

NEW

Mercury

free

# **Impulse Noise Simulator**

# INS-S220 / S420 IJ-AT450 (Automatic CDN for Impulse Noise Simulator)

START

L TR



### Impulse Noise Simulator (semi-conductor type)

## INS-S220 / S420

## to solve the real trouble in the market

Noise simulator can simulate high frequency noise generated ON/OFF at contact point of switch or relay, arc caused by electric motor. It can evaluate the resistibility of electric devices.

Pulse contains high frequency and by energy volume is changable by adjusting pulse width. The high reproduction noise test of noise trouble in the market can be conducted.

- Button touch instead of coaxial cable replacing reduces pulse width setting time.
- Pulse waveform stability is improved, so high reproduction test is available.
- Cost is cut down because consuamable parts are reduced.
- Common mode/normal mode test is easily to switch by short plug.
- "Test time setting" new function simplifies test time setting.
- •Wiring becomes easier because  $50\Omega$  resisitor is built in simulator.
- Repetition cycle becomes faster. Due to high repetition, mal-function occurrence rate is up and test time is to be shortened. (Only INS-S220)
- AC plug of EUT can be inserted directly by outlet panel.(option)
- Various tests are available by using different probes and coupling clamp.(option)
- EUT test with 3 phase is available by external CDN.(option)
- Dedicated software simplifies testing with various test conditions (Option. Applicable to INS-S420 only)

#### Feature

## To solve the trouble in the markethigh frequency, energy volum of test pulse can be ajustable

Even narrow pulse with 50ns-100ns width contains less energy, twice fast transient due to rise and fall and inducted coupling occurred by sharp electromagnetic field effect electric circuit greatly.

Wide pulse with 800ns-1000ns contains more energy, so voltage fluctuation is easily to effect circuit.

The rise time of impulse simulator is faster than IEC61000-4-4 fast transient/burst test, so spectrum is high. When it injects noise to EUT, noise is easier to invade electric circuit internally.

Spectrum and amplitude is different due to Impulse width, so it is recommended to test with different pulse width.





### INS-S220 / S420

#### Test reproduction is improved. More quantitative test is available.

The usual mercury relay changes into semiconductor relay, so test pulse stabability is improved. More quantitative and high reproduction test is available. Also, waveform distortion due to mercury relay's deterioration.



#### Setting is simplified. Setting time is shortened.

It is troubesome to change the special coxial cables manually in old way. Setting time and connection mistake can be reduced because setting can be operated by button.





Complicate cable connection setting becomes...

SIMPLE with button operations.

#### Cost is cut down. Consumable parts are reduced.

We adopt semiconductor type relay instead of the mercuray relay in old type.

Also, cost on consumable exchange is reduced because pulse width setting cable (consumable) is no longer needed.



Mercury realy image



Coaxial cable image

#### Mal-function rate is up. Test time is to be shortened.

The repetition of pulse in test is faster than the old product. Malfunction rate is up and test time is expected to be shortened.

Example) In case that the repetitive cycle is 2ms



\* There are restrictions on the pulse repetition period.

#### Connection is simplified. Connection time is shortened.

Outlet panel to which EUT is easyly to be connected is adopted. EUT is easy to connect by using outlet panel (option) complying to each country's socket shape.



#### Noise countermeasurement is easy. The malfunction generating position can be identified.

From power supply line, signal line, harness, enclosure to PCB, various noise injection options are ready. The malfunction generating position is easy to identify.



