

Transfer Switch Controller

Smart Transfer

SXC series

We offer power transfer you need
for the 21st Century



Aichi

Aichi Electric Works Co., Ltd.

Our Contribution to No Power Failure

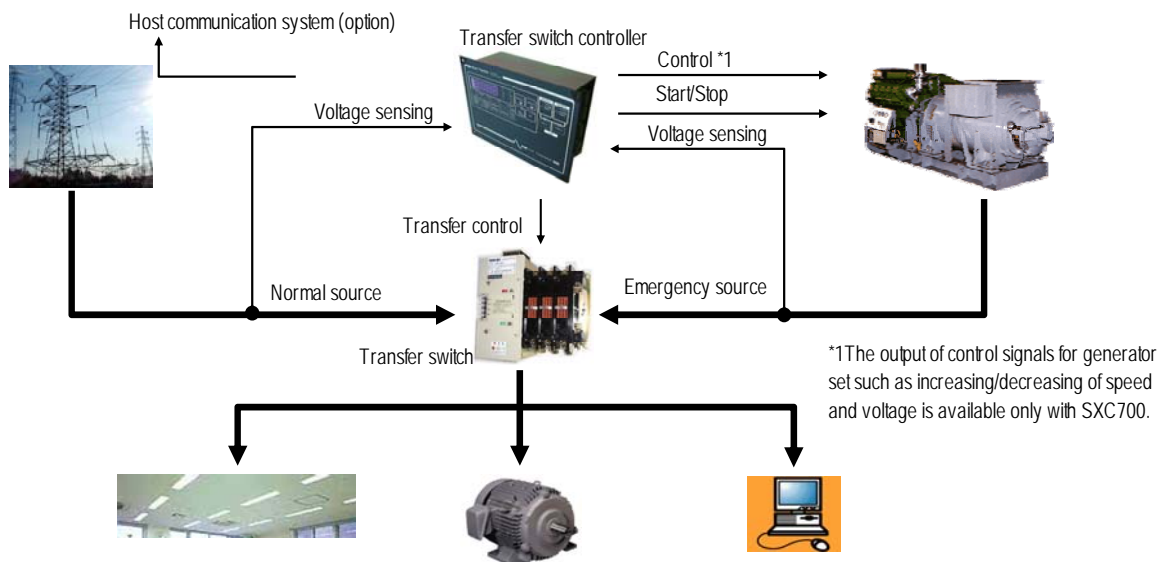
Power distribution without failure has become a necessity for our society as we have become more heavily dependent on electricity in recent years. To meet this requirement, the technology of transferring the power source from normal to emergency has become very critical in the event of power failure. Our SXC-series controllers offer this technology with precision and reliability. Our controllers are engineered with display, measuring, control and recording functions so that you can use them with the transfer switches also manufactured by ISE Corporation. By combining the controllers with the transfer switches, ISE can offer you the best transfer switch system for your requirements.

SXC-series Features

Our SXC-series controllers are multi-functional and compact products equipped with microcomputers.

<p>■ Multiple measurements: The controllers provide a variety of measurements: voltage, frequency, voltage difference, frequency difference, phase difference, unbalanced rate, phase rotation and others at normal and emergency sources. The range of measurable voltage is extensive.</p> <p>■ Status and alarm display panel convenient for monitoring: The display panel shows power availability at normal or emergency source, transfer status and engine start/stop status. In the event of a failure in transferring or operation, the related light will flash, indicating alarm status.</p> <p>■ Simple Operation: Using the display panel, you can easily set the maximum and minimum values of voltage and frequency and time delay values and perform transfer operations between both sources.</p> <p>■ Controllers for multiple applications: We have prepared various controller models for different applications such as general-purpose open transition, open transition with pausing at neutral position, high-speed open transition and closed transition.</p>	<p>■ Engine start at power failure: When the normal source fails, our controller output signals to start the generator set engine after verifying the power failure.</p> <p>■ Periodical engine exercising: To assure expected operation of a generator set, our controller enables periodical exercising of the generator set engine with or without load.</p> <p>■ Transfer switch maintenance: For maintenance purpose of transfer switches, the controllers keep records on the number of transfers and the contents of such transfers.</p> <p>■ System maintenance: To maintain the proper operation of a transfer switch system, testing can be performed from the display panel. With the test mode, you can perform a series of sequence from power failure to recovery to assure reliable operation of your transfer switch system.</p> <p>■ Host communication function (option): This option allows you to monitor measurement values, power source availability, transfer status and engine start/stop status as well as operate the transfer from a remote site.</p>
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System Configuration Example

