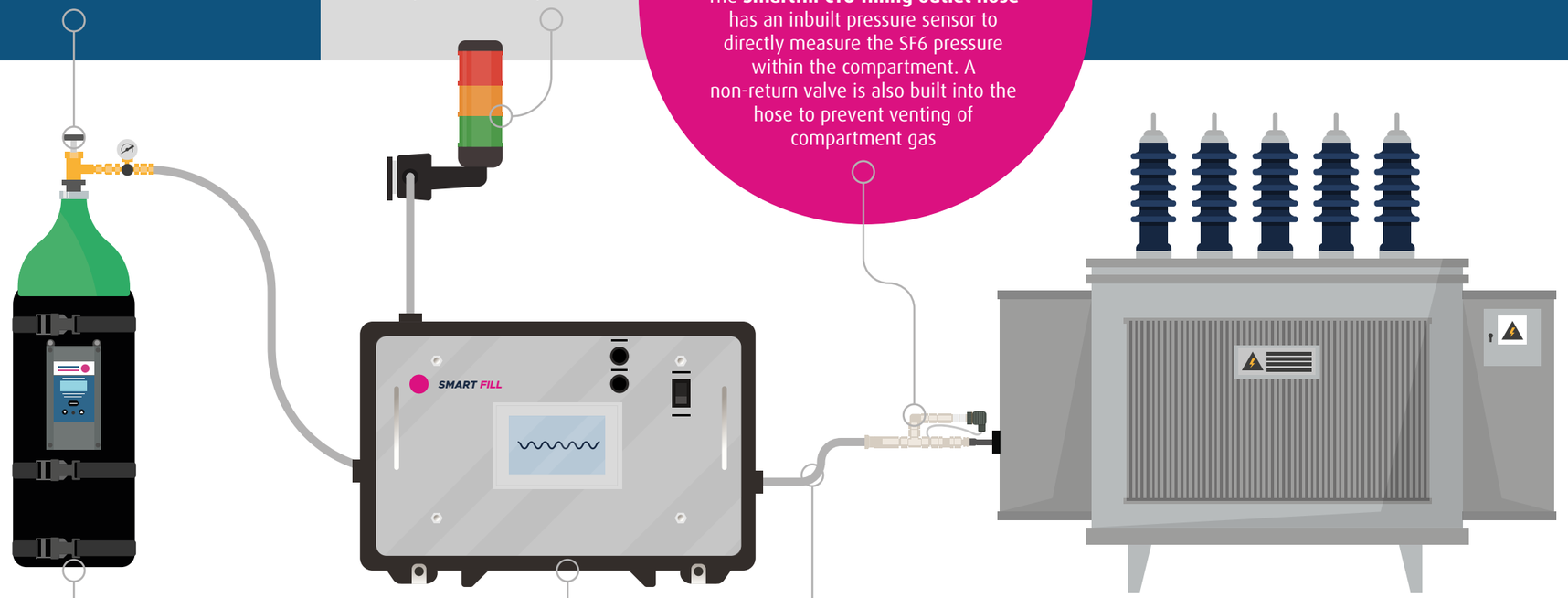
The EMT Smartfill CTU can **connect to any standard SF6 gas cylinder** utilising quick connect adaptors

The CTU comes with a **traffic light style alert beacon** designed to give a visual understanding of the processes occurring in the CTU; Green: CTU is on standby awaiting a top-up requirement, Amber: CTU is performing a top-up process, Red: CTU has an issue and has stopped operations safely.

The Smartfill CTU has an **optional comms pack for alerting remote engineers to what's happening onsite with the system**, such as top-ups being performed, low cylinder pressure or power failures; reducing engineer interaction time and saving costs associated with engineers and travelling to site.

