

S52



MULTI-POINT SAMPLE-EXTRACTION SYSTEM

GDC-S52

Automatic sequential aspiration of gas samples from up to 12 remote points to a central analyzer — Lorentz PLC automation, 16 relay outputs, Modbus TCP · IEC 60870-5-104 · Modbus RTU

PURPOSE & PRINCIPLE

The **GDC-S52** is a stationary, continuously operating automatic system for **periodic sampling of gas from remote sample points** and transport of the sample to the place of analysis. It is the sampling module of the GDC gas-detection family and runs on the same scalable **Tremon Lorentz** PLC automation.

How it works

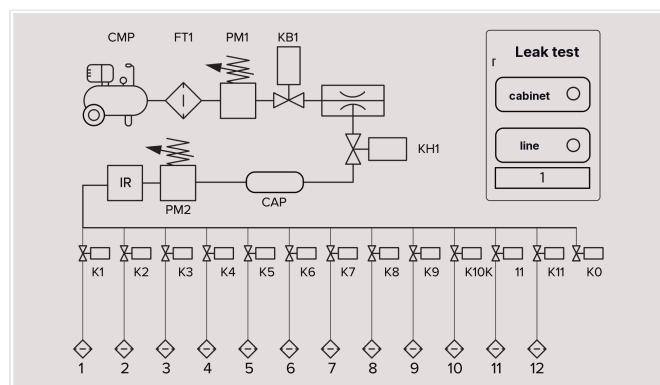
- Samples are drawn **sequentially by ejection** (compressed-air vacuum generator) from each sample point into the cabinet through 8 mm polyurethane impulse lines.
- Sample transport velocity **20 m/s**; compressed air 5.5 bar from a separate compressor.
- A pneumatic valve island (K1 ... K12) switches the lines; a single analyzer inside or next to the cabinet measures every point.
- The operator touch-panel shows readings per point, channel status, alarms and error codes; events are logged with time stamps on the panel and on μ SD in the controller.
- Built-in **leak tests** for the cabinet and for each line; test-gas inlet valve for verification of the whole chain.

Integration

- **16 configurable relay outputs** — light/sound alarm posts, ventilation, external circuits (relay blocks 1–2); blocks 3–4 drive the pneumatics.
- **2 × Ethernet** — Modbus TCP (default) or IEC 60870-5-104, PRP redundancy; **1 × RS-485** Modbus RTU; 4 independent RS-485 ports for analyzers.
- Two mains feeds with automatic transfer switch (ATS).
- Analyzer supply and signal on terminal XT2 (RS-485 or 4–20 mA, selected at order).

SF ₆ • GIS rooms	up to 12 points	IP65	-40...+60 °C
leak test	event log		

SYSTEM BLOCK DIAGRAM



Pneumatic scheme – compressor inlet (CMP), filter-dryer (FT1), pressure/vacuum switches (PM1/PM2), receiver (CAP), valve island K1...K12, test-gas valve K0; leak-test panel

CMP	compressed-air inlet	FT1	filter-dryer / regulator, 5.5 bar
PM1	pressure switch	PM2	vacuum switch
KB1	receiver solenoid valve	KH1	test-gas inlet valve
IR	analyzer (in-cabinet)	CAP	receiver
K1 ... K12	sample-line valves, valve island	K0	test-gas / ejector valve

Sample points are installed as close as possible to the potential leak; for gases heavier than air (SF₆) at 15 cm above the floor.

