

# IM540

## Vacuum Gauge Controller

The Vacuum Gauge Controller IM540 is a versatile ionization gauge controller offering complete vacuum measurement and control in the range between  $10^{-12}$  mbar and atmospheric pressure. Depending on the application and user's needs, IM540 is the one-stop solution as it may combine up to 4 different principles of vacuum measurement - Pirani, capacitive diaphragm, Bayard-Alpert and Extractor. This controller allows for a reliable and complete integration in complex process control systems.



### ADVANTAGES

- Supports the operation of the IE414 (Bayard-Alpert) and the IE514 (extractor) hot cathode ionization gauges
- Two active gauges from the PSG5xx (Pirani) and CDG (Capacitance diaphragm) active gauge lines can be connected and operated
- Simple operation with menu guided display for parameter, sensor or general settings
- Built-in RS232 communication interface, optional Profibus DP communication card (IF 540 P)
- Two set points (optional 7) with adjustable hysteresis
- High resolution - 16 bit A/D converter
- 2 programmable 0 to 10 V chart recorder outputs

### APPLICATIONS

- Scientific and R&D applications requiring precise vacuum measurement from atmosphere down to ultra-high vacuum range

# IM540

## ORDERING INFORMATION

Type	IM540
Vacuum Gauge Controller	399-660

Sensors	IE414	IE514
DN 40 CF	399-661	399-663
Replacement cathode	399-676	399-677

Communication cards	
Interface and relay board, IF540P Profibus, 45 W, 75 VA	399-670

Accessories	
Gauge head cables to IE414/514, 80 °C	
3 m	399-680
5 m	399-681
10 m	399-682
50 m	399-685
Gauge head cables to IE414/514, 200 °C	
3 m	399-686
5 m	399-687
10 m	399-688
50 m	399-690

Extension cables to IE414/514	available on request
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## SPECIFICATIONS

Type	IM540
Measurement channel	3
Display	LCD, LED backlight
Display rate	4 s <sup>-1</sup>
Measurement range	
IE414 (Bayard-Alpert)	1×10 <sup>-11</sup> ... 1×10 <sup>-2</sup> mbar   0.75×10 <sup>-11</sup> ... 0.75×10 <sup>-2</sup> Torr
IE514 (Extractor)	1×10 <sup>-12</sup> ... 1×10 <sup>-4</sup> mbar   0.75×10 <sup>-12</sup> ... 0.75×10 <sup>-4</sup> Torr
Measurement unit (selectable)	mbar, Torr, Pa, hPa, Micron, V
Measurement range switching	automatic or decade pre-select
Trend indication	bargraph
Emission current	
IE414 (Bayard-Alpert)	0.1 ... 10 mA, automatic control
IE514 (Extractor)	1.6 mA
Emission current shutdown at	p > 1×10 <sup>-2</sup> mbar, broken cathode, short-circuit, interruption of the electric circuit
Degassing power	
IE414 (Bayard-Alpert)	41 W
IE514 (Extractor)	21 W
Gauge supply	
Anode (IE414 / IE514)	220 V / 220 V
Cathode (IE414 / IE514)	80 V / 100 V
Reflector (IE514)	205 V
Sensor connections	2x IE414 or IE514 (single operation or automatic switch-over for redundant operation) 2x PSG50x/PSG51x-S (Pirani) or CDG025D/045D
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 V error indication U > 10.5 V
Interface	RS232C, Profibus (with IF540P)
Switching thresholds (single operation or interval)	2 with floating changeover contact
Power supply	
Voltage	90 ... 264 V (ac)
Frequency	47 ... 63 Hz
Temperature	
Operation (ambient)	+5 ... +40 °C
Storage	-20 ... +60 °C
Weight	~3.0 kg   ~6.62 lb

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## DIMENSIONS

[mm]

