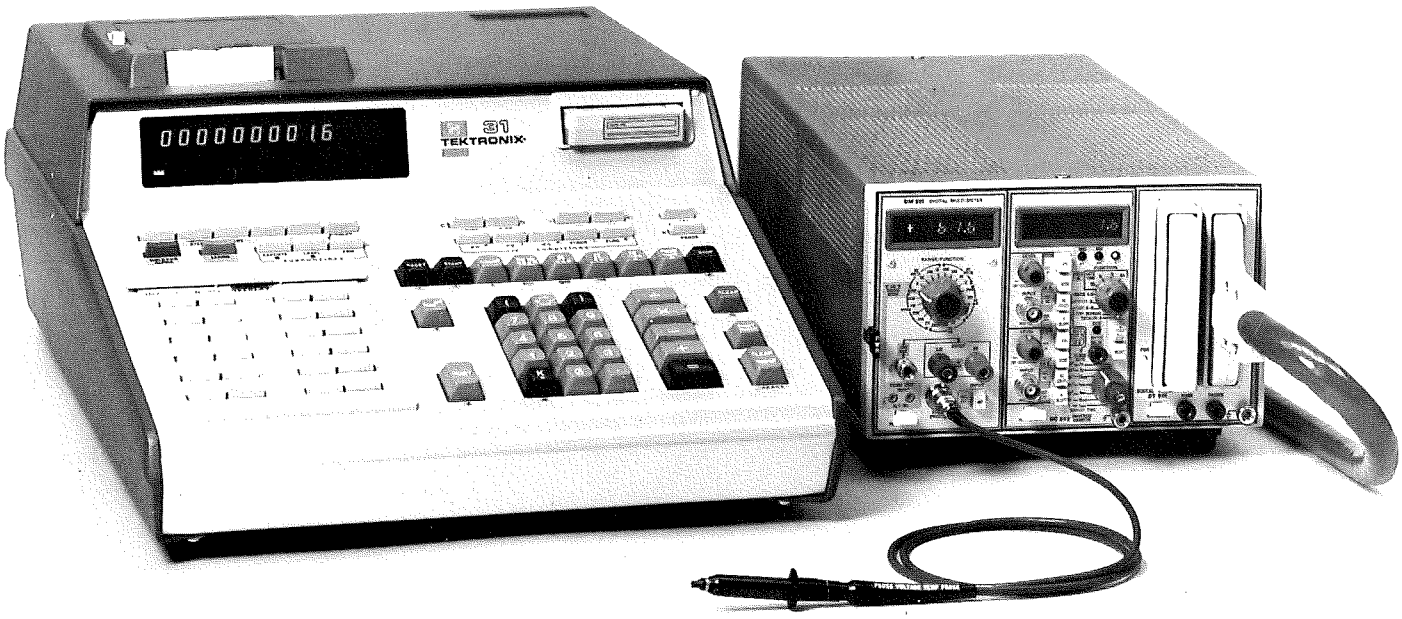

TEKTRONIX 31/53 Calculator Instrumentation System

The Data Operator.

We think it's about time somebody did something for your end of data acquisition. That somebody is Tektronix, and that something is our new 31/53 Calculator Instrumentation system.

Maybe you're getting a lot of raw data from your instrumentation: test and measurement responses, transducer data, process control signals, monitoring numbers and more. Let's say your data operations take the form of logging, documenting, calculations, and even statistical analysis. If you're doing any or all of that by hand, it could be costing you in time and talent; to say nothing of the obvious limits of hand-made data processing.

Why not join your needs to our low-cost 31/53? The system combines the 31 programmable calculator with the three-compartment main-frame. Fitting within and powered by the main-frame is the special interface. This interface fills one compartment while optional counters and/or multimeters fill the remaining two. Plug-in software tapes are included to take care of the operation details.

What this means is that whatever the instrumentation, wherever the application; the 31/53 can provide you with the versatility, accuracy and capacity you'll be needing. How?

Simplicity:
The calculator is built for easy math conversation. The 28 built-in math operations and 24 user-definable function keys are only part of the story. The 31 follows natural math hierarchy. That, along with the silent alphanumeric printer, the 74 registers and the 512-step memory means you don't need to fragment your operation or your thinking.

Software:
By plugging in the magnetic tape cartridges you get automatic data acquisition, logging, and statistical routines. The software will also pick out the number of samples you need, along with the rate, data limits then provide automatic termination.

Modularity:
All the optional modules, both counters and multimeters, are unusually compact. They're also identical in size—which means they're interchangeable within a single main-frame but check the patch plug in use. (See 31/53 options.) When not in use, the modules can be stored like books on a shelf.