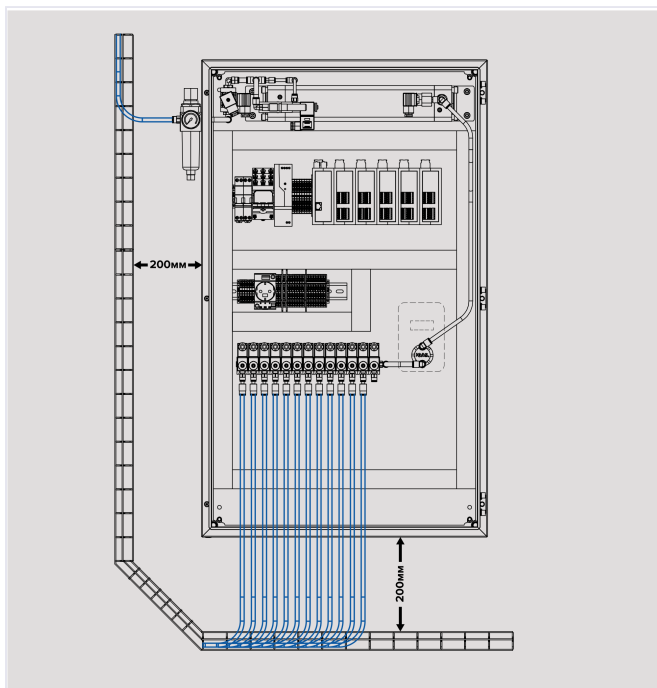
■ TECHNICAL DATA

Power supply	~220 V, (50 ± 1) Hz · two feeds with automatic transfer switch (ATS)
Power consumption	cabinet 50 W · compressor while running 2.2 kW
Number of sample points	per project documentation (up to 12 impulse lines per cabinet)
Sample transport velocity	20 m/s
Compressed-air working pressure	5.5 bar (supply line ≥ 6 bar)
Dry-contact switching capacity	220 V, 3 A · 24 V, 200 mA
Digital outputs	2 × Ethernet RJ45 10BaseT/100BaseTX (Modbus TCP · IEC 60870-5-104 · PRP) · 1 × RS-485 (Modbus RTU)
Relay outputs	16 configurable relay outputs
Overall dimensions	1000 × 600 × 250 mm
Ingress protection	IP65
Mass	25 kg
Material	powder-coated steel enclosure
Verification interval	12 months
Mean time between failures	24 000 h
Service life	10 years
Operating conditions	-40 ... +60 °C · 700 ... 1300 mbar · 0 ... 100 % RH
Storage conditions	0 ... +60 °C · 700 ... 1300 mbar · 0 ... 100 % RH (non-condensing)

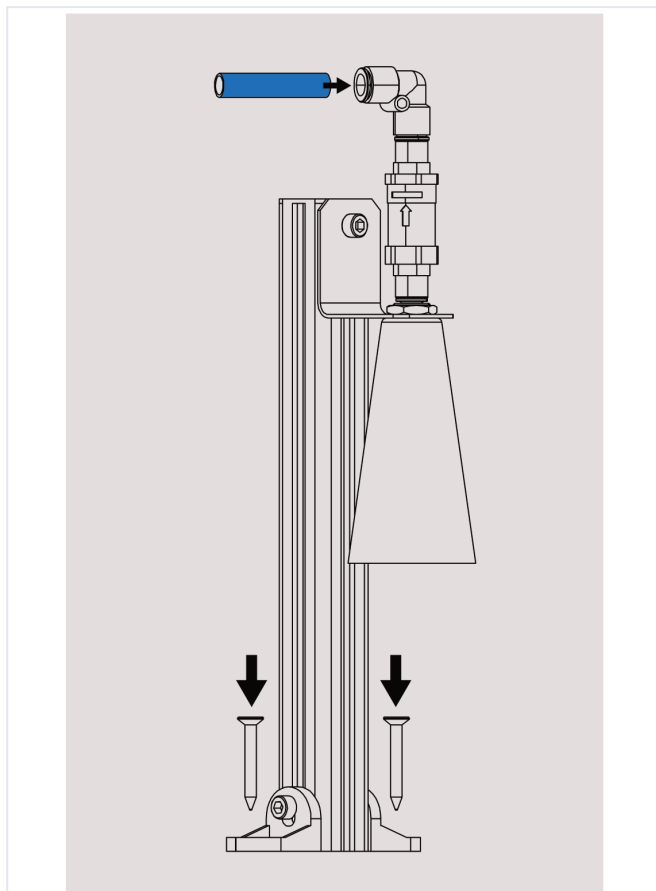
■ TYPE TESTS

Ingress protection	Dust-tight enclosure, protected against water jets from any direction — IP65 (IEC 60529)
Seismic & vibration	Withstands seismic effects up to intensity 9 (MSK-64 scale) at mounting heights up to 70 m; vibration 5–100 Hz, max. acceleration 10 m/s ² (1 g)
EMC	Immune to electrostatic discharge (IEC 61000-4-2), RF fields 80–1000 MHz level 3 and 800–960 / 1400–2000 MHz level 4 (IEC 61000-4-3), surges level 2 (IEC 61000-4-5), conducted RF level 3 (IEC 61000-4-6), voltage dips/interruptions (IEC 61000-4-11), harmonics class 3 (IEC 61000-4-13), voltage fluctuations level 3 (IEC 61000-4-14), power-frequency magnetic field level 3 (IEC 61000-4-8), pulse magnetic field level 3 (IEC 61000-4-9) — performance criterion A

INSTALLATION OVERVIEW



Cabinet interior – control blocks, valve island, filter-regulator; service clearance 200 mm around, 1000 mm in front of the doors



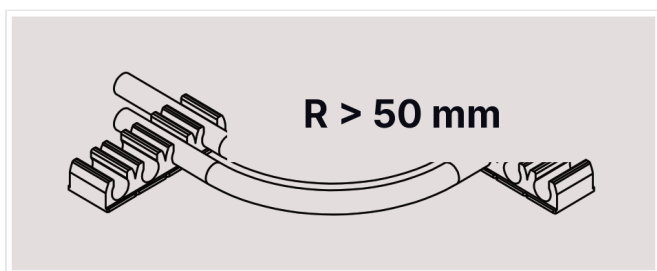
Sample point, assembled (KA-00002794) – transparent filter housing for visual inspection; floor/wall mounting with drilling template

