

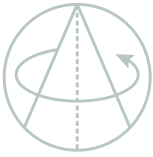
iMPULSE™ GL1™ One-Axis Rate Table

Specifications: GL1	Single Axis
Angular Freedom	continuous
Position Accuracy	+/- 1 arc sec
Rate	
Range	± 1500 deg/sec (Option: ±3000 deg/sec)
Stability - over 360 deg (≥50deg/sec up to full rate)	0.0001%
- over 10 deg (5deg/sec ≤ rate ≤ 50 deg/sec)	0.0036%
- over 1 deg (rate ≤5 deg/sec)	0.036%
Mechanical	
Wobble	<5 arc sec
Nominal Load	Up to 75 kgs
Table Top Diameter	700mm (Option: 850mm without temperature chamber)

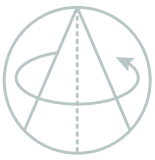
Temperature Chamber	
Temperature Range	-55°C to +125°C (Option: +150°C)
Temp. Ramp Rate, Mechanical	+/- 4°C per min. w/o thermal load
Temp. Ramp Rate, LN2	+/- 5°C per min. (Option: +/- 15°C per min.)

Electrical Access Configurations	
Basic (2M revolutions)	48 lines @ 2A / 240VAC (Option: 100Mbit/s contactless ethernet line)
Premium (20M revolutions)	100 lines @ 2A / 150VDC (Option: 100Mbit/s contactless ethernet line) or 50 lines @ 2A / 150VDC and 4 lines @ 20A / 400VAC (Option: 100Mbit/s contactless ethernet line on demand or 1Gbit/s contactless ethernet line)

Note: the use of basic sliprings is not recommended for high-speed or real-time applications. Basic sliprings may be subject to higher noise.



Code Features & Options: GL1™		
Standard product without temperature chamber (TC)		
	- with ACUTROL® iIMPACT™, GUI Software (license required) & standard cabinet	Standard
	- rate: +/-1500 deg/sec	Standard
	- table top diameter of 700mm	Standard
	- sliping with 48 customer lines @ 2A / 240VAC (basic)	Standard
	- extended 3 year Warranty on non-wear parts/mechanical cooling	Standard
Temperature Chamber Options (select only 1 option)		
100	Closed-Loop Mechanical Cooling (requires water supply)	Stock Item
101	LN2 Cooling	Stock Item
Sliping Upgrades (select only 1 option)		
200	Upgrade sliping to 48 lines @ 2A + 100Mbit/s contactless ethernet line (basic)	Stock Item
201	Upgrade sliping to 100 lines @ 2A (New premium)	Stock Item
202	Upgrade sliping to 100 lines @ 2A + 100Mbit/s contactless ethernet line (New premium)	Stock Item
203	Upgrade sliping to 50 lines @ 2A and 4 lines @ 20A (New premium)	Stock Item
204	Upgrade sliping to 50 lines @ 2A and 4 lines @ 20A + 1Gbit/s contactless ethernet line (premium)	Stock Item
Features		
300	Upgrade to table top diameter 850mm (without TC only)	Stock Item
301	Upgrade peak rate to +/-3000 deg/sec (with premium sliping, limited to 10M revs.)	Stock Item
307	Safety cage (purchase w/o safety cage only possible w/ approved enclosure, wiring & conformity assurance)	Upon Request
309	GUI PC	Stock Item
310	Remote emergency stop button	Stock Item
311	Remote pilot box	Stock Item
312	Setup mode	Stock Item
313	Power supply transformer for USA 115V/3x200V (without TC)	Stock Item
314	Power supply transformer for USA 115V/3x200V and/or 60Hz conversion kit (with TC)	Stock Item
315	TC policeman regulator	Stock Item
316	Temperature gradient of 15°C/min (only available with LN2 Cooling, min. 6 bar pressure)	Upon Request
317	Maximum temperature of 150°C	Stock Item
318	Mechanical cooling unit modified for chiller (only available w/ option 100)	Upon Request
319	Mechanical cooling INDOOR chiller (only available w/ option 318)	Upon Request
320	Proportional Valve for Mechanical Cooling (w/ option 100)	Stock Item
321	Proportional Valve for LN2 Cooling (w/ option 101)	Stock Item
322	Upgrade to tilt stand	Upon Request
Wear Parts (not covered by Warranty)		
400	Sliping with 48 lines @ 2A (basic)	Upon Request
402	Sliping with 100 lines @ 2A (New premium)	Upon Request
404	Sliping with 54 lines (New premium)	Upon Request
406	Sliping with 54 lines + 1GB contactless ethernet line (premium)	Upon Request
408	Additional wear parts (incl. drivepack bearings; fan bearings; TC hinges; door knobs; door seals; refrigerant valves; cooling unit dryer; cooling unit filters; electrical relays, switches, buttons).	Upon Request
Services		
500	Factory acceptance test (FAT)	Option
501	Servo-optimization for customer load (price per load, during installation/CAT)	Option
Custom Features		
600	Customized sliping (premium)	Upon Request
601	Customized tabletop	Upon Request



