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Handy Oscillographic Recorders OR100E & OR300E



EMI Standard; Emission:EN61326 classA CE Immunity standard; EN61326

The OR100E/OR300E series of Handy Oscillographic Recorders are complete multi-purpose recorders featuring up to four isolated analog input channels, fax/modem capability using a PC card, fourmode power supply and powerful trigger functions. The OR300E also has a harmonic analysis function. These recorders are small in size, with a footprint equivalent to a sheet of B5 paper, and weigh only 1.4 kg.* They can be used standalone for a wide range of applications, from low-speed/long-term continuous recording to highspeed recording of transient conditions.

* OR100E 4-channel model; not including battery weight

OR100E/OR300E Comparison

	OR100E	OR300E		
Basic system	2-channel and 4-channel standard models	2-channel and 4-channel models with harmonic analysis		
Input types	DC, TC or Off	DC, TC, RMS or Off		
Measurement modes	Real-Time Recording, Memory, Real-Time + Memory Real-Time + Memory, Harmor			
Input performance	400 kS/s, effective 11 bits A/D, maximum 500V rms input			
Memory length	128K of data per channel			
External dimensions (mm)	Approximately 190 (W) x 46 (H) x 256 (D)			
Weight (4-channel model without battery)	Approximately 1.4 kg	Approximately 1.5 kg		

FEATURES

Four-channel 500 Vrms direct input in a slim, light body

The notebook-size OR100E/OR300E Series weighs only 1.4 kg* but can take simultaneous measurements on up to four isolated analog channels. The analog input unit can directly measure voltages as high as 500 Vrms operating at high speed and high resolution (400 kS/s, 11 bits). The OR100E/OR300E Series supports logic measurements on as many as eight channels using optional logic probes, enabling twelve simultaneous analog and logic measurements at high speed.

Four-mode power supply for field use

The OR100E/OR300E Series supports four power supply modes. In DC power mode, it can run on alkaline dry cells (six AA alkaline batteries), a rechargeable battery (nickel metal-hydride) or an external DC power supply (12V, 24V or 48V DC) using a DC-DC converter (sold separately). In AC power mode, it can run on an AC power supply (90 to 264V AC) using an AC-DC adapter (sold separately). The AC-DC adapter also serves to recharge the nickel metal-hydride battery. Moreover, if the AC power is cut off, operations are backed up by battery power.

Powerful trigger functions

The OR100E/OR300E Series has a wave-window trigger which is very useful for monitoring for abnormalities in the waveform of a commercial frequency power supply, as well as a level window trigger, edge trigger, trigger filter and time-out trigger.

Fax/modem capability using a PC card

The OR100E/OR300E Series makes it easy to collect data remotely using a phone line and a commercially available fax/ modem card.

Support for multiple interfaces (logic input, RS-232, trigger I/O, etc.)



- 1. Logic input connectors: Enable connection of two four-channel logic probes
- (sold separately) independent of the analog inputs. 2. RS-232: Recorder settings, on-line data transfer and memory data transfer.
- 3. Trigger I/O: Terminals for parallel operation of multiple recorders, external sampling clock, and measurement start/stop control

FUNCTIONS

■ POWERFUL TRIGGER FUNCTIONS

The OR100E/OR300E Series provides powerful trigger functions for reliable measurement of monitored parameters. In Normal Trigger Mode, triggers are set for the rise and fall levels. Wavewindow Trigger Mode allows you to monitor for power supply waveform abnormalities in real time. In addition, pre-trigger settings may be set as desired.

Normal Trigger Mode

Normal Trigger Mode can be used to set triggers such as time triggers, logic triggers and independent triggers for each of up to four analog channels. A wide variety of trigger types can be used, including rise and fall triggers, bi-slope triggers, level (high/low) triggers, and window IN/OUT triggers. You can also set trigger sensing to sense fluctuations in the root mean square value of AC signals, and trigger filters to prevent trigger malfunctions due to noise.

HANDY OSCILLOGRAPHIC RECORDERS

OR100E & OR300E

Wave-Window Trigger

The wave-window trigger is used for monitoring 50-Hz and 60-Hz power supply waveforms. A wave-window (area consisting of the base waveform plus a certain width) is created based on an ideal power supply waveform (sine wave) or the actual power supply waveform. The trigger is sensed when the measured signal is outside the wave-window. The wave-window trigger is used for real-time monitoring for phenomena which cannot be detected by conventional level parameters, such as instantaneous power failures, sags and impulses in the commercial power supply. Separate wave-windows can be set for each analog channel.



