



# SYNSPEC DELTA TOXIC HYDROCARBON ANALYZER



Delta analyzer in combination with a multi channel selector

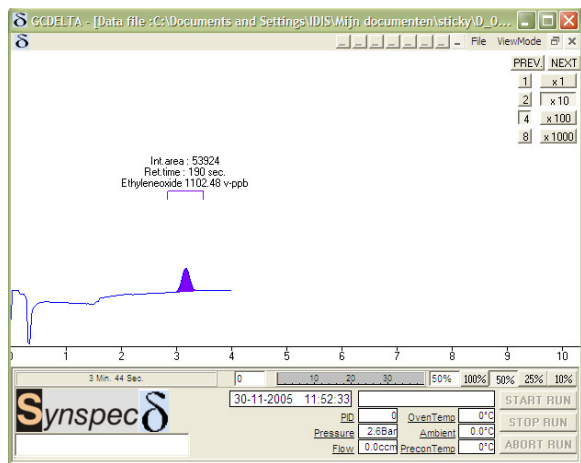
## Monitoring toxic hydrocarbons in industrial applications

Synspec has developed since years monitors for measuring hydrocarbons for industrial safety.

The Delta is the Synspec line for monitoring hydrocarbons for industrial safety and emissions applications. Our knowledge of making ambient air gas chromatographs combined with the requirements of the industrial customer resulted in the Synspec Delta analyzer.

The main reasons why these systems are used in the industry are:

- Worker (and neighbour) safety
- Emission measurements
- Process control



Measurement of Ethylene Oxide

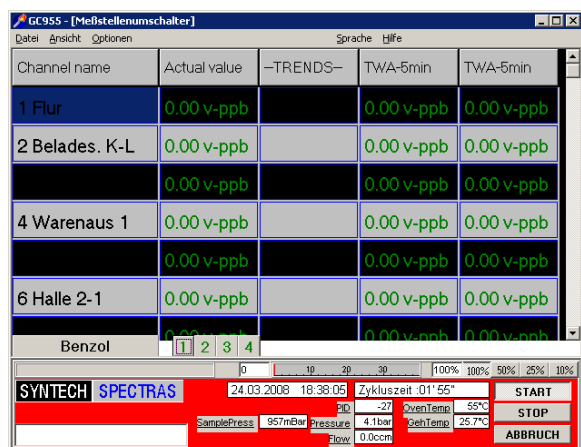
## Hydrocarbons that can be measured with the Synspec Delta

Environmental and industrial safety authorities require increasingly very strict monitoring of carcinogenic and toxic hydro-carbons. Therefore low ppm to ppb measurements for indoor and low ppb measurements for outdoor use are obligatory.

Examples of applications:

- |                  |                      |
|------------------|----------------------|
| Ethane           | Ethylene             |
| Benzene          | Epichlorhydrine      |
| Vinyl chloride   | 1,3-Butadiene        |
| Ethylene oxide   | Propylene oxide      |
| Dichloro ethane  | Trichloroethylene    |
| Dichloro methane | Tetrahydro thiophene |
| Isoamylalcohol   |                      |

Other applications we can deliver on demand.



Multi Channel Selector Screen

## Gas chromatography for industrial requirements

The Synspec Delta software is especially designed for industrial safety monitoring. Each Delta GC will be customized to your application. Based upon the components and the concentrations that need to be measured the appropriate detector, columns, sample collection system and application software will be installed.

This automated system continuously measures the required components has simple software and can provide automatically for example time-weighted-averages. The system is supplied with flexible software that can communicate with external data loggers using standard industrial protocols.

Automated calibration and validation options are available.

Adaptation for Ex safety is possible.

The software will fully support the optional Multi (up to 15) Channel Selector ( see separate datasheet)

**MEASURING PRINCIPLE:** The analyzer is a compact 19 inch mountable GC. It contains all the essential elements: computer, sampling unit, backflush valve, separation column in special small oven unit and detector. The detector can be a FID, TCD or a PID, depending on the application.

The gas sample is pumped in a loop. The sample is then injected over the valve into a column and the single hydrocarbons pass on to the detector. The loop size is adapted to the concentration range specified by the customer. For ultra low concentrations a pre-concentration unit can be installed.

All higher boiling hydrocarbons will be backflushed. This means that the system will auto clean and that a short cycle time is possible. The system is adapted to the specific hydrocarbon that must be monitored with regards to the essential parameters column, flow, temperature and back flush setting.

The instrument works with a gas chromatographic separation in this way misidentification and false alarms are minimized.

The software runs under Windows embedded.

The Synspec Delta is designed to measure single hydrocarbons. In the Syntech Spectras GC955 multiple hydrocarbons can be measured.

<b>100 AND 300</b>	<b>SYNSPEC DELTA</b>
<b>SYSTEM</b>	Gas chromatograph with built/in industrial PC, with sampling pump, loop or pre-concentration system, backflush column system with 10 port valve, choice of 3 detectors, oven temperature range 40°C to 100 °C
<b>DETECTORS</b>	PID range 0,01 up to 20 ppm FID, range 0,05 up to 100 ppm TCD, range 0,1 up to 100%
<b>GASES REQUIRED</b>	PID nitrogen 99,999% pure FID nitrogen, zero air and hydrogen, 99,999% pure TCD helium (or for some applications argon or nitrogen) 99,999% pure
<b>GC SPECIFICATION</b>	Loop 0.075 to 2 ml or pre-concentration system, 10 port valve Synspec, analytical column 1 to13 m backflush column 0.5 to 2 m
<b>CALIBRATION</b>	Internal calibration switch for calibration with zero and span gas, gas stream required 25 ml at ambient pressure
<b>HARDWARE, SOFTWARE AND COMMUNICATION</b>	
<b>INCLUDED HARDWARE</b>	Industrial x86 based computer, hard disk, full color touchscreen, I/O 2 x RS232, 4 x USB, Ethernet, PS2 keyboard/mouse, touchscreen
<b>INCLUDED SOFTWARE</b>	Windows Embedded Standard , GC software, TWA calculation modules, alarm setting modules
<b>COMMUNICATION</b>	direct control via keyboard or mouse, or via remote host (RS232/Ethernet/ modem), or via TCP/IP Standard available protocols: ASCII-terminal, Hessen, Gesytec and MODBUS. Other protocols on request Data via 0-10Vdc or 4-20 mA output, see options for more communication options.
<b>PHYSICAL DATA</b>	
<b>DIMENSIONS</b>	19" rack, (W 48,3 cm ) 3 standard Height Units, (height 13,9 cm ) , depth 42 cm net , weight 11 Kg
<b>POWER DEMAND</b>	230 V AC, 200 VA (115 V AC available) 50/60 Hz
<b>ROOM CONDITION</b>	5 °C TO 40 °C , 20 TO 95% rH, non condensing
<b>GENERAL</b>	
<b>OPTIONS</b>	<ul style="list-style-type: none"> <li>• Multi channel selector with Vici dead end or flow through, 6 to 16 stream, pump 5l/min (internal) or on demand an external can be recommended.</li> <li>• Analogue output multiplexer 15 outputs with 0-10 V or 4-20 mA ( order number 8602)</li> <li>• IO extender with 15 low and 15 high alarm outputs ( 24 V with max 300 mA) (order number 8608)</li> <li>• Special software that shows a map of your location and the current status of the measurements</li> </ul>
<b>APPROVALS</b>	CE approval for EMC conformity: EN 61000-6-2, EN 61000-6-3, EN 61010, EN 61326

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