The **Smartfill CTU filling outlet hose** has an inbuilt pressure sensor to directly measure the SF6 pressure within the compartment. A non-return valve is also built into the hose to prevent venting of compartment gas





1. Connect

Connect the CTU to an SF6 gas cylinder and to the leaking compartment

2. Setup

Set a target minimum pressure for the Smartfill CTU to maintain, i.e. 1 Bar (15PSI) above the compartment alarm point

3. Start

Press start to activate the system

4. Monitor

The CTU enters monitoring mode, continuously measuring the pressure in the gas compartment to ensure it is above the pre-set gas limit

5. Critical Pressure

As the compartment continues to leak over time, eventually the gas pressure will reach the pre-set CTU pressure limit

6. Activation & Top-Up

The Smartfill CTU detects the pressure has reduced sufficiently to reach the lower pressure limit, the system activates, delivering SF6 from the cylinder into the gas compartment

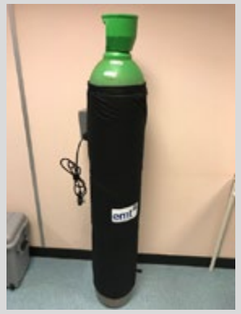
7. Pressure Stabilised

The CTU detects that the gas pressure in the compartment has reached the ideal pressure limit and deactivates; ensuring the asset being topped up has not failed

8. Monitor

The CTU returns to monitoring mode measuring and awaiting a decrease in pressure to activate again

Optional cylinder heater blanket ensures maximum extraction of SF6 gas from the cylinder reducing residual gas remaining in the cylinder and waste.



The **EMT Smartfill CTU** is designed to manage leaks from SF6 compartments to ensure critical assets remain operational at all times. Easy to use, robust and weatherproof, the Smartfill CTU is built to survive harsh environments for extended periods of time.

The Smartfill CTU is supplied with **stainless steel braided hoses** to prevent punctures or damage to hoses during operation.

Smartfill Advanced Accessory Kits

Experts in ultrafast SF6 gas analysis and handling

The EMT Smartfill advanced accessory kit is designed to ensure engineers always have the equipment they need to perform a fill, top-up or continuous top up of an SF6 compartment.

The EMT Smartfill kits are designed to house all the standard supplied MFU/CTU accessories in one place and protect them from damage whilst in transit. Space is included in the kit for the following items which are standard or optional for the Smartfill range:

- Space to accommodate the Smartfill status indicator (traffic light)
- Space to accommodate the Smartfill temperature compensation probe
- Space to accommodate the Smartfill Smartweigh cylinder weighing scales

Following customer feedback, EMT have also added the following items to the kits:

- **15m/30m Power Extension Cable** (MFU & CTU Kit)A marine grade toughened power cable has been added to the kit as some sites struggle to have mains power close to the SF6 compartment. The cable, produced in bright orange to avoid trips or snags, is supplied in two halves allowing it to be run as a 15m or a 30m cable.
- **Heavy Duty All Weather Pouch** Whilst the EMT Smartfill CTU is designed to be waterproof and rugged to protect from environmental conditions, many clients have requested a cover pouch. This pouch provides additional protection for the Smartfill CTU from exceptional weather conditions such as snow or extreme heat; it is also good for locations close to the coast where salty air could cause degradation. Produced in electric blue and from hard wearing material, the EMT Smartfill CTU pouch offers extra protection and visibility of the unit on site, whilst unaffecting performance or access to the instrument.

For more information or a demonstration contact
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Smartfill Advanced Accessory Kits

What's Inside

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EMT SF6 Universal Fittings Kit

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Experts in ultrafast SF6 gas analysis and handling

Handling SF6 securely and efficiently is essential to maintaining its condition for operational use and testing, and to ensuring the safety of maintenance personnel.

Degradation of SF6 is commonly caused by contaminants through leaking hardware or connections, so having the right SF6 fittings will not only increase maintenance efficiencies but also minimise downtime during SF6 gas filling and testing.

