

**EDL175 – PORTABLE POWER QUALITY ANALYZER / LOGGER
IEC/ EN50160**

**EDL174 – PORTABLE POWER QUALITY ANALYZER / LOGGER
IEEE/ IEEE 1159**



Rugged Case Mounted Model PM175 or PM174 Power Quality Analyser Measures and records events and data of electrical networks parameters. Includes all the measurements wave and logging capabilities of the PM175 and PM174 POWER QUALITY ANALYSERS.

Includes 2 status inputs, 2 relay outputs, 1 MB memory and Power Analyser Software (PASS). AC Power Supply with Battery Backup included. 590 VAC inputs includes voltage probes. Mini Clamps and FLEX Sensor (current to voltage). Include Cables and Carry Bags for accessories.

OPTIONS -		
* FREQUENCY	-	
50 Hz	50HZ	EDL174 - EDL175 -
60 Hz	60HZ	
* COMMUNICATIONS OPTIONS	-	
Standard - RS232/422/485	0	
Dial Up Modem	MOD	
Ethernet (TCP/IP)	ETH	
Cellular Modem for eXpertPower	-	
Cellular Modem (US GSM850) and RS422/485	CUS	
Cellular Modem (EU GSM900) and RS422/485	CEU	

**Ordering Example:
EDL174-60HZ-ETH**

* CURRENT CLAMPS - Current to Voltage Output (3 Required)	-
20 Amp Mini-Clamp (CT Secondary) - each (3 required)	SP-20MC
200 Amp Mini-Clamp (CT Secondary) - each (3 required)	SP-200MC
Flex Sensor 30A/300A/3000A - each (3 required)	SP-FLEX
* ACCESSORIES - CURRENT CLAMPS	-
Flex - AC Power Adaptor - w/cable (1 for every 3 Flex Sensors)	FLEX-PA



Primary Rates Current:	200A
Measurement range:	100mA to 600A
Ratio:	1000/1 (CT setup - 1000)
Accuracy:	1% from 20 A to 240A
Max. external load:	20 Ohm
Frequency range:	40 - 5000 Hz

Primary Rates Current:	3000A
Measurement ranges:	1, 2, 3 (marked on clamp)
Ratio and CT setup:	as per range:
Range 1: 300 - 3000 A	(CT setup: PNA=3000; EDL=1500)
Range 2: 30 - 300 A	(CT setup: PNA=300; EDL=150)
Range 3: 1 - 30 A	(CT setup: PNA=30; EDL=15)
Accuracy:	±1%
Max. external load:	100 K Ohm
Frequency range:	10 - 20000 Hz

Required special cable for PNA296: **AC0083**
 Required special cable for EDL172XR: **AC0084**



PAS EN50160 Automatic Reports

EN50160 Harmonics Report

SATEC Powerful Solutions
Sun, Oct 07, 2007

EN50160 Harmonics Report
02-09-07 - 22-09-07

V1 Harmonic Voltage

From	To	Max THD, %	Max Odd Hm THD, %	Worst-case Odd Hm	Max Odd HD, %Un	Max Even Hm THD, %	Worst-case Even Hm	Max Even HD, %Un
02-09-07	08-09-07	3.80	3.80	H05	3.89	0.50	HD4	0.32
09-09-07	15-09-07	4.00	3.90	H05	4.01	0.50	HD4	0.35
16-09-07	22-09-07	4.20	4.20	H05	4.28	0.50	HD4	0.36

V2 Harmonic Voltage

From	To	Max THD, %	Max Odd Hm THD, %	Worst-case Odd Hm	Max Odd HD, %Un	Max Even Hm THD, %	Worst-case Even Hm	Max Even HD, %Un
02-09-07	08-09-07	3.60	3.60	H05	3.66	0.50	HD4	0.28
09-09-07	15-09-07	3.70	3.60	H05	3.68	0.50	HD4	0.29
16-09-07	22-09-07	4.10	4.10	H05	4.12	0.50	HD4	0.29

V3 Harmonic Voltage

From	To	Max THD, %	Max Odd Hm THD, %	Worst-case Odd Hm	Max Odd HD, %Un	Max Even Hm THD, %	Worst-case Even Hm	Max Even HD, %Un
02-09-07	08-09-07	3.50	3.50	H05	3.57	0.40	HD4	0.20
09-09-07	15-09-07	3.70	3.60	H05	3.67	0.40	HD4	0.20
16-09-07	22-09-07	4.10	4.00	H05	4.08	0.40	HD4	0.22

