

# IONIVAC IM 540



The 3-channel display and operating unit IONIVAC IM 540 offers, by combination of up to 4 different principles of measurement – Pirani, capacitive, Bayard-Alpert and Extractor –, complete coverage and control of the vacuum pressure in the range between  $10^{-12}$  mbar and atmospheric pressure.

## Advantages to the User

- Precise UHV pressure measurements with the Bayard-Alpert sensor IE 414 (offering excellent longterm stability) or the Extractor sensor IE 514 (offering an extremely low X-ray limit of  $< 1 \times 10^{-12}$  mbar)
- 1 measurement channel for IONIVAC sensor (Bayard-Alpert or Extractor)
- Possibility of simultaneously connecting a second IONIVAC sensor
- Degassing of the anode through electron bombardment with time-limit
- Continuous UHV measurement also during the degassing phase (up to  $+250$  °C with bakeable gauge head cable)
- 2 measurement channels for direct connection of transmitters from the series THERMOVAC TTR and CERAVAC CTR
- Selectable pressure units (mbar, Torr, Pascal, Micron)
- Display of a single measurement channel with pressure trend through analogue bargraph or simultaneous display of all measurement channels
- Two adjustable thresholds with adjustable hysteresis and freely assignable to the measurement channels

- Compact benchtop enclosure (1/2 19", 3 HU)
- RS 232 C interface provided as standard
- Simple software updates possible through the RS 232 interface
- Profibus interface (optional)
- CE mark

## Typical Applications

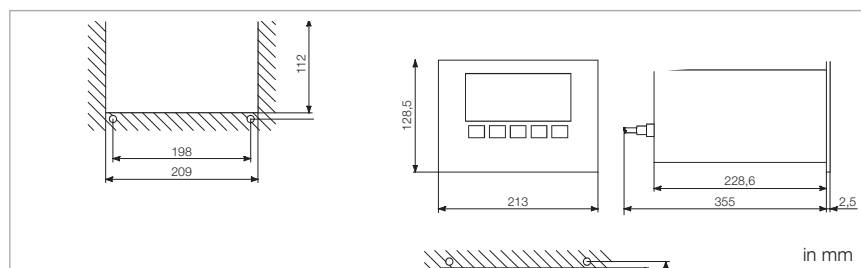
- Pressure measurement and control in the UHV range
- Measurement of ultimate pressure in UHV systems
- Checking of ultimate pressure in semiconductor production
- Total pressure measurements in the area of cryo technology
- Total pressure measurements in calibration systems

## Connectable Sensors

- Bayard-Alpert sensor IE 414
- Extractor sensor IE 514 (see Chapter "Additional Sensors") combined with
- THERMOVAC TTR 211, TTR 216 S, TTR 90, TTR 91 and TTR 96 S
- CERAVAC CTR 90, CTR 91 and CTR 100 (see Chapter "Active Sensors")

Two passive sensors working with ionization technology (IE 414 and/or IE 514) could be connected simultaneously to the IONIVAC IM 540 while only one is in operation.

A pressure dependent emission control of these sensors is possible if a THERMOVAC TTR or CERAVAC CTR 100/CTR 91 of suitable range overlap is connected



Front panel cut-out (left) and dimensional drawing (right) for the IONIVAC IM 540

## Technical Data

## IONIVAC IM 540

Number of measurement channels		3
Bayard-Alpert / Extractor		Channel 1 or 2
THERMOVAC / CERA VAC		Channel 3 and 4
Measurement range	mbar (Torr)	$1 \times 10^{-12}$ to 1100 ( $0.75 \times 10^{-12}$ to 825)
Measurement range Extractor	mbar (Torr)	$1 \times 10^{-12}$ to $1 \times 10^{-4}$ ( $0.75 \times 10^{-12}$ to $0.75 \times 10^{-4}$ )
Measurement range Bayard-Alpert	mbar (Torr)	$1 \times 10^{-11}$ to $1 \times 10^{-2}$ ( $0.75 \times 10^{-11}$ to $0.75 \times 10^{-2}$ )
Measurement range switching		automatic or decade pre-select
Units of measurement (selectable)		mbar, Torr, microns, Pa
Measurement uncertainty	%	$\pm 10$ of the value displayed
Trend indication		bargraph
Measurement value display rate		$1 \times 10^{-10}$ to $1 \times 10^{-2}$ mbar, $5 \text{ s}^{-1}$ $1 \times 10^{-12}$ to $1 \times 10^{-10}$ mbar, $0.5 \text{ s}^{-1}$
Emission current		
Extractor sensor	mA	1.6
Bayard-Alpert sensor	mA	0.1 to 10; automatic control
Emission current shutdown at		$p > 1 \times 10^{-2}$ mbar, broken cathode, short-circuit, interruption of the electric circuit
Bake out power		
Extractor / Bayard-Alpert	W	20 / 40
Sensor power supply, potential for		anode Extractor / Bayard-Alpert: 220 V, cathode Extractor / Bayard-Alpert: 100 V/80 V, Reflector Extractor: 205 V
Sensor connections		Bayard-Alpert and Extractor - single operation is possible 2 x Bayard-Alpert or Extractor (redundant operation)
Measurement system detection		automatically
Measurement system switchover		automatically, pressure dependent, error dependent
Chart recorder outputs		logarithmic 0 to 10 V (1 V / dec.) or linear 0 to 10 Volt error indication $U > 10.5 \text{ V}$
Extractor / Bayard-Alpert ( $R_a = 2,5 \text{ k}\Omega$ )		
Interface (standard / optional)		RS 232 C / Profibus
Switching thresholds (single operation or interval)		2 with floating changeover contact
Mains connection	V AC / Hz	90 – 264 / 50/60
Storage temperature range	°C	-40 to +60
Nominal temperature range	°C	+5 to +50
Dimensions of the benchtop instrument (W x H x D)	mm	213 x 128,5 x 250
Weight, approx.	kg (lbs)	3.0 (6.62)

## Ordering Information

## IONIVAC IM 540

	<b>Part No.</b>
IONIVAC IM 540 with mains cord 2 m (EURO and US)	<b>230 100</b>
Options Profibus DP interface	<b>230 101</b>
Calibration	see chapter "Miscellaneous", para. "Leybold Calibration Service"
IONIVAC sensors	
IE 414, DN 40 CF	<b>158 66</b>
Replacement cathode IE 414	<b>158 63</b>
IE 514, DN 40 CF	<b>158 67</b>
Replacement cathode IE 514	<b>158 61</b>
Gauge head cables for IE 414/514	
5 m	<b>158 68</b>
10 m	<b>150 88</b>
15 m	<b>230 670 V01</b>
5 m, bakeable to 200 °C	<b>158 44</b>
10 m, bakeable to 200 °C	<b>230 671 V01</b>
Extension cables for IE 414/514	
10 m	<b>245 002</b>
20 m	<b>200 02 937</b>
THERMOVAC transmitter TTR	see chapter "Products", para. "Active Sensors"
Connection cable for THERMOVAC (Type A)	see chapter "Products", para. "Connection Cable for Active Sensors"
CERAVAC transmitter CTR	see chapter "Products", para. "Active Sensors"
Connection cable for CERAVAC (Type B)	see chapter "Products", para. "Connection Cable for Active Sensors"