To assist maintenance personnel, EMT have developed an SF6 Universal Fittings Kit, which supports productivity and efficiency, whilst promoting best practice and quality when working with SF6. The EMT Fittings Kit provides a simple and cost effective alternative to managing a large inventory of multiple kits and excess fittings.

Secured in a pre-engineered, protective case for ease of handling, use and storage, the toolbox contains a range of fittings, regulators, hoses, and tools including; two high quality spanners, a selection of cleaning brushes, PTFE sealing tape, 100% Acetone degreasing wipes, and a pouch for storage of sampling hoses in the kit lid.

Supplied as standard with stainless steel fittings which connect to various manufacturers' breakers including ABB, Siemens, Alstom and GE, the toolbox facilitates a pick 'n' mix of additional/custom fittings and connections, which can be purchased from EMT's extensive range of fittings, regulators and hoses – kits are designed to be flexible to meet current and future industry needs.

For more information or a demonstration contact
sales@emt.global or visit **www.emt.global**

Fittings

EMT work on the principle that if you use our equipment we want to ensure you get the best quality measurements every time. Reliable and robust, our extensive range of stainless steel and brass SF6 fittings are the benchmark in safety, efficiency and performance for SF6 gas filling and testing. EMT offer the best connections in the industry and the right fit for any gas compartment. Contact us with your fitting requirements - custom fittings and connections available on request.

Regulators

EMT offer high purity regulators for SF6 gas applications, meeting gas service and delivery pressure requirements for routine switchgear maintenance. Our range of diaphragm cylinder regulators deliver safety and performance during SF6 gas filling and testing, for reliable, leak-free monitoring and control, and contaminant-free gas transmission every time.

Hoses

EMT hoses guarantee pressure-tight, leak-tight filling and evacuation of SF6 gas compartments. Fitted with self-sealing valves and couplings, our range of hoses ensure the safe handling and operation of SF6 gas.

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Handheld SF6 Leak Detector

Experts in ultrafast SF6 gas analysis and handling

The EMT Handheld SF6 leak detector utilises innovative infra-red measurement technology enabling detection of the smallest SF6 leaks

The leakage of SF6 gases from GIS, switchgear and other compartments is a global issue.

SF6 Gas Leaks present a major problem to utility companies:

- Reducing plant efficiency, causing damage to assets or outages
- Costing money through fines or legislative punishments

The EMT handheld SF6 leak detector allows quick and reliable identification of SF6 leaks enabling utilities to:

- Reduce the rate of SF6 loss
- Comply to regulations
- Reduce costs associated with gas usage and topping up
- Reduce costs associated with regulatory body fines
- Reduce the utilities CO2 footprint.

Features

- Lightweight and portable for ease of use
- Utilises IR technology for gas specific leak detection
- IR sensor ensures sensitivity will not degrade over time
- Market leading 1000hr sensor life for low cost of ownership
- High-efficiency air sampling pump provides quick response and quick clearing (“zeroing”)
- Infrared cell cannot be overloaded or “poisoned” by exposure to large amounts of SF6
- On-board diagnostics indicate charging status and warn of low battery or infrared cell failure

For more information or a demonstration contact **sales@emt.global** or visit **www.emt.global**

