

Clamp-on Testers

The 300, 310, 2343 and 2345 Series of Clamp-on Testers

- You can choose from a wide variety of models: 300 series of AC and AC/DC operated miniature models and battery-driven miniature models for leakage current measurement
- True-RMS/mean value models in the 310 series for leakage current measurement
- AC- and AC/DC-operated multifunction models in the 2343 series
- Low-cost, true-RMS/mean value models in the 2345 series for AC current measurement



Yokogawa M&C Corporation

300 Series of Compact Clamp-on Testers



30010

- Low cost, simple operation
- Bar-graph for monitoring changes in current
- Clamp strength greatly improved by solid structure
- Approved for conformity to safety standards EN 61010-1 and EN 61010-2-032 (CAT III 300 V, pollution degree 2)

30020

- Peak function for measuring wave heights of 10 ms or more
- One-touch zero-adjuster function
- Thin jaws convenient for narrow places
- Approved for conformity to safety standards EN 61010-1 and EN 61010-2-032 (CAT III 300 V, pollution degree 2)

Specifications		At 23°C±5°C, 80% RH *Accuracy:	t(% rdg + dgt) = t(% readout + value of least significant digit)
Model		300 10	300 20
DC current		_	30/300A
Accuracy*		_	1.0 + 5 (30 A range) 1.5 + 3 (300 A range, 0 - 200 A) 2.5 + 3 (300 A range, 200 - 300 A)
AC current		30/300A	30/300A
Frequency characteristics		50/60Hz	20Hz~1kHz
	50/60Hz	1.2+5	1.0 + 5 (30 A range) 1.5 + 5 (300 A range, 0 - 200 A) 2.5 + 5 (300 A range, 200 - 300 A)
Accuracy	20Hz~1kHz	_	2.0 + 5 (30 A range) 2.5 + 5 (300 A range, 0 - 200 A) 3.5 + 5 (300 A range, 200 - 300 A)

■ General Specifications for 300 Series

Model	300 10	300 20	
Method of detection	Mean value		
Display	(Digital display: 3200 counts) (Bar-graph display: 32 segments)	LCD (Digital display: 3200 counts)	
Measurement cycle	Digital display: 2 times/second Bar-graph display: 12 times/second	2 times/second (Digital display)	
Range switching	Auto-	range	
Ambient temperature and humidity	0 - 50°C, 80% RH or less (no condensation)		
Temperature coefficient	±0.05% of range/°C or less0.1% of range/°C or less(within the ranges of 0 - 18°C, 28 - 50°C)(within the ranges of 0 - 18°C, 28 -		
Influence of external magnetic field	_		
Influence of conductor position	±0.6% or less	±0.7% or less	
Safety standard	Approved for conformity to EN 61010-1, EN 61010-2-032		
Circuit voltage	300 Vrms or less		
Withstanding voltage	3.7 kV AC fo	r one minute	
Power supply	One CR2032 (coin-shaped) 3 V battery		
Battery life	Approx. 100 hours (when continuously used)	Approx. 20 hours (when continuously used)	
Auto power-off Approx. 10 minutes		0 minutes	
Diameter of measurable conductor	27 mm at	maximum	
Dimensions	Approx. 53(W) X 156(H) X 25(D) excluding protrusions	Approx. 43(W) X 152(H) X 25(D) excluding protrusions	
Weight	Approx. 130 g	Approx. 110 g	
Accessories	Instruction manual, battery, soft case		

300 Series of Compact Clamp-on Testers



30030

- Can measure a broad range of currents from leakage currents (at a resolution of 0.01 mA) to load currents of up to 300 A.
- Maximum influence (on the current value of an adjacent cable) from an external magnetic field is 0.01%.

30031

- Can measure leakage currents of 1 mA, which is useful for checking the insulation of low-voltage circuits and electrical components.
- Can measure a broad range of currents from leakage currents (at a resolution of 0.001 mA) to load currents up to 60 A.
- Typical influence (on the current value of an adjacent cable) from an external magnetic field is 0.0005%.