EN50160 Compliance Report

SATEC Powerful Solutions
Sun, Oct 07, 2007

EN50160 Compliance Report
02-09-07 - 22-09-07

Voltage Unbalance

From	To	In-service time, %	Compliance, % of time	Max Voltage Unbalance, %	Standard Compliance
02-09-07	08-09-07	100.00	100.00	0.50	OK
09-09-07	15-09-07	100.00	100.00	0.50	OK
16-09-07	22-09-07	100.00	100.00	0.20	OK

Harmonic Voltage

In-service time, %	Harmonic Compliance, % of time	Worst Case Phase	Max Magnitude, %Un	Harmonic Order	THD Compliance, % of THD	Worst Case Phase	Max THD %	Standard Compliance
100.00	100.00	-	-	100.00	V1	3.80	OK	OK
100.00	100.00	-	-	100.00	V1	4.00	OK	OK
100.00	100.00	-	-	100.00	V1	4.20	OK	OK

Voltage Flips

Max Voltage %Un	Duration (s)	1 = 1s	1 = 50ms	1 = 1s	1 = 2s	1 = 20s	1 = 60s	1 = 180s
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0

Voltage Interruptions

Duration (s)	1 = 1s	1 = 10s	1 = 180s
0	0	0	0
0	0	0	0
0	0	0	0

Temporary Overvoltages

Max Voltage %Un	Duration (s)	1 = 1s	1 = 1 + 1 min	1 = 1 min
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

Transient Overvoltages

Max Voltage %Un	Polysphase Incidents	V1 Incidents	V2 Incidents	V3 Incidents
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

EN50160 Compliance Report—Flicker

SATEC Powerful Solutions
Sun, Oct 07, 2007

EN50160 Compliance Report
02-09-07 - 22-09-07

Flicker

From	To	In-service time, %	Compliance, PE = 1, % of time	Max V1 PE	Max V2 PE	Max V3 PE	Standard Compliance
10-06-07	16-06-07	100.00	99.81	1.86	0.65	0.70	OK
17-06-07	23-06-07	100.00	95.00	1.20	1.39	3.25	No
24-06-07	30-06-07	100.00	96.30	2.87	1.55	2.81	OK
01-07-07	07-07-07	100.00	98.79	0.97	0.86	0.79	OK
08-07-07	14-07-07	100.00	98.30	0.96	1.54	0.80	OK
15-07-07	21-07-07	100.00	100.00	0.76	0.80	0.88	OK
22-07-07	28-07-07	100.00	98.30	0.82	1.13	1.34	OK
29-07-07	04-08-07	100.00	99.81	0.96	0.76	2.30	OK
05-08-07	11-08-07	100.00	100.00	0.84	0.70	2.76	OK
12-08-07	18-08-07	100.00	100.00	2.82	3.00	3.44	OK
19-08-07	25-08-07	100.00	100.00	0.85	0.70	0.73	OK
26-08-07	01-09-07	100.00	100.00	0.50	0.60	0.60	OK
02-09-07	08-09-07	100.00	97.82	1.70	2.97	1.86	OK
09-09-07	15-09-07	100.00	95.00	1.54	3.19	1.80	No
16-09-07	22-09-07	100.00	91.47	2.82	2.24	3.27	No
23-09-07	29-09-07	100.00	89.03	3.07	1.39	1.85	No
30-09-07	06-10-07	100.00					

Voltage Unbalance

From	To	In-service time, %	Compliance, % of time	Max Voltage Unbalance, %	Standard Compliance
10-06-07	16-06-07	100.00	100.00	0.80	OK
17-06-07	23-06-07	100.00	99.11	0.40	OK
24-06-07	30-06-07	100.00	100.00	1.90	OK
01-07-07	07-07-07	100.00	100.00	0.90	OK
08-07-07	14-07-07	99.90	100.00	0.90	OK
15-07-07	21-07-07	100.00	100.00	0.90	OK
22-07-07	28-07-07	100.00	100.00	0.90	OK
29-07-07	04-08-07	100.00	100.00	0.90	OK
05-08-07	11-08-07	99.90	100.00	0.90	OK
12-08-07	18-08-07	99.90	100.00	0.40	OK
19-08-07	25-08-07	100.00	100.00	0.30	OK
26-08-07	01-09-07	100.00	100.00	0.90	OK
02-09-07	08-09-07	100.00	100.00	0.80	OK
09-09-07	15-09-07	100.00	100.00	0.50	OK
16-09-07	22-09-07	100.00	100.00	0.90	OK
23-09-07	29-09-07	99.90	100.00	1.30	OK
30-09-07	06-10-07	100.00			

