

TIC instrument controller

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. All versions support and automatically recognise Edwards Active vacuum gauges.



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 (N₂, He, Ar, CO₂, 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 (e.g RV1, LL2, CHBR)
- 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

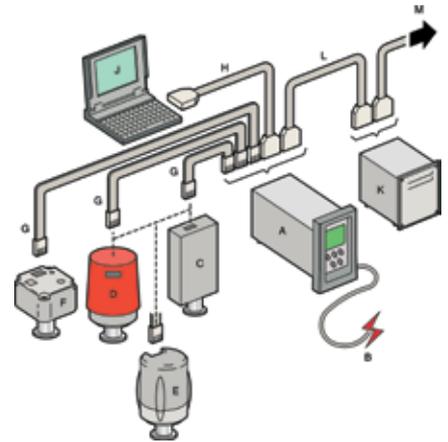
Configuration

The figure illustrates the use of Active Pirani Gauge (APG100) 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 APG100 Pirani, APGX-H Convection, ATC Thermocouple, ASG Strain, AIM-X Inverted Magnetron, WRG-S Wide Range and AIGX Ion.



Item	Product description	Order number
A	TIC Inst Cont 3 Head RS232	D39700000
B	2m UK Mains Cable	D40013025
C	APG100-XM NW16	D02601000
D	AIM-X-NW25	D14642000
E	WRG-S-NW25	D14701000
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	D39700804
L	TIC Logic Interface Cable 2m	D39700833
M	TIC Logic Interface Cable 2m	D39700833

External interfaces and configuration options

Logic interface	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.	
Control inputs	Gauge enable:	Closed when low: < 0.5 V dc Open when high: 4 to 24 V dc
	System interlock:	SYSI closed when low: < 0.5 V dc Open when high: 4 to 24 V dc
Status outputs	Analog output:	1 for each gauge channel 0-10 V dc
	Set points:	1-6 open collector 24 V dc 50 mA
	Alarm:	Open collector 24 V dc 50 mA
Serial interface	The TIC has two built-in communications protocols, RS232 and RS485. These may be used either to interface to a PLC or, using the Windows™ PC software package supplied, connected to a PC for full monitoring and control of a TIC system.	

Relay box (optional)

Two relay boxes are available to allow the TIC set point outputs to operate either three 250 V ac, 3A or six 250 V ac, 5A (non-inductive) changeover relays. The relay box is equipped with a logic connector to allow interfacing with the TIC, and with a separate bypass connector for interfacing with other external control equipment.

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 calibrate
- Energize or de-energize 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
Active Pirani gauge - APG & APGX	2W	✓	✓
Active Linear Convection gauge - APGX-H	2W	✓	✓
Active Inverted Magnetron gauge - AIM & AIMX	2W	✓	✓
Active Thermocouple gauge - ATC	2W	✓	✓
Active Strain gauge - ASG	2W	✓	✓
Wide Range gauge - WRG	2W	✓	✓
Active Ion gauge - AIGX, 1 connected (3 channel)	*	✓	✓
AIGX, up to 3 but only 1 in degas (6 channel)	*		✓

* The AIGX draws 8W in normal operation, 15W in degas mode.

The total power available to drive the gauges is limited to 38 W.

Technical data

ELECTRICAL DATA	
Connector type	CEE/IEC 320
Electrical supply	90 to 264 V ac, 47 to 63 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	1.7 kg

Ordering Information

Product description	Order Number
Controllers	
TIC Instrument Controller 3 head RS232/RS485	D39700000
TIC Instrument Controller 6 head RS232/RS485	D39701000
Calibrated Instrument Controllers	
<i>Controllers are supplied with a certificate of calibration traceable to national standards.</i>	
TIC Instrument Controller 3 head RS232/RJ485 + calibration certificate	D3970000C
TIC Instrument Controller 6 head RS232/RJ485 + calibration certificate	D3970100C
<i>The above controllers are calibrated on their own without gauges. Contact Edwards for controllers calibrated with Active gauges as a set.</i>	
Relay boxes	
TIC Relay Box Instruments 3 x 3A 250V	D39700804
TIC Relay Box Instruments 6 x 5A 250V	D39701804

Web-support page

Download software updates, get copies of manuals at:
<http://www.upgrades.edwardsvacuum.com>

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