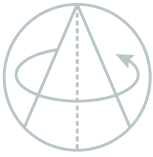
iMPULSE™ GM1™ One-Axis Rate Table

Specifications: GM1		Single Axis
Angular Freedom		continuous
Position Accuracy		+/- 1 arc sec
Rate		
Range		± 1500 deg/sec (Option: ±3000 deg/sec)
Stability	- over 360 deg (≥50deg/sec up to full rate) - over 10 deg (5deg/sec ≤ rate ≤ 50 deg/sec) - over 1 deg (rate ≤5 deg/sec)	0.0001% 0.0036% 0.036%
Mechanical		
Wobble		<5 arc sec
Nominal Load		Up to 50 kgs
Table Top Diameter		500 mm

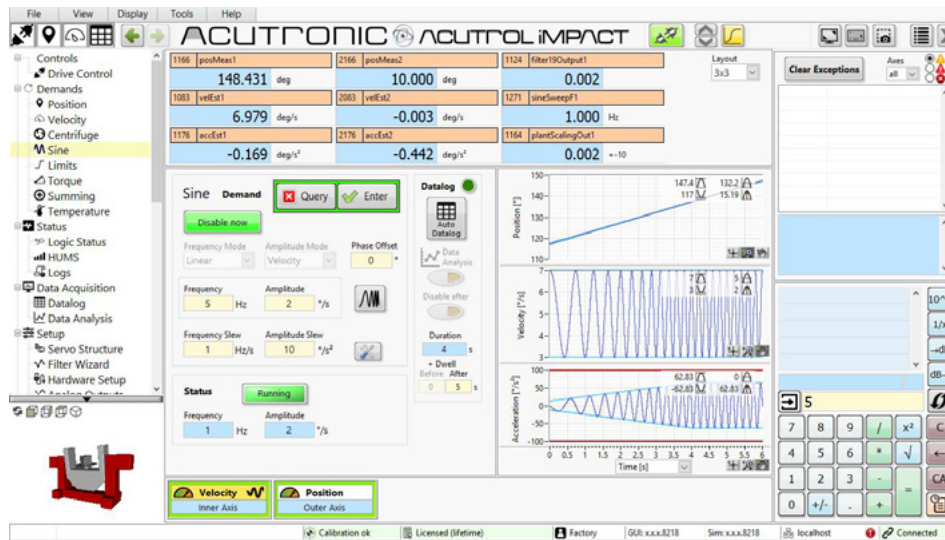
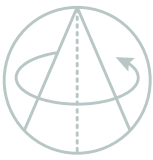
Temperature Chamber	
Temperature Range	-55°C to +125°C (Option: +150°C)
Temp. Ramp Rate, Mechanical	+/- 4°C per min. w/o thermal load
Temp. Ramp Rate, LN2	+/- 5°C per min. (Option: +/- 15°C per min.)