 Common features of Common features of Common features of Common features of The clamp lever is lengthened by 30%, enabling smooth opening/closing of clamp even for thick cables of 40mm in diameter. Approved for conformity to safety atandards EN 61010-1 and EN 61010-2-032 (CA 300V,pollution degree2)
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Specificat	lions	23°C±5°C, 80% RH Accurac	$y:\pm(\% \text{ rdg} + \text{dgt}) = \pm(\% \text{ readout} + \text{value of least significant digit})$
Model		300 30	300 31
AC current		30/300mA,30/300A	3/30mA,30/60A
Frequency characteristics		50/60Hz	50/60Hz
Accuracy*	50/60Hz	1.0 + 5 (30/300mA) 1.2 + 5 (0~200A) 5.0 + 5 (200~300A)	1.0 + 5 (0~20mA) 3.0 + 5 (20~30mA) 1.0 + 5 (0~50mA) 5.0 + 5 (50~60A)

■ General Specifications for 310 Series

Model	300 30	300 31		
Method of detection	Mean Value			
Display	(Digital display: 3200 counts)			
Display	(Bar-graph display: 32 segments)			
Measurement cycle	2 times/second (Digital display), 12	2 times/second (Bar-graph display)		
Range switching	Auto-	range		
Ambient temperature and humidity	0 - 50°C, 80% RH or le	ess (no condensation)		
T	0.05% of range/°C or less	0.05% of range/°C or less		
l'emperature coefficient	(within the ranges of 0-18°C and 28-50°C for measurement of 0-200 A)	(with n the ranges of 0-18°C and 28-50°C for measurement of 0-50 A)		
Influence of external magnetic field	0.01% or less (on current value of adjacent cable)	0.0005% typical*1 (on current value of adjacent cable)		
Influence of conductor position	Within accuracy			
Circuit voltage	Approved for conformity to EN 61010-1,EN 61010-2-032			
Safety standard	300 Vrms or less			
Withstanding voltage	3.7kV AC for one minute			
Power supply	One CR2032 (Coin-	shaped) 3 V battery		
Battery life	Approx. 120hours (when continuously used)	Approx. 90 hours (when continuously used)		
Auto power-off	Approx. 10 minutes			
Diameter of measurable conductor	40 mm at maximum			
Dimensions	Approx. 70(W) X 176(H) X 1	25(D) excluding protrusions		
Weight	Approx. 180 g	Approx. 200 g		
Accessories Instruction man		battery, soft case		

*1: This is determined from averaging the amount of influence occurring elsewhere in the jaw.

310 Series of Leakage Clamp-on Testers



31030

Maximum value hold and moving average display functions
Optional AC adapter allows long-term measurement

310 31

• Low cost type

Common features	of
310 30 and 310	31

- Filtering function for measuring currents of fundamental frequency
- Auto-hold function holds max./min./average/final values in 10 seconds of measured current data
- Approved for conformity to safety standards EN 61010-1 and EN 61010-2-032 (CAT III 600 V, pollution degree 2)