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■ SHARP DISPLAY, CALCULATION FUNCTIONS AND HIGH-QUALITY RECORDING FUNCTIONS

• Display

A half-VGA display is used for 50% better resolution than in Yokogawa's older models.



• Standard Calculation Functions

In addition to scaling, the OR100E/OR300E Series supports statistical calculation functions for determining maximum, minimum, average, root mean square and surface area values for ranges specified with the cursor.



• High-quality recording onto chart with effective width of 100 mm and length of 10 meters





■ FAX/MODEM CAPABILITY USING A PC CARD

The OR100E/OR300E Series makes it easy to collect data remotely using a phone line and a commercially available fax/modem card. Simply connect the PC card to a phone line to connect to your recorder remotely, eliminating the distance factor.

- The auto-dialing function can be used to automatically transfer captured data to your fax for high-quality output (as a graphical image). This reduces the need for periodic visits to the measurement site and allows you to respond quicker if a problem is detected.
- If you call your recorder over a phone line from a PC, you can transfer files to the PC or remotely control the recorder (e.g., change recorder measurement ranges or trigger levels) through the PC.



SAVING DATA TO A FLASH ATA MEMORY CARD

Measurements can be saved in binary or ASCII format to flash ATA memory cards with a maximum capacity of 160 MB. You can process or analyze measurement data using the ACRAWin32 data viewer, or commercially available spreadsheet software. Screen data from your OR100E/OR300E recorder can be saved in bitmap (BMP) format as graphical objects. Saved bitmap files can be pasted into documents in Windows programs such as word processors to easily create reports. Moreover, both measuring data which is saved in binary format and setting data stored in ASCII format can be redisplayed or re-recorded by OR100E/OR300E recorders.

• Creating a Report (Example)



Creating a Report with a Flash ATA Memory Card (Using MS-Excel)

■ DATA RECORDER FUNCTIONS USING A PC CARD

The OR100E/OR300E lets you write measurements continuously and in real time to an ATA flash memory card (PCMCIA card). This means internal memory capacity is no longer a limitation on total recording time*¹, allowing you to take long-duration measurements previously handled by data recorders. You can also display measured data stored in flash memory on the OR100E/OR300E display for easy field checks.*² In addition, ACRAWin32 is available to assist you in making reports when handling massive amounts of data.

*1: Maximum sampling rate: 1.6 kS/sec;

*2: Displays 128 kdata/ch steps

■ TEMPERATURE MEASUREMENT

In addition to the direct measurement capability (up to 500 Vrms), the new OR100E/OR300E includes a temperature input adapter (788041-1) that works with type K thermocouples. The adapter is powered by the OR100E/OR300E, so there's no need for a special power supply when you use the recorder in the field or take long-duration measurements. The OR100E/OR300E has a special temperature input adapter range (see the diagram on the right) for easy setup.



(Screenshot)

• Temperature input adapter 788041-1

Compatible sensor type: Type K thermocouple Maximum number of connected sensors: 1 per adapter Terminal type: Clump terminal Temperature range: -50 to 600°C



Temperature range and accuracy:

Measurement range	Measurement span	Measurement accuracy	
200°C range	-50 to 200°C	+2°C	
400°C range	-50 to 400°C	= <u>-</u> 0 +3°C	
600°C range	-50 to 600°C	±5°C	
(23 + 5°C following 30	-minute warmun period)	196	

Note:

A thermocouple is not included and must be purchased by the customer. The temperature input adapter (788041) is for models OR100E and OR300E only. It does not work with models OR100 and OR300.



■ HARMONIC ANALYSIS FUNCTION (OR300E)

This function measures phenomena such as power supply waveforms containing harmonic components, and the harmonic current flowing into or out of a commercial power system. Measurements are put through harmonic analysis up to the 40th order. Analysis parameters which can be selected are the root mean square value, content and phase angle of each harmonic order, and active power, power content, and power phase angle. This function also displays the overall root mean square value, overall distortion factor, active/reactive/apparent power, and power factor.