Electrical Access Configurations	
Basic (2M revolutions)	48 lines @ 2A / 240VAC (Option: 100Mbit/s contactless ethernet line)
Premium (20M revolutions)	100 lines @ 2A / 150VDC (Option: 100Mbit/s contactless ethernet line) or 50 lines @ 2A / 150VDC and 4 lines @ 20A / 400VAC (Option: 100Mbit/s contactless ethernet line on demand or 1Gbit/s contactless ethernet line)

Note: the use of basic sliprings is not recommended for high-speed or real-time applications. Basic sliprings may be subject to higher noise.



Code	Features & Options: GM1™	
	Standard product without temperature chamber (TC)	
	- with ACUTROL® iMPACT™ & standard cabinet	Standard
	- rate: +/-1500 deg/sec	Standard
	- table top diameter of 500 mm	Standard
	- slipring with 48 customer lines @ 2A (basic)	Standard
	- extended 3 year Warranty on non-wear parts/mechanical cooling	Standard
	Temperature Chamber Options (select only 1 option)	
100	Closed-Loop Mechanical Cooling (integrated TC & air-cooled compressor)	Upon Request
101	LN2 Cooling	Upon Request
	Slipring Upgrades (select only 1 option)	
200	Upgrade slipring to 48 lines @ 2A + 100Mbit/s contactless ethernet line (basic)	Stock Item
201	Upgrade slipring to 100 lines @ 2A (New premium)	Stock Item
202	Upgrade slipring to 100 lines @ 2A + 100Mbit/s contactless ethernet line (New premium)	Stock Item
203	Upgrade slipring to 50 lines @ 2A and 4 lines @ 20A (New premium)	Stock Item
204	Upgrade slipring to 50 lines @ 2A and 4 lines @ 20A + 1Gbit/s contactless ethernet line (premium)	Stock Item
	Features	
301	Upgrade peak rate to +/-3000 deg/sec (with premium slipring, limited to 10M revs.)	Stock Item
307	Safety cage (purchase w/o safety cage only possible w/ approved enclosure, wiring & conformity assurance)	Upon Request
309	GUI PC	Stock Item
310	Remote emergency stop button	Stock Item
311	Remote pilot box	Stock Item
312	Setup mode	Stock Item
313	Power supply transformer for USA 115V/3x200V (without TC)	Stock Item
314	Power supply transformer for USA 115V/3x200V and/or 60Hz conversion kit (with TC)	Stock Item
315	TC policeman regulator (only available w/ option 101)	Stock Item
316	Temperature gradient of 15°C/min (only available with LN2 Cooling, min. 6 bar pressure)	Upon Request
317	Maximum temperature of 150°C	Stock Item
321	Proportional Valve for LN2 Cooling (w/ option 101)	Stock Item
322	Upgrade to tilt stand	Upon Request
	Wear Parts (not covered by Warranty)	
400	Slipring with 48 lines @ 2A (basic)	Upon Request
402	Slipring with 100 lines @ 2A (New premium)	Upon Request
404	Slipring with 54 lines (New premium)	Upon Request
406	Slipring with 54 lines + 1GB contactless ethernet line (premium)	Upon Request
408	Additional wear parts (incl. drivepack bearings; fan bearings; TC hinges; door knobs; door seals; refrigerant valves; cooling unit dryer; cooling unit filters; electrical relays, switches, buttons)	Upon Request
	Services	
500	Factory acceptance test (FAT)	Option
501	Servo-optimization for customer load (price per load, during installation/CAT)	Option
	Custom Features	
600	Customized slipring (premium)	Upon Request
601	Customized tabletop	Upon Request



ACUTROL® iMPACT™ Industrial Multi-Axis Digital Motion Control System

Available exclusively with our iMPULSE™ rate tables, the new iMPACT™ controller brings the ACUTROL® series into the Industrial “Internet-of-Things” / “Industry 4.0” era. The leading motion control system for high precision single and multi-axis inertial guidance, electro-optic test systems and stabilized platforms now comes with industrial grade components and modelgenerated software. The iMPACT™ controller offers a robust, modular and flexible control architecture. It is compatible with the well-established and time-tested ACUTROL® Control Language (ACL).