Handheld SF6 Leak Detector

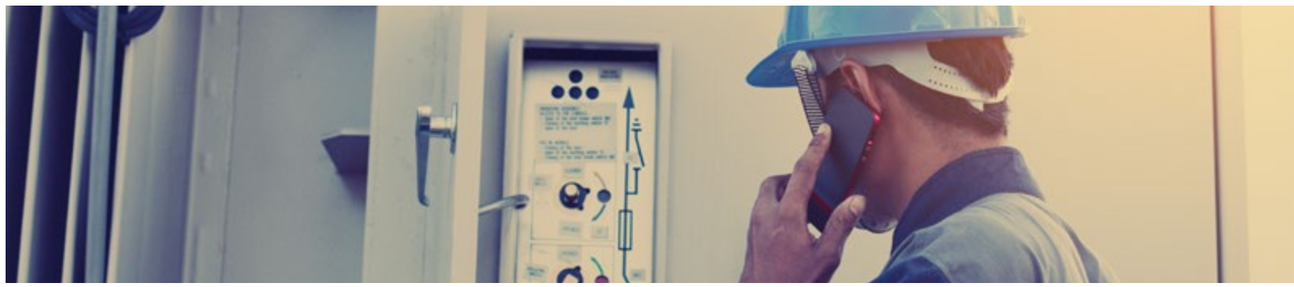
Technical Specification

Minimum sensitivity to SF6	3g/Yr (0.1 oz/yr)
Power Source	NiMH batteries (rechargeable), Can operate whilst charging
Battery Life	6.5hrs
Operating & charging temperature range*	0ºC to +50ºC (+32ºF to 122ºF)
Operating humidity range	Up to 95% RH (Non-condensing)
Weight (with batteries)	0.53Kg (1.19lb)
Probe length	38cm (5 inches)
Certifications	CE & EMC Certification, SAEJ2791, SAEJ2913, EN14624:2012, A2L certified
Optional accessories	Headphones, Premium headphones

* May be operated for a limited time in lower temperature environments

The EMT handheld SF6 leak detector is supplied in kit format which includes:

- Handheld SF6 Leak Detector
- Multi-region AC Power Supply
- Pk of 5 spare filters
- 12V DC In-car charger
- Robust plastic carrying case



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EMT GasSafe Gas Leak Detection System

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Experts in ultrafast SF6 gas analysis and handling

Early warning in the event of gas leaks or an unsafe working environment, ensuring personnel safety and asset protection.

The EMT GasSafe Fixed Leak Detection system offers a comprehensive and feature packed solution to monitoring real time gas leaks from electrical equipment or potential other unsafe gaseous emissions.

With a selection of control panels to fit needs and budget, coupled with sensors for over 400 gases and vapours, the GasSafe system provides peace of mind to personnel and asset managers that operations are conducted safely and issues are identified early.

Utilising a ground breaking intelligent addressable system with smart sensor technology, significant costs savings and efficiencies are gained during the installation, ongoing maintenance, calibration and upgrades of the system.

Industry leading SF6 sensor technology, as utilised in our SF6 purity analysers, provide the solution to F-Gas requirements for SF6 leak detection; reducing operator requirements of a regular leak detection routine.

Features

- **Application Specific:** Ideal for traditional SF6 and new SF6 alternative gas installations.
- **Comprehensive Measurement Capability:** Measurement of over 400 different gases & vapours from ppm to %Vol.
- **Flexibility:** Easily add or remove sensors and accessories as your system needs grow with up to 128 detectors on a single control panel.
- **Easy & Cost Effective Installation:** 2 core cable used for power and comms reduces connections and is faster to install.
- **Simple Servicing & Maintenance:** Onsite service & calibration solutions are provided by EMT; or utilise our "CBP" programme hot swappable sensor option, reducing downtime and engineer deployment.
- **Superior Integration & Communication Capabilities:** A variety of integration technologies allows the system to communicate with site management systems or utilise the cloud for remote control.
- **F-Gas Compliance:** Provides an intelligent and comprehensive solution to your SF6 F-Gas leak detection requirements.

For more information or a demonstration contact
sales@emt.global or visit **www.emt.global**

Control Panels

The EMT GasSafe fixed system has the option of two control panels, the Standard and the Pro. For smaller installations with up to 32 sensors the standard panel has all the features of the Pro but at a lower cost point.

Simple Installation

The EMT GasSafe system installed with one single 2-core cable with no required terminal polarity and connects all system devices.

Auto Find, Auto Configure and Auto Update process combined with the ability to download diagnostic and setup reports from the panel gives peace of mind the system is operating correctly and protecting your personnel and assets.

Calibration By Post (CBP) Program

The EMT GasSafe range of intelligent sensors are hot swappable in the field with the control panels updating as new sensors are installed.