SPECIFICATIONS

nut type:	ul				
iput type.	Floating unbalanced inp	ut, I/O isolation (cl	nannel independence)		
put mode:	DC, GND, RMS (RMS is	for OR300E only)			
easurement range	and accuracy: See table b	elow.			
	(After zero-calibration fo	llowing 30-minute	warm-up at $23 \pm 5^{\circ}C$)		
	Measurement range (V/div)	Measurable range	Accuracy		
	100mV FS(10mV/div)	± 100.0mV	± (1% of FS + 1mV)		
	200mV FS(20mV/div)	± 200.0mV	± (1% of FS + 1mV)		
	500mV FS(50mV/div)	± 500.0mV	± (1% of FS + 1mV)		
	1V FS(100mV/div)	± 1.000V	± (1% of FS + 1mV)		
	2V FS(200mV/div)	± 2.000V	± (1% of FS + 1mV)		
	5V FS(500mV/div)	± 5.000V	± (1% of FS + 1mV)		
	10V FS(1V /div)	± 10.00V	± (1% of FS + 1mV)		
	20V FS(2V /div)	± 20.00V	± (1% of FS + 1mV)		
	50V FS(5V /div)	± 50.00V	$\begin{array}{c} \pm (1\% \text{ of FS} + 1\text{mV}) \\ \pm (1\% \text{ of FS} + 1\text{mV}) \\ \pm (1\% \text{ of FS} + 1\text{mV}) \end{array}$		
	100V FS(10V /div)	± 100.0V			
	200V FS(20V /div)	± 200.0V			
	500V FS(50V /div)	± 500.0V	± (1% of FS + 1mV)		
1000V FS(100V /div) ± 500.0V ± (1% of FS + 1mV					
ero position:	Can be moved within me	easurement range	null function included.		
equency characteri	stics (with filter off): DC to	40 kHz (+1/-3 dB	, typical)		
ommon mode rejec	tion ratio (CMRR):				
	85 dB or greater (50/60 h	Hz; signal source r	esistance of 500 (or less)		
ow-pass filter:	5 Hz, 500 Hz, off				
	Attenuation characteristi	c;-6 dB/octave			
oise (with filter off, 1	10 mV/div range input sho	rted): 2.0 mVp-p (typical)		
D resolution:	12 bits (equivalent to 11	bit internal proces	sing resolution)		
aximum sampling s	peed: 400 kS/s (all channe	els simultaneously	; 80 kS/s in wave-window;		
put impedance:	$1 M\Omega \pm 1\%$, 5 pF (at 40	KHZ, typical)			
put terminal:	Salety terminal (for bana	ana piug)			
	Between H and L input for	ninals, between H-I	input terminal and around		
		nindio, between n E			
	Overvoitage category	y Maxii	num input voitage		
	CALIFICATION CALIFICATICAL CALIFICATICALIC		500 Vrms		
	CATIII environment		300 Vrms		
With temperature	input adapter 788041				
ompatible sensor ty	pe: Type K thermocoup	le			
laximum number of	connected sensors: 1 per a	adapter			
erminal type:	Clump terminal		1		
emperature range:	-50 to 600°C				
emperature range ar	nd accuracy:				
Measuren	nent range Measu	irement span	Measurement accuracy		
2000	range -50				
200 0	Tungo 00	to 200°C	±2°C		
400°C	range -50	to 200°C	±2°C ±3°C		
400°C 600°C	Frange -50 Frange -50	to 200°C to 400°C to 600°C	±2°C ±3°C ±5°C		
400°C 600°C	range -50 range -50 $(23 \pm 5^{\circ}C, \text{ following 30-rr})$	to 200°C to 400°C to 600°C ninute warmup per	±2°C ±3°C ±5°C		
400°C 600°C Note:	range -50 range -50 (23 \pm 5°C, following 30-m	to 200°C to 400°C to 600°C ninute warmup per	±2°C ±3°C ±5°C		
400°C 600°C Note: A thermocouple	range -50 range -50 $(23 \pm 5^{\circ}C, \text{ following 30-rr})$ is not included and must b or (788041) is for models (to 200°C to 400°C to 600°C ninute warmup per pe purchased by th OB100E and OB3	±2°C ±3°C ±5°C iod) e customer. The tempera:		
Athermocouple ture input adapt with models OB	range -50 range -50 (23 ± 5°C, following 30-m is not included and must b er (788041) is for models (100 and OB300	to 200°C to 400°C to 600°C ninute warmup per pe purchased by th OR100E and OR3	±2°C ±3°C ±5°C iod) e customer. The tempera- 00E only. It does not work		
400°C 400°C 600°C Note: A thermocouple ture input adapt with models OR	range -50 range -50 (23 ± 5°C, following 30-m is not included and must b er (788041) is for models (100 and OR300.	to 200°C to 400°C to 600°C ninute warmup per pe purchased by th OR100E and OR3	±2°C ±3°C ±5°C iod) e customer. The tempera: 00E only. It does not work		
Note: A thermocouple ture input adapt with models OR cale: ocilion:	range -50 range -50 (23 ± 5°C, following 30-m is not included and must b er (788041) is for models (100 and OR300. Settable in increments o Movable in increments o	to 200°C to 400°C to 600°C ninute warmup per pe purchased by th OR100E and OR3 f 10°C on both up f 10°C	±2°C ±3°C ±5°C iod) e customer. The tempera 00E only. It does not work per and lower ends		
Note: A thermocouple ture input adapt with models OR cale: osition: m-nass filter:	range -50 range -50 ($23 \pm 5^{\circ}$ C, following 30-m is not included and must b er (788041) is for models (100 and OR300. Settable in increments o Movable in increments o 5 Hz (fixed)	to 200°C to 400°C to 600°C ninute warmup per pe purchased by th OR100E and OR3 f 10°C on both upp f 10°C	$\pm 2^{\circ}C$ $\pm 3^{\circ}C$ $\pm 5^{\circ}C$ iod) e customer. The tempera 00E only. It does not work per and lower ends		
Ador C 400°C 600°C Note: A thermocouple ture input adapt with models OR cale: osition: w-pass filter:	range -50 range -50 ($23 \pm 5^{\circ}$ C, following 30-rr is not included and must b er (788041) is for models (100 and OR300. Settable in increments o 5 Hz (fixed)	to 200°C to 400°C to 600°C ninute warmup per pe purchased by th OR100E and OR3 f 10°C on both upp f 10°C	±2°C ±3°C ±5°C iod) e customer. The tempera 00E only. It does not work per and lower ends		
