

### 3196 Power Quality Analyzer Cross-Reference Table 1

	<b>HIOKI 3196</b>	<b>Dranetz PP4300</b>	<b>LEM MEMOBOX 800Q</b>	<b>LEM TOPAS1000</b>
<b>Measurement</b>	1p2w to 3p4w	1p2w to 3p4w	No	Uncertain
<b>Voltage measurement</b>	4ch (AC) ch1 to ch3 differential ch4 isolated (AC or DC) (to other channels)	4ch (AC) Differential	4ch (AC)	4ch (AC) isolated
<b>Transient</b>	2000Vpk	1000Vpk	Unknown	6000Vpk
<b>Current measurement</b>	4ch (Clamps)	4ch	4ch (AC)	4ch (Clamps)
<b>Flexible CT</b>	5000A (to be released in November 2001)	2000A	2000A	2000A
<b>Fundamental frequency</b>	42.5 to 69Hz	35 to 60Hz	5 to 2500Hz	45 to 65Hz
<b>Sampling rate</b>	PLL (256points/cycle) 2MHz (Transient to	PLL (128points/cycle) 1MHz (Transient)	10.24kHz	6.4kHz 10MHz (Transients)
<b>Resolution</b>	16 bits (RMS) 12 bits (Transient)	12 bits (RMS) 12 bits (Transients)	12 bits	16 bits (RMS) Unknown (Transient)
<b>Measurement items 1</b>	Transient (WAVE View) Swell Dip Interruption	Transient Swell Dip Interruption	Swell Dip Interruption	Transient Swell Dip Interruption
<b>Measurement items 2</b>	Watts, VA, var, PF, DPF Frequency K factor Unbalance	Watts, VA, var, PF Frequency K factor Unbalance	Frequency  Unbalance	Watts, VA, var, PF Frequency  Unbalance
<b>Harmonics</b>	Yes	Yes	Yes	Yes
<b>Interharmonics</b>	Yes	No	Yes	Yes
<b>UIE flicker</b>	Yes (to be released in December 2001)	No	Yes	Yes
<b>Waveform</b>	Yes	Yes	Uncertainty	Yes
<b>Phasor</b>	Yes	Yes	Uncertainty	Yes
<b>Event monitor &amp; list</b>	Yes	Yes	Yes	Yes
<b>Delta -Y conversion</b>	Yes	No	No	No
<b>Time plot recording</b>	Yes 1 month	Yes 10 days	Yes 7 days	Uncertain
<b>Internal memory capacity</b>	13MB	280kB	512kB	1GB
<b>Display</b>	TFT Color Display 640 x 480 dots	LCD 240 x 128 dots	No	No
<b>External memory</b>	PC Card (ATA flash) Up to 528MB	PC Card (SRAM card) Up to 4MB	No	No
<b>Interface</b>	RS-232C 10BASE-T	RS-232C	RS-232C	RS-232C LAN Modem
<b>HTTP server function</b>	Yes	No	No	No
<b>Application software</b>	Yes (to be released in December 2001)	Yes	Yes	Yes
<b>Standards</b>	IEEE1159	IEEE1159	EN50160	IEEE1159 EN50160
<b>Mass and dimension</b>	298W x 215H x 67Dmm 2.0kg	300W x 203H x 64Dmm 1.8kg	282W x 216H x 74Dmm 3.1kg	300W x 325H x 65Dmm 4.0kg
<b>Power supply</b>	AC (Ni-MH Battery)	AC (Ni-cd Battery)	AC (230V, 50Hz only)	AC or DC

