

HELIUM LEAK DETECTORS



▶ Integrable industrial
leak detector

ASI 20 MD

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Industrial Leak Detector

ASI 20 MD

ASI 20 MD: The reliable, flexible and high performance solution for all industrial helium leak test systems

The ASI 20 MD is the latest development of Alcatel's industrial modules of which hundreds are in successful daily operation in a wide variety of industrial leak detection systems throughout the world.

The design is compatible with most industrial leak test environments and applications.

The ASI 20 MD is composed of three separate modules for:

- easy integration: each module is 19" 3U compatible format.
- minimum space required.
- maximum flexibility: the flat control and display panel can be conveniently located up to 150 meters (500 feet) from the electronic module.

The unit incorporates unique, combined, operational features that include:

- gross leak test mode
- fine leak test mode
- sniffing test mode
- automatic calibration
- auto-zero
- auto-diagnostic

In summary: the best solution for any leak detection system

- The ASI 20 MD is ideally suited for easy integration into any leak detection system, including hard vacuum and sniffing tests.
- Thanks to the small size of the vacuum module, conductance and dead volume are optimized offering fast response and cycle time.
- Thanks to the flexibility of the interface (discrete I/O and RS 232), the unit can be totally controlled by a P.L.C.

Key Points

- Flexibility
- Ease of operation
- High level interfacing and built-in capabilities



Complete unit

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ASI 20 MD: An extended range of applications

The ASI 20 MD is extremely flexible and offers the highest performance for various industrial requirements.

Integrated into a system, the ASI 20 MD can be used in multiple industrial applications:

Automotive industry

Air conditioning compressors, condensers, evaporators, manifolds and lines, fuel injectors, heat exchangers, aluminium rims, sealed beam lamps and assemblies, airbag cartridges and canisters, gas tanks, heating or cooling radiators, brake lines, plastic vessels,...

Aeronautics/Aerospace

Fuel tanks, window seal systems, pumps, hydraulic components,...

Electrical

Lightbulb and tube manufacturing, circuit breakers and transformers,...

Mechanical

Valves, manifolds, filters, ovens controlled environments, storage tanks, fire extinguishers, gas meters, storage water heaters,...

Refrigeration/Air conditioning

Compressors, evaporators, condensers, heat exchangers, lines and dryers, fittings,...

Package industry

Hermetic medical and pharmaceutical packaging, food containers,...

Medical and pharmaceutical

Catheters, blood filters, hermetically sealed packaging, blister packs,...



Leak detection system



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ASI 20 MD: Advanced Modular Leak Detector for industrial applications

Vacuum module:

Gross and fine leak test

The ASI 20 MD offers:

- High inlet test pressure, 20 mbar (15 torr) in gross leak test mode for fast cycle time.
- 2 mbar (1.5 torr) in fine leak test mode to avoid the effect of outgassing (water for example) during the cycle time.
- Isolation of mass analyzer from downstream helium contamination by unique molecular drag pump with optimized compression ratio ensures low, stable background.

Advanced analyzer cell

- Dual tungsten filaments.
- Unmatched stability, high sensitivity ($5 \cdot 10^{-11}$ mbar.l/s He), fast response time and excellent resolution thanks to:
 - the unique Multi Channel Plate amplification concept.
 - the 180° magnetic deflection principle.



Vacuum module

Electronic unit:

- Compact design.
- Simplified interfacing for a P.L.C and/or a PC.
- Adaptable cable lengths between the main unit and remote display panel.
- Ability to combine sniffing and hard vacuum test for optimum leak testing reducing cycle time considerably and preventing contamination of the pumping system.
- Automatic helium depollution for both the ASI 20 MD and the associated pumping system.
- Automatic calibration.
- Automatic digital scaling of the main system.
- Auto zero function.
- Operational either in gross or fine leak test mode.
- Ability to externally control all functions.

Auto-calibration

The ASI 20 MD offers:

- a unique auto-calibration function with a temperature compensated built-in calibrated leak.
- helium background measurement during auto-calibration process to guarantee maximum accuracy.
- an auto-scaling function to have a direct readout on the digital display.

Advanced control and display panel:

- digital display.
- bargraph display.
- alphanumeric display with clear messages (self diagnostic).
- comprehensive zoom function.
- direct access to main functions (auto-calibration, auto-zero, ...).
- Pass/Fail indicators.

