

Automatic Transfer Switch Controller ATS-1000





- Monitoring of Primary and Secondary networks
- Phase to Neutral voltage range 0...280V AC 50/60Hz
- 1-phase or 3-phase+N configurations
- Monitoring of 3-phase Asymmetry and Rotation
- Generator and Coupler control
- USB and MODBUS-RTU communication
- Configuration via panel keyboard or PC application
- Text panel display for configuration and monitoring
- 10,8...30V DC power supply
- Compliant with EN 60947-1, EN 60947-6-1



Technical data

Measurement circuit		
Voltage measurement method		phase to neutral
PRI and SEC network types		1-phase or 3-phase
Phase to neutral voltage range	V AC	0280
Frequency range	Hz	4763
Asymmetry and rotation monitoring	112	Yes
Voltage measurement accuracy	%	2
L1, L2, L3 input impedance	MΩ	10
Digital Inputs	14122	10
Low input level	V	02
High input level	V	830
Input current @ 24VDC	mA	1,9mA
Internal delay		1,9MA 80
· · · · · · · · · · · · · · · · · · ·	ms V	500
Rated surge voltage 1,2/50µs	V	
Galvanic insulation to control circuit		No
Relay Outputs		
Contact arrangement Q1, Q2, Q3, ALARM		Form C
Contact arrangement START GEN, SUCTION		Form A
Rated contact voltage	V	250
Rated switching current in category AC1	A/V AC	6/250
DC1	A/V DC	6/24
Switching load range AC1	VA	1500
Contact resistance	mΩ	≤ 100
Galvanic insulation to control circuit		Yes
Power supply		
Supply voltage range	V DC	10,830
Power consumption	W	≤ 5
Galvanic insulation to control circuit		No
Rated surge voltage 1,2/50µs	V	500
MODBUS interface		
Data rate	bps	9600
Supported frames		Reading of analog, digital inputs,
		relay outputs and status register
Galvanic insulation to control circuit		No
Insulation	_	
Insulation rated voltage	V AC	400
Rated surge volt. of analog inputs and relay outputs	V	4 000 1,2/50µs
Overvoltage category		III
Pollution degree		2
Dielectric strength		
• control – analog input		4 000
control – relay output	V AC	4 000
• open contact		1 000
General data	_	
Electrical life at 50% of rated load in category AC1	cycles	$\geq 1.5 \times 10^5$
Mechanical life	cycles	$\geq 1,3 \times 10^7$
Dimensions (a x b x h) / weight	mm / g	228,5 x 125 x 74 / 680
Storage / ambient temperature	°C	-40+70 / -20+55
IP rating		IP20
Relative humidity	%	85
Shock resistance	-	15
Vibration resistance	g mm	0,35 1055Hz
	IIIII	,
Flammability		pcb and housing: UL-94-V0

Description

The ATS-1000 controller is designed to realize automatic transfer switch functions. Monitors phase L-N voltages of two networks - primary PRI and secondary SEC. Can be configured to operate in 1-phase or 3-phase networks with asymmetry and phase rotation monitoring.

Depending on software settings the following four network configurations are supported: Network-Network, Network-Network-Coupler, Network-Generator and Network-Generator-Coupler.

The ATS-1000 has a built in control of a power generator and provides the automatic start, the suction control and the monitoring of the readiness to take load.

The Digital Inputs can be used for monitoring of contactors or circuit breakers, fire alarm deactivation or external locking.

Built in text display and keyboard allows convenient configuration and current status monitoring without the need of connecting to the PC.

USB interface can be used for configuration, status monitoring and viewing of logged events by dedicated PC application.

MODBUS-RTU interface allows remote monitoring and integration with PC computers or touch panels.

Mounting

- 1. Disconnect supply, monitoring and relay outputs voltages.
- 2. Make sure there is no voltage on connection wires.
- 3. Mount the controller in the control cabinet.
- 4. Make external connections.
- 5. Turn the supply voltage on.
- 6. Configure the controller using panel keyboard or PC application.

Attention

Read and understand these instructions before installing, operating or maintaining the equipment.

Never carry out work on live parts! Danger of fatal injury! The product must not be used in case of obvious damage. To be installed by an authorized person.

ATS-1000

Coding







External connections

PRI and SEC networks
L1, L2, L3 – phase contact
N – neutral wire contacts L1, L2, L3 – phase contacts

SG - ground of RS485 interface A – A input of RS485 interface **B** – B input of RS485 interface

 $TR - 120\Omega$ internal line termination, connect to A to terminate

Q1 - output to control Q1 breaker Q2 - output to control Q2 breaker Q3 - output to control Q3 breaker GEN START - external generator start control

SUC – generator suction control ALM – ALARM mode output

COMMON – common point of Digital Inputs, connect to any input for activation

Q1 ON - Q1 closing control

Q2 ON – Q2 closing control Q3 ON - Q3 closing control

Q1 TRIP – Q1 release control Q2 TRIP - Q2 release control

GEN RDY – "generator ready to take load" control

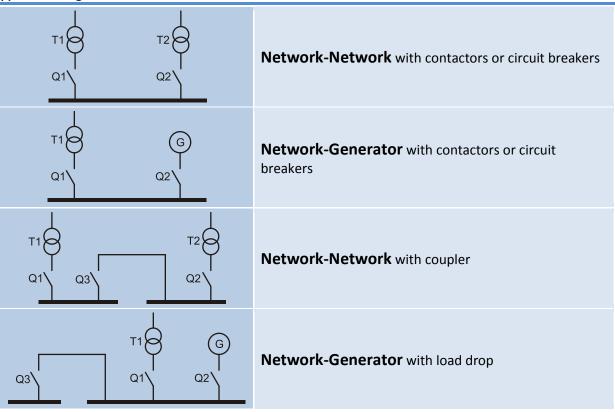
IDLE - external lock active high LOCK - external lock active low

FIRE - fire alarm, active low

"+" – positive input of DC supply "–" – negative input of DC supply

PE – earth connection

Supported configurations



Basic functions

- Time control of opening and closing Q1, Q2, Q3.
- Q1, Q2 release control.
- Generator configuration start attempts, start time, break time, suction control, cooling option, readiness to take load control.
- Load drop option.
- Fire lock.
- External or internal LOCK options.
- 6 LED indication.

- Automatic return or no return modes.
- Manual control option.
- Optional password protection.
- Event logging.
- · Current status monitoring.
- USB and MODBUS-RTU communication.
- Configuration via PC application.
- Polish and English text display menu.



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