Specifications		At 23°C±5°C, 80% RH *Accuracy: ±(% rdg + dgt) = ±(% readout + value of least significant digit)	
Model		310 30	310 31	
AC current		30/300mA	,3/30/300A	
Frequency	characteristics	40 Hz	- 1 kHz	
Accuracy*	Filter ON	1.0 + 5 (0 - 100 A, 40 - 70 Hz) 3.0 + 5 (100 - 200 A, 50/60 Hz) 5.0 + 5 (200 - 300 A, 50/60 Hz)	1.0 + 5 (0 - 100 A, 40 - 70 Hz) 4.0 + 5 (100 - 200 A, 50/60 Hz) 8.0 + 5 (200 - 300 A, 50/60 Hz)	
	Filter OFF	1.0 + 5 (0 - 100 A, 40 - 70 Hz) 2.0 + 5 (0 - 100 A, 70 Hz - 1 kHz) 3.0 + 5 (100 - 200 A, 50/60 Hz) 5.0 + 5 (200 - 300 A, 50/60 Hz)	1.0 + 5 (0 - 100 A, 40 - 70 Hz) 2.0 + 5 (0 - 100 A, 70 Hz - 1 kHz) — —	
Crest factor	r	< 3 (0 - 100 A) < 2.5 (100 - 200 A) < 1.5 (200 - 300 A)	_	
Accuracy of	of AC voltage*	_	1.0 + 5 (600 V range)	
Accuracy of m	neasured frequency*	0.01 + 1 (10.00 - 999.9 Hz)	_	
Recorder	Output voltage	0 - 300 mV DC (for each range)		
output	Accuracy	Add±(2% + 1 mV) to accuracy of measured AC current.	_	
	Load resistance	$1M\Omega$ or more		
General S	Specifications for	or 310 Series		
Model		310 30 310 31		
Method of detection		True RMS	Mean value	
Display		LCD (Digital display: 3200 counts) (Ba	r-graph display: 32 segments)	
Measureme	ent cycle	Digital display: 2 times/second Bar-graph display: 10 times/second		
Range swite	ching	Auto-range/Manual-range		
Ambient temper	rature and humidity	0 - 50°C, 80% RH or less (no condensation)		
Temperatur	e coefficient	±0.05% of range/°C or less(Within the ranges of 0 - 18 °C, 28 - 50°C ; at 0 - 100 A measurement)		
Influence of exte	ernal magnetic field	0.005% or less (against current value of adjacent electric cable)		
Influence of c	onductor position	Within accuracy (At center of sensor; no rating for 100 A or more)		
Safety stand	dard	Approved for conformity to EN 61010-1, EN 61010-2-032		
Circuit voltage		600 Vrms or less		
Withstanding voltage		5.55 kV AC for one minute		
Power supply		Two R 03 (AAA) 1.5 V batteries, or AC adapter (option, for 310 30 only)		
Battery life		Approx. 70 hours(when alkaline batteries are used)	Approx. 150 hours (when alkaline batteries are used)	
Auto power-off		Approx. 10 minutes		
Diameter of measurable conductor		40 mm at maximum		
Dimensions		Approx. 76(W) \times 204(H) \times 31(D) excluding protrusions		
Weight		Арргох. 350 g		
Accessories		Instruction manual, batteries, hard carrying case, recorder output plug (310 30), test lead (310 31)		

2343 Series of Clamp-on Testers





234301

- Resistance measurement and continuity check functions
- Low power design and auto power-off for longer battery life
- Approved for conformity to safety standards BS EN 61010-1, BS EN 61010-2-031, BS EN 61010-2-032 (CAT II 600 V, pollution degree 2)

234302

- Resistance, temperature, frequency measurement and continuity check functions
- Maximum value hold and moving average display functions
- Conforms to safety standards IEC 61010-1, IEC 61010-2-031, IEC 61010-2-032 (CAT II 600 V, pollution degree 2)

Specifications		At 23°C±5°C, 80% RH *Accuracy: ±(%	% rdg + dgt) = ±(% readout + value of least significant digit)
Model		2343 01	2343 02
AC current		300/1000 A	40/400/1000 A
Frequency characteristics		40 - 500 Hz	40 - 500 Hz
Accuracy*		1.0 + 5	1.0 + 5
Crest facto	r	—	< 2.3
Range		3/30/300/600 V	40/400/600 V
DC voltage	Accuracy*	1.0 + 3	1.0 + 3
ACualtaga	Range	30/300/600 V	40/400/600 V
AC voltage	Accuracy*	1.0 + 3	1.0 + 3
Resistance	Range	300 Ω /3k Ω	400Ω/4kΩ
	Accuracy*	1.5 + 3	1.0 + 3
Accuracy of measured frequency*		—	0.01 + 1 (10.00 - 999.9 Hz)
Accuracy of measured temperature			±1.0°C (0 - 70°C)
		—	±2.0°C (-30 - 0°C, 70 - 150°C)
Recorder output	Output voltago		0 - 400 mV DC (40/400 A range)
	Output voltage		0 - 100 mV DC (1000 A range)
	Accuracy	—	±(1% + 0.5 mV)
	Load resistance		$1M\Omega$ or more