## INS-S220 / S420

#### Specification

Parameter		INS-5220	INIS-5420	
		$0.50 \text{kV} \sim 0.99 \text{kV} \pm 10\%$ 0.01 kV step		
Pulse		$100 \text{ns} \sim 1000 \text{ns} \pm 10\%$ 50 ns step	_	
setting- I		$1$ ms $\sim$ 999 ms $\pm 10\%$ $1$ ms step		
Dulas		1.00kV ~ 2.00 kV ±10% 0.01kV step	0.50kV~4.00kV ±10% 0.01kV step	
Puise		50ns ~ 1000 ns ±10% 50ns step	50ns ±15%, 100ns ~ 1000ns ±10% 50ns step	
setting-2		10ms ~ 999 ms ±10% 1ms step	·	
Output voltag	ge	0.5~2.00kV±10% (10V step)	0.5~4.00kV±10% (10V step)	
Polarity		+/-		
Rise time		<3ns		
Output imped	dance	50Ω		
Terminal resi	stor	50Ω		
	LINE PHASE	50Hz/60Hz coupling phase angle 0 $\sim$ 360° $\pm10^\circ$ synchronized with L-N of EUT supply or external CDN		
Pulse	VARIABLE	1ms ~ 999ms ±10 % (~ 1kV) 10ms ~ 999ms ±10 % (1kV ~ 2kV)	10ms ~ 999ms ±10 %	
repetition mode	EXT TRIG	Period : >10ms Input signal level : TTL/open collector negative logic Pulse width : >1ms Also functions for timing reference signals input from an external injection unit.		
	1 SHOT	Single pulse generation, each time the 1 SHOT button is pressed. Synchronized (phase angle set on the PHASE control) or asynchronized pulse period.		
Memory stora	age	5 tests		
Test time		1s~999s±10% 1s step		
Coulping swit	tch	L(+), N(-), PE / PULSE OUT  *manual switch by coxial cable		
Coupling mod	de	common-mode / normal-mode		
EUT power ca	apacity	Single phase AC240V / DC125V 16A (L(+), N(-), PE)		
External control		-	RS-232C compliant optical communication	
Power supply		AC100~240V 50Hz/60Hz		
Operatig temperature /		15~35°C / 25~75%		
Operatig humidity				
Dimesion / weight		(W) $430 \times$ (H) $249 \times$ (D) 540mm (projection excluded)	(W) $430 \times$ (H) $349 \times$ (D) 540mm (projection excluded)	
		/ approximate 20kg	/ approximate 23kg	
HV coxial cat	ole	NMHV our customized type		
Accessory		coxial cable 30cm (02-00013A): 2pcs, SG short plug (02-00106A): 1pc, SG cable (05-00103A): 1pc, outlet panel: 1pc, AC cable: 1pc, manual instruction: 1 volum, accessory bag: 1pc		



Automatic CDN for impulse noise tester

## <u>IJ-AT450</u>

The Automated CDN (Model:IJ-AT450) for the impulse noise study is a superimposed unit that can be used to test three-phase AC lines and high-voltage DC lines in combination with the impulse noise tester. By performing remote control from Windows PC using dedicated software, the tester can automatically perform the test such as setting of voltages and applied phase, as well as sequence control.

- Tests can be performed on three-phase four-wire lines up to AC500V/50A.
- Testing to the DC-line up to DC250V/50A is also possible.
- EUT line switch allows the AC/DC line to be shut off.

Emergency stop switch to stop the test in case of emergency.



Item	Specifications
Input pulse voltage	4kV terminating resistance 50 $\Omega$ is connected
EUT power capacity	AC: 3-phase, 4-wire (L1, L2, L3, N) 500V / 50A DC:250V / 50A
Input and output terminals	Input terminal: Terminal block Output terminal: Terminal block panel
High voltage coaxial connector	NMHV type *NoiseKen original
Superimposed phase switching	Switching by selection operation *Switching by the front switch of the main unit or remote software.
Zero Cross Detection	Detected from between L1-L2
Line protection circuit	Mounted with shut-off circuit device *Connectable/releasable input and output
Emergency stop	Built-in mushroom-type switch for push-lock and rotation-release
External control	Remote control from PC with optical I/F circuit
Power supply	AC100~240V 50Hz/60Hz
Operating temperature and humidity range	Temperature: 15 to 35° Humidity: 25 to 75%
Dimensions/weight	(W)430×(H)199×(D)540mm Not including protrusions/Approx. 23kg

#### Easy switching of application of phases Time required for setting can be reduced.

## In the conventional model, setting the applied phase is troublesome. It was required to switch by using the dedicated coaxial cable and shortplug manually, but using IJ-AT450 simplifies switching and reduces setting times and reduces connection errors.





