Data Sheet

FISCHERSCOPE® XAN® LIQUID ANALYZER

Fully Automatic X-Ray Fluorescence Measuring Instrument for Continuous Inline Analysis and Monitoring of the Metal Content of Solutions and Electroplating Baths

FISCHERSCOPE® XAN® LIQUID ANALYZER

Description

The FISCHERSCOPE® XAN® LIQUID ANALYZER is used for fully automatic, continuous inline analysis and monitoring of the metal content of solutions and electroplating baths. Thanks to its modular structure, the system is very flexible and can be adapted to your needs. Up to four different solutions/baths can be analyzed.

Typical fields of application are the analysis of electroplating bath solutions for zinc, nickel, iron, cobalt, gold, silver, palladium and platinum, others on request.

Outstanding accuracy and long-term stability are characteristics of all FISCHERSCOPE X-RAY systems. The necessity of recalibration is dramatically reduced, saving time and effort.

The modern silicon drift detector achieves high accuracy and good detection sensitivity.

Design

The FISCHERSCOPE® XAN® LIQUID ANALYZER is housed in a control cabinet. The entire design is optimized for everyday use in electroplating companies:

- Thanks to its IP 55 protection class, it is also suitable for harsh environments.
- The measuring circuits for the baths are completely separated from each other, there can be no mixing of the baths under any circumstances.
- The optimized measuring cells and automatic flushing operation allow long operating times without maintenance interruptions. If maintenance is required, all important components are easily accessible and very easy to clean or replace.
- The well-proven X-ray fluorescence analysis from Fischer is used.
- Wide range of configuration options for remote control, additional displays to show measured values on site, at the worker's workplace or in remote control rooms.
- Intuitive operation thanks to the large touchscreen and optimized user guidance.

The FISCHERSCOPE® XAN® LIQUID ANALYZER fulfills DIN ISO 3497 and ASTM B 568.

Option	Description	Order Number
Base unit	Base unit FISCHERSCOPE® XAN® LIQUID ANALYZER with four measuring channels: You can connect up to 4 galvanic solutions/ baths at the same time and measure them sequentially.	1011901
Air conditioning options	▪ Cooling with control cabinet filter fan (ambient air)	1010820
	▪ Cooling with active air conditioner (circulating air) mounted on the lid of the control cabinet. For 230 V operating voltage For 115 V operating voltage	 1010315 1010821
	▪ Cooling with active air conditioner (circulating air) mounted on the right-hand side of the control cabinet, if the room height is low. For 230 V operating voltage For 115 V operating voltage	 1012380 1012490
	▪ Cooling with the customer's central cooling air supply, if available, min. 230 m^3/h, 10 ... 40°C, non-condensing, oil-free, non-corrosive	on request
Control cabinet feet	For stationary use	1011116
Option mobile control cabinet	Control cabinet base (control cabinet trolley) with 2 swivel and 2 fixed castors, additional installation height 3 cm	1011117
Option PROFINET interface	PROFINET interface for export of measurement results and import of remote control commands by a higher-level control system, incl. hardware, configuration, IP67 LAN connection kit (LAN connection box incl. field-attachable RJ45 connector) incl. commissioning	1010316
Option PROFIBUS interface	PROFIBUS interface for export of measuring results and import of remote control commands by a higher-level control system, incl. hardware, configuration, bus cable gland M20, incl. commissioning	1013271
Option ETHERNET/IP interface	ETHERNET/IP interface for export of measuring results and import of remote control commands by a higher-level control system, incl. hardware, configuration, IP67 LAN connection kit (LAN connection socket incl. field-assembly RJ45 plug) incl. commissioning	1012781

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Option	Description		Order Number
Option remote access	Remote maintenance module EWON Cosy+ ETH (incl. Talk2M free+, annual costs may apply) IP67 LAN connection kit (LAN connection socket incl. field-assembly RJ45 plug) , incl. commissioning		1010317
Option second large screen, connection via switch	System screen mirrored on a second, remote screen, HDMI extender (HD-383-V4) for connecting an on-site HDMI screen, connection through customer's LAN network, IP67 LAN connection kit (LAN connection socket incl. field-configurable RJ45 plug), incl. commissioning		1010319
Option line screen 7" (Line HMI 7")	Result display of one measuring channel on a 7" display, incl. commissioning	Large numbers presentation of the measured readings, red/green/yellow highlighting when the min/max specification limits are falling below or exceeding, normal display of time stamp, measurand name/unit, channel name, IP44 housing, 24V plug-in power supply, connection to PLC via the customer LAN cabling	1010320
Option line screen 9" (Line HMI 9")	Result display of one measuring channel on a 9" display, incl. commissioning		1010321
Option line screen 12" (Line HMI 12")	Result display of one measuring channel on a 12" display, incl. commissioning		1010322
Option supervisor screen 12" (Supervisor HMI 12")	Overview display of all measuring channels on 12" display, incl. commissioning		on request
Option software package *Measured reading log*	Storage of measuring results as csv files on the PC, PLC program blocks *OPCLogger*, Windows app *OPCLogger*, incl. commissioning		on request