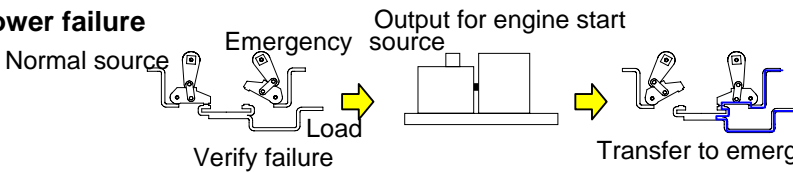


Features of Each Model

◆SXC100 for general-purpose open transition application (using W2, WN2 and Y2 type transfer switches)

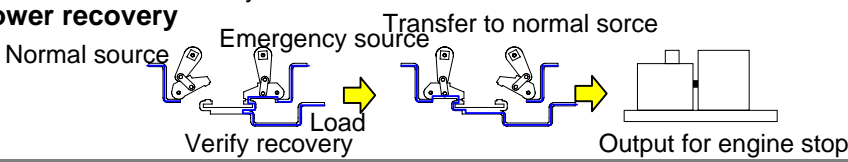
This performs transfers by sensing voltage at each source.

Power failure



(Note) This diagram indicates the movements of transfer switch contact points. The blue line means that voltage is available on that circuit.

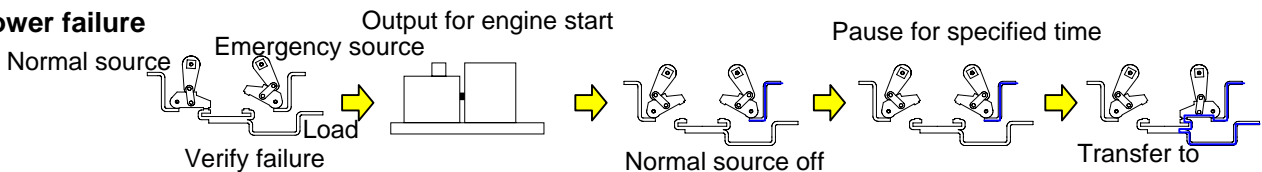
Power recovery



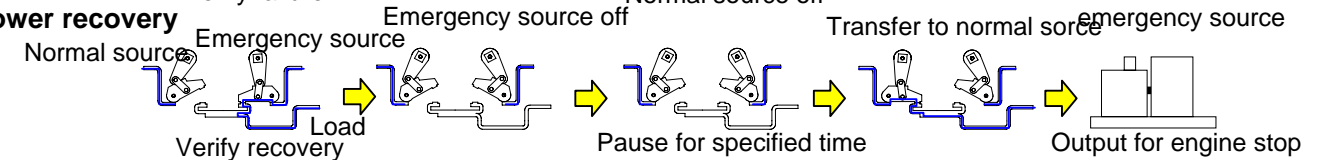
◆SXC200 for open transition with pausing at neutral position, using our WN2 type transfer switches.