Required utilities at the cabinet

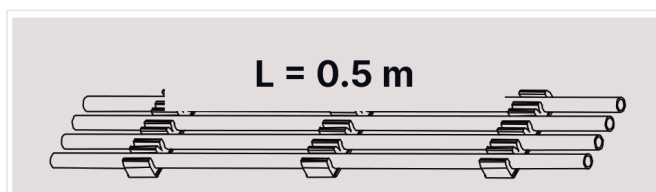
- Mains 220 V (phase, neutral) — two feeds for the ATS
- Earthing circuit
- Impulse lines KA-00003254 from the sample points (up to twelve)
- Compressed-air line ≥ 6 bar (tube 8/6 mm)

Compressor

- Separate, ventilated room, ≤ 30 °C
- Mains 220 V, earthing
- Tube KA-00003254 from the compressor to the cabinet filter-dryer
- Receiver reaches 10 bar and switches off; 30-min pressure-hold test ≤ 0.1 bar drop

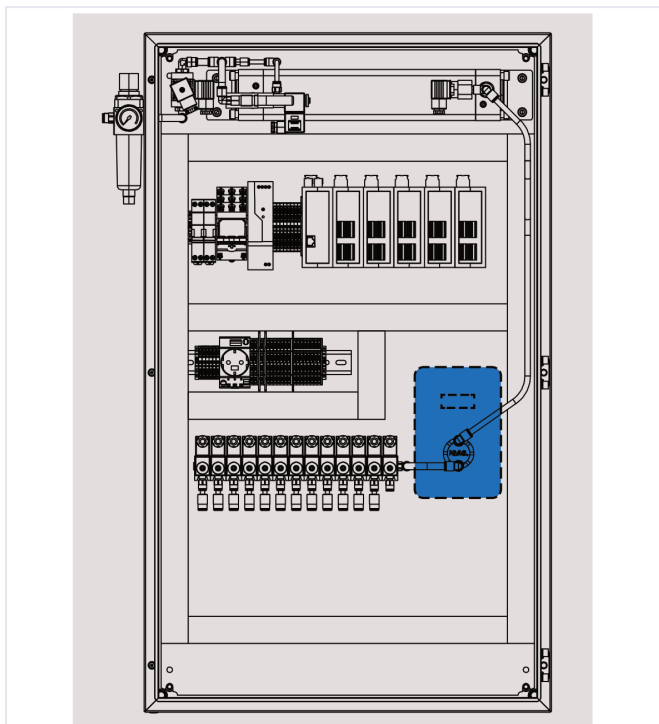


Smooth bends preferred – min. bend radius 50 mm; angle fitting KA-00003670 for 90° turns



Tube holders KA-00003239 at every bend and every 0.5 m on straight runs

ANALYZER INTEGRATION & ELECTRICAL CONNECTION



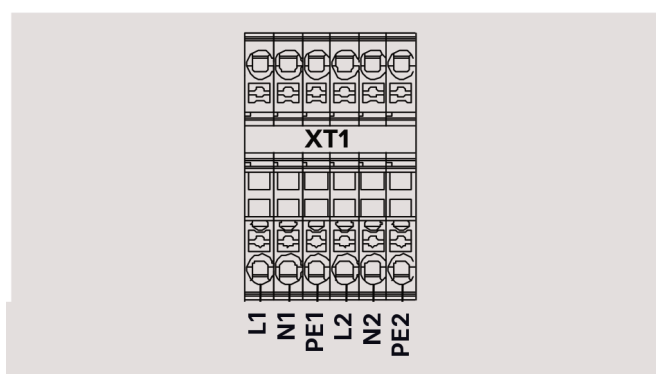
Analyzer mounted inside the cabinet – sample inlet from the valve island (4 → 3), outlet to the vacuum unit (3 → 2)

TERMINAL XT2 – ANALYZER SUPPLY & SIGNAL

TERMINAL	FUNCTION
XT2:1.1	Analyzer power supply, 0 V
XT2:1.2	Analyzer power supply, +24 V
XT2:2.1	RS-485 — B / 4–20 mA — 0 V
XT2:2.2	RS-485 — A / 4–20 mA — signal

Communication standard (RS-485 or 4–20 mA) is selected at order. With RS-485 set the analyzer address to 1.

TERMINAL XT1 – MAINS INPUT



Two three-core feeds (L, N, PE) to XT1; internal ATS switches automatically on loss of one feed

ORDER CODES

INSTALLATION ACCESSORIES

ITEM	ORDER CODE
Polyurethane tube 8 mm	KA-00003254
Elbow fitting	KA-00003704
Tube holder	KA-00003239
Sample point, assembled	KA-00002794
Angle fitting	KA-00003670
Plug 8	KA-00003709
Tube release tool	KA-00003717

SPARE PARTS

ITEM	ORDER CODE
Sample-point filter	KA-00003328
Vacuum generator	KA-00003237
Electric compressor	KA-00003672
Vacuum switch	KA-00003250
Pressure switch	KA-00003235
Pneumatic valve 2/2 – 3/8	KA-00003993
Receiver solenoid valve	KA-00003996
Valve-island valve M5	KA-00003997

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