General Specification

Intended use	Energy dispersive X-ray fluorescence measuring instrument (EDXRF) for the analysis of the composition of electroplating baths
Design	Control cabinet

X-Ray Source

X-ray tube	Micro-focus tungsten tube with beryllium window
High voltage	Three steps: 30 kV, 40 kV, 50 kV; max. anode current: 1 mA
Aperture (Collimator)	Ø 2 mm, optimized for the design of the measuring cell

X-Ray Detection

X-ray detector	Silicon Drift Detector (SDD), peltier-cooled
Resolution (fwhm for Mn-K?)	≤ 140 eV

Sample Alignment

Sample positioning	Automatic, the measuring cell with the liquid is positioned automatically.

Electrolyte Operating Conditions

Flow rate	For electrolyte and water, optimum 50 – 100 ml/min, maximum 200 ml/min
Degree of soiling	For electrolyte and water: Particles > 500 µm can lead to clogging of the system. Use on-site filtering to ensure that large particles do not get into the system; optimal filtering is ≤ 300 µm
Pressure	< 1 bar
Hose connections	Screw fittings for hose 4 x 6 mm
Max. Temperature of the testfluid	50 °C for materials that do not crystallize at ambient temperature or tend to precipitate solid components, please contact your Fischer representative
Volume per measuring channel	How much electrolyte solution must be displaced per measuring channel from the input to the output of the control cabinet until new electrolyte solution arrives at the measuring cell: approx. 100 ml

Electrical Data

Power source	AC 100 – 240 V ±10% / 50 – 60 Hz, power feed 3.68 kW, fuse 16 A CEE 3-pin (blue) or permanently connected, cable length 20 m
Protection class	IP54

Dimensions

External dimensions Width x depth x height [mm/in]	870 x 610 x 2085 ▪ with option *mobile control cabinet* height + 15 mm (0.6 in), width + 405 mm (15.9 in) ▪ with option *cooling with active air conditioner* height + 370 mm (14.6 in)
Weight	Approx. 300 kg (661 lbs)

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Environmental Conditions	
Operating temperature	15 °C – 40 °C (59 °F – 104 °F) with option *cooling with control cabinet filter fan (ambient air)* 10 °C – 55 °C (50 °F – 131 °F) with option cooling *with active air conditioner*
Storage/Transport temperature	0 °C – 80 °C / -32 °F – 176 °F
Relative humidity	≤ 95 %, non-condensing
IT Security Concept	
	▪ System operation behind the customer's firewall ▪ Open network structure through unmanaged switches ▪ Remote access only through customer IT approved methods ▪ PLC access protected by password ▪ HMI access protected by role definition + account/password (personalized accounts possible) ▪ OPCUA server protected by certificate ▪ IPC operation with auto-logon (no personalized account), without Internet access, without virus scanners, without firewall, without automatic OS updates ▪ PC access locally, via RDP and UltraVNC
Evaluation Unit	
Computer	Industrial PC Windows® 10 IoT, PLC Siemens S7-1214C, Touchscreen 24"
Software	For X-ray fluorescence measurement: Fischer WinFTM® BASIC + PDM®
	The software can be configured so that all parameters of the X-ray fluorescence measurement can only be changed by certain persons and are not accessible during the measurement and Fischer WinFTM® does run hidden in the back-ground.
Standards	
CE approval	Machinery directive 2006/42/EC, EN 61326
X-Ray standards	DIN ISO 3497 and ASTM B 568
Approval	Individual acceptance inspection as a fully protected instrument according to German radiation protection law
Order	
To create an optimal configuration for your needs, please contact your local Fischer representative.	

