

# ELECTRONIC MULTI-MEASURING INSTRUMENT ME96NSR

## Small & Flexible

## New DIN Sized Electronic Multi-Measuring Instrument

### New Product News

September 2008

MO07

### Overview

This measuring instrument measures load status, and displays various values taken from high voltage/low voltage circuits of power distribution systems. Also, variety of output functions allow for remote monitoring.

### Features

#### (1) New Functions

##### ● Small & Flexible

Smaller than previous model, the size is changed to 96×96mm.

Also, phase wire can be changed between 3-phase/4-wire and 3-phase/3-wire by setting.

Furthermore, output functions can be added on (by Optional Plug-in Modules), so initial investment can be saved, leaving budget for gradual expansion.

##### ● Remote Input/Output Function

Remote input/output function can be added onto ModBus communication, so separate remote input/output device is not needed.

Monitoring of contact input (5 circuits) and power monitoring of output control (2 circuits) can be operated at the same time.

Also, latch function is included in the remote input functions, so conservation of pulse signal of over 30ms is possible, and it can be used as input monitoring for OCR alarm of ACB.

##### ● Test Function

Even during a setup of a facility, where no measuring input is found, checkup of wiring and system of monitoring program is possible with analog output, pulse output, alarm output, and communication data reply.

#### (2) Inherited Functions

##### ● Large Bar Graph and Tri-level Digital Display

##### ● High Quality Measurement by ASIC

Along with the measuring of Voltage, Current, Active Power, Reactive Power, Apparent Power, Power Factor, and Frequency, in addition, total of six types of energy (Incoming Energy, Outgoing Energy, Incoming Lag Reactive Energy, Incoming Lead Reactive Energy, Outgoing Lag Reactive Energy, and Outgoing Lead Reactive Energy) can be measured.

##### ● CE Marking

Conformity with EMC Standard (EN61326-1:2006) and Safety Standard (EN61010-1:2001).

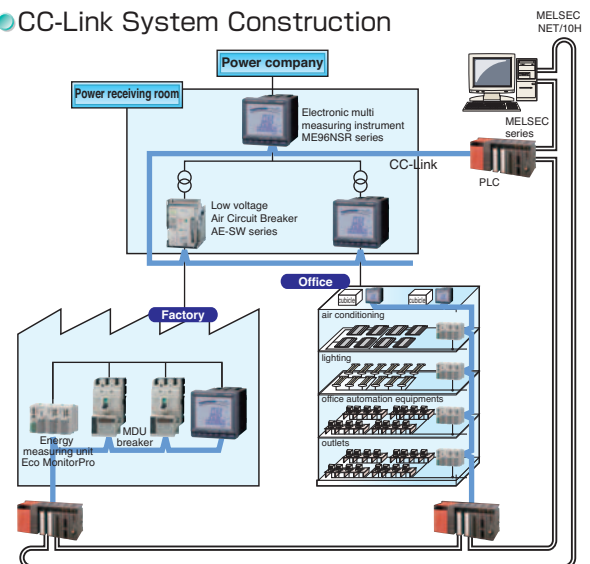
### Release Date

October 2008 (Order Receipt/Production Start)

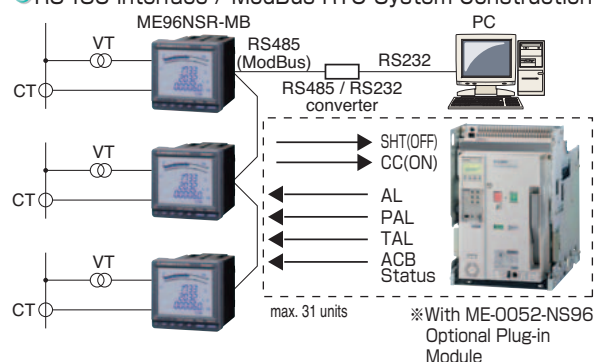


ME96NSR-MB

#### ● CC-Link System Construction



#### ● RS485 interface / ModBus RTU System Construction



# Product Lineup

## Basic Device

Model Name	Transmission
ME96NSR	—
ME96NSR-MB	ModBus Communication

## Optional Plug-in Modules

Model Name	Analog Output	Pulse Output	Contact Input	Contact Output (Note2)	Transmission Function	Used with
ME-4201-NS96	4	2	—	1	—	ME96NSR
ME-0040C-NS96	—	—	4	—	CC-Link	ME96NSR
ME-0052-NS96 (Note 1)	—	—	5	2	—	ME96NSR-MB

(Note 1) : ME-0052-NS96 is an optional plug-in module for ME96NSR-MB only.