General Specifications for 2343 Series

Model	2343 01		2343 02	
Method of detection	Mean value		True RMS	
Display	(Digital display: 3200 counts)		LCD (Digital o	display: 4000 counts)
Display	(Bar-gra	ph display: 32 segments)	(Bar-graph display: 40 segments)	
Measurement cycle	Digital display: 2 times/second	Bar-graph display: 12 times/second	Digital display: 2.3 times/second	Bar-graph display: 23 times/second
Range switching		Auto-range/N	Manual-range	
Ambient temperature and humidity		0 - 50°C, 80% RH or le	ess (no condensation)	
Temperature coefficient	l A	Accuracy×0.1/°C or less(Within	the ranges of 0 - 18°C, 28 - 50	O°C)
Influence of external magnetic field	_		—	
Influence of conductor position	Influence of conductor position —		—	
Safety standard	Approved for conformity to BS EN 61010-1, BS EN 61010-2-031, BS EN 61010-2-032		Conforms to IEC 61010-1, IEC	C 61010-2-031, IEC 61010-2-032
Circuit voltage		600 Vrm	is or less	
Withstanding voltage	3.7 kV AC for one minute			
Power supply	Two R 6P (AA	A) 1.5 V batteries	One 6F22 (S-	006P) 9 V battery
Battery life	Approx. 1000 hours(when alkaline batteries are used) Approx. 170 hours(when alkaline		en alkaline battery is used)	
Auto power-off	Approx. 1		10 minutes	
Diameter of measurable conductor	53 mm at maximum, or 75 X 18 mm busbar			
Dimensions	Approx. 96(W) x 272(H) x 43(D)			
Weight Approx		(. 430 g		
Accessories		Instruction manual, batteries,	, hard carrying case, test lead	

2343 Series of Clamp-on Testers



2343....

- Resistance, temperature, frequency measurement and continuity check functions
- Maximum value hold and moving average display functions
- Conforms to safety standards IEC 61010-1, IEC 61010-2-031, IEC 61010-2-032 (CAT II 600 V, pollution degree 2)

234304

- Peak function that can measure wave heights of currents (5 ms or more) upon measurement of DC current
- Resistance, temperature, frequency measurement and continuity check functions
- Maximum value hold and moving average display functions
- Approved for conformity to safety standards BS EN 61010-1, BS EN 61010-2-031, BS EN 61010-2-032 (CAT II 600 V, pollution degree 2)

Specifications		At 23°C±5°C, 80% RH *Accuracy: ±(9	% rdg + dgt) = ±(% readout + value of least significant digit)		
Model		2343 03	2343 04		
DC current		_	400/1000 A		
Accuracy*		_	1.3 + 3		
AC current		40/400/1000 A	400/1000 A		
Frequency of	characteristics	40 - 500 Hz	40 - 500 Hz		
Accuracy*		1.0 + 5	1.3 + 3		
	Range	40/400	40/400/600 V		
DC voltage	Accuracy*	1.0 + 3			
AC voltage	Range	40/400/600 V			
AC vollage	Accuracy*	1.0 + 3			
Decistance	Range	400Ω	400Ω/4kΩ		
Resistance	Accuracy*	1.0 + 3			
Accuracy of m	easured frequency*	0.01 + 1 (10.00 - 999.9 Hz)			
Accuracy of ma	acurad temperature	±1.0°C(0-70°C)			
Accuracy of measured temperature		± 2.0°C(-30~0°C,70~150°C)			
Recorder output	Output voltage	0 - 400 mV DC (40/400 A range)	0 - 400 mV DC (40/400 A range)		
		0 - 100 mV DC (1000 A range)	0 - 100 mV DC (1000 A range)		
	Accuracy	± (2% + 0.5 mV)	± (1.3% + 2 mV)		
	Load resistance	1ΜΩ ο	1MΩ or more		