Applied phase switching with coaxial cable is troublesome..

Button operation makes it easy!!

#### Simplifying the connection It can reduce the time required to connect

By adopting the outlet panel method, which simplifies the connection of the EUT, the EUT can be easily connected for testing.



#### Remote control Testing automation reduces testing time and man-hours

Using remote control software, in addition to test parameters such as pulse output voltage, pulse width, polarity, and repetition period, the application mode (common/normal) and applied phase can be set, and the test conditions can be controlled in sequence. This reduces the time and effort required to change the wiring during testing and contributes to shortening the testing time and reducing the number of man-hours.

(2) 🗈 🐸 🖟 👘 - 用题 - INS-5420 Remetriki 未接続		- ¤ ×	(2) 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
- <u>*-</u>		7970 · 😥	₩ <b>9</b> <u>*-</u> Δ	7914 - ¥
	<ul> <li>         ・ ・・・・・・・・・・・・・・・・・・・・・・・・・・・</li></ul>			- 1.4400 - OO mine
NANUAL SEQUENCE			MANUAL SECUENCE	
<b>運動</b>		Statestift: Oh Om 10s	PREVIEW test, sample 01 -5	StatestM: Oh Om 10s
電圧 🔐 建成化物	ht	トーの人体解析前:Oh 40m 0s 現代和解析前目安次:1h 19m 50s	電圧 34. V 詳認L/周期 14. V /1.6.745 (2nd. V	h-Judadeensteller: 3h 20m 0s 双加速转转自安2: 6h 30m 50s
	ABLE		⊕ + ○ - ○ + → -     ⊕ PHASE ○ VARIABLE	
単注 スイーフ 雑誌 単注 スイーブ 神話社	単投 スイーブ 1058	THE IGRA -407 EMPT INDUSTRIAL TOY TRADAGOTHYE	単性 スイーブ HER 単位 スイーブ HER 単位 スイーブ HER	je w T I
Bits         400 (b)         Bits         0           017         010         877         200           018         010         877         200           018         010         868         80	° 100 € ne ° 477 500 € nu ° 945 100 € nu	Ten         NUE         6/12         NUE         0/11         1/2         0         1/2         1/2         0         1/2         1/2         0         1/2	Mbb         4.00         MV         Mbb         0         *         Mbb         100         ms           W7	WU/F/2010 No. 化化名 YEE 1 ・ 上参 後 人 15 1582,58950(75
出力先	\$2,540 (W)	8 + 4.00 200 L1-L2 270 9 + 4.00 200 L1-L2 0	出力先 (2089年M)	2498
⊕ PULSE OUT → MillCON(EHBIID)     O PULSE OUT → MillCON(DC)     O PULSE OUT	10 0 0 0 ##R#H15	10          4         4.00         200         L1-L2         90            11          +         4.00         300         L1-L2         180            12          +         4.00         400         L1-L2         270            13          +         4.00         400         L1-L2         2	(€ PULSE OUT → ∱180CDN(E18460)         10 ₀         □ ##R8001           ○ PULSE OUT → ∱180CDN(DC)         10 ₀         □ ##R8001	
印5月1日	40 10月-15月間	14 + 4.00 400 L1-L2 90 15 + 4.00 400 L1-L2 100	EDbark8 - 1/2 - 1/3 abited 40 1/3 abited	1 4 400 100 L1-L2 0
ノーマルモード コモンモー 	<0 © ∞	16          +         4.00         4.00         L1-L2         270            17          +         4.00         500         L1-L2         0            18          +         4.00         500         L1-L2         60	ノーマルモード     ノーマルモード     ゴロ・2 ジロ・13 ジロ・N     ローSS     ロー	2 + 4.00 100 L1=L2 100 3 + 4.00 100 L1=L2 100 4 + 4.00 100 L1=L2 270
212-0 212-13 212-N 012 213-0 213-12 213-N 013 21N-0 21N-12 21N-13 0N-	-SG SG □ EXT TRIG ₹ - P 3G □ 1 SHOT ₹ - P	19          +         4.00         500         L1-1.2         170            21          +         4.00         100         L1-1.3         0            22          +         4.00         100         L1-1.3         0            23          +         4.00         100         L1-1.3         0            4          +         4.00         100         L1-1.3         0            23          +         4.00         100         L1-1.3         100	212-U         212-U         212-U         212-U         212-U           213-U         213-U         213-U         213-S6         0.01780 €-K           213-U         213-U         213-U         213-S6         0.01780 €-K           213-U         213-U         213-U         213-S6         0.01780 €-K	9          +         400         200         L1-L2         100            9          +         400         200         L1-L2         100            9          +         400         200         L1-L2         200            9          +         400         200         L1-L2         200            9          +         400         200         L1-L2         200