(Note 2) : Contact Output for ME-4101-NS96 closes at the time of high and low alarm occurrence.

Contact Output for ME-0052-NS96 switches according to 16 bit set of ModBus communication.

# Specification

## Basic Device

Measuring Items	Phase Line	3-Phase/4-Wire	3-Phase/3-Wire
	Current (A)	A1,A2,A3,AN,Aavg	A1,A2,A3,Aavg
	Current Demand (DA)	DA1,DA2,DA3,DAN,DAavg	DA1,DA2,DA3,DAavg
	Voltage (V)	V12,V23,V31,VLLavg V1N,V2N,V3N,VLLavg	V12,V23,V31,VLLavg
	Active Power (W)	ΣW,W1,W2,W3	ΣW
	Reactive Power (var)	Σvar,var1,var2,var3	Σvar
	Apparent Power (VA)	ΣVA,VA1,VA2,VA3	—
	Power Factor (PF)	ΣPF,PF1,PF2,PF3	ΣPF
	Frequency (Hz)	Hz	
	Active Energy (Wh)	Imported, Exported	
Reactive Energy (varh)	Imported Lead, Imported Lag, Exported Lead, Exported Lag		
Harmonics Current (HI)	HI1, HI 2, HI 3, HI N,	HI 1, HI 2, HI 3	
Harmonics Voltage (HV)	THD,h1,...,h13 RMS Value and Distortion Ratio		
	HV1N,HV2N,HV3N		
	THD,h1,...,h13 RMS Value and Distortion Ratio (Max. 20%)		
Rating	Rated Voltage	max277V/480V 50-60Hz	AC110V,220V 50-60Hz
	Rated Current	AC5A /AC1A	
Scale	Voltage	63.5,100,110,115,120	
	Secondary Primary	60V~750kV, upper 3 digits can be set 5A~30kA, upper 2 digits can be set	
Power Failure Compensation	Non Volatility Memory used (Items: Setting Value, Max./Min. Value, Active Energy, Reactive Energy)		
VA Consumption	VT	0.1VA, 0.2VA (Input directly) for each phase	
	CT	0.1VA for each phase	
Auxiliary Power Circuit	7VA at 110VAC, 8VA at 220VAC, 5W at 100VDC		
Auxiliary Power Supply	100-240VAC(+10%, -15%) 50/60Hz 75-140VDC		
Weight	0.5kg		
Dimensions	96(H)x96(W)x86(D)		
Enclosure	Thermoplastic Self-distinguish (UL94V0)		
Operating Temperature	-5°C~50°C (Average operating temperature: under 35°C per day)		
Operating Humidity	Under 30~85%RH, Non condensing		
Storage Temperature	-20°C~60°C		
Standard	EMC...EN61326-1:2006 Safety Standard...EN61010-1:2001		

## ModBus Interface

Item	Specification
Transmission Method, Protocol	RS-485 2-Wires Half Duplex, ModBus RTU
Connection	Multi-drop max. distance 1000m, max. 31 units
Baud Rate	2400, 4800, 9600, 19200, 38400bps Default:19200bps
Slave Address	1~255(FFh) Default: 1

ModBus is a registered trademark of Schneider Automation Inc.

## Optional Plug-in Module

Item	Specification
Analog Output (ME-4201-NS96)	Output 4~20mA DC Load Resistance 600Ω max
Pulse Output (ME-4201-NS96)	No-voltage 'a' contact Contact Capacity: 35VDC, 0.1A
Digital Input (ME-0052-NS96, ME-00040C-NS96)	Rated DC24V(DC19-30V), under 4mA, Signal Width over 30ms (With 'DI' latch HoLd, over 30ms of pulse can be latched)
Digital Output (ME-4201-NS96, ME-0052-NS96)	No-voltage 'a' contact Contact Capacity: 35VDC, 0.2A
CC-Link Interface (ME-00040C-NS96)	CC-Link Ver. 1.10 Remote Device 1 channel occupied type

