Section 1
General Description

The Model V-3050 three-phase isolation unit allows surge testing of devices or equipment connected to active three- phase as well as single phase power lines. The surge coupler/isolation network will protect the power line from undesirable back surges without loading the surge generator output. The Model V-3050 is used in conjunction with the Velonex Models 587P or 590P Voltage and Current Surge Generators to form a complete surge testing system.

The Model V-3050 allows for ten different surge injection methods, consisting of four normal mode and six common mode tests (see Figure 1). Polarity selection is standard, allowing for comprehensive testing of equipment under all line surge conditions.

The system consists of two parts: A control unit providing surge coupling selection, polarity control and system status indicators, and a filter unit for connecting the equipment under test (E.U.T.). The filter unit accepts a full line of NEMA three-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.

The Model V-3050 is intended primarily to operate with three-phase AC power lines but can also be used on many single-phase systems. Application is limited to 277/480V WYE Y maximum, or up to 250V DELTA Δ , including DC when fitted with option "D".

SPECIFICATIONS:

Surge Voltage:	Up to 6kV of isolation and attenuation from a "6kV, 100kHz" oscillatory wavefrom or a "6kV, 1.2x50μs/3kA, 8x20μs" combination wave. *
Surge Current:	Up to 3kA peak current isolation and attenuation for the "3kA, 8x20us" combination wave. *
Line Sync:	Surges can be synchronized to either of three phases in "Δ" or "Y" configurations.
AC Line Voltage:	Maximum line voltage to load, 480V RMS, 50/60Hz phase to phase and 277V per phase to neutral (Y only). Up to 250V Δ . Up to 277v per single phase.
DC Voltage:opt."D"	Maximum voltage to load 100V DC supplied only between phase 1, 2, 3 and N to ground on common mode only. Make sure normal mode is set to "OFF" position

* Voltage and current waveforms defined in IEEE/ANSI C62.41-1991
** Ask for Technical Note 125

Specifications - (Cont'd)

AC Line Current:	Maximum continuous current to load 25A RMS per phase, maximum intermittent loading of 30A per phase.
DC Current: Opt."D"	Maximum continuous DC current to load 20A.
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 7.5A of capacitive current per phase will be required when operating at 277VRMS per phase with proportionally less at lower voltages.
Physical Description:	The surge input signal is coupled from the Model 587P or 590P, via a high voltage cable to the rear of the V-3050 control unit. The control unit provides three switches for controlling surge polarity and coupling configuration. Also provided is a series of L.E.D. annunciators showing the interlock and ready status of the system. The control unit feeds the surge signal to the filter unit which combines the surge and three-phase power. The filter section has a plug-in cavity for accepting different types of modules with a variety of available receptacles for power plus surge output to the E.U.T. Three-phase power is provided to the filter from a removeable standard power cable. Together, the Model 587P or 590P,and the V-3050 control and filter units form a versatile surge testing system.
Safety Features :	The Model V-3050 Surge Coupler/Isolation Unit employes an active digital interlock system for operator protection. L.E.D. annunciators tell the status of any interlock. If an interlock opens, the automatic shut-down of the surge and three-phase power follows. High voltage shielded cables are used to couple surge signals between system units for operator safety. Circuit breaker protection is employed for all three-phase power to the E.U.T.

Specifications - (Cont'd)

Input Power: The control and filter units each require 115V or 230V, ±10%, 50/60Hz. Power consumption is approximately 50 watts each.

Physical Dimensions (including cabinet)

Control Unit:

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	68 pounds	30.90 kg
Weight, Rack Mount	42 pounds	19.09 kg

Filter Unit:

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	110 pounds	50.00 kg
Weight, Rack Mount	85 pounds	38.64 kg

1.3 Table 1, Standard Coupling Modes:

Test Type	Line 1	Line 2	Line 3	Neutral	Ground
NORMAL MODE	HIGH	LOW			
		HIGH	LOW		
	HIGH		LOW		
	HIGH	HIGH	HIGH	LOW	
COMMON MODE	HIGH				LOW
		HIGH			LOW
			HIGH		LOW
				HIGH	LOW
	HIGH	HIGH	HIGH		LOW
	HIGH	HIGH	HIGH	HIGH	LOW

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