Gas Detection - Glossary of Terms

Terminology	Description	Relevance to VESDA ECO
Analogue signal	A variable electrical output generated by a detector typical 4-20 mA. Where 4 mA = 0 on the detectors measuring range and 20 mA = full scale.	VESDA ECO has one 4-20 mA output for each sensor which could be used to integrate to 3rd party systems e.g. a BMS system to operate variable speed fans.
AIT (Auto Ignition temperature)	The minimum temperature at which a explosive gas air mixture will self ignite without any other source of ignition. Measured in degrees C or F.	Applications operating at these temperatures require specialized equipment and approvals. Not suitable for a VESDA based gas detection solution.
Alarm thresholds	The value at which an alarm output forma detector is generated.	VESDA ECO has fully configurable alarm threshold via VESDA VSC.
Baseefa	An approved European Notified Body based in the UK with the authority to certify electrical products designed for use in potentially explosive atmospheres	VESDA ECO is not certified for use in potentially explosive atmospheres.
Bump Testing	The application of a test gas, of a known concentration, on to a gas detector to verify it responds to gas.	VESDA ECO has an integral test gas port for the application of bump test gas.
Catalytic Sensor	A well proven detection principle used for the detection of flammable gases. Used extensively throughout the gas detection industry. This principle is not 'fail safe' and all detectors should be 'bump tested' and or re-calibrated every 6 months to compensate for any loss of sensitivity.	VESDA ECO uses this principle for monitoring flammable gases.
CE	Indicates compliance to all relevant European directives.	VESDA ECO is CE approved for safe areas and complies with the relevant European EMC directive.
Channel	A term often used to describe a fixed point of gas detector and its associated controller.	VESDA ECO can be used without a controller.
Class 1 Div 1 Class 1 Div 2	The classification of an area based on the likelihood of an explosive risk. This system is predominantly used in the US and parts of the Middle East and Far East. See potentially explosive atmospheres.	Equipment used within these areas requires special approvals. VESDA ECO does not have these approvals.
COSHH	A UK HSE regulation: 'Control of Substances Hazardous to Health'.	VESDA ECO alarm thresholds take reference from this regulation.
CSA	Canadian Standards Association, an approved Canadian Notified Body with the authority to certify electrical products designed for use in potentially explosive atmospheres.	VESDA ECO is not certified for use in potentially explosive atmospheres.
Electrochemical Cell	A well proven detection principle used for the detection of toxic gases and used extensively throughout the gas detection industry. This principle is not 'fail safe' and all detectors should be 'bump tested' and or re- calibrated every 6 months to compensate for any loss of sensitivity.	VESDA ECO uses this principle for monitoring toxic gases.

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EMC	Electromagnetic compatibility. A measure of an electrical products ability to withstand electromagnetic interference and the level of electromagnetic radiation it emits.	VESDA ECO has been approved to the relevant European, US and Canadian EMC directives.
Exd Flameproof	One method of protection used for electrical equipment designed for use in potentially explosive atmospheres.	VESDA ECO is not certified for use in potentially explosive atmospheres.
Exi Intrinsically safe	One method of protection used for electrical equipment designed for use in potentially explosive atmospheres.	VESDA ECO is not certified for use in potentially explosive atmospheres.
Explosimeter	A term used to describe a portable flammable gas detector.	VESDA ECO is a fixed /permanent installed gas detection solution.
Fixed point system	A permanently installed gas detection system typically using individual fixed point gas sensors and/or transmitters.	VESDA ECO is a fixed /permanent installed gas detection solution.
Flash Point	The minimum temperature at which a flammable gas / air mixture can be produced from a liquid fuel spillage. Measured in degrees C or F.	Applications with ambient temperatures below the FP offer little or no explosive risk.
FM	Factory Mutual – US Insurance and Certification authority.	VESDA ECO has not been FM approved as this is not a mandatory requirement.
Gas Analyser	A piece of analytical equipment used to measure extremely accurate concentrations of gas used in laboratory experiments or on a process plant to control process parameters.	VESDA ECO is a gas detector designed to detect the escape of a gas and not an analytical instrument. VESDA ECO is suitable for use in laboratories for detecting gas escapes.
Gas Detector	An electrical piece of equipment designed to detect the escape of a gas and send a signal, from which executive actions can be taken.	VESDA ECO is a gas detector.
Gas Monitor	Similar to Gas Detector.	VESDA ECO is a gas detector.
Hazardous area	See potentially explosive atmospheres.	Equipment used within these areas requires special approvals. VESDA ECO does not have these approvals.
IDLH	Immediately Dangerous to Life to Health. The concentration at which health and life will be adversely affected. Measured in parts per million (ppm).	Used to determine the best detection range and relevant alarm threshold. Values can vary between geographical regions.
IEC	The International Electro-technical Committee writes and publishes internationally recognized product design standards.	VESDA ECO has been designed to the relevant IEC standards for electrical safety.
IP rating	Ingress Protection. A measure of an enclosures protection against the ingress of dust and water.	VESDA ECO has been designed for indoor use.
LED	Light Emitting Diode.	VESDA ECO uses colored LEDs to indicate Power, fault, calibration and Alarm conditions.