#### Attenuator for waveform check **MODEL:00-00017A**



#### Attenuator for measuring high voltage pulse.

Parameter	Specification
Attenuation rate	DC~2GHz:40dB (100:1)
Input pulse peak voltage	4000V MAX
Tolerable continuous	Pulse peak voltage : Max. 4000V
pulse examples	Pulse width : 50ns~1000ns
	Pulse width repetitive frequency : Max. 60Hz at 4000V output Max. 100Hz at 2000V
Input impedance	$50\Omega$ ( $50\Omega \pm 1\%$ at DC)
Output impedance	50Ω (50Ω±1% at DC)
Interface connectors	INPUT : HN(F) OUTPUT : N(F)
Dimension/ Weight	(W)154.5mm×(D)105mm×(H)37mm / Approx 1350g

#### PULSE DIVIDER for INS MODEL:00-00021A



#### A voltage divider enables low voltage test with output by dividing high voltage pulses at a ratio of 4:1.

Parameter	Specification
Attenuation rate	DC~2GHz:12dB (4:1)
Input pulse peak voltage	2000V MAX
Tolerable continuous	Pulse width : 10ns~1000ns
pulse examples	Pulse width repetitive frequency :2000V output $\leq$ 62.5Hz (continuous output)
Input / Output impedance	50Ω (50Ω±1% at DC)
Interface connectors	HN(F)
Dimension/ Weight	(W)169mm×(D)119mm×(H)37mm / Approx 1490g

#### Attenuator MODEL:00-00011A

It is attenuator protecting measuring instrument.

It is recommend to use waveform checking attenuator (00-00017A) to protect measuring instrument.

Attenuating rate 20dB·N type connector

#### Outlet Panel MODEL:18-00059C/60B/84A



Outlet panel to be available for different types of connectors in line output of INS-S220 / S420.

Model	Specification
18-00059C	JP/USA Type AC125V 16A MAX
18-00060B	CEE Type AC240V 16A MAX
18-00084A	multi outlet type AC250V 16A MAX

For IJ-AT450

#### Outlet Panel MODEL:18-00069A/71A



Outlet	nanel to h	e available fo	r different type	s of connectors in	line output of I	NS-S220 / S420
oution	punci to b	c available lo	i uniciciit type	5 01 00111001015 111	mic output of i	110 02207 0420.

Model	Specification
18-000069A	JP/USAType AC125V 16A MAX
18-00071A	multi outlet type

#### Coupling Clamp MODEL:15-00014A

Enable for testing characteristics against the noise only with clamping interconnection cable of electronic equipment



in combination with INS series. The calibration fixture (15-00015A) for this clamp is also available.

OEnable to inject the noise without cutting signal, DC, AC, GND, etc.

- Olt can test noise tolerance of electric device separatly.
- ORealize to test the noise resistibility effectively since the injection can be directly to lines.

OEnable to clamp bundle of lines whose maximum diameter is 20mm

Parameter	Specification
Input voltage	4000V Max
Input pulse width	50~1000ns
Coupling method	Capacitive coupling
Dimension / Mass	(W)350×(H)145×(D)140mm / Approx 3kg
Adequate cable dimension	maxium diameter 20mm
Terminal resistor	none
Coaxial connectors	NMHV(J) NoiseKen custom for the both of input and termination sides

#### Coupling Adaptor MODEL : CA-805B (Capacitive coupling)



Enable for testing characteristics against the noise only with clamping interconnection cable of electronic equipment in combination with INS series.