A thermocouple ture input adapt with models OR cale: osition: w-pass filter: Memory function me axis:	range -50 range -50 ($23 \pm 5^{\circ}$ C, following 30-m is not included and must b er (788041) is for models (100 and OR300. Settable in increments o Movable in increments o 5 Hz (fixed) 200. 500 us/div	to 200°C to 400°C to 600°C ninute warmup per pe purchased by th OR100E and OR3 f 10°C on both upp f 10°C	±2°C ±3°C ±5°C iod) e customer. The tempera 00E only. It does not work oper and lower ends		
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Ador C 400° C 600° C Note: A thermocouple ture input adapt with models OR cale: osition: w-pass filter: Memory function me axis: me axis resolution: lemory recording let	range -50 range -50 ($23 \pm 5^{\circ}$ C, following 30-m is not included and must b er (788041) is for models (100 and OR300. Settable in increments o Movable in increments o 5 Hz (fixed) 200, 500 µs/div 1, 2, 5, 10, 20, 50, 100, 1 1, 2, 5, 10, 30 s/div 1, 2, 5, 10, 30 s/div 1, 2, 5, 10, 20, 50, 100, 20, 40 *1: Only works on odd-t connected together.	To 200°C to 400°C to 600°C ninute warmup per pe purchased by th OR100E and OR3 f 10°C on both upp f 10°C 200, 500 ms/div nent period is 1/80 0, 800, 1600, 3200 numbered channe	±2°C ±3°C ±5°C iod) e customer. The tempera- 00E only. It does not work oper and lower ends of time axis) of time axis) 0 ^{*1} , 6400 ^{*2} div I when two channels are		
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Hecording format T-Y recording:	4 analog channels + 8 logic bits: 1, 2, and 4 division recording
r-r recording.	capability (logic recording can be turned on/off separately for each bit)
Digital recording:	measurements are recorded as digital values.
X-Y recording:	X1-Y1, Y2, Y3. X axis is always 1 channel only.
	Recording size: 8 div \times 8 div (80 mm \times 80 mm)
Deserving langths	Recording format options: Dots, lines
Recording length:	20 div, 200 div, 800 div, continuous, 800 div is available on OR300 or on OR100 with /I 1 and /I 2 options
Recording line types:	Three line thicknesses (analog waveforms)
Printing function	
Printed information:	List (settings), scale (units), time print marker, chart speed, char
	speed modification point marker, trigger sensing position, trigger time
	trigger sensing channel, grid (thin line, baseline, off), channel
Commontes	number, IAG, etc.
comments:	information printed in 100 mm intervals
Channel number:	Channel number or TAG name (7 characters per channel) printed of
	waveform.
Real-time & mem	ory
Description of opera	ations: Normally memory sampling starts when trigger is detected
- Marina al Taira an	during real-time recording.
Normal Irigger	Analog channels 1.4 Jagis A and P, external trigger input, manual
ringger sources:	timer
Trigger modes:	Free, Single, Repeat
Trigger combinations	(conditions): AND/OR
Analog trigger types:	Rise, fall, high, low, bi-slope, level window (in, out)
Trigger level setting:	1% FS increments
Trigger filter:	-100% to 100% (in increments of 1%)
Wave-window tria	
Trigger modes:	Single repeat free
Frequencies:	50 Hz, 60 Hz
Trigger combinations	(conditions): OR on each analog channel
Method for creating re	eference waveform:
Poforonoo wovoform	Automatically generated from current input or specified parameters
nelerence wavelonn	Amplitude tolerance offset (1% increments for each) phase (in in
	crements of 1°)
Trigger delay:	-100% to 100% (in increments of 10%)
Sampling rates:	80 kS/s (1 ms/div), 40 kS/s (2 ms/div), 16 kS/s (5 ms/div),
Manager	8 kS/s(10 ms/div)
Memory length:	Memory cannot be linked; maximum memory length for each
	Maximum memory length: 200 div (800 div in OB300 or in OB100 with
	long memory option)
Display	
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Real-time BMS me	Poal-time PMS measurement (OP300E)				
Frequency ranges:					
Measurement range:	100 mVrms to 500 Vrms				
Measurement accuracy: As shown below for 50/60 Hz, sine wave					
	100 mV FS to 2 V FS: ± (2% of FS + 1 mV)				
	5 V FS to 50 V FS; ± (2% of FS + 50 mV)				
	100 V FS to 1000 V FS; ± (2% of FS + 0.1 V)				
Response rate:	(for 0-100% of FS step input)				
'	Rise $(0 \rightarrow 90\% \text{ of FS})$: 200 ms (typical)				
	Fall (100→10% of FS): 310 ms (typical)				
Crest factor: 2 (measurable range for crest factor 2 is rms value of no more					
	90% of f.s.)				
External I/O interfa	External I/O interface				
Terminal:	Screwless terminal				
External trigger input: TTL level or contact (pulse width of 2 µs or greater)					
	Depending on settings, can be used as input for external sampling				
	clock (up to 100 kHz) or for starting/stopping measurement				
External trigger output: TTL level (pulse width of 10 ms or greater; for parallel operation)					
■ RS-232 interface					
Connector:	9-pin DSUB connector (male)				
Transfer rates:	1200, 2400, 4800, 9600, 19200 bps				
PC card interface	· · · · · ·				
• External memory:					

