

Complete monitoring system for the automatic, continuous measurement of Manganese Mn (II) in potable water, surface water, wastewater and effluents.

## Analyzer Topaz Manganese Mn (II)

- For the continuous, colorimetric online determination of Manganese Mn (II).
- Available in separate measuring range configurations:
  - Topaz Manganese LR:** 0-100 ppb or 0-200 ppb
  - Topaz Manganese HR:** 0-1 ppm or 0-2 ppm
- Complete system including measurement and control electronics, measuring unit, flow indicator, reaction chamber and reagent dosing system.
- Robust, high quality analyzer cabinet painted stainless steel, 316L.
- Automatic, electrical zero measurement prior to each measurement cycle.
- Automatic cell cleaning.
- 6 easily accessible peristaltic pump modules for accurate, automatic dosing of chemical reagents.
- 2 analog and 7 digital outputs for alarms for process values and diagnostic alarms for each sample stream.
- RS485 Modbus/JBUS RTU interface.
- Large back-lit touchscreen color LCD display for the reading of all measured values and status information simultaneously.
- Easy menu-guided operation in English or French.

Topaz Series Showcase

<b>Analyzer</b>	<b>Topaz Manganese LR</b> (0-100 ppb or 0-200 ppb)	<b>SOL-55.331.400</b>
<b>Analyzer</b>	<b>Topaz Manganese HR</b> (0-1 ppm or 0-2 ppm)	<b>SOL-55.331.500</b>
Range Selection	0-100 ppb or 0-200 ppb (requires Topaz Manganese LR)	Consult Sales
Range Selection	0-1 ppm or 0-2 ppm (requires Topaz Manganese HR)	Consult Sales
Configuration	2-Channel Setup (similar range)	SOL-83.590.020
Configuration	4-Channel Setup (similar range)	SOL-83.590.040
Configuration	6-Channel Setup (similar range)	SOL-83.590.060
Configuration	Ethernet Interface (TCP/IP)	SOL-81.410.020
Option	1-Year Spare Part Package "Basis" (Analyzer + 1 <sup>st</sup> channel)	SOL-84.110.140
Option	1-Year Spare Part Package "Multi-Channel" (add once if multi-channel config. was selected)	SOL-84.110.150
Option	Reagent Shelf in SS316L	SOL-89.610.010

## Manganese Measurement

### Colorimetric method;

Formation of a PAN-Manganese complex and dissolution of this complex with the Triton solution.

Reaction time 8-10 min.

### Sensors/Measurement Equipment

Detection wavelength 565 nm  
Temperature controlled measuring chamber

### Analyzer Measuring range

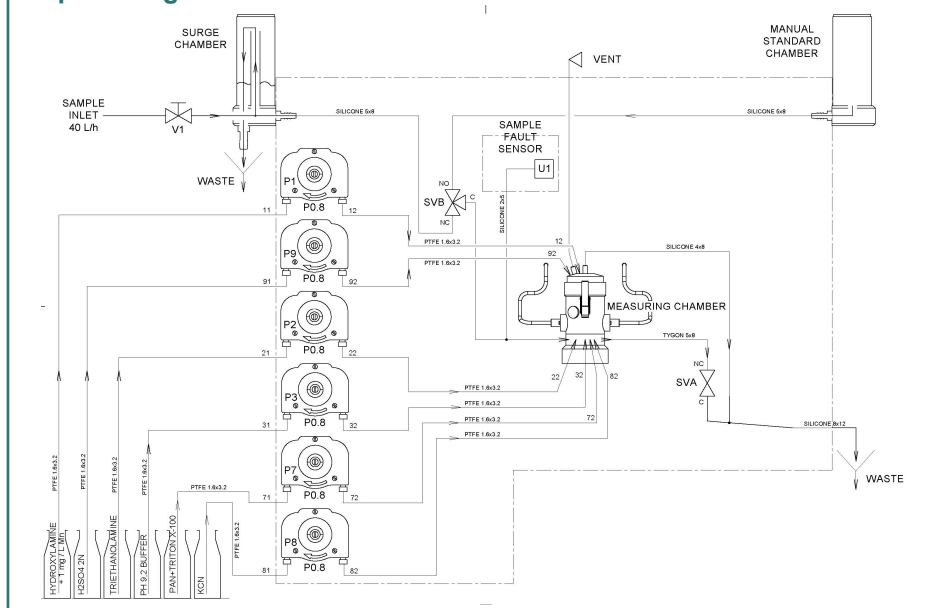
**Topaz Manganese LR** 0-100 or 0-200 ppb  
Limit of Detection 11 ppb  
Repeatability < ± 2 % FS  
Precision < ± 3 % FS