 $\bigcirc \mbox{Enable}$  to inject the noise without cutting signal, DC, AC, GND, etc.

 $\bigcirc\ensuremath{\mathsf{It}}$  can test noise tolerance of electric device separatly.

ORealize to test the noise resistibility effectively since the injection can be directly to lines.

OEnable to clamp bundle of lines whose maximum diameter is 26mm

#### Coupling Adaptor MODEL: 15-00007A (CA-806 / Magnetic field coupling)

Enable for testing characteristics against the noise only with clamping interconnection cable of electronic equipment in combination with INS series.

OEnable to inject the noise without cutting signal, DC, AC, GND, etc. Olt can test noise tolerance of electric device separatly.

OTermination resistance built-in.

Parameter	Specification
Structure	Magnetic field coupling noise injection clamp
Input voltage	2000V Max.
Input pulse width	50~1000ns
Coupling ratio	1/10±10% of input voltage
Termination resistance	54Ω system built-in
Max. diameter of ground cable	27mm
Dimension / Mass	(W)89×(H)64X(D)120mm / Approx 1000g
Coaxial connector	NMHV(J) NoiseKen custom

#### EMS Probe Kit MODEL: H2-B



Probes set to enable the noise injection onto PCB patterns, flat cables, etc. in the connection with the generator. The probes can be selected per electric fields or magnetic fields and the irradiation in the near field can be performed.

OArbitrary noise injection to where it is desired on PCB or harness.

OEnable to detect point which the noise resistibility is weak per electric field and magnetic field with the probes differentiation.

Each 3 pieces of different figure and size are contained for electric field and magnetic field.

Enable to pinpoint where the noise resistibility is weak since the injection can be done in such small range several mm.
Enable to detect point where the noise resistibility is weak in particular frequency in combination with a signal generator
Suited for locating noise sensitive spots by using with the INS or FNS equipment





BS02

#### Noise Injection Probe MODEL: 01-00034A



OEnable to test the noise resistibility in a board level since the direct injection to LSI pin by pin is possible OPossible for the noise injection up to 500V utilizing the INS or FNS simulator on hand.

 $\bigcirc$ Possible to exchange the coupling capacitor (Option)

○50 ohm termination resistor built-in

[Option]

Coupling capacitors: 06-00039A : 220pF 06-00040A : 330pF 06-00041A : 3pF 06-00042A : 500pF \* 01-00034A. does not contain the coupling capacitors





#### Radiation Probes MODEL: 01-00006A / 7A / 8A / 9A / 10A / 31A / 50A

Probes to irradiate the radiation noise to wiring on PCB of electronic equipment so that point where the radiation noise resistibility is weak can be detected.



Parameter	Specification
Input voltage	4000V Max
Input pulse width	50~1000ns
Loop diameter	01-00006A : $\varphi$ 50mm, 01-00007A : $\varphi$ 75mm, 01-00008A : $\varphi$ 100mm, 01-00009A : $\varphi$ 150mm,
	01-00010A : φ200mm, 01-00031A : 250mm, 01-00050A : 30mm
Cable length	Approx.2m
Mass Approx	180g~220g
Applicable connector	NMHV type

#### Application Example of Probes



H2-B







Noise injection probe



H2-B

H2-B

#### Pulse Injection Cable MODEL:02-H1834



It is noise injection cable combed with noise impulse simulator. \*It can't be used to injected onto where current flows like power supply line.

#### INS Direct Injection Condenser MODEL: 01-00047A



CDN and the same condenser for coupling are built in the box. It is supposed to be used in the case that EUT capacity is 5V. Thepower doesn't turn on through CDN.



#### Injection Unit MODEL: IJ-4050

Unit to enable the noise injection for power supply lines of EUT up to 3-phase 5 lines (L1, L2, L3, N. PE) in combination with main units of INS series. Setting for Normal mode and Common mode is simple and easy only with change of the connectors configurations In case of the combination with INS-4020 / 4040 / S220, test synchronized with EUT lines can be conducted.



