

# TIC INSTRUMENT CONTROLLER

[edwardsvacuum.com](http://edwardsvacuum.com)

Edwards TIC product range is a series of vacuum instrument controllers providing compact control with a large, clear graphical display, an intuitive user interface and serial communications. The supplied Windows™ based PC program provides full remote setup, control and data logging functions via the RS232 interface.

The range includes three-head and six-head versions which all support and automatically recognise Edwards Active vacuum gauges. With the ability to display and control a wide array of gauges you can understand in depth what is happening in different parts of your system.



## Features and benefits

- Automatically recognises and controls active gauges
- Six user configurable relay set-points
- Display of relay status
- One 0-10 V buffered analog output for each gauge channel
- Windows™ based PC program
- Web-based product support page
- Direct pressure readout of common gases (N<sub>2</sub>, He, Ar, CO<sub>2</sub>, Kr and Ne) without conversion factors
- User-configurable display options include:
  - Option to display one, three, or six channels simultaneously
  - Ability to select gauge order when cycling through
  - The display assigns a four character alphanumeric name for each gauge
- To enable complete integration into PC and PLC controlled processes all TIC variants include RS232 and RS485 interface
- Display units in mbar, Torr, Pa or Volts

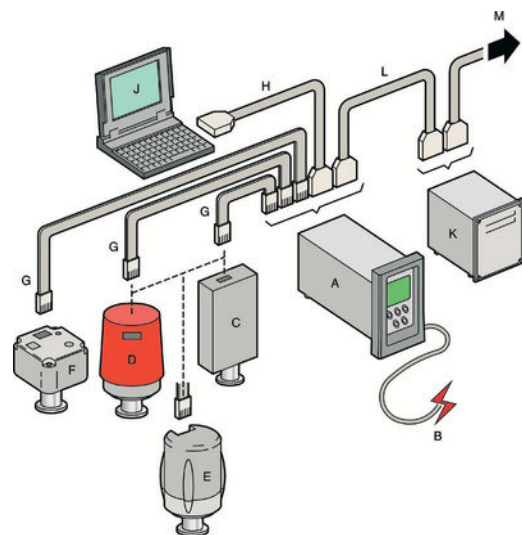
## CONFIGURATION

The figure illustrates the use of Active Pirani Gauge (APG) and Active Inverted Magnetron Gauges (AIM), which may be replaced by a single Wide Range Gauge (WRG).

The logic interface (M) is connected to a system controller and the TIC has been configured using the Windows™ PC program over the serial link from the PC.

A relay box (K) has been included which allows mains changeover relays to be activated by the TIC open collector set point outputs. These, in turn, operate other accessories.

Compatible active gauges include: APG200 Pirani, APGX-H Convection, ASG2 Strain, AIM-X Inverted Magnetron, WRG200 Wide range, AIGX Hot Ion, and Barocel 7000 Capacitance gauge.



Item	Product description	Order number
A	TIC inst cont 3 head RS232	D39700000
B	2m UK mains cable	D40013025
C	APG200-XM NW16	D1G1011100
D	AIM200-X-NW25	D2G0021100
E	WRG200-S-NW25	D3G0021100
F	AIGX-S-NW25	D04850000

Item	Product description	Order number
G	1m active gauge cable	D40001010
H	TIC RS232 interface cable 2m (optional)	D39700834
J	PC with RS232 interface (optional)	N/A
K	TIC relay box instruments	D39700805
L, M	TIC logic interface cable 2m	D39700833

### External interfaces and configuration options

<b>Logic interface</b>	The logic interface connector may be used either to link to system relays, a higher-level control system, or an optional relay box. By utilizing the relay box pass-through connector a combination of a higher-level control system and relay box may be used.	
<b>Control inputs</b>	Gauge enable:	Closed when low: < 0.5 V d.c. Open when high: 4 to 24 V d.c.
	System interlock:	YSI closed when low: < 0.5 V d.c. Open when high: 4 to 24 V d.c.
<b>Status outputs</b>	Analogue output:	1 for each gauge channel 0-10 V d.c.
	Set points:	1-6 open collector 24 V d.c. 50 mA
	Alarm:	Open collector 24 V d.c. 50 mA
<b>Serial interface</b>	These may be used either to interface to a PLC, using the Windows™ PC software package supplied, or connect to a PC for full monitoring and control of a TIC system.	