This model performs transfer while sensing the voltage at each source. It makes the transfer switch pause for a specified time at the neutral position while transferring. This design is effective for handling a large load (such as electric motor) with reverse electromotive forces

Power failure



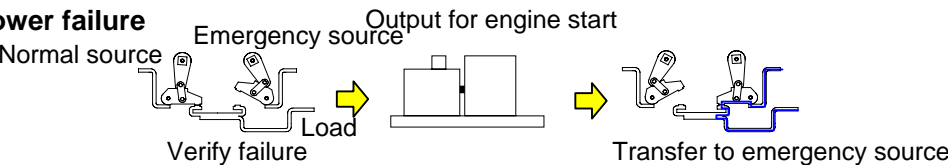
Power recovery



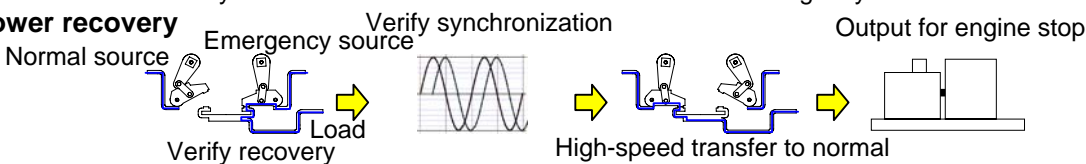
◆SXC500 for high-speed open transition, using our WS transfer switches

By sensing voltage, frequency and phase at each source, this model performs transfer when both sources are synchronized. Our high-speed WS transfer switches are able to perform transfer, limiting instantaneous power loss to about 5 milliseconds. This application is ideal for lighting systems where extremely short period of power loss is allowable for the load.

Power failure



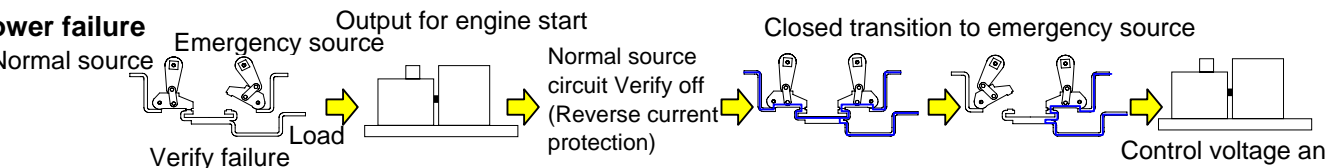
Power recovery



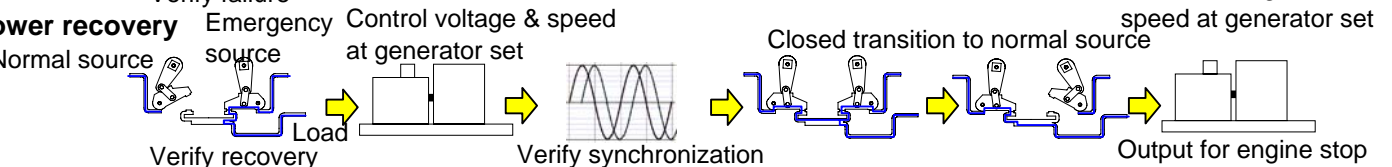
◆SXC700 for closed transition application, using our WP transfer switches

This model senses voltage and frequency at each source, controls voltage and speed at the engine and performs transfer when both sources are synchronized. Our closed-transition WP switches are able to perform transfer without power loss. Since there is no power interruption, this application is ideal for computer systems where instantaneous power loss is not acceptable.

Power failure



Power recovery



Panel Description

Digital display:

Voltage, frequency and other measured values as well as time delay and other programmed values are displayed.

Mode indicators:

They show which mode is being used, automatic, manual, test or program.

Item row indicator:

The light goes on at the selected row.

Table of items available for display:

Item is selected for display by using the item row display and the U/M display.

Mode selection key (Mode):

This key is used to switch between modes. This is also used to display item number or interrupting programming.

Test run indicator (Test):

This light flashes while testing is performed.

Programming key (Set):

This key is used to display the contents of each item and set up programmed values.

Lockout indicator (Lock):

This light goes on when key operation is disabled.