Parameter	Specification
Input impulse voltage	Max. 8kV without 50 $\Omega$ termination Max. 4kV with 50 $\Omega$ termination
EUT power capacity	3-phase 5 lines (L1, L2, L3, N, PE) AC415V 50A (Unavailable for DC)
	AC415V between L1-L2, L2-L3, L3-L1 AC240V between L1, L2, L3 – N
Change of injection line	With connectors configurations L1, L2, L3, N, PE
Coupling mode	Normal / Common (Setting with short plug connection)
Line synchronization detection	Detects between L1 – L2 add put out the synchronizatoin signal from SYNC OUT terminal
EUT line protection circuit	Detects current in L1, L2 and L3 lines and breakes L1, L2, L3 and N lines
EUT line input terminal	Terminal block, screw connection
EUT line output terminal	Exclusive contact for $\phi$ 6
Attenuation characteristics	≦-10db 10kHz~1GHz without load
on coupling	
Residual voltage at input	$\leq$ 450V Residual voltage without load when 4000V impulse is injected with 50 $\Omega$ termination
Termination resistance	Nothing (Termination resistance in the main unit is applied)
Power supply	AC100V~240V±10% 50 / 60Hz 20VA Max
Operating temperature	15~35℃ 25~75%
/ humidity range	
Dimension / Mass	(W)430×(H)199×(D)535mm (Projection excluded) / Approx 25kg

#### Injection Unit MODEL: IJ-5100Z



Unit to enable the noise injection to power supply lines of EUT up to AC480V / 100A 3 pjase 5 lines (L1, L2, L3, N, PE) in combination with main units of INS series. In case of the combination with INS-4020 / 4040 / S220, test synchronized with EUT lines can be conducte.

Parameter	Specification	
Input impulse voltage	Max. 8kV without 50 $\Omega$ termination Max. 4kV with 50 $\Omega$ termination	
EUT Line	3-phase 5 lines (L1, L2, L3, N, PE)	
	AC415V 50A (Unavailable for DC)	
	AC415V between L1-L2, L2-L3, L3-L1 AC240V between L1, L2, L3 – N	
Maxium voltage of EUT line	AC 480V	
Maxium current of EUT line	100A	
Line synchronlzation output	1/2 of EUT line input voltage	
Through characteristic	within -10db under 10kHz~1GHz	
CDN power supply	AC 100~240V ±10%50/60Hz	
Dimension / Mass	(W)488×(H)520×(D)825mm (Projection excluded) / Approx 115kg	

#### Circuit Breaker Box MODEL: 18-000072A (20A) / 18-00073A (50A)



Parameter (18-00072A)	Specification
Rated operating voltage	AC250V 50/60Hz DC65V
Standard Arated current	20A
Switching life	≥10000 times (Test conditions: rated switching 6000 times, switching without load 4000 times, switching frequency 6 times/min
Operating temperature / humidity range	15~35°C 25~75% (without dew)
Dimension / Mass	(W)180×(H)92×(D)100mm (Projection excluded) / Approx 0.75 kg

\*Please contact your sales representatives for the 18-00073A (50A) specifications.

#### Isolation Transformer MODEL: TF-2302P



Model TF-2302P is a single-phase isolation transformer rated AC240V/30A and dielectric strength of 4kV. For safety reason, an isolation transformer is indispensable for AC powered testing for equipment.

Parameter	Specification	
Maximum input voltage	Single phase AC240V Max (50/60Hz)	
Maximum output current	30A Max	
Dielectric strength	Primary winding to core AC4kV (1 minute)	
	Secondary winding to core AC4kV (1 minute)	
	Primary to secondary windings AC4kV (1 minute)	
Insulation resistance	100MΩ or more at DC500V	
Dimensions / Weight	(W)350×(H)475×(D)400mm (Except for eye bolt and handle) / Approx. 60kg	

#### Isolation Transformer MODEL : TF-6503P, TF-6633P



Model TF-6503P is a three-phase isolation transformer rated AC 600 V / 50 A and dielectric strength of 4 kV. For safety reason, an isolation transformer is indispensable for AC powered testing for equipment.

