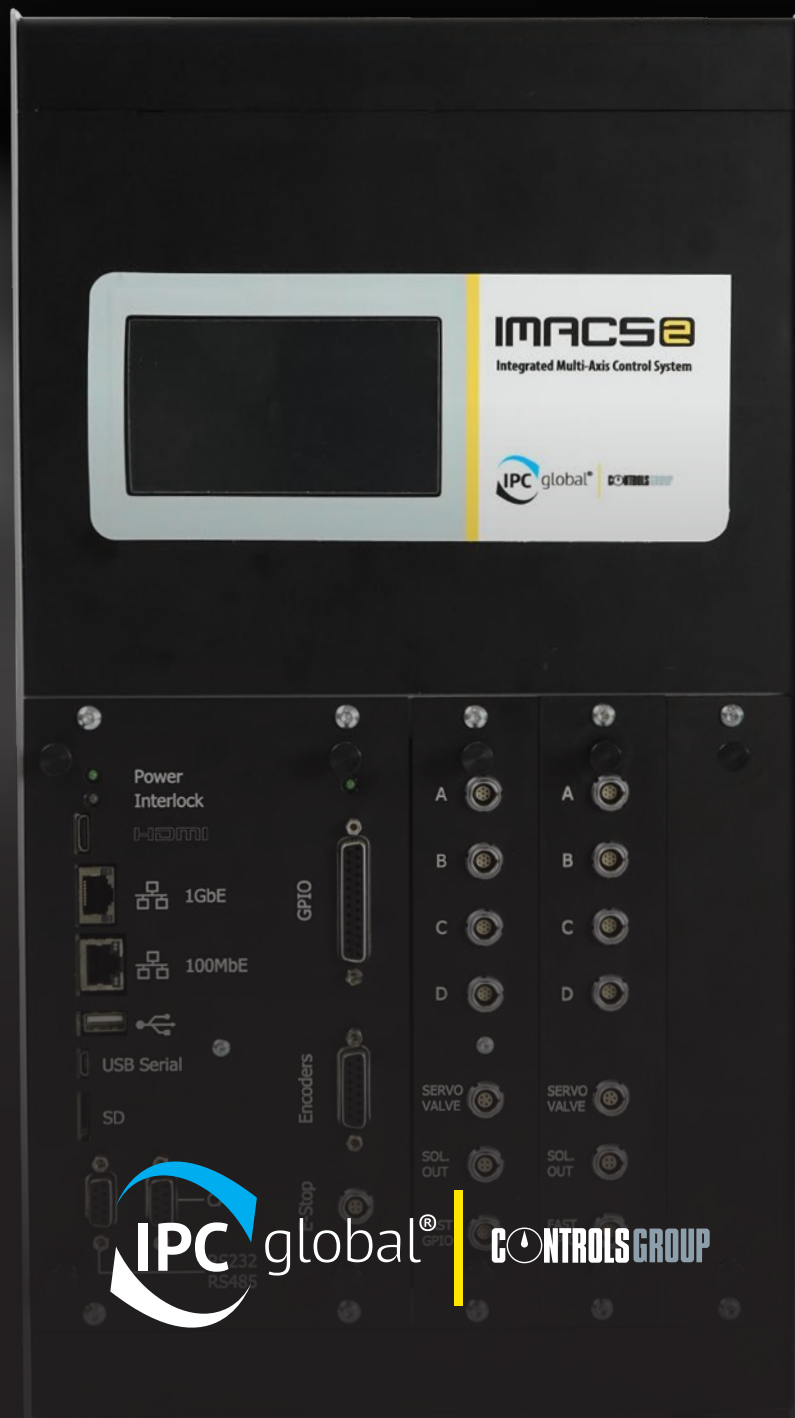


IMACSe

The Ultimate Third Generation Integrated
Multi-Axis Control System (IMACS)

We've made the best
even better



The 3rd generation IMACS² Integrated Multi-Axis Control & Data Acquisition System builds on 30 years' experience as leading manufacturer and trusted partner of advanced dynamic testing systems for asphalts and other pavement materials.

A pioneering tradition

Users really matter

Easy-to-set-up and easy-to-use system designed around your needs by our global team of experts.



Next Generation IMACS2

More than you'll ever need

We've listened to feedback about your needs and wishes and have adopted the most advanced electronic technologies to develop a superior controller that provides the ultimate in testing machine control and powerful data-acquisition that is flexible yet easy to use.

The most advanced controller and data acquisition system in our industry

Ultimate precision — most advanced control & data acquisition with industry leading 24-bit resolution and up to 200kHz sample rate

Smart 'Plug and Play' transducers — quick, easy and avoids set-up errors

Closer analysis with powerful advanced data processing

Dependable — Touch Screen control

No compromise on specification or selection of components

Breathe new life into any legacy testing system a genuinely universal multi-purpose controller

Worry-free seamless migration — compatible with UTS and UTS Neutron

Designed for the future and expandable in every way



Whether you are performing cutting-edge research on new materials or routine materials quality tests, optimum control and test precision are essential.