The EMT CBP Program ensures minimum downtime associated with sensor failures or calibration requirements.

Signing up to the CBP program ensures that fresh calibrated sensors arrive to your facility prior to the calibration dates of your installed sensors. A quick and easy swap over of sensor ensures your system remains in calibration and the old sensors are shipped back to EMT.

Intelligent Sensors

The EMT GasSafe range of intelligent sensors provide detection for over 400 gases and vapours. Simple 2 core cable installation for power and comms with integrated I/O capability ensures the sensors are easy to install and flexible for any future demands.

Electricity T&D Specific Sensors

The EMT GasSafe intelligent sensors are available for 00's of gases, but for the Electricity T&D industry we have specific sensors:

Sensors for SF6 Installations:
SF6, SO2, HF, H2S, CO

Sensors for Eco/Alternative Gas/ Dry air Installations: CO2, CO, O2

Data, Trending and Asset Health Analysis

The EMT GasSafe system has the option of on-board datalogging, data export via modbus type comms or via GSM comms to the cloud.

By collating and analysing the gas measurements trends, an insight can be made into KPIs such as leak size, number of sites with leaks, typical asset health or other measurement parameters which can be built into the reporting package.

This gives asset and portfolio managers a better insight into what's happening on individual sites or across your whole geographic asset base.

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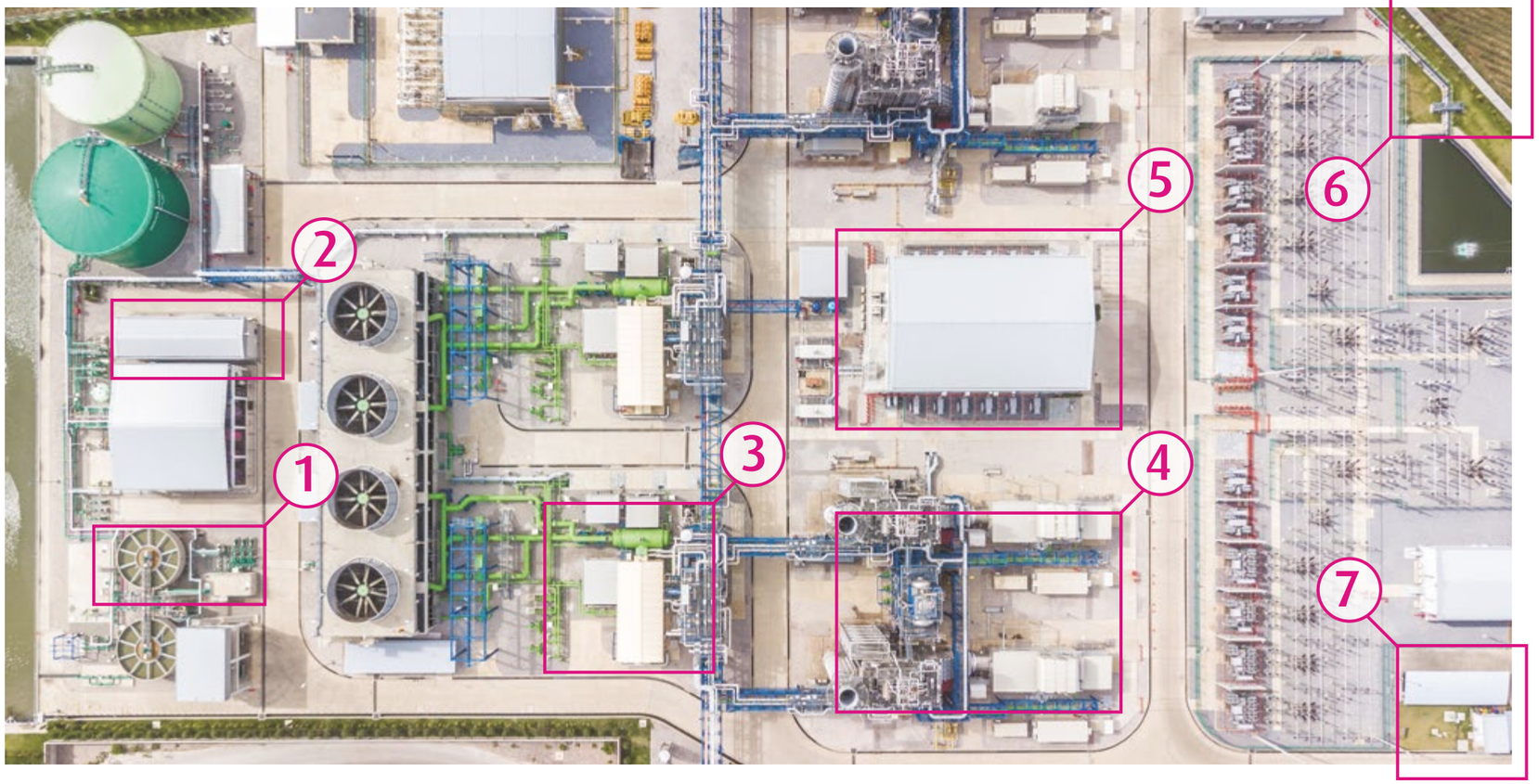
Applications and Features