Spare Parts and Consumables	Order Number
Consumables for the liquid measuring cell Set of 10 foils and seals	1013255R
Polypropylene clamping ring 6x4 Set of 10 pieces, for connecting the liquid measuring cell	1013256R
Knurled nut polypropylene 6x4 set of 10 pieces, for connecting the liquid measuring cell	1013257R
Polypropylene clamping ring 6.4x9.6 Set of 10 pieces	1013258R
Knurled nut polypropylene 6.4x9.6 - 10 pcs	1013259R
Lagoprene hose Ø6.4x9.6(1.6), by the meter	1011142R

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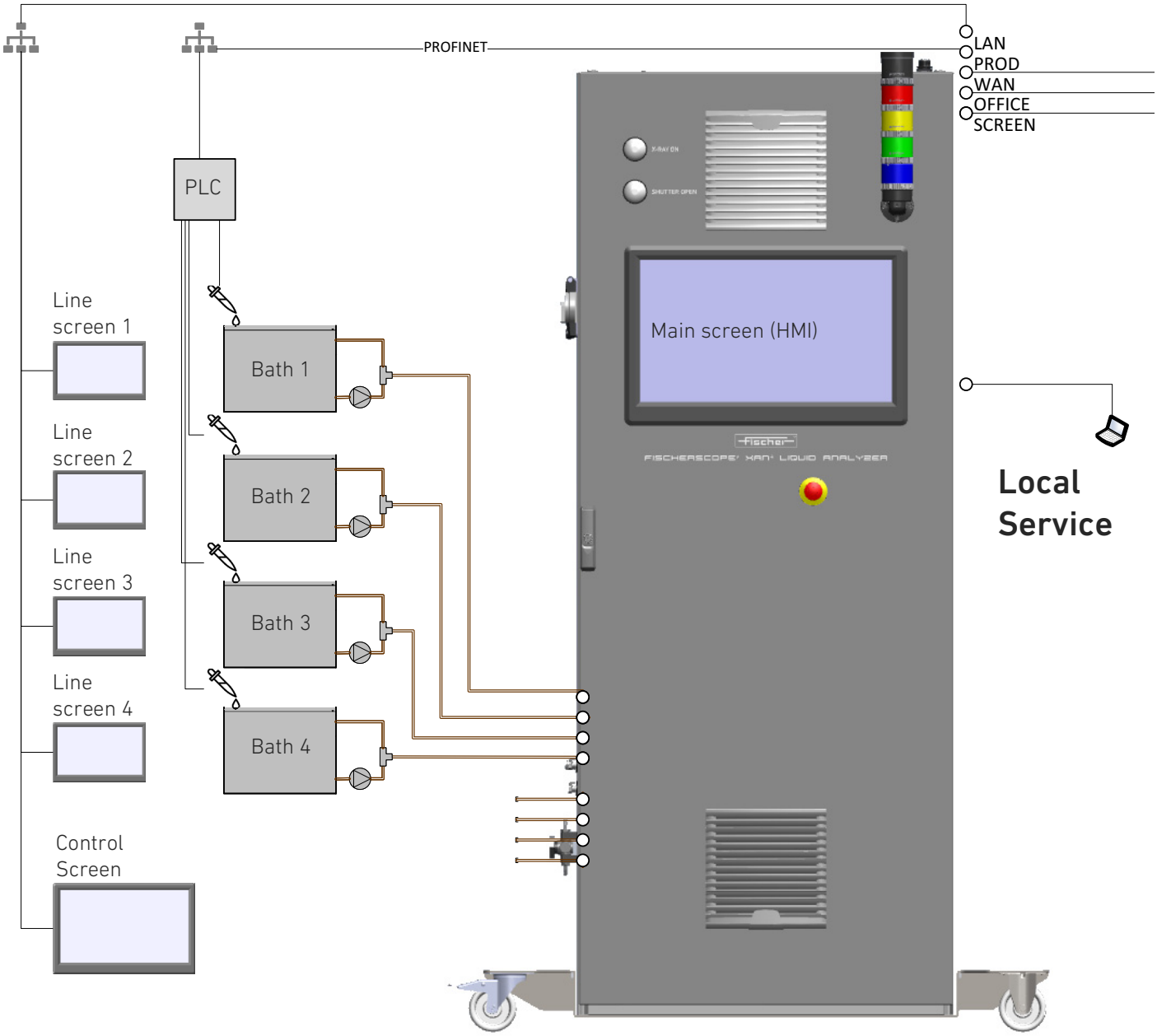
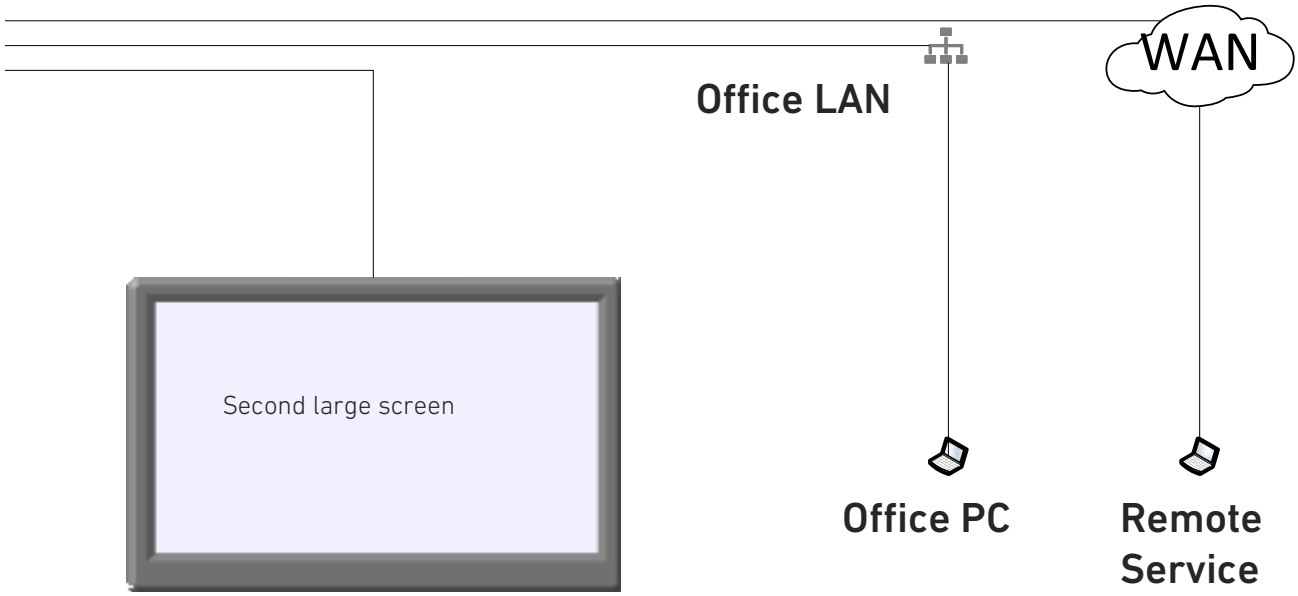
Overview of Integration Options