## WINDOWS™ PC PROGRAM

Each TIC is supplied with a fully functional Windows™ based PC software interface, which replicates and adds to the TIC embedded control menus.

**The PC Monitor software enables TIC systems to be configured, controlled and monitored from a single PC:**

- Control gauge functions such as degas and calibrated
- Energise or de-energise gauges
- Access other PC Monitor control functions

**Access the Configuration Manager in order to:**

- Link gauge channels for pressure control of high vacuum gauges
- Create, save, and load custom configurations
- Lock the TIC software configuration or front panel controls

A useful data logging facility is also provided, which saves user selectable parameters to file (in a .csv format) for later analysis using suitable software.

**The relay interface panel allows the user to:**

- Link relay channels to any connected gauge head
- Configure the relay set-point levels for automatic operation based upon sensed pressure levels
- Manually cycle the on-board set points for manual control of connected systems

## COMPATIBLE GAUGES

	Power (Watt)	3 head TIC	6 head TIC	6 head TIC -CAPMAN
Active pirani gauge - APG & APGX	1 W	✓	✓	✓
Active linear convection gauge - APGX-H	1.5 W	✓	✓	✓
Active inverted magnetron gauge - AIM & AIMX	2 W	✓	✓	✓
Active thermocouple gauge - ATC	0.54 W	✓	✓	✓
Active strain gauge - ASG	0.1 W	✓	✓	✓
Wide range gauge - WRG	2 W	✓	✓	✓
Active ion gauge - AIGX, 1 connected (3 channel)	*	✓	✓	✓
Active ion gauges - AIGX, up to 3 but only 1 in degas (6 channel)	*		✓	✓
Barocel 7000 series	**			✓

\* The AIGX draws 7 W in normal operation, 14 W in degas mode.  
The total power available to drive the gauges is limited to 38 W.

\*\*The Power consumption is dependent on the Barocel type connected, with a maximum of three gauges being able to be connected.

TECHNICAL DATA

Electrical data	
Connector type	CEE/IEC 320
Electrical supply	100 To 240 V a.c., 50/60 Hz
Power consumption	Three head 55 VA Six head 160 VA
Fuse	The unit is self-protecting and has no user replaceable fuse. The unit will recover once any overload is removed.
Earth stud	M4
Operating and storage data	
Ambient operating temperature range	0 °C to 40 °C (measured underneath TIC)
Ambient storage temperature range	-30 °C to 70 °C
Maximum ambient operating humidity	Max 90% RH non-condensing at 40 °C
Maximum operating altitude	3000 M max
IP rating	20
IEC rated pollution degree	2
Mechanical data	
Weight	Three head 1.3 kg Six head 1.7 kg

ORDERING INFORMATION

Product description	Order number
TIC instrument controller 3 head RS232/RS485	D39700000
TIC instrument controller 3 head RS232/RS485, certificated	D3970000C
TIC instrument controller 6 head RS232/RS485	D39701000
TIC instrument controller 6 head RS232/RS485, certificated	D3970100C
TIC instrument & barocel controller 6 head RS232/485	D39702000
Active gauge cable 0.5M	D40001005
Active gauge cable 1M	D40001010
Active gauge cable 3M	D40001030
Active gauge cable 5M	D40001050
Active gauge cable 10M	D40001100
Active gauge cable 15M	D40001150
Active gauge cable 25M	D40001250
Active gauge cable 50M	D40001500
Active gauge cable 100M	D40001999
Barocel adaptor cable	D40003050
ASG2 adaptor cable	D40003160
WRH adaptor cable	D14750300

Publication Number: 3601 0224 01 © Edwards Limited 2024. All rights reserved. Edwards and the Edwards logo are trademarks of Edwards Limited.  
 Whilst we make every effort to ensure that we accurately describe our products and services, we give no guarantee as to the accuracy or completeness of any information provided in this datasheet.  
 Edwards Ltd, registered in England and Wales No. 6124750, registered office: Innovation Drive, Burgess Hill, West Sussex, RH15 9TW, UK.