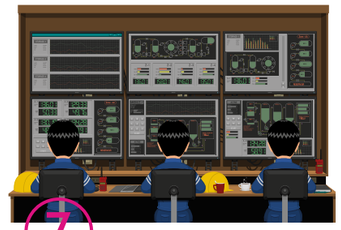
1

Gas Cylinder Storage

Leaking gas from cylinders and associated regulators or fittings presents a risk to personnel.

Installing a fixed leak detection system in these areas will pre-warn personnel of any dangers before they enter the area.





7

Site Monitoring & Response

The EMT GasSafe fixed system allows for measurement readings and alarm statuses to be transferred to other locations on site such as security building. This ensures alerts and alarms are never missed and where needed emergency services are contacted immediately.

2

Indoor SF6 Gas Leaks

Leaking gas insulated electrical assets such as GIS and GIL present both an operational issue and a potential safety issue.

Environmental legislation in many countries require detection of SF6 gas leaks in order to alert utilities to enact repairs.

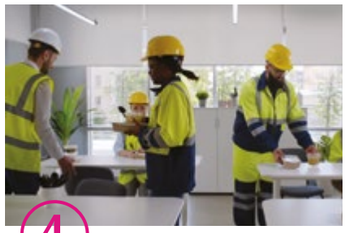
Leaking SF6 and breakdown by-products such as HF are toxic and so present a risk to personnel. Early warning alerts to potentially hazardous areas ensures operators are not exposed.

3

Indoor Eco/SF6 Alternative Gas Leaks

Whilst not posing as greater environmental hazard compared to SF6, new alternative insulating gases and the associated by-products are toxic and so pose a risk to personnel.

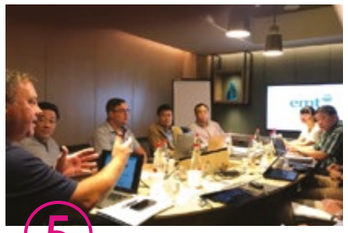
Leaking gases such as CO2, CO or HF are detectable using a fixed leak detection system and alarms generated, providing an early warning alert to potentially hazardous situations.



4

Non-Process Operations

Other non-site process areas such as common rooms or kitchens can also have gas safety risks. Leaking carbon monoxide from a poorly serviced gas boiler, or flammable gases from heaters or cooking areas.



5

Indoor Air Quality & Infection Transmission

Indoor air quality levels play a crucial role in supporting our health and well-being at work. Measurement of CO2 levels in buildings provides a good indication of ventilation efficiency.