Functions of the line screens:
- Display only
- Results of one channel
- local power supply 230 V

Control Screen Features:
- Display only
- Results of all channels
- local power supply 230 V

A total of a maximum of 11 additional screens can be connected.



Second large screen

- Mirroring the main screen (HMI)
- Display only, no operation
- “Unlimited” screen size
- realized with HDMI extender

HDMI extender

- via switched Ethernet, no length limit, the content of the monitor can be mirrored as often as required

Remote Service

- Full operability, identical to main screen (HMI)
- Via MS RDP: only remote or local screen can be used at the same time
- Via optional screen sharing tool, e.g. UltraVNC, TEAMVIEWER...: remote and local screen can be used at the same time

Types of implementation:

- via customer VPN solution
- via VPN solution from Fischer EWON COZY+

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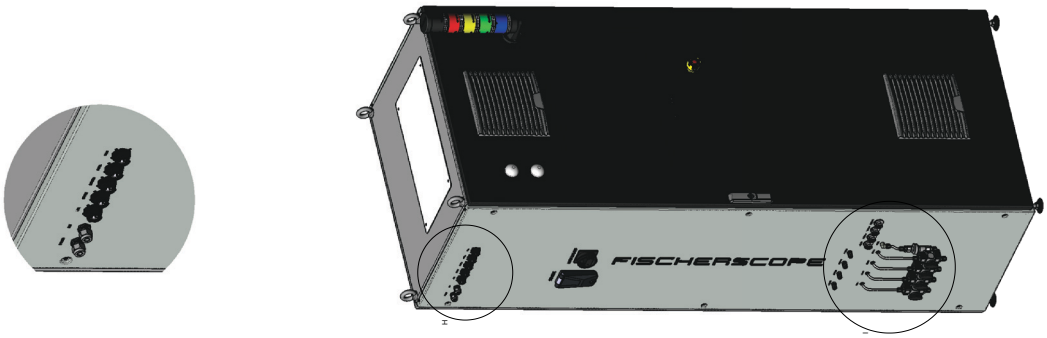
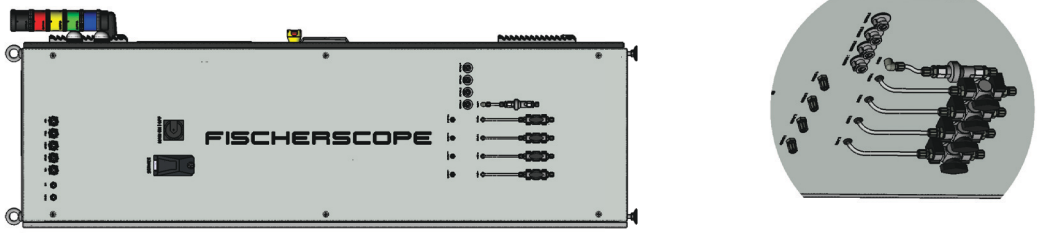
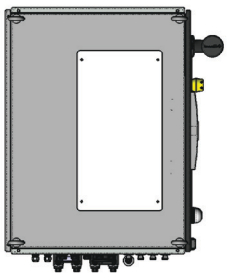
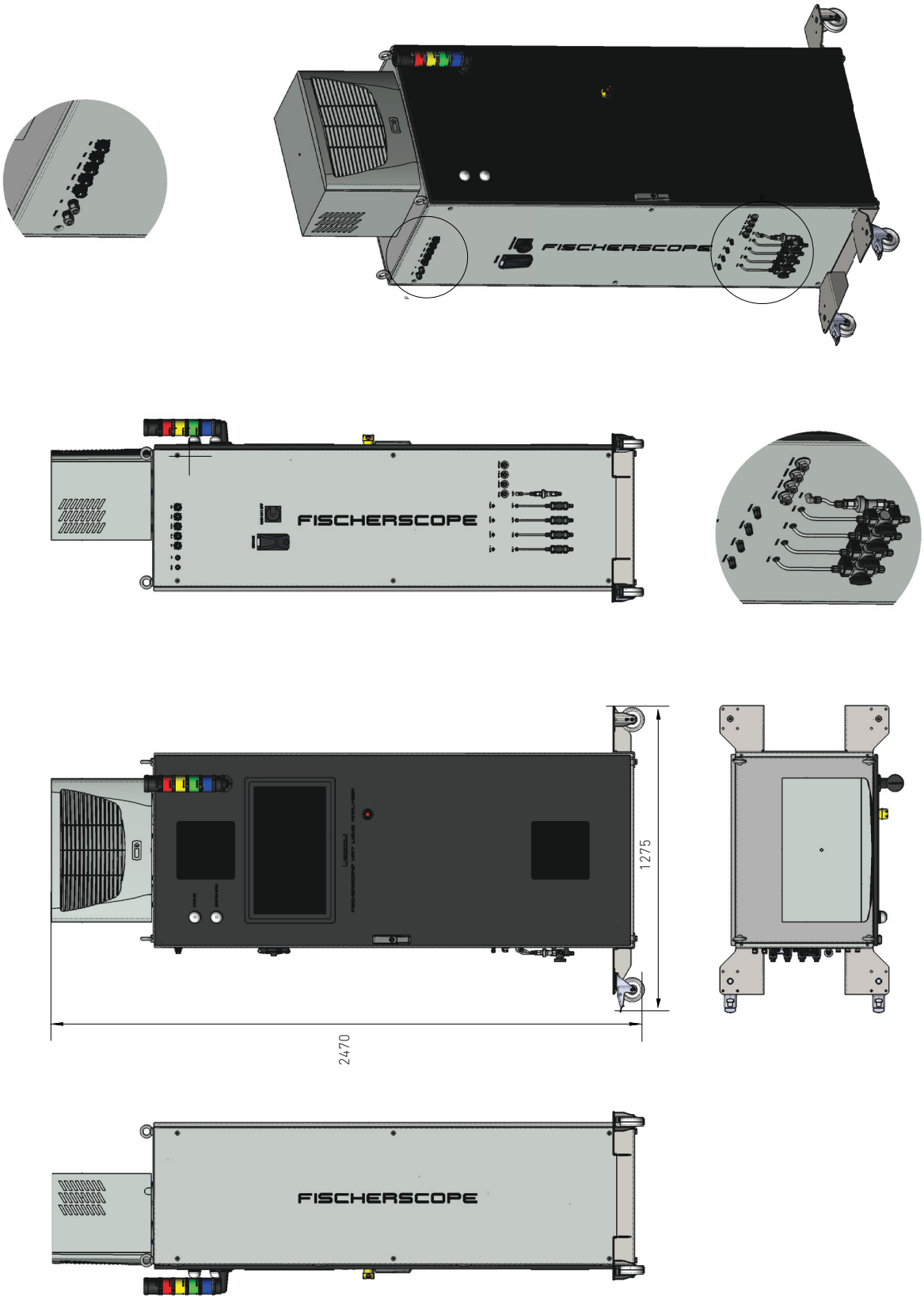
Layout Without Active Air Conditioning Unit