■ General Specifications for 2343 Series

Model	2343 03	2343 04	
Method of detection	Mean value	True RMS	
Display	LCD(Digital display: 4000 counts)	(Bar-graph display: 40 segments)	
Measurement cycle	Digital display: 2.3 times/second	Bar-graph display: 23 times/second	
Range switching	Auto-range/N	lanual-range	
Ambient temperature and humidity	0 - 50°C, 80% RH or le	ess (no condensation)	
Temperature coefficient	Accuracy X 0.1/°C or less (Within	the ranges of 0 - 18°C, 28 - 50°C)	
Influence of external magnetic field	—	—	
Influence of conductor position	_	± 0.5% or less	
Safety standard	Conforms to IEC 61010-1, IEC 61010-2-031, IEC 61010-2-032	Approved for conformity to BS EN 61010-1, BS EN 61010-2-031, BS EN 61010-2-032	
Circuit voltage	600 Vrms or less		
Withstanding voltage	3.7 kV AC fo	r one minute	
Power supply	One 6F22 (S-006P) 9 V battery		
Battery life	Approx. 210 hours(when alkaline battery is used)	Approx. 65 hours (when alkaline battery is used)	
Auto power-off	Approx. 10 minutes		
Diameter of measurable conductor	53 mm at maximum or 75 X 18 mm busbar	55 mm at maximum or 65 X 18 mm busbar	
Dimensions	Approx. 96(W) × 272(H) × 43(D)	Approx. 96(W) × 261(H) × 43(D)	
Weight	Approx. 430 g	Approx. 450 g	
Accessories	Instruction manual, battery, hard carrying case, test lead		

2345 Series of Clamp-on Testers



234501

- Resistance measurement and continuity check functions
- Low power design and auto power-off for longer battery life
- Conforms to safety standards IEC 61010-1, IEC 61010-2-031, IEC 61010-2-032 (CAT II 600 V, pollution degree 2)

2345....

- Excellent frequency characteristics (20Hz 20kHz)
- Built-in 50/60 Hz filter function
- Approved for conformity to safety standards BS EN 61010-1, BS EN 61010-2-032 (CAT III 300 V, pollution degree 2)

Specifications		At 23°C±5°C, 80% RH *Accuracy: ±(%	$6 \text{ rdg} + \text{dgt}) = \pm(\% \text{ readout} + \text{value of least significant digit})$
Model		2345 01	2345 03
AC current		30/300A	30/300A
Frequency	characteristics	40 - 500 Hz	20 Hz - 20 kHz
			1.0 + 4 (50/60 Hz range, 45 - 65 Hz)
A		10.5	1.0 + 4 (WIDE range, 20 Hz - 2 kHz)
Accuracy		1.2 + 5	2.0 + 8 (WIDE range, 2 - 10 kHz)
			5.0 + 12 (WIDE range, 10 - 20 kHz)
ACueltaga	Range	300/600 V	_
AC vollage	Accuracy*	1.0 + 3	—
D	Range	300Ω/3kΩ	_
Resistance	Accuracy*	1.5 + 3	_
	Output voltage	0 - 1500 mVrms (5 mV/A)	0 - 1500 mVrms (5 mV/A)
Waveform	Accuracy		±(1.0% + 1 mV) (20 Hz - 2 kHz)
monitor		±5% (50/60 HZ)	±(3.0% + 1 mV) (2 - 10 kHz)
output		±10% (40 - 500 Hz except 50/60Hz)	±(6.0% + 1 mV) (10 - 20 kHz)
	Load resistance	100 k Ω or more, 100 pF or less	1 M Ω or more, 300 pF or less
Recorder output	Output voltage		0 - 300 mV DC (30/300 A range)
			±(1.0% + 0.4 mV) (20 Hz - 2 kHz)
	Accuracy	_	±(2.0% + 0.8 mV) (2 - 10 kHz)
			±(5.0% + 1.2 mV) (10 - 20 kHz)
	Load resistance		$1M\Omega$ or more

■ General Specifications for 2345 Series

Model	2345 01	2345 03			
Method of detection	Mean value	True RMS			
Display	LCD (Digital display: 3200 counts	; Bar-graph display: 32 segments)			
Measurement cycle	Digital display: 2 times/second				
	Bar-graph display: 12 times/second				
Range switching	Auto-range	Auto-range/Manual-range			
Ambient temperature and humidity	0 - 50°C, 80% RH or le	ess (no condensation)			
Temperature coefficient	Accuracy X 0.1/°C or less(Within the ranges of 0 -18°C, 28 - 50°C)				
Influence of external magnetic field	1 A or less at 400 A/m	0.2 A or less at 400 A/m			
Influence of conductor position	±1% or less —				
Safety standard	Conforms to IEC 61010-1, IEC 61010-2-031, IEC 61010-2-032 Approved for conformity to BS EN 61010-1, BS EN 61				
Circuit voltage	600 Vrms or less				
Withstanding voltage	3.7 kV AC for one minute				
Power supply	Two R 03 (AAA) 1.5 V batteries				
Battery life	Approx. 700 hours(when alkaline batteries are used)	Approx. 100 hours (when alkaline batteries are used)			
Auto power-off	Approx. 10 minutes				
Diameter of measurable conductor	33 mm at maximum				
Dimensions	Approx. 73(W) × 190(H) × 34(D)				
Weight	Approx. 250 g Approx. 280 g				
Accessories	Instruction manual, batteries, hard carrying case, test lead (2345 01)				