Good levels of ventilation helps keep employees alert and productive whilst reducing transmission risk of diseases such as COVID-19.

6

Remote Installation Monitoring

Most utilities have un-manned assets in remote locations or within sensitive locations such as residential areas.

The GasSafe fixed system can be deployed into these remote locations and transmit gas and other parameter (weather, security) readings back to a central monitoring centre.

Using GSM (3G/4G/5G) technology with cloud data collection and reporting, managers can see real time statuses of assets and any alerts. This instant access allows them to manage situations as they arise rather than after the event has occurred.

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Experts in ultrafast SF6
gas analysis and handling

Site Services

Providing a reliable resource and expertise to clients in the utilities sector, **EMT Site Services** use a range of technologies and solutions to deliver key environmental and financial benefits including: asset reliability, long term compliance and performance, maximum up-time and security of critical infrastructure.

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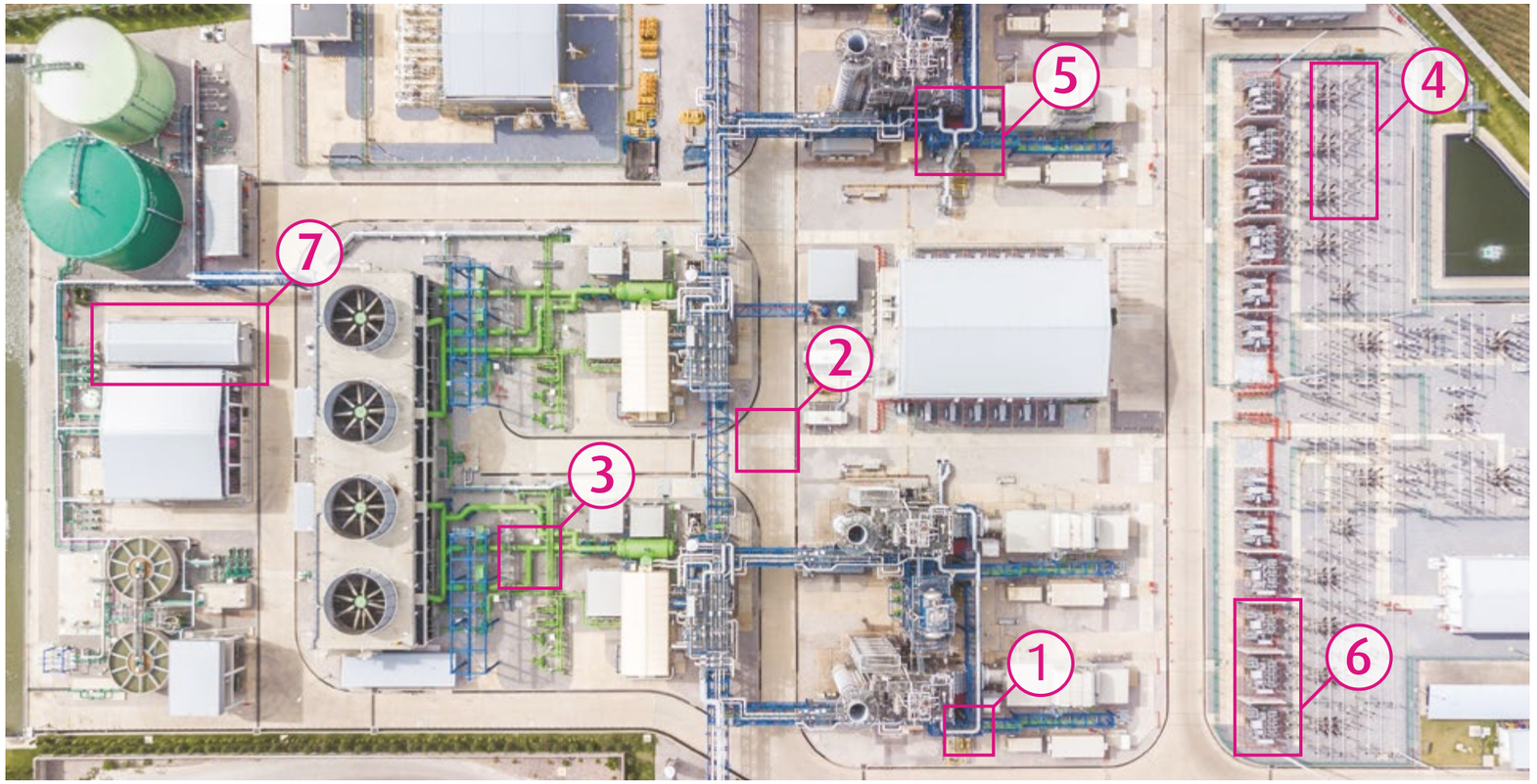
Protective Coatings & Corrosion Control