User friendly

- Clear display of helium signal, with both bargraphs and digital display. Correction factor can be used on the digital display to accommodate various units of measurements or to display direct reading regardless of size or pumping systems.
- Auto-diagnostic: clear messages on the alphanumeric display.
- Auto-start with comprehensive self diagnostics
- Automatic ramp-up of the filament with automatic control of the emission according to analyzer cell pressure.
- Automatic reset of the filament in case of adverse conditions.
- Automatic switching from one filament to the other with proper warning and automatic auto-calibration sequence.
- Protected against improper operation.
- Main operational parameters are easily set.
- Direct access to the main functions and components.
- Automatic monitoring of calibration and main events.

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ASI 20 MD: A user friendly industrial leak detector

The control panel of the ASI 20 MD has been divided into three different segments to enhance human interface.

Main functions

- Analyzer cell pressure indication
- Autocal, autozero, vent, sniffer functions
- Interlock function

Tuning and parameters set up with alphanumeric display

- Alphanumeric display
- Set-up parameters, configurations or other functions

Displays and cycle related information

- Bargraph display
- Digital display
- Zoom bargraph
- Warning light indicator
- Gross leak test mode light indicator
- Inlet pressure indication
- Fine leak test mode light indicator
- Start/stop cycle switch
- Go and NoGo lights

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Technical specifications

Characteristics

Smallest detectable leak rate (AVS 2.1 or ISO 3530 standards)	$5 \cdot 10^{-11}$ atm.cc/s helium (*)
Helium reading range (display)	$1.4 \cdot 10^{-12}$ to 10^{-2} atm.cc/s
Maximum inlet test pressure	20 mbar
High vacuum pump inlet pumping speed	7.5 l/s
Time constant on a calibrated leak at the inlet port	< 0.2 s
Start up time (including auto-calibration)	< 2.5 min

(*) $5 \cdot 10^{-11}$ atm.cc/s He = $5 \cdot 10^{-12}$ Pa. m^3/s He = $1.8 \cdot 10^{-12}$ Pa. m^3/s air

Integrated functions

Auto-calibration
Background suppression
Built-in temperature compensated calibrated leak
Dynamic calibration
Gross and fine leak test
Audio alarm with variable pitch (90 dBA)
Lock-out of the control panel (key or password)

Interface

Comprehensive RS 232
5 discrete I/O including:
- 5 adjustable helium set points
- 2 adjustable vacuum set points
2 analog outputs

Dimensions and weight

Vacuum module	470 x 250 x 130 mm (18.5" x 9.8" x 5.2")
Control and display panel	480 x 133.5 x 100 mm (18.9" x 5.3" x 3.9") 19" 3U compatible format
Electronic module	480 x 133.5 x 300 mm (18.9" x 5.3" x 11.8") 19" 3U compatible format

Power supply

100 V to 240 V - 50/60 Hz - 0.3 kW



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Accessories

Description	PART NUMBER
Long distance sniffer probe with a 5 meter tube (16 ft)	797925
Special 2005 mechanical pump - 2 stages - LDS connection (*)	205SIXXX
Fan with support for MDP	104762
Long distance sniffer kit (sniffing cell, 2 female quick connectors, 1.5 m of plastic tube with one male quick connector and one 1/8 male connection). The long sniffer probe has to be ordered separately.	104757
PI3C stainless steel gauge	785423
5 m (16 ft) special cable for PI3C gauge	104760
5 m (16 ft) cable for display panel	104663
10 m (33 ft) cable for display panel	104657

(*) for motor type (single or 3 phases), voltage, line cord set and oil configuration, see in the rotary vane pump section (Pascal Series)

Note: the PI3C gauge with the associated cable gives a display on the remote control and display panel and 2 adjustable vacuum set points with dry contact outputs.



Patented interstage rotary vane pump (3.2 cfm) required for fine leak test and sniffing modes 2005 IS.



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Ordering information

V 0 0 0 0 0 0 0

Sniffing option		The sniffing option includes : - sniffing cell - 2 female quick connectors - 1.5 m of plastic tube with one male quick connector and 1/8" male connection. The long distance sniffer probe has to be ordered separately.
Without	With	
Code 0	Code 1	

Cable length for remote control and display panel		It is the cable between the remote control display panel and the electronic module. Connectors at both ends.
5 m (16 ft)	10 m (32 ft)	
Code 2	Code 4	

Cable length for electronic module	
2 m (6 ft)	5 m (16 ft)
Code 0	Code D

Main power supply	
110/130 V-50/60 Hz	200/240 V-50/60 Hz
Code 7	Code 8

Main power cable type				
U.S.A.	France/Germany	U.K.	Italy	Switzerland
Code 1	Code 2	Code 3	Code 4	Code 5

For example
You need ...

ASI 20 MD V
Without sniffing option 0
10 m (32 ft) 4
5 m (16 ft) D
110/130 V-50/60 Hz 7
U.S.A. 1

= V 0 4 D 0 0 0 0 0 7 1 0

