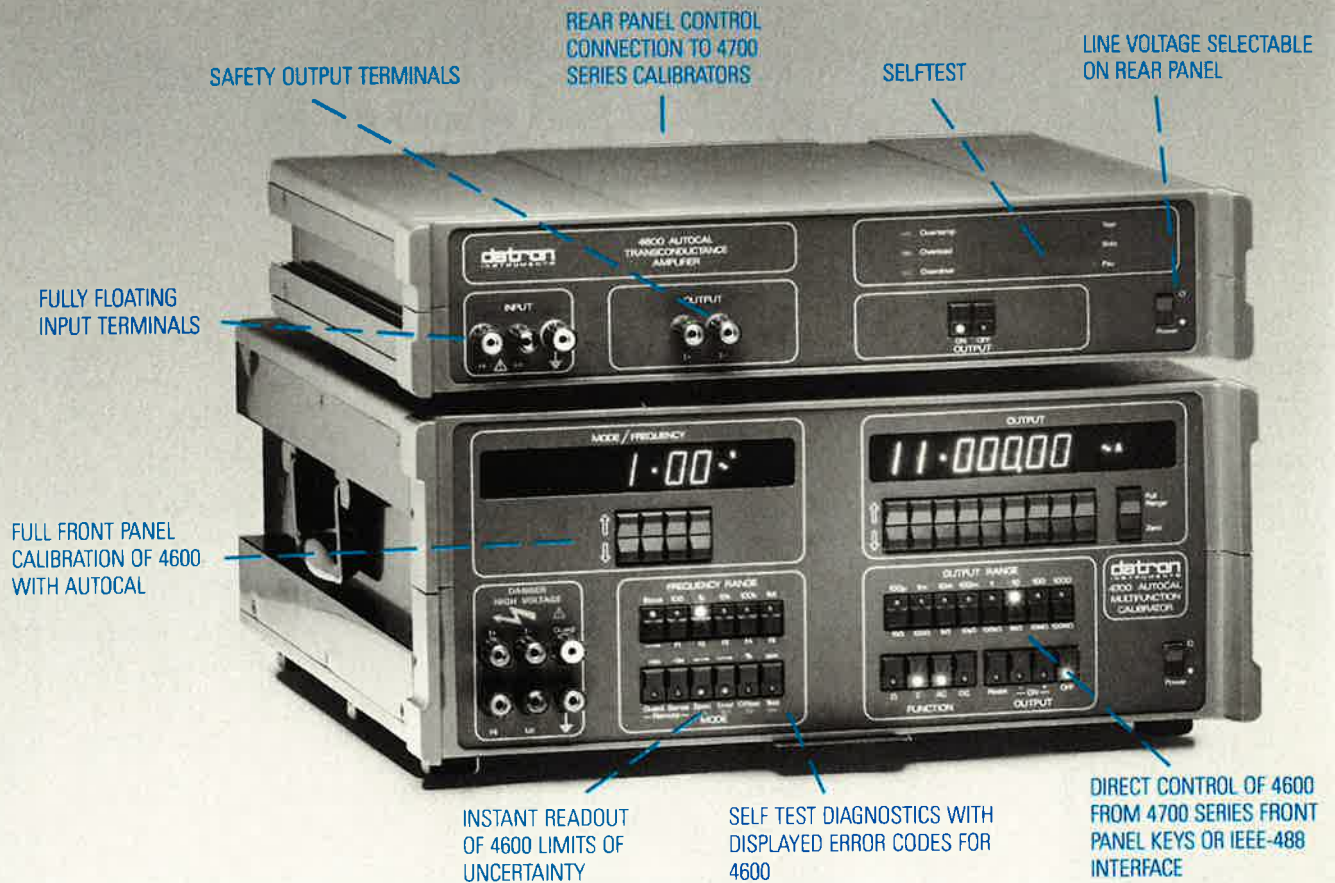




— THE MODEL 4600 —
AUTOCAL TRANSCONDUCTANCE AMPLIFIER



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11A PRECISION DCI & ACI

The Model 4600 is a rugged and compact instrument which extends the current sourcing capabilities of the Datron range of Multifunction Calibrators to 11A DC or rms AC. Although it is designed for operation in conjunction with the Datron 4700 series of Multifunction Calibrators, the Model 4600 may be used with any suitable voltage source to generate the high currents necessary for calibration of the many bench and handheld DMMs which are capable of measuring currents of up to 10A or more.

TWO OPERATIONAL MODES

The Model 4600 may be operated in either of two modes, depending on whether it is being used with a compatible Datron series 4700 Calibrator, or some other suitable voltage source.

SLAVE MODE

When used with a Datron 4700 series calibrator, a lead kit (Datron Part Number 440151) consisting of two cables connects the Model 4600 to the calibrator. The first cable is fully shielded and carries the analog voltage from the rear panel of the calibrator to the rear panel of the Model 4600. The second cable carries control signals between the two rear panels enabling the calibrator to automatically sense the presence of the amplifier, and control it. In this mode, the 10A range of the calibrator is enabled, and the user is able to program the required Model 4600 current output either directly from the calibrator's front panel keys or via its IEEE-488 interface.