EMT offer a range of protective coatings specifically designed to prevent or restrict the damaging effects of corrosion on electrical assets. Easily applicable to new or existing assets, EMT coatings can be applied to assets in any state of corrosion and degradation. Using specialist elastomeric polymer based coatings, the EMT solution allows for quick removal of the coating when access is required, simply using a blade – no need for messy grinding or sand blasting.



Equipment Rental

Our Site Services team can provide a range of hire equipment to clients who have urgent or short-term instrumentation requirements, ensuring business continuity where assets must remain operational. We include with all of our rental options on-site or on-line user training, 24/7 technical support and service packages to maintain continuous usage on critical sites.

Leak Surveys

EMT can provide specialist SF6 leak detection surveys on behalf of utility operators. Our Site Services team can be quickly deployed to site, and using our own advanced leak detection systems confirm if a leak is present, identify the location of the leak, and make recommendations for monitoring, management and repair. A full report is generated for a single asset all the way up to a full site wide survey report.

Flange Encapsulation Repairs

The 3X ReflangeKit® encapsulation repair provides a permanent repair, quickly and without downtime. Utilising a patented double shell technique, which ensures the repair is non-invasive, it can be installed under high pressure conditions without the need to degas the asset, providing fast, low cost repairs, with minimal power outages. Whilst designed to be permanent, the ReflangeKit® can be removed in the future should the need arise and causes no damage to shunts, boltheads or flange seals.

EMT Wrap Repair Technology

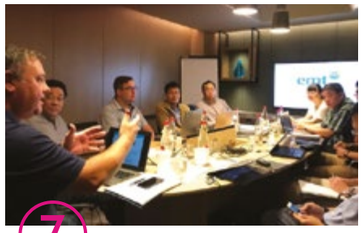
EMT Wrap Repair Technology is an innovative solution for repairs to leaking SF6 assets. Ideal for bushings, porcelain to metal, flanges and small bore piping; the EMT Leak repair wraps provide a secure and long lasting repair solution.

Degassing and Filling Services

Where client resources are stretched, EMT Site Services can provide support and operations on site to help relieve backlogs. With specialist gas carts and filling equipment, EMT Site Services can undertake operations such as gassing/filling assets and also degassing (with purification) of assets prior to remedial or repair works starting.

SF6 Gas Analysis Services

As a manufacturer of gas analysers, EMT can bring this knowledge to the field for clients. After repair operations have been performed, or as part of an on-going preventative maintenance testing regime, EMT technicians can perform gas analysis onsite, providing a full report package on the condition of your insulating gas. With accurate, third party testing results, and a back history of previous tests performed, T&D operators gain a greater insight on the health of assets and any potential issues that may be developing.



Training

EMT can provide a range of standard or tailor made training packages to give technicians and engineers an understanding and practical knowledge of working with SF6 in the field. Utilising EMT's 20+ years' experience working with, and manufacturing equipment for working with SF6, our training packages provide a solid base of knowledge for technicians to work effectively in the field. EMT also offer specific training packages relating to the equipment we manufacturer and supply.

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