U/M display:

This displays unit of measurement for values displayed on the digital display.

Source A section key (Select A):

This is used to display the contents of source A per each system item on the digital display.

Source A selection indicator:

This light goes on when the contents of the digital display are for source A.

Source B selection key (Select B):

This is used to display the contents of source B per each system item on the digital display.

Source B selection indicator:

This light goes on when the contents of the digital display are for source B.

Source A/B normal selection indicators (Preferred):

The light flashes at the source where normal source is available. As long as the operation is correct, it stays flashing.

Source A/B available indicators (Available):

This light for the applicable source flashes while voltage and frequency are being stabilized. Once they become stable, the light stops flashing and stays on.

Source A engine start key (Engine):

In the manual mode, this key enables engine start from source A.

Source A engine status indicator:

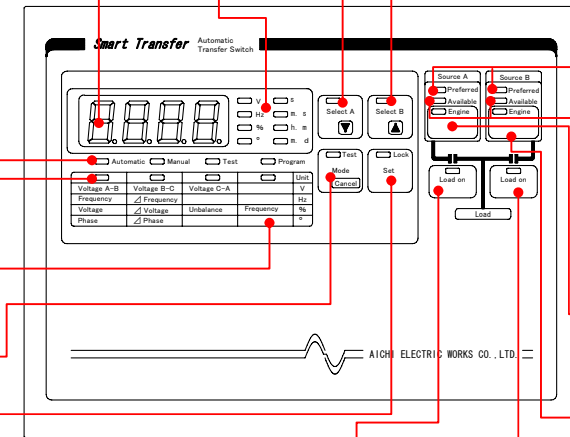
This light goes on when the engine start is activated from source A. It flashes when the engine is cooling down. Any failure causes this light to do rapid flashing.

Source B engine start key (Engine):

In the manual mode, this key enables engine start from source B.

Source B engine status indicator:

This light goes on when the engine start is activated from source B. It flashes when the engine is cooling down. Any failure causes this light to do rapid flashing.



Source A transfer key (Load on):

This is used to perform a manual transfer to source A.

Source B transfer key (Load on):

This is used to perform a manual transfer to source B.

Source A status indicator:

This light goes on when a transfer makes power available at source A. In event of any failure with the transfer, the light flashes rapidly.

Source B status indicator:

This light goes on when a transfer makes power available at source B. In event of any failure with the transfer, the light flashes rapidly.

Connector Description

CN1

Source A
Operating power supply input

CN2

Source B
Operating power supply input

CN3

Source A
Voltage input for measurement

CN4

Source B
Voltage input for measurement

CN6

Source A and B
Transfer output

CN7

Engine selection output
Engine start/stop output

CN12

Source A and B
Trip output (SXC200)
Alarm output (SXC700)

CN8 (Optional)