Product Data

31/53 System:
Consists of a 31 Programmable Calculator and a 153 Instrumentation Interface with software. 31/53 System operation manual, 31 and 153 Interface component manuals.
- Interface cable

31 Calculator Features:
In the alpha mode, the 31 allows completely versatile printouts (via optional printer).
- User-definable PROM (programmable read only memory) capability
- 512-step memory
- 74 data registers
- Programs, all or part can be stored on magnetic tape cartridges
- Easily installed memory options
- A variety of optional software programs
- Complete alphanumerics; with each key providing a different alphabetical or punctuation character
- Complete edit capability
- Flashing display for overrange or illegal math operations
- Display: 10 digit mantissa with 2 digit exponent.

Programming:
- Floating point, standard or mixed scientific notation data entry
- Conditional branching
- Unconditional branching
- Single key register arithmetic
- Indirect addressing
- Symbolic addressing of subroutines
- Subroutine nesting
- Programmable flag

Standard Accessories:
- Tektronix 31 verification program
- Power cord
- Magnetic tape cartridge (6000 step capacity)
- Two user-definable overlays

Options:
Option 01 silent alphanumeric printer
- Memory expansion stages:

Option 02 1024 steps
128 Registers
Option 03 1536 steps
192 Registers
Option 04 2048 steps
256 Registers
Option 05 2048 steps
640 Registers
Option 06 3584 steps
448 Registers
Option 07 5120 steps
256 Registers
Option 08 2048 steps
1000 Registers
Option 09 5120 steps
640 Registers
Option 10 8192 steps
256 Registers

- Statistics program library
- Mathematics program library

Optional Accessories:
- Handle
- User-definable overlays
- Magnetic tape cartridges
- Thermal printing paper

Physical Characteristics:
Weight: 32 lbs., (14.5 kg)
Height: 7.9 in., (20 cm)
Width: 14.3 in., (36 cm)
Length: 20.5 in., (52 cm)
Shipping weight: 48 lbs., (21.8 kg)
Aluminum case construction with "modular design" internal components.

Power Requirements:
Line Voltage Range:

Low	Med	Hi	
100	110	120	operates between 90V and 132V RMS
200	220	240	operates between 180V and 264V RMS

Maximum line voltage input: 250V RMS
Line frequency: 48 Hz to 66 Hz.
Power consumption (Max): from 150 watts 60 Hz, 115V line.

153 Instrumentation Interface Features:
Interface:
- Can transmit to calculator all data on digital display
- Programmable interface pulse outlets. Trig out, front and back panels 12 μs width
- Logic levels are TTL compatible $\geq$2.4V high $\leq$.8V low
- Calculator display flashed by interface with a $\geq$2 μs momentary short or pulldown to ground

Power Consumption:
153 Interface, less plug-ins; 11.5 watts.

Mainframe Dimensions:
153 Instrumentation Interface
Height: 6 in., (15.2 cm)
Width: 8.7 in., (22.1 cm)
Length: 15.3 in., (38.8 cm)
Weight: 153 Interface, less plug-ins; 11.2 lbs., (5 kg)

Software:
Programs on magnetic tape cartridges for data logging, statistical operations, etc.

Peripherals:
4661 digital plotter
4010 graphic terminal
4010-1 graphic terminal (hard copy compatible)

Optional TM-500 Modules:
Counters;
DC-501 option 4.
- Direct counting to 110 MHz.
- Seven digit LED display
- Manual start/stop (totalize)
- Auto range and time base option

DC-502 option 4.
- Same as DC-501, but counts to 550 MHz with 10x prescale (with 50-ohm input)

DC-503 option 4.
Same as DC-501, but:
- Has period and ratio averaging
- Carries out six functions—period, ratio, frequency, time A-B, time manual and totalizing

15 MHz Time base option is available for DC-501, 502, 503. The required option 4 may be installed in standard counters.
Multimeter:
DM-501
- 0.1% DC voltage accuracy
- 4½ digit LED display
- Auto-polarity
- Measures voltage, current, resistance, and temperature
- Fully isolated serial BCD output

Options;
1. without temperature probe.
2. without temperature measurement capability or probe.

Environmental Characteristics:
Non-operating temperature:
−67°F to 167°F;
−55°C to 75°C.
Operating temperature:
32°F to 122°F;
0°C to 50°C.
Non-operating altitude:
.50,000 ft; 15,250 m.
Operating altitude:
15,000 ft; 4,570 m.

Warranty:
All TEKTRONIX instruments are warranted against defective materials and workmanship for one year. Questions regarding warranty should be discussed with your Tektronix Sales Engineer.

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