Voltage Variations

From	To	In-service time, %	Compliance +10/-5%, % of time	Compliance +4/-6%, % of time	V1 Min	V1 Max	V2 Min	V2 Max	V3 Min	V3 Max	Standard Compliance
02-09-07	08-09-07	100.00	100.00	100.00	23040	23732	22982	22676	23039	22748	OK
09-09-07	15-09-07	100.00	100.00	100.00	23000	22685	22958	22835	22999	22799	OK
16-09-07	22-09-07	100.00	100.00	100.00	23045	22712	23002	22689	23059	22744	OK

Rapid Voltage Changes

From	To	Polysphase Incidents	V1 Incidents	Max V1 Variation, %Un	V2 Incidents	Max V2 Variation, %Un	V3 Incidents	Max V3 Variation, %Un	Standard Compliance
02-09-07	08-09-07	0	0	0.00	0	0.00	0	0.00	OK
09-09-07	15-09-07	0	0	0.00	0	0.00	0	0.00	OK
16-09-07	22-09-07	0	0	0.00	0	0.00	0	0.00	OK

Flicker

From	To	In-service time, %	Compliance, PE = 1, % of time	Max V1 PE	Max V2 PE	Max V3 PE	Standard Compliance
02-09-07	08-09-07	100.00	100.00	0.50	0.69	0.80	OK
09-09-07	15-09-07	100.00	97.62	1.70	2.97	1.86	OK
16-09-07	22-09-07	100.00	95.00	1.54	3.19	1.80	No

EN50160 Compliance Report

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02-09-07 - 22-09-07

Power Frequency

From	To	In-service time, %	Compliance +1%, % of time	Compliance +4/-6%, % of time	Min Frequency Hz	Max Frequency Hz	Standard Compliance
02-09-07	08-09-07	100.00	100.00	100.00	49.62	50.19	OK
09-09-07	15-09-07	100.00	100.00	100.00	49.32	50.21	OK
16-09-07	22-09-07	100.00	99.99	100.00	49.16	50.19	OK

Annual Statistics

From	To	In-service time, %	Compliance	Min Frequency Hz	Max Frequency Hz	Standard Compliance	
02-09-07	22-09-07	6.75	99.99	100.00	49.16	50.21	OK

Voltage Variations

From	To	In-service time, %	Compliance +10/-5%, % of time	Compliance +4/-6%, % of time	V1 Min	V1 Max	V2 Min	V2 Max	V3 Min	V3 Max	Standard Compliance
02-09-07	08-09-07	100.00	100.00	100.00	23040	23732	22982	22676	23039	22748	OK
09-09-07	15-09-07	100.00	100.00	100.00	23000	22685	22958	22835	22999	22799	OK
16-09-07	22-09-07	100.00	100.00	100.00	23045	22712	23002	22689	23059	22744	OK

Rapid Voltage Changes

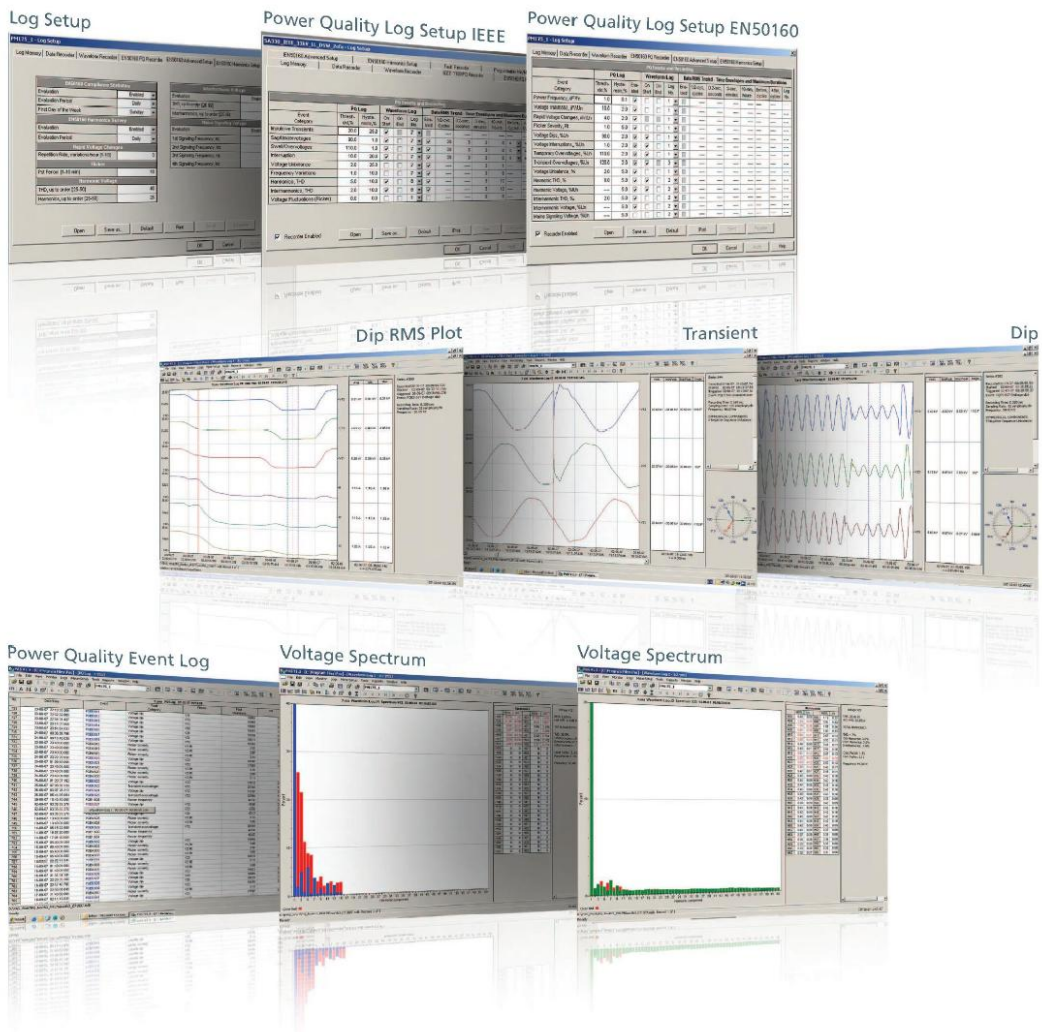
From	To	Polysphase Incidents	V1 Incidents	Max V1 Variation, %Un	V2 Incidents	Max V2 Variation, %Un	V3 Incidents	Max V3 Variation, %Un	Standard Compliance
02-09-07	08-09-07	0	0	0.00	0	0.00	0	0.00	OK
09-09-07	15-09-07	0	0	0.00	0	0.00	0	0.00	OK
16-09-07	22-09-07	0	0	0.00	0	0.00	0	0.00	OK