# Ordering Information

Model Name	Quantity
ME96NSR-MB	50 units

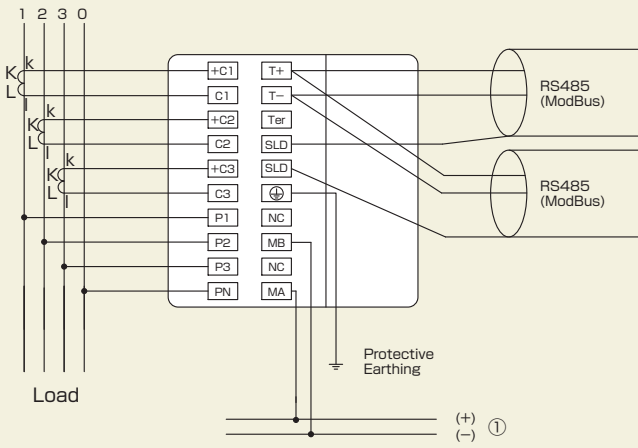


<Basic Device>

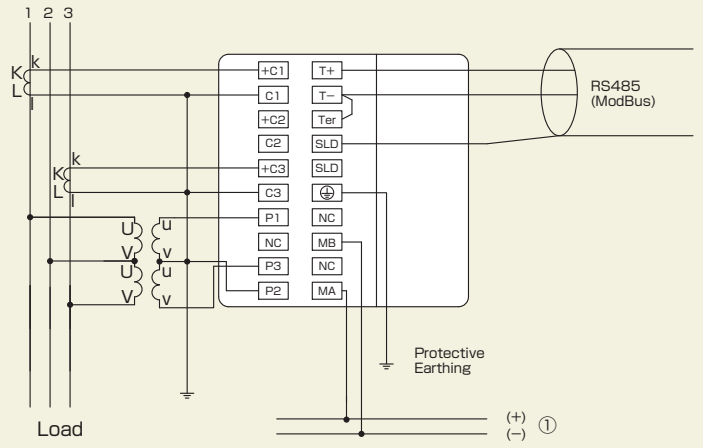


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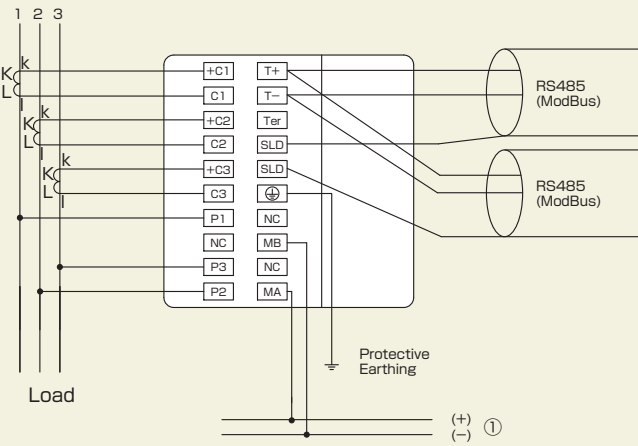
# Wiring Diagram