Supported card: Flash ATA memory card (made by SanDisk Corporation or equivalent) Supported card sizes: Up to 160 MB

Function specifications: Saving settings data, measurement data, and graphical images (BMP)

Saving formats:ASCII, binary, BMF Modem communications:

Supported card: Fax/modem card Transmission rate: 19200 bps maximum

Fax control: EA-592 Class 2 card must be used.

Function specifications: Sending measurement data, receiving setting commands, automatic transmission of measurement data (fax only)

Logic Probes

AA/R6 dry cells:

	788031	788035		
Input type	4-channel, TTL or contact input; common input in the same probe	4-channel, voltage input; insulation between channels.		
Maximum allowable input voltage	±35 VDC	±250 Vrms		
Input impedance	Approximately 10 kΩ	Approximately 100 kΩ		
Threshold level	Approximately +1.4 V	Sensed: 60-250 VAC, ±30-±250 VDC Not sensed: 0-10 VAC, 0-±10 VDC		
Withstand voltage 500 VDC, 1 minute (between probe and case)		1.5 kVAC, 1 minute (between channels) 1.5 kVDC, 1 minute (between probe and case)		
Other separately sold accessories				
Dedicated AC adapter (sold separately):				
Rated supply volt	age:	00 to 240 VAC		
Permissible supp	ly voltage fluctuation range:	90 to 264 VAC		
Rated supply free	uency:	50/60 Hz		