**3196 Power Quality Analyzer Cross-Reference Table 2**

	<b>HIOKI 3196</b>	<b>Chauvin&amp;Arnoux 8350</b>	<b>Fluke 43B</b>	<b>Dewetron PNA-3000</b>
<b>Measurement</b>	1p2w to 3p4w	1p2w to 3p4w	1p2w	1p2w to 3p4w
<b>Voltage measurement</b>	4ch (AC) ch1 to ch3 differential ch4 isolated (AC or DC) (to other channels)	4ch (AC)	1ch (AC+DC)	4ch Isolated
<b>Transient</b>	2000Vpk		1250kV	2000Vp-p
<b>Current measurement</b>	4ch (Clamps)	4ch (Clamps)	1ch (Clamps AC+DC)	4ch
<b>Flexible CT</b>	5000A (to be released in November 2001)	3000A		
<b>Fundamental frequency</b>	42.5 to 69Hz		40 to 70Hz	
<b>Sampling rate</b>	PLL (256points/cycle) 2MHz (Transient to	6.4kHz 25kHz (Transient)	25MS/s	80kHz
<b>Resolution</b>	16 bits (RMS) 12 bits (Transient)			12 bits (16 bits optional)
<b>Measurement items 1</b>	Transient (WAVE View) Swell Dip Interruption	Transient	Transient Swell Dip	Transient Swell Dip Interruption
<b>Measurement items 2</b>	Watts, VA, var, PF, DPF Frequency K factor Unbalance	Watts, VA, var, PF Frequency	Watts, VA, var, PF, DPF Frequency K factor	Watts, VA, var, PF Frequency
<b>Harmonics</b>	Yes	Yes	Yes	Yes
<b>Interharmonics</b>	Yes	No	No	Yes
<b>UIE flicker</b>	Yes (to be released in December 2001)	Yes	No	Yes
<b>Waveform</b>	Yes	Yes	Yes	Yes
<b>Phasor</b>	Yes	Yes	Yes	Yes
<b>Event monitor &amp; list</b>	Yes	No	Yes	Yes
<b>Delta -Y conversion</b>	Yes			No
<b>Time plot recording</b>	Yes 1 month	Yes	Yes 16 days	
<b>Internal memory capacity</b>	13MB	128MB		128MB
<b>Display</b>	TFT Color Display 640 x 480 dots	Color Display	LCD	Color Display
<b>External memory</b>	PC Card (ATA flash) Up to 528MB	HDD (6GB)		FDD HDD (4GB)
<b>Interface</b>	RS-232C 10BASE-T	USB (Keyboard & Mouse)	RS-232C	RS-232C LAN
<b>HTTP server function</b>	Yes	No	No	No
<b>Application software</b>	Yes (to be released in December 2001)	Yes	Yes	Yes
<b>Standards</b>	IEEE1159	EN50160 EN60868		EN50160
<b>Mass and dimension</b>	298W x 215H x 67Dmm 2.0kg	360W x 300H x 150Dmm 4kg	232W x 115H x 50Dmm 1.1kg	372W x 238H x 150Dmm 5.5kg
<b>Power supply</b>	AC (Ni-MH Battery)	AC	AC Battery (NiCd)	AC or DC

**3196 Power Quality Analyzer Cross-Reference Table 3**

	<b>HIOKI 3196</b>	<b>RPM 901/902</b>	<b>RPM 1650+1651+1652+1653</b>	<b>METREL Power Harmonic</b>
<b>Measurement</b>	1p2w to 3p4w	1p2w to 3p4w	1p2w to 3p4w	
<b>Voltage measurement</b>	4ch (AC) ch1 to ch3 differential ch4 isolated (AC or DC) (to other channels)	3ch (AC)	3ch (AC)	3ch
<b>Transient Current measurement</b>	2000Vpk	6000Vpk	1000Vpk (option 1651)	
<b>Flexible CT</b>	4ch (Clamps)	5ch (Clamps)	5ch (Clamps)	3ch
<b>Fundamental frequency</b>	5000A (to be released in November 2001)	5000A	5000A	
<b>Sampling rate</b>	42.5 to 69Hz	45 to 65Hz	45 to 65Hz	43 to 68Hz
<b>Resolution</b>	PLL (256points/cycle) 2MHz (Transient to 0.5us)	128 or 640points/cycle	128points/cycle (7.8kHz) Transients to 130us (1651)	
<b>Measurement items 1</b>	16 bits (RMS) 12 bits (Transient)	20 bits	14 bits (RMS) 10 bits (Transients)	
<b>Measurement items 2</b>	Transient (WAVE View) Swell Dip Interruption	Transients to 130 or 25us Swell Dip	Transients Swell Dip	
<b>Harmonics</b>	Watts, VA, var, PF, DPF Frequency K factor Unbalance	Watts, VA, var, PF Frequency	Watts, VA, var, PF Frequency	Watts, VA, var, PF Frequency
<b>Interharmonics</b>	Yes	Yes	Yes	Yes
<b>UIE flicker</b>	Yes	No	No	No
<b>Waveform</b>	Yes (to be released in December 2001)	Yes	Yes	No
<b>Phasor</b>	Yes	Yes	Yes	Yes
<b>Event monitor &amp; list</b>	Yes	Yes	Yes	No
<b>Delta -Y conversion</b>	Yes	Yes	Yes	Yes
<b>Time plot recording</b>	Yes 1 month	Yes	Yes	Yes
<b>Internal memory capacity</b>	13MB	Yes	4MB	2MB
<b>Display</b>	TFT Color Display 640 x 480 dots	No	No	LCD 160 x 116 dots
<b>External memory</b>	PC Card (ATA flash) Up to 528MB	No	540MB HDD	
<b>Interface</b>	RS-232C 10BASE-T	Serial Ethernet PR Link	10BASE-T Parallel (optional)	RS-232C
<b>HTTP server function</b>	Yes	No	No	No
<b>Application software</b>	Yes (to be released in December 2001)	Yes	Yes	Yes
<b>Standards</b>	IEEE1159			
<b>Mass and dimension</b>	298W x 215H x 67Dmm 2.0kg	260W x 220H x 87Dmm 3.4kg	212W x 300H x 75Dmm 6kg	265W x 110H x 185D 2.1kg
<b>Power supply</b>	AC (Ni-MH Battery)	AC or DC	AC	AC (Battery)