

5972 Magnet Control



OVERVIEW

The GMW 5972 Magnet Control system acts as controller, interlock and DAQ for GMW Electromagnet Systems. A complete system typically consists of a DC magnet power supply, the 5972 Magnet Control, a Senis Magnetic Field Transducer, a GMW electromagnet, and computer with control software.

The DC magnet power supply provides current directly to the electromagnet. The Supply's output is enabled on a closed contact, providing protection should the interlock cable be disconnected. A failure in either the magnet temperature or water flow will cause the interlock relay to open, shutting down the DC Supply's output.

The 5972 Magnet Control is comprised of several sections: The display and interlock control electronics, a National Instruments USB-6351 Control with USB interface and an auxiliary power supply all integrated into a single 19" rack mounting chassis.

The NI USB-6351 DAQ interface provides computer control and monitoring of the system. It provides a 16-bit analog output ($\pm 10V$) as a programming signal to the DC Supply. The output voltage and current are monitored by two 16-bit input channels. The magnet interlock status is also monitored via its digital input channels. When using an optional Senis Magnetic Field Transducer, the field is read back on a third 16-bit analog channel. An Auxiliary Analog Input connector allows for up to five additional analog inputs with user settable full-scale inputs from $\pm 2V$ to $\pm 10V$.

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5972 General Specifications

Electrical

Power Input 85-240VAC, 50/60Hz, 2A

Note: While the power input module has a 'selectable' voltage range, it is not necessary to select the range for any voltage between 85 - 240VAC.

Control Modes

Manual Control	Manual control of the DC current via the DC Power Supply's front panel controls Manual control of the current polarity via the Current Reversal Switch's front panel controls
Computer Control	National Instruments Multifunction DAQ, Model USB-6351 Current Control Resolution: 16 bits Current & Voltage Monitor Resolution: 16 bits Digital read back of amplifier and magnet interlock status Magnetic field read back resolution: 16 bits

Mechanical

5972 Current Magnet Control

Form Factor	3U rack mount fully enclosed chassis
Overall Dimensions	482mm (19")W x 132.0mm (5.20")H x 586.1mm (23.0")D
Weight	15.75 kg (35lbs)

5972 Magnet Control & SGA Power Supply in Optima Rack

Overall Dimensions	560.5 (22") W x 1,058 (41.6") H x 823 (32.4") D
Weight (with Sorensen SGA 60/83)	105.75kg (235lbs)
Weight (with Sorensen SGA 100/150)	115kg (250lbs)