Communication connector
RS-485

CN5

Source A and B
Aux. contact input

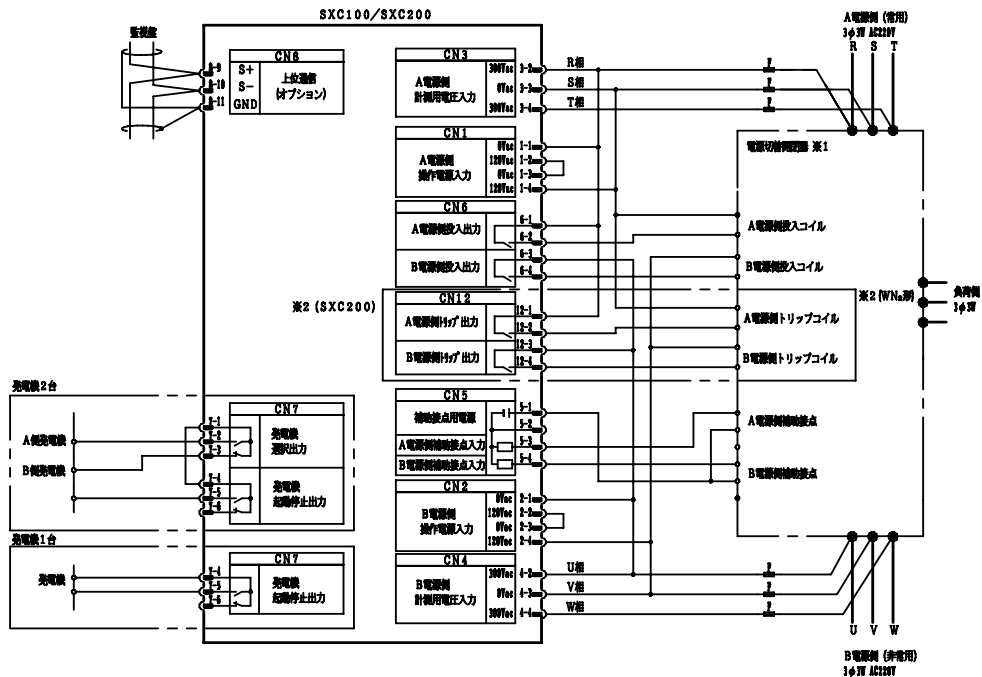
CN9

External source transfer input (SXC500/700)
Output for increasing/decreasing voltage & speed (SXC700)

Note: Model description in () means that that particular connection is available only with that model.

