



# **VELONEX**

**MODEL V-2980**

## **PROGRAMMABLE, SINGLE-PHASE ISOLATION UNIT**

The Model V-2980 single-phase isolation unit allows surge testing of devices or equipment connected to active single-phase power lines up to 277V RMS and 25A (30A intermittent). The isolation unit will protect the power line from undesirable back surges without loading the surge generator output and will attenuate the AC voltage being fed back into the generator. The Model V-2980 is used in conjunction with the Velonex Models 587, 588 or 590 Voltage and Current Surge Generators to form a complete surge testing system.

The Model V-2980 allows for fast change and bit programmability of the surge polarity and coupling modes. The V-2980 has also been designed and specified for low backswing (undershoot). A Model V-2627 GPIB Interface Adaptor is available to provide IEEE 488 bus capability.

The Model V-2980 allows for four different switch selectable surge injection methods, consisting of one normal mode and three common mode tests (see Figure 1). Polarity switch selection is standard, allowing for comprehensive testing of equipment under all line surge conditions.

The Model V-2980 accepts a full line of NEMA single-phase receptacles as plug-in units. Also provided is a differential high voltage attenuator to allow direct connection of an oscilloscope for monitoring surge events.

### **SPECIFICATIONS:**

- SURGE VOLTAGE:** Up to 6kV of isolation and attenuation from a "6kV, 100kHz" oscillatory waveform or a "6kV, 1.2x50us" exponential continuous voltage wave\*.
- SURGE CURRENT:** Up to 3kA peak current isolation and attenuation for the "3kA, 8x20us" exponential short circuit current wave\*.

\* Voltage and current waveforms defined in IEEE/ANSI C62.41-1980 (formerly IEEE 587-1980).

MODEL V-2980 SINGLE-PHASE ISOLATION UNIT - (Cont'd)

**POLARITY SELECTOR:** Positive or negative surge injection is front panel switch select able or bit programmable through a rear panel connector. Polarity can also be 488 bus programmed with the addition of a V-2627 GPIB Interface.

**INJECTION MODE SELECTOR:** One normal and three common injection modes are switch selectable or bit programmable. The injection mode can also be 488 bus programmed with the addition of a V-2627 GPIB Interface.

**BACKSWING (UNDERSHOOT):**  $\leq 7\%$  Normal Mode  
(1.2 x 50us O.C.)  $\leq 3\%$  Common Mode

**POST-PULSE-RING:** None  
(1.2 x 50us O.C.)

**AC LINE VOLTAGE:** Maximum line voltage to load, 277V RMS, 50/60 Hz.

**AC LINE CURRENT:** Maximum continuous current to load 25A RMS, maximum intermittent loading of 30A.

**ISOLATION FILTER LOSSES:** When operating loads close to the above specified current limits, a voltage drop of less then 10% can be expected at the load. An additional 3.5A will be required when operating at 277V RMS with proportionately less at lower voltages.

**PHYSICAL DESCRIPTION:** The surge input signal is coupled from the Model 587, 588 or 590, via a high voltage cable to the rear of the V-2980 unit. Two front panel switches control surge polarity and coupling configuration. Also provided is an L.E.D. annunciator showing the interlock status of the system. The V-2980 has a front panel plug-in cavity for accepting different types of modules with a variety of receptacles for power plus surge output to the E.U.T. Single-phase power is provided to the filter from a removeable standard power cable. Together, the Model 587, 588 or 590, and the V-2980 unit form a versatile surge testing system.

**MODEL V-2980 SINGLE-PHASE ISOLATION UNIT - (Cont'd)**

**SAFETY FEATURES:** The Model V-2980 Isolation Unit employs an active interlock system for operator protection. An L.E.D. annunciator indicates the status of the interlocks. If an interlock opens, the automatic shut-down of the surge and single-phase power follows. A shielded high voltage cable is used to couple surge signals between system units for operator safety. Circuit breaker protection is employed for power to the E.U.T.

**INPUT CONTROL POWER:** The V-2980 requires 115V or 230V,  $\pm 10\%$ , 50/60Hz. Power consumption is approximately 50 watts.

**PHYSICAL DIMENSIONS (including cabinet)**

|  |               |          |
|--|---------------|----------|
| Width  | 19 3/4 inches | 50.17 cm |
| Depth, (Exclusive of front and rear projections) | 21 1/2 inches | 54.16 cm |
| Height   | 7 1/2 inches  | 19.05 cm |
| Weight   | 95 pounds     | 44.00 kg |
| Weight, Rack Mount                               | 70 pounds     | 32.00 kg |

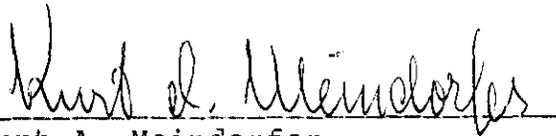
MODEL V-2980 SINGLE PHASE APPLICATION NOTE

STANDARD COUPLING MODES

| Test Type | Line | Neutral | Ground |
|-----------|------|---------|--------|
| NORMAL    | HIGH | LOW     |        |
| MODE      |      |         |        |
| COMMON    | HIGH |         | LOW    |
| MODE      |      | HIGH    | LOW    |
|           | HIGH | HIGH    | LOW    |

\* Shown with positive surge polarity. Negative surge polarity reverses the low and high connections above.

FIGURE 1



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