Industrial

- Industrial interconnected EtherCAT modules for flexibility and reliability
- Payload Wizard for ease of servo compensation
- Health and Usage Monitoring Systems (HUMS)
- Industrial security monitoring systems
- Remote access to simulator via Local (LAN) or Wide (WAN) Area Network
- In-application support (offline help)

Modular Packages

- Controller features can be scaled according to user needs.

Expert level features include:

- State of the art, embedded Data Logger
- Integrated temperature chamber controller
- Optional touch screen display

Performance

- Compensation of deterministic cogging and position errors resulting in high position accuracy and smooth rate performance
- EtherCAT: High speed and low jitter Ethernet-based real-time fieldbus system
- Synchronous axis control
- Motion profile previsualisation

ACUTROL® Heritage

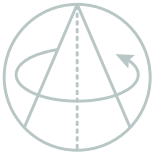
- Compatible with the ACUTROL® Control Language (ACL)
- Intuitive Windows 10 GUI with user-friendly access to menus, operator inputs, control and security features
- Asynchronous control in remote operation
- Adaptable servo topology, including freely configurable digital filters allowing customized control strategies to match the application
- System optimization for different payloads
- Look-up tables for error correction

Customization

- Tabs can be configured, organized and optimized according to the user experience
- Customizable analog inputs and outputs
- Software examples for developers (LabVIEW, C++ and Matlab)

Technology

- EtherCAT communication digitalizes the transmission of signals, making the system more robust and easier to maintain
- Software based on LabVIEW and Simulink guarantees stability, quality and expandability



Code	Features & Options: iIMPACT™
License Options	
Annual Subscription License (payable at the end of every 12-month period)	
10	Basic Annual License, starting 12 months after delivery (incl. software support & updates)
11	Basic and Advanced Annual License for all Features (at the time of system installation, incl. software support & updates)
12	Upgrade from Basic to Basic+Advanced License (during the lifetime of the system)
Lifetime License (payable 1 time, upfront)	
20	Basic Lifetime License (incl. software support & updates during the first 12 months after delivery only)
21	Lifetime License for all Basic and Advanced Features (at the time of system delivery)
22	Lifetime License for all Basic and Advanced Features (at the time of system delivery) with annual software update
23	Annual software support & updates, starting 12 months after delivery
Software Features (all advanced features are activated for the trial mode of 90 days)	
Basic Features	
30	Drive Enable: allows enabling of the servo drives (interlock close)
31	Position Mode is a primary mode of motion
32	Velocity Mode is a primary mode of motion
33	Sine Mode is a secondary mode motion (legacy synthesis mode)
34	G-Mode is a primary mode of motion designed for centrifuge applications - Automatic boom arm compensation is included
Advanced Features (some SW features require hardware - see below)	
40	Analog Output: enables the use of two configurable analog outputs per system if available
41	Demand Summing: summing of primary modes of motion with internal or external motion command (if analog input is available)
42	Event Pulse: enables the programmable, configurable pulse for synchronization or measurement purposes
43	Datalogger: datalog and export the controller's variable to a file for Excel, Matlab or Labview
44	Payload Change Wizard: measures and adjusts automatically the inertia of the customer's payload
45	Temperature Controller Interface: use ACL commands for Setpoint and Fan speed control
46	GPIB: enables the GPIB interface if available
47	ACL Macro : use ACUTROL3000 syntax to generate macros (motion sequences) on the iIMPACT GUI
48	G-Mode for rate table: enables primary mode of motion on GM1/GL1 or inner axis of GL2 Series
49	RS-232: enables the RS-232 Interface if available
50	VMIC: enables the VMIC Reflective Memory Interface if available (will be released in 2022)
Hardware (The Software License has to be selected separately)	
80	Analog Input/Output: D-sub connector located at the base of the iIMPACT cabinet; required for Features 40 and 41
81	GPIB Interface: USB to IEEE 488 converter located at the base of the iIMPACT cabinet; required for Feature 46
82	RS-232 Interface: Ethernet to RS converter located at the base of the iIMPACT cabinet; required for Feature 49
83	I/O BNC Panel
84	VMIC Interface: required for Feature 50 (will be released in 2022)
Special Software	
95	System Emulator: a simulation software to emulate the rate table's behavior and response, for development and training purpose

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