**Topaz Manganese HR** 0-1 or 0-2 ppm  
Repeatability < ± 2 % FS  
Precision < ± 3 % FS

Automatic baseline adjustment.

Sample flow surveillance.

## Topaz Manganese Measurement Scheme



## Specifications and Functionality

Pump type peristaltic  
Pump quantity 6

### Power supply

Voltage: 110 - 240 VAC  
Frequency: 50 /60 Hz  
Power consumption: Typical 150 VA, 300 max.

### Operation

Display: Color LCD, 7", touch-screen

Display of process value, alarm status and time during operation.

Smart and intuitive interface based on separate menu sections: "Measurement", "Diagnostic" and "Tools".

User menus in English and French.

Password protection and storage of data records. Storage and graphical display of measurement history.

### Alarm Relays

1 summary alarm for "analyzer failure"

Maximum load: 1A / 24 V

### Relay Outputs

2 potential-free contacts for each channel programmable as limit switches for measuring values (high/low thresholds)

1 sample flow alarm for each channel  
1 output for indication of the active sample stream for each channel.  
1 output for maintenance indication.

Rated load: 1A / 24 V

### Signal outputs

2 programmable signal outputs for measured values (freely scalable, linear).

Current loop: 4 - 20 mA

### Communication interface

RS485 interface (galvanically separated) with Modbus/JBUS RTU protocol included in standard.

Ethernet interface (TCP/IP) optional.

## Reagent specifications Analyzer Manganese LR

Type	Code
Hydroxylamine Chlorhydrate 100g/L + 1.0mg/l Mn	RXX221MN
Reagent Consumption	3.2l/month
Triethanolamine 20%	RXX222
Buffer Ammonicacal pH 9.2	RXX223
H <sub>2</sub> SO <sub>4</sub> 2N	RXX159
Potassium cyanide	RXX224
Reagent Consumption (each)	3.2l/month
Pan + Triton X-100	RXX265
Reagent Consumption LR	1l/month

## Analyzer Data

### Sample conditions

Flow rate: min 30 l/h  
optimum 40 l/h  
Temperature: 5 to 40 °C  
Inlet pressure<sub>Abs.</sub> (25 °C): 0.1 up to 2.0 bar  
Outlet pressure: pressure-free  
Particle size: < 20 µm

### Ambient Conditions

Temperature: 5 to 40°C  
Humidity 10 to 80% rel.

### Sample connections

Sample inlet: 1/4" BSP F  
Sample outlet: soft tubing D INT 9  
Sample outlet waste: soft tubing D INT 12  
Sample outlet multi-channel: soft tubing D INT 19

### Wall cabinet

Dimensions: 780 x 570 x 370 mm  
Material: Stainless Steel 316L  
Total weight: 35 kg  
Protection degree: IP 55

## Reagent specifications Analyzer Manganese HR

Type	Code
Hydroxylamine Chlorhydrate 100g/L	RXX221
Reagent Consumption	3.2l/month
Triethanolamine 20%	RXX222
Buffer Ammonicacal pH 9.2	RXX223
H <sub>2</sub> SO <sub>4</sub> 2N	RXX159
Potassium cyanide	RXX224
Reagent Consumption (each)	3.2l/month
Pan + Triton X-100	RXX265
Reagent Consumption HR	3.2l/month