Connection Diagrams

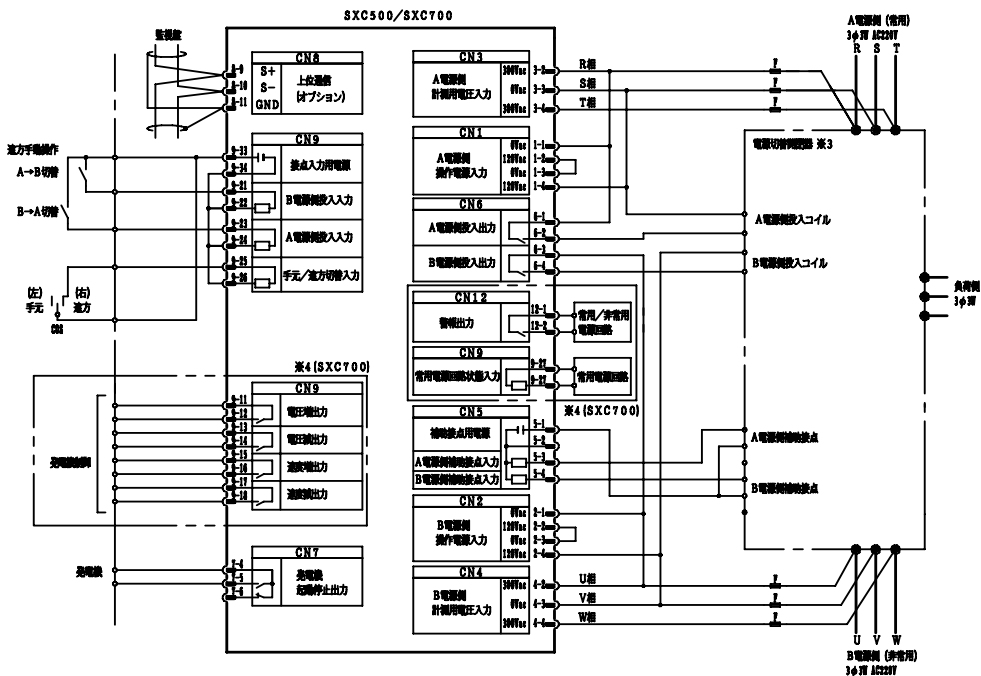
SXC100 and SXC200



※1 : SXC100にはWs, WN_a, Ya形をSXC200にはWN_a形を使用します。

※2 : (形式)表記はその形式のみに搭載されている機能を示します。

SXC500 SXC700



※3 : SXC500にはWS形をSXC700にはWP形を使用します。

※4 : (形式)表記はその形式のみに搭載されている機能を示します。

Specifications

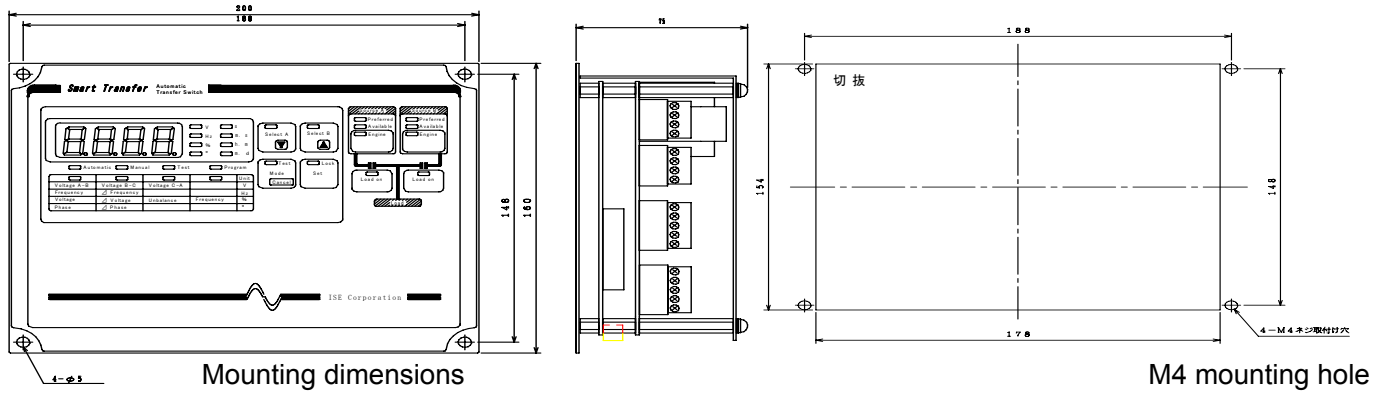
Model	SXC100	SXC200	SXC500	SXC700
Application	System allowing momentary power loss	System requiring pausing at neutral position during a transfer	System allowing momentary power loss of extremely short time (about 5 msec.)	System requiring no momentary power loss
Applicable transfer switches	Y2, W2 and WN2 types	WN2 type	WS type	WP type
Measurement ranges	● AC 0-300V (40 - 70Hz) ● AC 0-600V (40 - 70Hz)			
Control input	Transfer switch auxiliary contact input (DC 24V 8mA)			Normal source circuit OFF input (DC24V
			External contact input (local/remote & source A/B) (Input DC24V 8mA)	
Status display	● Power supply (Normal source selection/stable power supply) ● Engine status (start/stop/cooling) ● Transfer switch status (source A/B)			
Alarm display	● Transfer failure		● Engine failure	
Time display	Source A or B trip failure		Synchronization delay	
Measurement display	● Year/Month/Day hour: minute			
	● Voltage between phases (0.0 - 600.0V)		● Voltage unbalanced rate (0.0 - 100.0%)	
	● Frequency (40.0 - 70.0Hz)		● Phase rotation (forward /reverse)	
Programming	Difference between sources (voltage, frequency and phase)			
	Over voltage (105 ~ 115%) Recovery (100 ~ 110%) Under voltage (80 ~ 98%) Recovery (85 ~ 100%) Over frequency (105 ~ 115%) Recovery (102 ~ 110%) Under frequency (80 ~ 98%) Recovery (85 ~ 100%) Voltage unbalance (0 ~ 30%) Recovery (0 ~ 30%) Number of phase (single/three/1 phase 3 wires) Phase rotation (forward/reverse) Power failure verification time (1 second ~ 4 min 10 sec) Power recovery verification time (0 ~ 60 min 59 sec) Engine voltage stabilization time (0 ~ 60 min 59 sec) Engine cooling time (0 ~ 60 min 59 sec) Operation disabled (disabled/enabled) Engine exerciser (every week/every 2 weeks/specify week and length from 00:00 to 23:59)			
		Pausing time at neutral position (0 ~ 60 min 59 sec)	Frequency difference (0.1 ~ 3.0 Hz)	Frequency difference (0.05 ~ 0.30 Hz) Engine control pulse (voltage·
		Voltage difference (0 ~ 10%) Advance timing (20 ~ 100 msec.)		
	● Transfer time (0~9999 times) ● Power supply stabilized period (0~9999 days 23 hr 59 min) ● Transfer history (source, contents, year/month/day, hr:min:sec) 3 times in the past			
Control	Transfer	Transfer (Pausing at neutral position)	High-speed transfer (Frequency difference: within 3.0 Hz)	Transfer with no momentary power loss (Frequency difference: within 0.3 Hz)
	● Start engine at power failure ● Test operation ● Engine exerciser ● Local transfer ● Remote transfer			
Control power supply	● AC 80 - 125V (45 - 65 Hz) ● AC160 - 250V (45 - 65Hz)			