By harnessing the latest advances in electronics and employing ingenious hardware and software design, our unique controller will address all your testing needs in terms of performance, accuracy and flexibility.

Optimum control and test precision

With IMACS2, you can be assured that your tests will be performed with minimum variability, precisely to specification and results are totally accurate with no peak, trough or failure point being missed.

Designed for the future and expandable in every way

The platform is extremely powerful and will allow you to regularly add new functions that will be made available to the users ensuring the controller is always up-to-date with the very latest technology and innovations.

Right-now, in spite of its cutting-edge performance, we are only using a small portion of its power.



The potential for further development is virtually unlimited.

Continuing our pioneering tradition of innovation and cutting-edge design

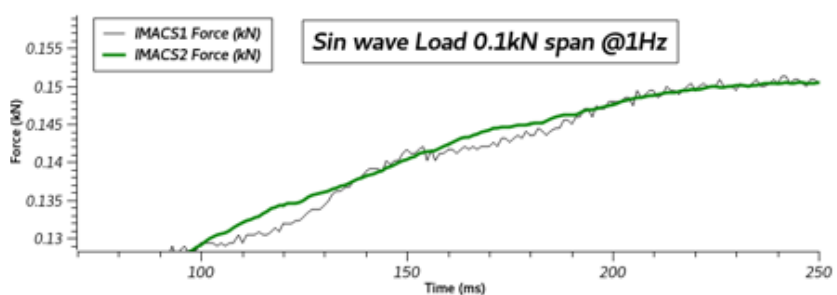
Derived from the acclaimed trusted and well-loved IPC Global IMACS controller heritage, you can have total confidence in the new world-class IMACS2's control and data-acquisition.

Exceptional performance — peace of mind from complete confidence in test and results

- Sampling rates up to the industry maximum 200kHz provide optimum test control for perfect wave-shape fidelity.

- Industry leading 24 bit resolution, essential to obtain the maximum benefit from the extremely high sample rates, ensures complete confidence in results, especially at high frequency tests.
- 5 to 25kHz control loop closure gives exceptional waveshape fidelity minimizing test variability.
- In-built color display

The above provides a level of control, waveform fidelity and purity of data that is second to none.



IMACS2 has been designed to be modular and scalable so you can add additional axes of control and data acquisition channels when required.

Modular expandability

Two expandable modules for 2 to 5 axes of control

The user can concurrently run multiple systems and complex operations from one PC delivering the same output as, more expensive, multiple systems.

A genuinely universal multi-purpose controller.

It can potentially control any testing system leading to full test automation.

Smart Plug & Play transducers

Eliminate set-up errors, increase productivity, save valuable time and reduce cost. Plug-in any compatible transducers and the controller knows what to do.



Acquisition and Control Channels

Flexibility
Up to 20 ADC channels

Accuracy and repeatability
24-bit Sigma-Delta ADC

Waveshape fidelity
Up to 200 kHz acquisition rate

Wide-range compatibility
+10V , -10V Input range

Easy to use
Auto-calibration routines

Precise actuation control
Up to 25 kHz control loop rate

| | |
|----------------------------------|------------------|
| Max. Channels | 20 |
| Channels Per Axis | 4 |
| Number of Axis (default + opt) | 2 + 3 |
| 1 PC Communications | Gigabit Ethernet |
| 2 | USB |
| 3 External Communications | RS485 / RS232 |
| 4 Interfaces | CAN / Ethernet |
| 5 Digital Inputs | 8 |
| 5 Digital Outputs | 8 |

Dependable and user-friendly



Data safety confidence

An innovative double control facility (local via color touch screen display) and remote (via PC) will be available to allow users to set-up tests directly on the controller as well as from a PC ensuring valuable test continuity in event of PC disconnection.

Easy-to-use system

Designed around the user's needs reducing learning curve and simplifying testing procedures.

Future-ready

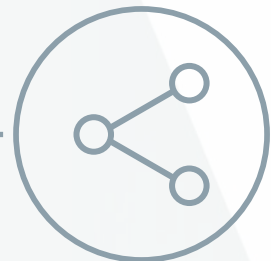
Internet remote connection, ready for advanced 4.0 connectivity for any future need.



Superior storage

The multiple data storage options include internal storage for data protection, USB ports and ethernet.

Smart remote connectivity and support



Using the ethernet, the system can seamlessly connect to your network and be accessed remotely for system diagnostics, training, advanced support and firmware updates.



Maximum flexibility

To further maximize the systems versatility, IMACS2 has been designed with the most comprehensive and advanced array of external interfaces giving you the ability to interface with and control almost any system, including:

- Gigabit and 100Mb ethernet
- USB, RS232/485
- CAN bus
- GPIO
- ESTOP
- HDMI
- Servo valve outputs
- solenoid outputs
- Servo motor control
- Encoders and more!