Three-phase 4-wire type



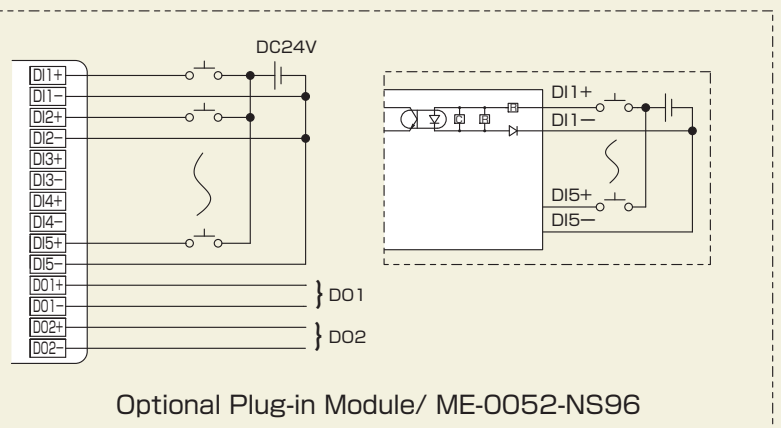
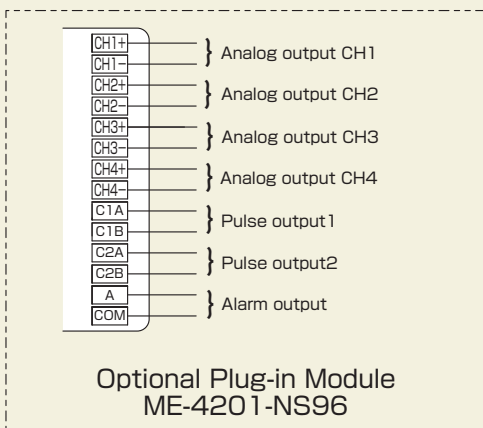
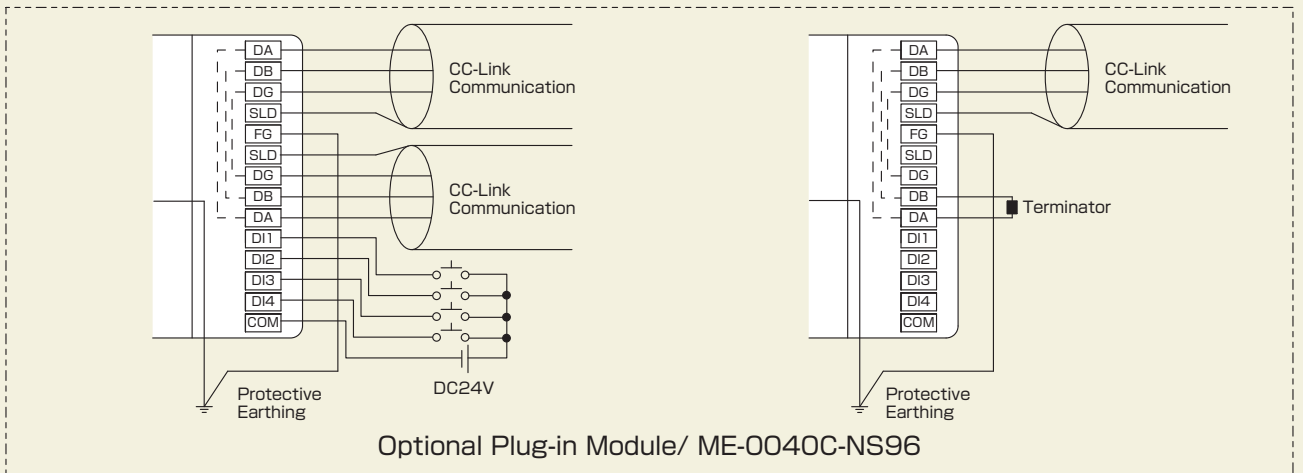
Three-phase 3-wire 2CTs



Three-phase 3-wire type with 3CTs

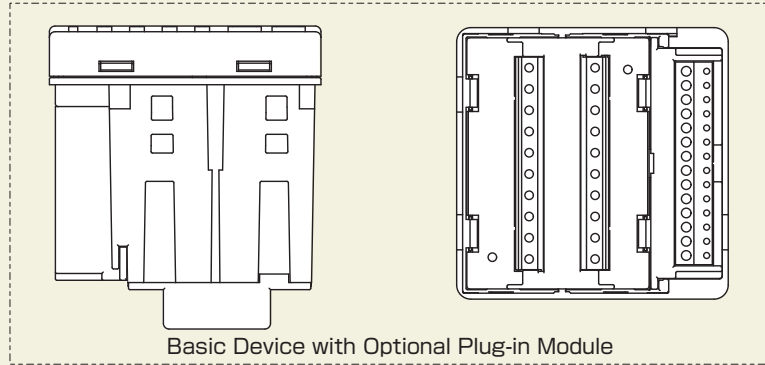
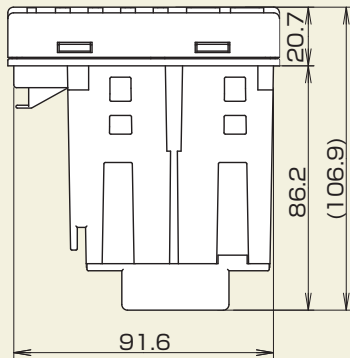
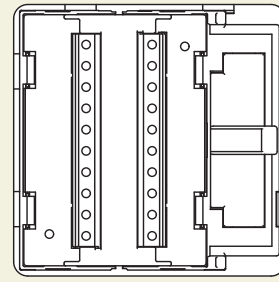
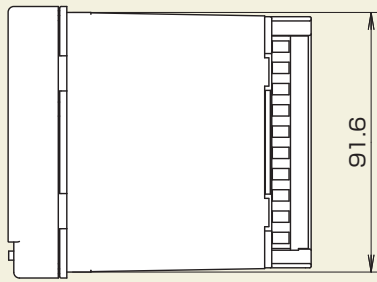
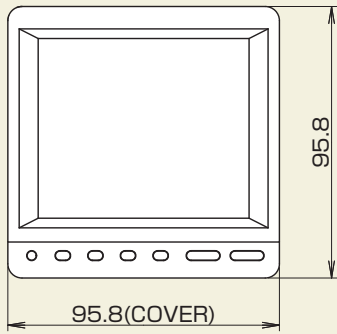
① Auxiliary power supply 100-240 VAC 100 VDC