Specifications

Model	SXC100	SXC200	SXC500	SXC700
Control output	<ul style="list-style-type: none"> ● Transfer output for sources A & B (AC250V 7.5A or DC30V 5A induction load) ● Engine start/stop (AC250V 3.5A or DC30V 2.5A induction load) 			
	<ul style="list-style-type: none"> ● Engine selection output (AC250V 3.5A or DC30V 2.5A induction load) 			
		<ul style="list-style-type: none"> ● Trip for sources A & B (AC250V 7.5A induction load or DC30V 5A induction load) 		<ul style="list-style-type: none"> ● Output for voltage and speed control (DC24V 130 mA) ● Alarm output (AC250V 7.5A induction load or DC30V 5A)
Host monitor	<ul style="list-style-type: none"> ● Measured value display ● Status display ● Alarm display ● Various programmed values ● Various measured values ● Switch control 			
Measurement precision	<ul style="list-style-type: none"> ● Voltage $\pm 1.0\%$(300V), $\pm 2.0\%$(600V) ● Voltage unbalance rate $\pm 1.0\%$ ● Frequency $\pm 0.1\%$ ● Phase difference $\pm 0.1\%$ 			
Power consumption	5VA			
Operating ambient temperature	-10 to 55°C(No freezing)			
Operating ambient temperature	20 to 85% (No condensation)			
Weight	1.7 Kg			
Outside dimensions	200(w) x 160(h) x 75(d) mm			

Outline drawing

SXC100/ 200/ 500/ 700

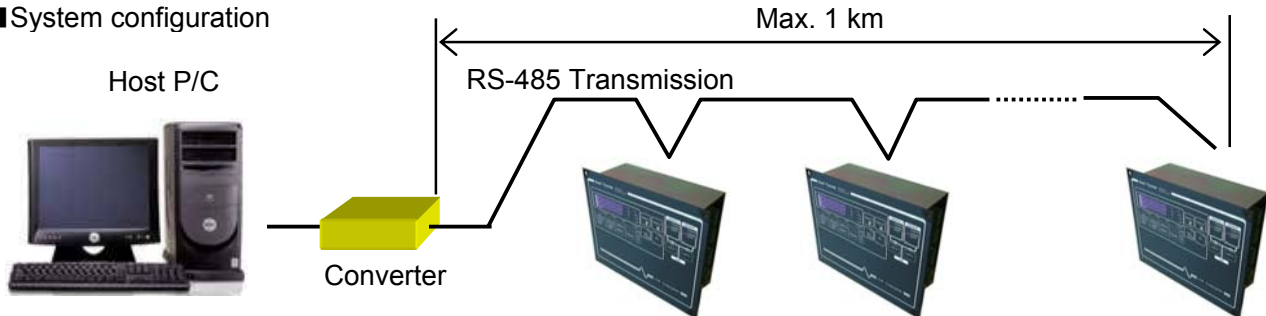


Option

Remote monitor system SCOPE-2000

This remote communication system allows for monitoring measured values, power supply status, transfer status and engine status as well as actually transferring power sources.