Flicker

From	To	In-service time, %	Compliance, PE = 1, % of time	Max V1 PE	Max V2 PE	Max V3 PE	Standard Compliance
02-09-07	08-09-07	100.00	100.00	0.50	0.69	0.80	OK
09-09-07	15-09-07	100.00	97.62	1.70	2.97	1.86	OK
16-09-07	22-09-07	100.00	95.00	1.54	3.19	1.80	No

PAS EN50160

Setup & Waveform Analysis



FEATURES

Measurements

- Class 0.2S revenue accuracy
- 128 samples per cycle true RMS measurements
- Fast, real-time, cycle-by-cycle measurements
- Four-quadrant measurements
- Min/Max values (instantaneous and demands)

Wiring configurations

- Accepts all wiring configurations, selectable from front panel or via communication

Full Harmonic Analyzer

- Voltage and currents individual harmonics up to 50th order
- Voltage and currents THD
- Currents TDD, K-factor
- Power harmonics and harmonic flow (direction of harmonics)
- Voltage inter-harmonic up to the 50th order
- Voltage and currents, harmonic spectrum and angles
- Conforms with harmonic standards: IEEE1159, G5/4

Waveform Recording

- Two independent, simultaneous waveform recorders, each recording the complete 3-phase voltage and current waveforms
- Recording resolution at 32 and up to 128 samples per cycle
- Up to 16 pre-fault cycles and up to 2000 post-fault cycles
- Support programmable memory partition

Event Log

- Programmable with 1 ms time stamp
- Support programmable memory partition

Data Log

- 16 programmable data log tables, up to 16 parameters for each table
- Record intervals from 1 to 9999 seconds
- Support programmable memory partition

Energy Measurement

Accuracy: Class 0.2S, class 0.2S IEC 62053-22:2003

EN50160 Power Quality Recorder

EN50160 compliance statistics, EN50160 harmonics survey statistics, onboard power quality analyzer; programmable thresholds and hysteresis; ready-for-use reports; IEEE519 Power Quality.

Customized EN50160 Power Quality Recorder

Flicker: IEC 61000

Transient Recording

Minimum width: 156µs@50Hz

Sag/Swell Detection

Automatic Reporting

Real Time Clock

- 30 ppm real-time clock
- Synchronization with GPS pulse input

Memory

- 1 MB of non-volatile log memory
- Full programmable memory partition for event logs, data logs and waveform logs

Control Options

- 2 relay outputs
- 4 digital inputs
- 4 analog inputs (optional)
- Up to 16 analog outputs (optional)

Communications

Two communication ports;

Communication options available:

- COM1: RS232/244/485
56K Dial-up modem
Ethernet 10/100 Base T, eXpertpower™ enabled
- COM2: RS422/485