Permissible supply frequency fluctuation range: 48 to 62 Hz Maximum consumed power: Rated output voltage: 70 to 90 VA 12 VDC Rated maximum output current: 2.6 A Dedicated NiMH battery pack (sold separately) Battery volume: 2100 mAh, 7.2V Number of charges (cycle life):
 Number of charges (cycle life):
 Approximately 300 (varies depending on usage environment)

 Running time:
 Approximately 3.5 hours (on trigger standby without options)

 Approximately 3 hours (when recording 1 Hz cycle waveform in 2 S/div)

 Charging function:
 Charged in the recorder, connect the dedicated AC adapter and turn
 off the power switch to enter charge mode. Charging time is approximately 1.5 hours. DC converter (sold separately): Allowed input voltages:788025-1: 9-18 VDC 788025-2: 18-36 VDC 788025-3: 36-60 VDC Output voltage: 12V ± 5% Power consumption: Approximately 25VA maximum Screw terminal (lead wire approximately 5 meters long included) Terminal type: General specifications Memory, Real-Time Recorder, Real-time Recording & Memory, Harmonic Analysis (OR300 only) leasurement modes: Channels Analog: 2 channels or 4 channels Logic: 8 bits (maximum of 2 four-bit probes can be connected) Internal memory capacity: Standard: 32K data per channel (or 64K data per two linked Standard: 12K data per channels) Channels, 128K data per four linked channels) OR300 or OR100 with long memory option: 128K per channel (or 256K data per two linked channels, 512K data per four linked channels) Internal memory type: SRAM (battery backup) Power supply: Commercially available AA alkaline dry cells or special AC adapter, special NiMH battery pack, special DC converter for external DC power source. When both the AC adapter and batteries are connected, the AC adapter is used first. Using AC adapter: 25 VA maximum Using batteries: 20 VA maximum Power consumption:

Six AA/R6 alkaline dry cells (JIS, IEC model name: LR6)

Alkaline dry cell runni	ing time:			
	Approximately 2 hours (on trigger standby without options) Approximately 1/2 hour (when recording 1 Hz cycle waveform in 2 S(div) (about 10 minutes shorter with OR300)			
Warm-up time:	30 minutes			
Withstand voltages:	Between recorder and special AC adapter power line: 2 kVAC for 1 minute Between recorder and analog input terminal: 2 kVAC for 1 minute Detween isput terminal: 2 kVAC for 1 minute			
Insulation resistance:	Between input terminals, 2 kVAC for i minute Between recorder and special AC adapter power line: Minimum 10 M Ω at 500 VDC			
Allowed signal source	Between recorder and analog input terminal: Minimum 100 M Ω at 500 VDC Between input terminals: Minimum 100 M Ω at 500 VDC resistance: Maximum 5000			
Environment:	Usage temperature and humidity: 5 to 40°C, 35 to 80% RH (Note: Wet-bulb temperature of 29°C or less, no condensation.)			
Storage temperature	and humidity: -20 to 60°C, 90% RH			
Clock accuracy:	(Note: Wet-bulb temperature of 29°C or less, no condensation; NiMH battery and alkaline dry cells not included.) +100 ppm (typical)			
Battery backup: Life of lithium battery	Lithium battery for backing up settings, waveform data and clock for backup: Approximately 5 years (at room temperature)			
Safety/EMC performa	ince:			
Eutomal dimensioner	Safety performance: CSA-C22.2 No. 1010-92 approved Declaration of compliance with EN61010-1			
Woight:	OP122 (2 channel model): Approximately 1.2 kg (pot including batteries or chart)			
weight.	OR142 (4-channel model): Approximately 1.4 kg (not including batteries or chart)			
	OR322 (2-channel model): Approximately 1.4 kg (not including batteries or chart)			
	OR342 (4-channel model): Approximately 1.5 kg (not including batteries or chart)			
Accessories:	Printer paper (111 mm × 10 meter roll; part number: B9988AE): 1 roll			
	Measurement input leads for voltage input (model 366963): Leads			
	for each channel			
	AA/H6 alkaline dry cells (part number: A10/0EB): 6			
	Instruction Manual:			
ACRAWin32 PC s	oftware			
Data display:	Displays waveform data measured and saved using OR100E, OR300E,			
	OR1400. (supported recorders differ depending on software model) OR300E harmonic analysis results cannot be redrawn.			
Data conversion:	Conversion to ASCII, Lotus 1-2-3 and Excel formats.			
Number of displayed	waveforms:			
	waveforms (displayed separately for each file; maximum number of simultaneous waveforms varies depending on model)			
Calculation function:	Use cursor to select range on waveform display screen or digital value			
	display screen. Minimum, maximum, P-P, average and root mean square values are calculated.			
Communication with	recorders (destinations):			
	Enter the desired recorder name, and set details such as the access			
	method, communicated information schedule, data type selection, and password during communication. Next start or stop communication (OR100E/OR300E only).			
PC:	The PC must be running Windows 95, 98, NT 4.0 or higher, have a Pentium 90 MHz CPU or higher, have at least 16 MB of RAM and at least 5 MB tree hard drive space			
Serial port and mode	m:			
	For communication between a PC and the OR100E/OR300E using			
	theOR100E/OR300E Connector communication software, the PC must be connected through a serial port (RS-232) or modem. In addition, the operating system must recognize the communication devices			
DS 022 cobio and ad	operating system must recognize the communication devices.			