Layout With Active Air Conditioning Unit



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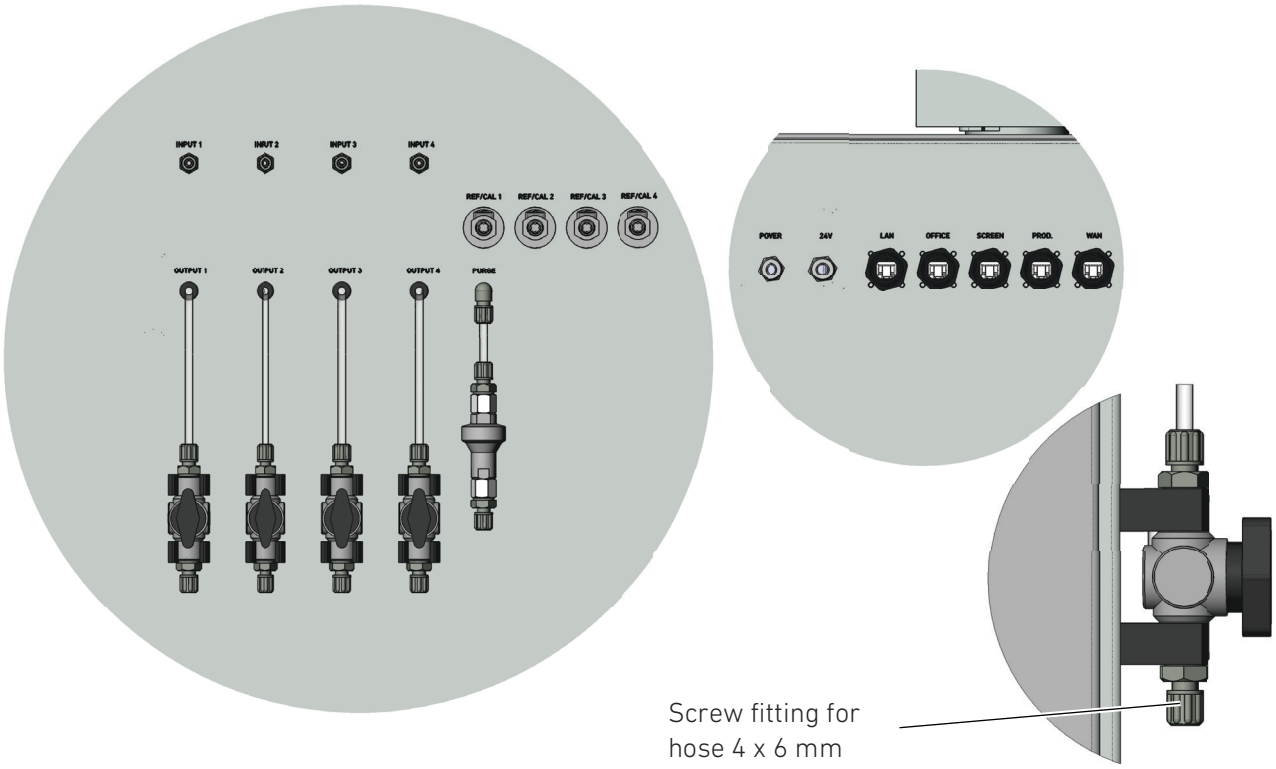
Connections for Liquids and Electrical Connections



Special XAN® product modification and technical consultation on request

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