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LEL	Lower Explosive Level, similar to LFL.	VESDA ECO can monitor a range of combustible gases.
LFL	Lower Flammable Level. The minimum concentration of a flammable gas in the air that will generate an explosion if ignited. Measured in % by volume and expressed as 0-100% LFL /LEL.	Used to calibrate a detector and set suitable alarm thresholds. Values can differ between geographical regions.
LTEL (Long Term Exposure Limit)	The concentration above which health could be impaired if exposed to for 8 hours. Measured in parts per million (ppm).	VESDA ECO can be configured to calculate and monitor these thresholds.
4-20 mA	An analogue electrical signal from a gas sensor where 4 mA = zero gas & 20 mA = full scale. Sub 4 mA levels are often used to indicate fault or calibration mode.	VESDA ECO has a 4-20 mA output for each gas sensor which can be integrated to a higher level 3rd party system to display actual gas concentrations.
mg/m^3 (milligrams per cubic meter)	An alternative unit of measurement for toxic gases.	VESDA ECO uses the more common ppm unit of measure.
Modbus	A serial data protocol used to interface detectors to a higher level 3rd party system.	VESDA ECO can provide a Modbus output.
NIOSH	The US National Institute for Occupational Safety and Health who publish chemical substance hazard data.	VESDA ECO takes reference from NIOSH published data to set alarm thresholds.
OEL (Occupational Exposure Limit)	The 8 hour OEL is the time-weighted average concentration for a normal 8 hour day or 40 hour working week to which most workers may be repeatedly exposed, day after day, without adverse effect.	VESDA ECO alarm thresholds take reference from NIOSH publications.
OSHA	The US Occupational Safety and Health Administration, part of the US Department of Labour.	VESDA ECO recognizes OSHA guidelines.
Peak reading	The maximum gas reading for a specific gas sensor since switch on or the last reset.	VESDA ECO peak reading data can be retrieved from the onboard data logger via VESDA VSC or accessible via a permanently connected VESDA VSM software package.
Perimeter Monitoring	Monitoring the outer perimeter of a plant or storage area as opposed to monitoring specific points or locations.	VESDA ECO is designed for indoor applications and best suited to monitoring smaller geographical areas or specific points or locations.
Pellistor	Another name for a catalytic sensing element.	VESDA ECO uses this principle for detecting flammable gases.
Point detection	A term used to describe a fixed point gas detector.	VESDA ECO can offer a better area of coverage that a point detector when used with a VESDA smoke detection system.
Poison resistant	A special type of Catalytic bead that extends its life in the presence of Sulphur and silicone compounds.	VESDA ECO uses poison resistant, long life catalytic beads.
Potentially explosive atmospheres	Some times referred to as hazardous areas. A classification of an area within a plant, where the potential risk of an explosion has been assessed to be of significance. e.g. Class 1 Div1 / Div 2; Zone 0,1, or 2.	Equipment used within these areas requires special approvals. VESDA ECO does not have these approvals.

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ppm	Parts per million. A unit of measure used for toxic gases.	VESDA ECO measures toxic gases in ppm.
ppb	Parts per billion. A unit of measure used for toxic gases by more sensitive / analytical gas detection equipment.	VESDA ECO is not targeted for use in applications where ppb levels need to be monitored.
Relative Density	The relative density of a gas compared to air. Air has a RD = 1. Gases with a RD <1 are lighter than air. Gases with a RD >1 are heavier than air.	Used to determine detector or sample pipe location. Consideration must also be given to environmental conditions and mechanical ventilation effects.
RH	Relative Humidity.	VESDA ECO is designed to operate In a relative humidity of 10-95% RH non condensing.
STEL	The concentration above which health could be impaired when exposed to for 15 minutes. Measured in parts per million (ppm) Values can vary between geographical regions.	VESDA ECO can be configured to calculate and monitor these thresholds.
TWA	Time-Weighted Average. A value of concentration over time. See STEL & LTEL.	VESDA ECO can be configured to calculate and monitor TWAs.
UEL	Upper Explosive Limit, similar to UFL.	VESDA ECO is designed to detect concentration up to the LFL level only.
UFL	Upper Flammable Limit. The maximum concentration at which an explosive gas / air mixture will generate an explosion if ignited. Measured in % by volume, values can differ between geographical regions.	VESDA ECO is designed to detect concentration up to the LFL level only.
UL	Underwriters Laboratories, A US based product test and approval / certification authority.	VESDA ECO is designed in consideration of any mandatory design standards.
% v/v	% by volume. Another unit of measure for a gas concentration.	VESDA ECO uses this unit of measure when detecting oxygen deficiency.
% VOL	Another way of representing % v/v.	See % v/v above.
Zone 0, 1 or 2 areas	The classification of an area based on the likelihood of an explosive risk. This system is predominantly used in Europe and parts of the Middle East and Far East. See potentially explosive atmospheres.	Equipment used within these areas requires special approvals. VESDA ECO does not have these approvals.