- \*1. For a low voltage circuit, grounding of the secondary sides of VT and CT in not necessary.
- \*2. Do not connect to NC terminal.



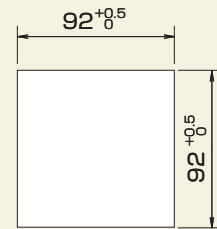
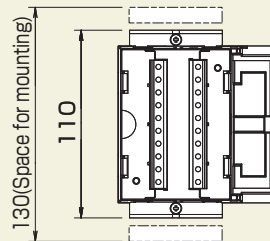
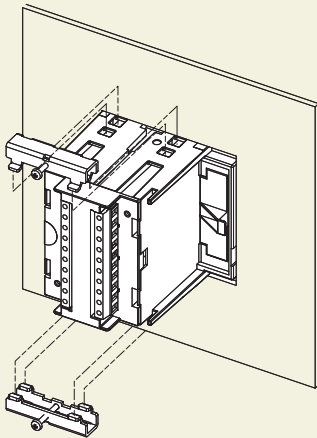
## Dimensions

### ● Basic Device



Basic Device with Optional Plug-in Module

### ● Panel Mounting



Drilling Plan

NOTE : Please do not tighten too strongly to prevent panel and screw from breaking.  
Tightening torque for this product : 0.3N·m~0.5N·m (Half the torque applied normally for this type of screw)  
Also, please tighten so that torque is even between upper and lower screws.

## Service Network

Country/Region	Company	Address	Telephone
China	Mitsubishi Electric Automation (Shanghai) Limited	17/F., ChuangXing Financial Center, No.288 West Nanjing Road, Huang Pu district, SHANGHAI 20003 P.R.CHINA	+86-(0)21-2322-3030
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Korea	MITSUBISHI ELECTRIC AUTOMATION KOREA CO., LTD.	2 Fl. Dong Seo Game Channel Bldg., 1F 660-11 Deungchon-Dong, Kanguseo-Ku, Seoul, 157-030 Korea	+ 82-2-3668-6567
Philippines	EDISON ELECTRIC INTEGRATED, INC.	24th Fl. Galleria Corporate Center Edsa Cr, Ortigas Ave. Quezon City, Metro Manila. Philippines.	+63-(0)2-643-8691
Taiwan	Setsuyo Enterprise Co., Ltd.	6F, NO. 105 Wu-Kung 3rd rd., Wu-Ku Hsiang, Taipei Hsien Taiwan	+886-(0)2-2298-8889
Thailand	UNITED TRADING & IMPORT CO. LTD.	77/12 Bumrungruang Road, Klong Mahanak, Pomprab Bangkok 10100.	+66-223-4220-3
Vietnam	SA GIANG TECHNO CO., LTD.	47-49 Hoang Sa St., Da Kao Ward, D.1, HCMC	+84-8-910 4763 / 4758 / 4759
Singapore	MITSUBISHI ELECTRIC ASIA PTE LTD.	307 Alexandra Road #05-01/02 Mitsubishi Electric Building Singapore 159943	+65-6473-2308

### ⚠ Note on Safety

- To use the product properly and with safety, be sure to read the "Instruction Manual" before use.
- To ensure safety, connection of the product must be done by an expert engineer of electric work or electric wiring.