Parameter	TF-6503P Specification	TF-6633P Specification	
Maximum input voltage	Single / Three phase AC 600 V Max (50/60 Hz)		
Transformer wiring method	Star wiring		
Maximum output current	50 A Max	63 A Max	
Dielectric strength	Primary winding to core AC 4 kV (1 minute) Secondary winding to core AC 4 kV (1 minute) Primary to secondary windings AC 4 kV (1 minute)		
Insulation resistance	100 MΩ or more at DC 500 V		
Dimensions / Weight	(W)500 $\times$ (H)640 $\times$ (D)700mm (Eye bolts and handles excluded) / approx. 300 kg		

#### Noise Canceller Transformer NCT series



It has superb attenuation characteristics against impulse noises. It can be used for insulate in the impulse noise test. \*Connection cable is needed to be modified when it is connected with the transformer. Please inquire us for details.

MODEL	Primary Voltage / Secondary Voltage	Rated current	Frequency
NCT-160	1001/	5A	
NCT-1240	1200	20A	50/60Hz
NCT-2240	240V	10A	

#### Line input cable MODEL:05-00160A Line output cable MODEL:05-00161A



The connection cable between noise impulse simulator and noise canceller transformer on primary winding. Pleas inquiry us for details.

Description	MODEL	Description
Line input cable	05-00160A	Single phase 20A 3m
		Cabtyre cable. "Ring terminal end" - "Stripped end" (termination at customers)
Line output cable	05-00161A	Single phase 20A 2m
		Cabtyre cable. "Ring terminal end" - "Ring terminal end"



# **INS Test Setup Summary**

#### **INS Test Method**

#### Method or test to power supply lines

- ①Connect power supply line for EUT to EUT LINE INPUT on the simulator main unit (hereafter called as main unit) through an isolation transformer
- <sup>(2)</sup>Lay a ground plane and insulation sheet under main unit and EUT, and ground the ground plane for safety
- ③Connect power supply cable of EUT to main unit (Fold and bind the cable so it can be short in case the length is long)
- (4) Connect SG short plug to SG terminal. Connect SG terminal of main unit and FG terminal (In case it is there) of EUT to ground plane with low impedance braided wire shortly and securely
- (5) Connect  $50\Omega$  TERM OUT connector to connector of phase (L1 or L2, PE if necessary) the noise is intended to be injected with coaxial cable



[Note] • It is prohibited to copy or reprint all or part of this catalog without permission. • Product specifications and appearance are subject to change without notice. • The model name and price may change or production may be discontinued due to various reasons. • Please contact our sales office for any questions regarding your order or contract. • We may not be liable for any responsibilities or responsibilities that arise without confirmation. • Company names and brand names listed in the catalog are trademarks or registered trademarks. • Our products listed in the catalog are commercial equipment and devices that are supposed to be used under the supervision of a supervisor who has sufficient knowledge in use. • It is not a product designed and manufactured for general households and consumers. • Due to printing reasons, there may be differences in color and texture between the photos listed in the catalog and the actual product. • We make every effort to provide accurate information about the contents of the catalog, but if you notice any typographical errors or typographical errors, please contact our sales office.



http://www.noiseken.com

Intrernational Sales & Marketing Section 1-4-4 Chiyoda, Chuo-ku, Sagamihara City, Kanagawa Pref. 252-0237 Japan TEL: +81-(0)42-712-2051 FAX: +81-(0)42-712-2050 E-Mail:salse@noiseken.com

#### Method or test to interconnection lines

- ①Lay a ground plane and insulation sheet under main unit and EUT, and ground the ground plane for safety
- 2 Open coupling adaptor 15-00014A (Option) and clamp interface cable with the adaptor. Connect connector of the adaptor to PULSE OUT of main unit. Connect the one another connector of the adaptor to  $50\Omega$  TERM IN of main unit.
- (3)Connect power supply cable of EUT to any power source since no high voltage pulse is injected in this test
- (4) Connect SG terminal and FG terminal of EUT to ground plane