

Syntel

Addressable hazard event monitoring system



A major innovation in gas and flame detection, SYNTEL system integrates gas and flame detectors with third party instrumentation in a secure addressable distributed field network.

Syntel is an addressable system suitable for use in zone 1 and 2 hazardous areas. The complete addressable loop is fault tolerant operating normally with a short or open circuit. Syntel does not have a central processing unit, so there is no common failure point.

Syntel includes an OPC interface, as standard, and can be supplied with Modbus too, allowing easy integration with third party systems.

Syntel stores alarm and calibration information in distributed non-volatile memory, there is no reliance on a centralised system.

Syntel is ideal for installations where there is the possibility for future expansion. The system architecture allows very low cost expansion as cable runs to a central location are not needed.

Features & Benefits		4
No central processing unit	No common failure point	 Oil refinery Chemical and petrochemi Offshore LNG & LPG storage Power stations
Addressable flame, gas and third party instrumentation	Distributed intelligence in zoned areas	
Fault tolerant	Fully functional with one open or short circuit	
Simple system configuration	Reduced engineering and installation cost	
Flexible system design	Easy expansion with minimal costs	
User friendly, client specific interface	Ease of use to client requirement	

Application

ical industry



Syntel integrates a wide range of hazardous area devices on a secure, fault tolerant addressable network. Standard and client specific HMI 's are available along with communication interfaces to third party systems.

Syntel, a distributed intelligent network

The system communicates without a bus master. Each device transmits and receives bi-directional data, without a centralised processor. Each SYNTEL device is intelligent and has built-in fault isolation, if a short or open circuit is detected the units either side of the fault isolate the error without affecting system performance.

Syntel Multi-Range devices can be interfaced and addressed directly whilst any unit having a 4-20mA output (e.g 3rd party products) can be interfaced using a MECH. Each device / node stores information concerning a range of parameters in nonvolatile memory.

Syntel, architectures fitted to all type of sites

The Syntel system can be implemented in all architectures energised loops with all kind of detectors are linked together with Media loops. Redundant power supplies are outside hazardous areas.

Syntel, user friendly interfaces

A wide range of HMI interfaces are available using point and click navigation. Detailed data acquisition, display and login, as well as SYNTEL configuration capabilities are made available which can be tailored to Client specific requirements. High quality graphics allow detailed plant layouts to be presented these also show device location. Simtronics documentation can also be accessed through some interfaces.













Syntel devices

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- A : DG-RX7 Catalityc flammable gas detector CE, ATEX, IECEX, SIL2 C : DG-RT7 Solid-state (mos) gas detector CE, ATEX, IECEX, SIL2 Technology: low temperature oxidation process Detects: flammable gases Range: 100% LEL Housing: aluminium or stainless steel 316L
- B: DGi-RT7 Electrochemical toxic gas detector CE, ATEX, IECEX, SIL2 D: Technology: electrochemical ce Detects: toxic gases, oxygen, ppm hydrogen Range: see data sheet Housing: aluminium or stainless steel 316L

Modules and interfaces





Е

2U rack in 19 'format, the MultiMech integrates 10 measurement channels to power digitize the signal of any type of sensor in 4 / 20mA format, generate and transmit alarms.

Local display of information and touch screen keyboard for performing maintenance operations.

F : **Programmable relay module** Can be placed close to the application

Hazardous or non hazardous areas Relay module 8 inputs - 8 outputs LEDS's indicate input/output state Programmable logic with SYNTEL interface

G: Ex distribution loop box

Enables local power distribution Ex approved Provides up to 4 energized loops

Other devices



- GD10P IR point gas detector CE, ATEX, IECEx, CSA, UL, INMETRO, India Ex, ABS, MED, SIL2 (SIL3 compatible) L : Technology: IR absorption Detects: hydrocarbon gases, CO₂ Range: 100% LEL, % volume Housing: stainless steel
- M: GD10PE IR expended point gas detector CE, ATEX, IECEx, CSA, EAC, SIL2

Technology: IR absorption Detects: hydrocarbon gases Range: 20% LEL Housing: stainless steel