System configuration



Hardware specifications for the host communication monitor system

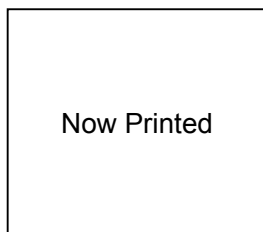
Item	Specification
OS	WindowsNT4.0, Windows2000, WindowsXP
CPU	Pentium, more than 200 MHz
Memory	More than 64 MB
Hard disk	Available space more than 100 MB
Display	1024 x 768 dots recommended

Transmission specifications

Item	Specification
Transmission path configuration	Multi-drop type (RS-485)
Max. no. of connection	31 units
Max. transmission distance	1 km
Transmission speed	1200/ 2400/ 4800/ 9600/ 19200bps
Communication procedure	Poling method
Cable in use	CPEV-S φ1.2 equivalent (twisted pair)

Screen display examples

Measurement display



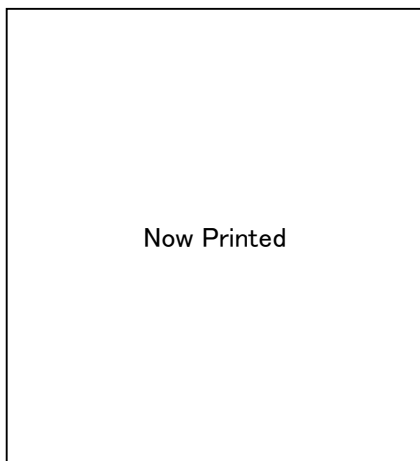
Status display



Operation display



Low-cost controller SXC10

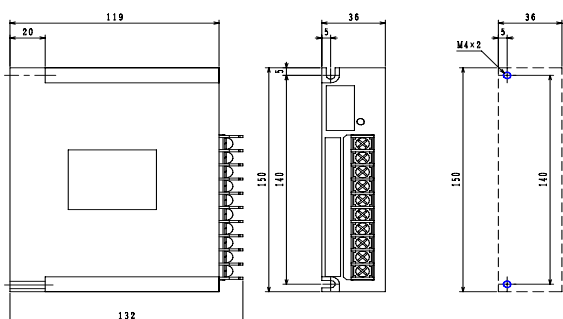


■ Features:

- Compact and low cost
This controller offers basic functions only, allowing the size to be compact and the weight light and the price low.
- Start generator set engine at power failure
The controller has contacts for engine start/stop, enabling to start engine at power failure and stop it at recovery.
- Output status indicator
The controller has an indicating light to show output status to a transfer switch. It is also convenient for maintenance.
- Normal source preferred.
The controller detects power recovery in the middle of emergency operation and transfer back to the normal

■ Specifications

Outline drawing



Item	Specification
Application	Use with our W2, WN2 and Y2 transfer
Rated voltage	Single phase AC 100, 200V 50/60 Hz
Transfer circuit	Operating current 10A (TRIAC)
Sensing voltage	Normal source: 90 to 95% of the rated voltage Emergency source: 90 to 95% of the rated voltage
Status indicator	Transfer status (LED) Normal: green Emergency: red
Engine start output	No voltage at contact point (AC250V 5A or DC30V 5A induction load)
Operating ambient temperature	-10 to 50°C (No Freezing)
Operating ambient humidity	10 to 85% (No Condensation)
Weight	380g
Outside dimensions	36(w) x 150(h) x 132(d) mm

(When ordering, please specify the rated voltage. Please consult with us if you need the rated voltage and the sensing voltage other than shown above.)

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