SOLO MODE

If not used with a Datron 4700 series calibrator, the Model 4600 acts as a straightforward transconductance amplifier, converting a voltage input to a current output with a transfer characteristic of 1 Amp DC or AC output for

1 Volt DC or AC input. In this mode, the Model 4600 may be coupled to any convenient voltage source to produce total 90 day accuracies to $\pm 125\text{ppm}$ (DC currents from 0 to 11A) and $\pm 430\text{ppm}$ (AC currents from 0.9 to 11A and frequencies from 10Hz to 5kHz). These uncertainties assure a sufficient margin of calibration accuracy over the performance of bench and handheld DMMs.

AUTOCAL

When being operated in the slave mode, the Model 4600 utilizes the Autocal technique employed in the Datron 4700 series calibrator, eliminating the need for any mechanical adjustments during the recalibration process. At calibration, the calibrator stores the transconductance characteristics of the amplifier in memory, so that during normal operation it can automatically generate the precise voltage necessary for the requested current output. If, however, the Model 4600 is not being used with a compatible Datron 4700 series calibrator, then the amplifier may still be recalibrated through the more traditional means of simple mechanical adjustments.

WINNING TEAM

The combination of the Model 4600 and the Datron range of Multifunction Calibrators and Standards, provides the calibration laboratory with an unparalleled choice of functional capabilities and performance. Together with Datron's menu driven calibration software, controllers and accessories the Autocal range offers a selection of high quality instruments and automated systems with a variety of different specifications and costs, to suit any application and budget. Whatever the requirement – be it calibrating the latest high performance $8\frac{1}{2}$ digit DMMs, or the less demanding area of verifying $5\frac{1}{2}$ digit bench DMMs and handhelds – there is a cost effective solution available from Datron, which is deliverable NOW!

COMPATIBLE WITH
DATRON 4101B
MULTIMETER
CALIBRATION
SOFTWARE



THE MODEL 4600

AUTOCAL TRANSCONDUCTANCE AMPLIFIER

datron
INSTRUMENTS

FUNCTION & RANGE	FREQ. (HZ)	ACCURACY ±(ppm OUTPUT + ppm FS) [1][2][3]			CALIBRATION UNCERTAINTY (ppm)	TEMPERATURE COEFFICIENT (±ppm OUTPUT/°C) 3°C–13°C 33°C–43°C [4]	TOTAL HARMONIC DISTORTION %	IMPEDANCE	COMPLIANCE
		24 HOUR 23°C ± 1°C	90 DAY 23°C ± 1°C	1 YEAR 23°C ± 10°C					
DCI 0–11.00000A	–	30 + 25	50 + 25	150 + 25	30	14	–	> 100kΩ	> 2V
ACI 0.9–11.00000A	10–1k	150 + 55	200 + 55	300 + 60	130	20	0.2	> 2kΩ	> 2Vrms
	1k–5k	650 + 70	700 + 70	800 + 80	280	20	0.5		

OTHER SPECIFICATIONS	
INPUT IMPEDANCE:	300kΩ/100pF
ISOLATION:	100V pk I- to Chassis
OUTPUT PROTECTION:	Fully protected against open and short circuits
INPUT PROTECTION:	240Vrms continuous
DCI OUTPUT:	True bipolar output capable of delivering ±11A
OVERRANGE:	10%
SETTLING TIME:	1s to 40ppm of step size
ACI SCALE LENGTH:	9% to 110% of range
SETTLING TIME:	To 100ppm of step size 10–32Hz < 10s 32–330Hz < 3s > 330Hz < 1s
SLAVE MODE COMPATIBILITY:	Datron 4707 version 5.00 or later Datron 4700 version 5.00 or later Datron 4705 version 5.00 or later

GENERAL	
POWER SUPPLY	100/120/220/240 volts ± 10% 50Hz or 60Hz
POWER CONSUMPTION	200 Watts
OPERATING TEMP.	0°C to +50°C
STORAGE TEMP.	–40°C to +70°C
DIMENSIONS	89mm (3.5") × 455mm (18") × 420mm (16.5")
WEIGHT	10kg
SAFETY	Designed to UL 1244, IEC 348 & BS4743
WARRANTY	1 Year

ORDERING INFORMATION

Model 4600 (11A DCI & ACI)
440151 Slave Mode Lead Kit
440154 Analog Output Leads
Option 90 Rack Mount Kit

NOTES: [1] Relative to input voltage.
[2] For resistive loads. Typical for inductive loads.
[3] FS = 2 × Full Range
[4] Halve values for 23°C ± 10°C

4600 SPECIFICATIONS



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THE DATRON CALIBRATION & MEASUREMENT RANGE

Datron Instruments leads the world in the design and manufacture of programmable calibrators, automated calibration systems and digital multimeters. Complementing the Datron Instruments range, other divisions within the Group are also engaged in the production of some of the world's finest test instruments. To assist you, data sheets are available with more detailed product information and full specifications. Contact us now and we will be pleased to send you the information you require.

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