 N^{-} GD1 - Laser open path gas detector CE, ATEX, IECEx Technology: near IR laser scanning Detects: H₂S, CO₂ Range: 0-200ppm.m H₂S Path lengths: 5-50m Housing: stainless steel





Technology: solid-state semiconductor Detects: H₂S Range: 50, 100, 200ppm Housing: aluminium or stainless steel 316L

DF-RV7 - Multi -spectrum ir flame detector CE, ATEX, IECEx, CE DPC, SIL3/2

Technology: 3xIR or UV/2xIR Detects: hydrocarbon fires Range: 80m on n-heptane fre (normalised 0.3x0.3m for 3IR) Housing: aluminium or stainless steel 316L





H : Syntel / modbus coupler

CML is a coupler (gateway) between MODBUS/JBUS and SYNTEL. CML is the slave of a ModBus master. I t enables access to the reading and writing functions of the ModBus table. Rail DIN format, use in non-Ex areas.

Lon / IP interface

NIC/iP module is an interface between SYNTEL and a client iP c network, links to SCADA or HMI. Rail DIN format, used in non-Ex areas.

J: Fibre optic coupler

LRO1 is a dual channel LON/Fibre optic interface. It enables data transmission over long distances Rail DIN format, used in non-Ex areas.

K: Mech

Inteface module between a 4-20mA output device and SYNTEL network. Ex or safe area use Accepts up to 4 x 4-20mA devices.

Options



Rackable pc with touch screen

Industrial rack mount PC touch screen interface for configuration and maintenance. Designed to Client requirements.

P: Supervision

Teledyne Gas & Flame Detection offers Syntel with one or more HMI 's. Plant-wide mimic usually provides top level screen. Interface designed to Client specific requirements.

Q: Maintenance view

Enables rapid visualisation of device location and state. Detailed device state available in one click.



And more, TOS detectors, OLCT, CTX300, etc...

Syntel

Reliability

Distributed intelligence:

- Each device stores alarm and calibration information

Fault tolerant:

- The system supports cable failures (short-circuit or break)

Secure communications:

- Each node communicates periodically with all other networked devices.

Redundant power supplies:

- Ensures high availability.

Performance

Maximum distance between two addressable nodes:

- 800 m in copper cable
- 25 km in fibre optic
- Single network loop capacity:
- 120 addressable nodes

Maximum number of networked loops per HMI : 16 System capacity: 120 x 16 = 1 920 addressable nodes Digital outputs (relays) :

- Decentralised and configurable operation (zoning, voting) depends on detector status and/or digital and analog inputs

References and options

LON Detectors (direct devices)		
MultiXplo	Catalytic combustible gas detector	
MultiTox	Electrochemical toxic gas detector	
MultiTox	Solid-state toxic gas detector	
MultiFlame	Multispectrum flame detector UV/2xIR or 3IR	
Other detectors		
GD10P	Infrared point gas detector	
GD10PE	Extended point IR gas detector	
GD10L	Infrared open path, combustible gas CH ₄	

Laser open path, toxic gas H_2S - CO_2

Additional devices		
MECH	Input module for 4-20mA sensors (Hazardous or non hazardous areas)	
I /O modules	Several configurations, please ask (Hazardous or non hazardous areas)	
lon / RS485	ModBus interface	
lon / Ip	Interface LON / IP protocol	
LON / Fibre optic	Interface LON / Fibre optic coupler	
Cable type:	03IP09EI (SF/FA) , 3 pairs individually shielded 0.9mm2	

GD1

European Space Agency Arianespace and CNES have chosen the Syntel system for all the ground launching installations of ARIANE 5 and 6, SOYOUZ and VEGA launchers in the Guyana Space center.



The Syntel system is implemented on numerous chemical plants in Europe and worldwide.

Especially the CERN, already equipped with seven Syntel systems.



EDF (French Electricity producer) has chosen the Syntel system for all its nuclear power plants in France. As a consequence, the Syntel system became a benchmark for a lots of nuclear power plantsworldwide.



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Some prestigious references