HANDY OSCILLOGRAPHIC RECORDERS

OR100E & OR300E

AVAILABLE MODELS

DR100E (standard model)						
Mode	el	Suffix code		x code	Description	
OR12	22				2-channel isolated input model*	
OR142				4-channel isolated input model*		
Display language -2			English (including key panel)			
Options /F		/P	•□***	Accessory pack**		
OR300E (harmonic analysis mo		/sis mode	l)			
Model Suff		Suffi	x code Description			
OR322				2-channel isolated input model*		
OR34	42				4-channel isolated input model*	
Display lar	nguag	e -2			English (including key panel)	
Ор	otions	_	/ P	•□***	Accessory pack**	
 Standard-equipped with measurement cables for each analog input channel. Includes AC adapter, rechargeable battery pack and carrying case (768081). M (for UL/CSA), F (for VDE), R (for SAA), S (for BS) 						
- Separat 788011	icity S		100	AC adapt	er	
	-	□*1	-	Power co	rd	
788021		<u> </u>		Recharge	able battery pack *2	
788025			-	Rechargeable ballery pack 2		
100025	-	1	-	For connecting external 12 VDC power supply		
-1		-	For connecting external 24 VDC power supply			
-2		-	For connecting external 48 VDC power supply			
788031 4-chan		4-channel	el logic probe *3			
788035				4-channel high voltage logic probe (each channel isolated) *4		
788041				Temperature input adapter		
	- 1-	1		For type K thermocouple		
788081 Carrying		Carrying	case			
788082 Small c		Small car	rrving case			
"I': M (for L/CSA), F (for VDE), R (for SAA), S (for BS) "2: Be sure to get an AC adapter (788011) if you are getting a rechargeable battery pack. "3: Includes IC clip and crocodile leads. "4: Includes crocodile leads.						
PC Soft	ware	ACR	AW	/in32		
789501		Viewe	r fo	r OR100E	OR300E only and OR100E/OR300E viewer	
		software for OR100E/OR300E connector software				
789502		Viewe	r so	oftware for	OR100E/OR300E, ORM	
		(Wind	ows	95, 98, N	T4.0)	
789503		Viewe	r so	oftware for	OR100E/OR300E, OR1400 and ORM, and	
		OR100/OR300 connector software (Windows 95, 98, NT4.0)				
789301		File conversion software for OR100E/OR300E (Windows 3.1 version)				
	-02	English				

Accessories

B9988AE 111 mm \times 10 meter roll paper

SYSTEM COMPONENTS



■ PERIPHERAL EQUIPMENT







YOKOGAWA

788011 AC adapter

788031

Logic probe (w35VDC)

788021 Rechargeable battery pack





788035



Logic probe (w250Vrms)

788081 Carrying case



788082 Small case



366963 Measurement lead

*: Product of Yokogawa M&C Corporation



366922 Conversion adapter



96001 Clamp probe*