Online Connectivity Industry 4.0 ready



Remote technical support

Allows remote access to the machine for diagnostics and advanced customer support

Tuning of the system according to the specific test and material

Checking the correct settings



Firmware upgrade to the latest release



Cloud backup and storage *



Interface with laboratory information management system (LIMS)*

* Check with our product specialists for specific details, capabilities and availability.



IMACS2 specifications

CONTROL AND DATA ACQUISITION

| | |
|------------------------------------|-------------------------|
| ADC Resolution | 24 bit |
| Sampling Rate (ks per sec) | 5kHz up to 200kHz |
| Oversampling | Up to x64 |
| DAC Resolution | 16 bit |
| Control Loop Frequency (kHz) | 5kHz – 25kHz |
| Max. Channels | 20 |
| Channels Per Axis | 4 |
| Number of Axis (standard + opt) | 2 + 3 |
| PC Communications | Gigabit Ethernet USB |
| External Communications Interfaces | RS485 / RS232 |
| CAN / Ethernet | |
| Digital Inputs | 8 |
| Digital Outputs | 8 |
| Plug and Play Transducers | yes |
| Touchscreen LCD Display | yes |
| HDMI Output | yes |
| USB Host | yes |
| Encoder Input | yes |
| PWM / Stepper Motor Control | yes |
| Solenoid Outputs | 10 — 2 per axis |
| SD Card | yes |
| Internet remote connection | yes |

EXTERNAL INTERFACES

| |
|--|
| Gigabit Ethernet — UTS/UTS Neutron interface |
| 10/100Mb Ethernet — Internet access, Data share (e.g., Remote Diag, Upgrades) |
| RS232/RS485 — Serial extender and controller (e.g., climatic chambers) |
| CAN bus — Generic peripheral extender (e.g., Hydraulic board) |

ISOLATED GENERAL-PURPOSE I/O & ESTOP

Opto-Isolated GPIO

Standard DB25 connector

8 Input (PNP/NPN)

8 Output (Open collector)

General IO Extender

ESTOP loop

External Emergency button

Hydraulic Fault detection

Instantaneous power cut

Safety feature

PLUG & PLAY TRANSDUCERS

Automatic transducer recognition

Automatically uploads calibration files (prevent human error)

Compatible with existing IPC Global In-line signal conditioners (ILC)

Allows calibration editing (if necessary)

IMACS2 specifications

EMBEDDED GRAPHICAL USER INTERFACES MOTOR & POWER CONTROL

Servo ValveOutput

- 2x 16 bit DAC per axis
- 0-24V drive, up to 3Amps

Hydraulic/ElectroMechanic (EmS)/Pneumatic UTM

Solenoid Outputs

- 2x Relay switch per axis
- Up to 2 Amps

ON/OFF Controller (DC Motor)

Servo Motor controller

- 2x Independent PWM driver (Step, Enable, Direction)

Encoder input

- 2x Quadrature (A, B, Home)

Data storage — Multiple internal/external logging possibilities. Easy to use storage facilities.

Embedded Local Storage (up to 4GB)

SD card slot

USB Host port (USB Stick, Hard Drives, etc.)

Internet data sharing

Remote management

IMACS2 SUPPORTS OUT-OF-THE-BOX CONNECTION TO THE CONTROLS UPDATE CENTER

Available network interfaces:

- 10/100Mbit Ethernet
- USB Tethering (e.g., smartphone)
- WiFi* (e.g., USB dongle)

Remote management

Secure internet connection for:

- Device authentication
- Factory-authenticated setup
- System diagnostics

Integrated diagnostic facilities (e.g., logs, safety checks)

Advanced Customer Support

Direct contact with Controls' support team

Firmware upgrade

Always updated with new features and bug-fix releases

* Special feature available on application.

▶ IPC Global Customer Care

At IPC Global we are proud of our products.

We are dedicated to supplying high quality, accurate, affordable, easy-to-use systems for Advanced Testing of asphalt, binders and other pavement materials.

As a valued customer of IPC Global you will receive continuous, expert support and advice for your instrument. Furthermore, we offer full installation and training in the correct operation of your IPC Global equipment.

For support from our expert Customer Care Team, contact your local IPC Global | CONTROLS Group office / distributor or email ipcglobalsupport@controls-group.com.

Visit our website for more information www.controls-group.com/ipcglobal.

▶ Contact us

www.controls-group.com/ipcglobal



IPC Global

E ipcglobalsales@controls-group.com www.controls-group.com/ipcglobal



CONTROLS Group

T +39 02 92184 1

F +39 02 92103 333

E sales@controls-group.com

www.controls-group.com

Italy (HEAD OFFICE)

www.controlsitalia.it

Mexico

www.controls.com.mx

UK

www.controlstesting.co.uk

Australia

www.controls-group.com/ipcglobal

Poland

www.controls.pl

USA

www.controls-usa.com

France

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Spain

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