

VR101S Voltage Event Recorder System

Set up, plug in, download, and analyze



Homes, offices, hospitals, and factories depend on electronic devices. And electronic devices depend on good power quality. The Fluke VR101S is the perfect system for catching sags, swells, transients, outages and frequency variations on line voltage at receptacles, where the most sensitive loads are connected.

The VR101S is a starter system that includes a compact VR101 event recorder, an optical interface cable, and EventView™ software that turns your PC into a power quality reporting tool. Additional VR101 event recorders can be purchased individually, so you can monitor several voltage conditions at multiple locations at once.

To set up a VR101 event recorder, just enter the event capture limit parameters on your PC and load them into the recorder. EventView software and the optical interface cable make it easy. Then plug the recorder into the outlet you need to test, and leave it—there's no need to leave a computer hooked up. The compact recorder stores any voltage event that goes outside your limits. The VR101 recorder can store up to as many as 4000 events and a flashing LED tells you when events have been captured. The recorder also checks for proper hot and neutral wiring for any grounded outlet.

To get data out of the recorder, hook it back up to your computer. EventView software can download a complete history of the events that occurred while the recorder was plugged into the receptacle. The software lets you build a detailed report of sags, swells, transients, outages and frequency variations with time-stamps and durations.

Your PC communicates to the VR101 through an optical interface cable. This means the PC and VR101 are insulated from each other for safety. The event recorder is self-powered by a 7-year lithium battery, so it is not affected by power outages. Each VR101 Recorder has its own real-time clock for time-stamping voltage events and is identified by a unique factory-assigned code. With their clocks and ID codes, multiple recorders can be placed throughout a facility to give a complete picture of power quality.

Site Report - SN F10953

Status		Events	
Hot to Neutral Thresholds		Frequency Thresholds	
Swell Voltage [Vrms]:	130	Minimum (Hz):	58.8
Sag Voltage [Vrms]:	105	Maximum (Hz):	61.2
Transient Deviation (V):	90	<input type="radio"/> 50 Hz	<input checked="" type="radio"/> 60 Hz
Neutral to Ground Thresholds		Options:	
Swell Voltage [Vrms]:	3	<input checked="" type="radio"/> Stop Recording When Full	
Transient Deviation (V):	50	<input type="radio"/> Overwrite Oldest Events When Full	
RealTime		<input checked="" type="checkbox"/> Flash when Events Captured	
Line Frequency (Hz):	0	Logger Info	
Line Voltage [Vrms]:	0	18 Events Recorded:	
Ground Voltage [Vrms]:	0	from 10/23/96 9:14:08 AM	
		to 11/15/96 12:17:28 PM.	
		VER-001 Firmware Version 4	
User Names:			
Site Description:	Fluke Corp / receptacle P4/19		
File Name:	C:\EV101\ZTEST#1.VER		
Default Setup		Save as Default Setup	
Send Setup/Clear Logger			

Site Report - SN F10953

Status		Events		
Event #	Start Time	Event	Extreme	End time/Duration/Degree
0	11/15/96 12:15:44 PM	Outage	0 Vrms	Open Event
18	11/15/96 12:15:44 PM	9 N-G Transients	-469 Vp	271°
17	11/15/96 12:15:36 PM	9 H-N Transients	+414 Vp	91°
16	10/25/96 8:51:36 AM	Outage	0 Vrms	11/15/96 12:15:28 PM
15	10/25/96 8:51:20 AM	Outage	0 Vrms	00:00:08
14	10/25/96 8:46:40 AM	Low Frequency	58.8 Hz	0.5 cycles
13	10/25/96 8:44:08 AM	Outage	0 Vrms	00:02:32
12	10/25/96 8:44:00 AM	Outage	0 Vrms	7.5 cycles
11	10/25/96 8:43:52 AM	N-G Swell	26 Vrms	22.0 cycles
10	10/25/96 8:43:44 AM	H-N Sag	86 Vrms	17.5 cycles
9	10/25/96 8:43:44 AM	H-N Swell	141 Vrms	16.0 cycles
8	10/25/96 8:43:44 AM	1 N-G Transient	+414 Vp	330°
7	10/25/96 8:43:36 AM	1 N-G Transient	-405 Vp	266°
6	10/25/96 8:43:36 AM	1 N-G Transient	+423 Vp	111°
5	10/25/96 8:43:36 AM	1 H-N Transient	-1049 Vp	278°
4	10/25/96 8:43:36 AM	1 H-N Transient	+561 Vp	259°
3	10/25/96 8:43:28 AM	1 H-N Transient	929 Vp	100°

Specifications

Memory size: 4000 events

Battery type: 3.5V lithium (non-replaceable)

Battery life: 7 years

Electrical (voltage versions, plug style, and manual languages are determined by country)

Voltage Version	Operating Range	Nominal Frequencies	Power Consumption
120V Version	70V to 140V	50 Hz or 60 Hz	2W
230V Version*	140V to 270V	50 Hz or 60 Hz	3W

*Not intended for use on U.S. 240V power systems.

Sags, Swells and Outage Measurements

Voltage Version		Range	Accuracy	Resolution
120V Version	Hot-to-neutral	0 to 200V rms	±2V rms	1V rms
	Neutral-to-ground	3 to 200V rms	±2V rms	1V rms
230V Version	Hot-to-neutral	0 to 400V rms	±4V rms	2V rms
	Neutral-to-ground	3 to 120V rms	±2V rms	1V rms

Transient Measurements

	Range	Accuracy	Resolution
Hot-to-neutral	100 to 2500V peak	±(10% reading + 10V)	10V
Neutral-to-ground	50 to 2500V peak	±(10% reading + 10V)	10V
Phase angle	20° to 180° 200° to 360°	±1°	1°

Minimum pulse width: 1 µs

Frequency Measurements

Range	Accuracy	Resolution
45 to 65 Hz	±0.1 Hz (3 cycles min)	0.1 Hz

Time Measurements: Events < 1 second

	Accuracy	Resolution
Hot-to-neutral	±0.5 cycles	0.5 cycles
Neutral-to-ground	± 1 cycle	1 cycle

Events ≥ 1 second (time stamp)

	Accuracy	Resolution
	± (2 sec/day + 8 sec)	8 sec

Mechanical

Physical size: 3.35 in x 2.65 in x 1.35 in
(85 mm x 68 mm x 35 mm)

Weight: 4 oz (120g)

Environmental

Operating temperature:

-40 to 160°F (-40 to 70°C)

Relative Humidity:

0 to 95% (non-condensing)

Safety: CSA listed, CSA-NRTL (to UL 3111)

listed, Complies with requirements of

EN61010-1:1993. CAT III 300V

Computer Hardware Requirements

IBM PC or 100% compatible,
with Windows® 3.1 or Windows 95
installed and operating

At least one free RS-232 serial port

A pointing device (recommended)

2 MB hard drive space

4 MB RAM (8 MB for Windows 95)

Accessories and Ordering Information

Included Accessories

VR101S

VR101 Voltage Event Recorder,
Optical interface cable, 9-to-25 pin adapter,
EventView Software on two 3 1/2 inch
floppies, Users Manual

VR101

VR101 Voltage Event Recorder,
Instruction Sheet

Ordering Information

(Note: At least one VR101S is required
for proper operation.)

VR101S Voltage Event Recorder System

VR101 Voltage Event Recorder for 120



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