Selection Guide

For AC Current

Model		MEW 300 10	2343 01	2343 02	2343 03	2345 01	2345 03
Diameter of measurable conductor		ø27mm	ø53mm		ø33mm		
Display		3200	3200 4000		3200		
AC current	Range	30/300A	300/1000A	40/400/1000A		30/300A	
	Resolution	0.01A	0.1A	0.0	1A	0.0	1A
	Frequency characteristics	50/60Hz	40 ~ 500Hz		40 ~ 500Hz	20 ~ 20kHz	
	Method of detection	Mean value	Mean value	True RMS	Mean value	Mean value	True RMS
Other measurement functions	AC voltage	-	0	0	0	0	-
	DC voltage	-	0	0	0	-	-
	Continuity check	-	0	0	0	0	-
	Frequency	-	-	0	0	-	-
	Temperature	-	-	0	0	-	-
	Recorder output	-	-	0	0	-	0
	Waveform monitor output	-	_	_	_	0	0

■ For AC/DC Currents

Model		NEW 300 20	2343 04
Diameter of measurable conductor		ø27mm	ø55mm
Display		3200	4000
DC current	Range	30/300A	400/1000A
	Resolution	0.01A	0.1A
AC current	Range	30/300A	400/1000A
	Resolution	0.01A	0.1A
	Frequency characteristics	20Hz - 1kHz	40 ~ 500Hz
	Method of detection	Mean value	True RMS
Other measurement functions	AC voltage	-	0
	DC voltage	-	0
	Continuity check	-	0
	Frequency	-	0
	Temperature	_	0
	Recorder output	-	0

■ For Leakage Current

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Model		∞∞ 300 30	AM 300 31	AM 310 30	AMD 310 31
Diameter of measurable conductor		ø40mm		ø40mm	
Display		3200		3200	
AC current	Range	30/300mA,30/300A 3/30mA,30/60A		30/300mA,3/30/300A	
	Resolution	0.01mA 0.001mA		0.01mA	
	Frequency characteristics	50/60Hz		40Hz ~ 1kHz	
	Method of detection	Mean value		True RMS	Mean value
Other measurement functions	AC voltage	- 1		-	0
	DC voltage	-		-	-
	Continuity check	-		-	-
	Frequency	-		0	-
	Temperature	-		-	_
	Recorder output	-	-	0	_

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Accessories				

Optional Accessories			Supplementary Products				
Item	Model	Specification	Applicable model	Item	Model	Specification	Applicable model
	B9646GN	100V AC,50/60Hz			RB 055	Hard type	310 Series
AC adapter	940 01	120V AC,50/60Hz	310 30	——————————————————————————————————————	RB 056	Soft type	300 10/20
	940 02	220V AC,50/60Hz			RB 057	Soft type	300 30/31
Thermistor type	2240.01	Temperature range: 50 to 1150°C	2242 02/02/04		B9646HG	Hard type	2343 Series
temperature probe	2349 01	Temperature range50 to +150 C	2545 02/05/04		RB 036	Soft type	2345 01
Cable for	2240.02	Cable length approx 2.5 m	2343 02/03/04 2345 03		RB 012	Hard type	2345 03
connecting recorder	2349 02	Cable lengul. approx. 2.5 III	2343 02/03/04, 2343 03	Recorder output plug	JC 017	(Two pcs/unit)	310 30
Cable for connecting monitor	2349 03	Cable length: approx. 2.5 m	2345 01/03	Test lead	RD 031	(A pair of red and black leads)	310 31, 2343 Series, 2345 01
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YOKOGAWA	World Wide Web site at http://www.yokogawa.co.jp/MCC/Welcome_e.htm	NOTICE Before using the product, read the instruction manual carefully to ensure proper and safe operation.
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