SUGGESTED TECHNICAL SPECIFICATION

ATS Controller / ATS Control relay / ATS Control Module

**Purpose of this specification**

This specification describes ATS (Automatic Transfer Switch) Controller designed to pilot remotely operated or automatic transfer switches with a safe and reliable transfer from one supply source to the other, independently of the type of sources (transformers or gensets or both).

1. **Standards and certificates**

The ATS controller must comply fully with the following standards whilst compliance with the said standards must be shown on the product label:

* IEC 61010-2-201
* GB/T 14048.11 Annex C

The ATS controller is to be designed and built by a recognised transfer switch manufacturer and shall be tested to IEC 61010-2-201, the standard that specifies the safety requirements and related verification tests for any product performing the function of control equipment.

Its research and development as well as the manufacturing facility must be certified to ISO 14001 for environmental management systems and to ISO 9001 for quality management.

1. **General Characteristics**

The ATS Controller shall include:

* User selectable working modes for association with class PC (switch-based), class CC (contactor) or class CB (circuit breaker) RTSE.
* Electronic controlled orders for open transition break-before-make (I – 0 – II) transfers, in full compliance with IEC 60947-6-1 when type tested with an IEC 60947-6-1 RTSE, avoiding source overlapping (both sources closing contacts must not be active at the same time in automatic or control mode).
* IP65 front face protection degree
* Panel door and back plate mounting possibilities.
* Product self-supplied from the voltage sensing with wide voltage acceptance (86-576VAC).
* 3 phase sensing on both source supplies.
* 24VDC auxiliary supply for optional DC power input.
* An internal Energy backup system that keeps control, visualisation and communication operational for up to 30 seconds (or 15 seconds after 10yrs) when both sources are lost and DC supply is not provided.
* Clear indication of switch position and source availability on the front face.
* 8-line text LCD screen with adjustable backlight and a minimum resolution of 350x160 pixels.
* Information displayed in 9 languages (EN, FR, ES, DE, IT, TR, PL, PT, ZH)
* 2 dedicated pushbuttons for Control (remote control for the switch) and Automatic mode selection.
* 1A and 5A CT secondary support for current measurement.
* Embedded RS485 Modbus communications with end-of line resistor selected through a DIP switch; Modbus TCP, BACnet or SNMP with an optional accessory.
* Field-replaceable RTC battery.
* 2 latching genset start relay outputs.
* A dedicated pushbutton for direct dashboard access for viewing all parameters, monitoring & status information.

The ATS Controller shall be IEC 60664 overvoltage category CATIII and it must be able to withstand 8kV between phases of different sources and 6kV between phases of the same source according to GB/T 14048.11 Annex C.

The ATS Controller shall have a minimum of 6 inputs and 6 volt-free relay outputs, fully programmable through the display. Outputs shall be rated 8A AC1 277VAC 50/60Hz and 5A DC1 24VDC. Customer optional I/O modules shall be available to increase the number of I/O up to 30 inputs and 18 outputs.

A firmware-independent electronic hardware-controlled genset start contact shall be inherently built into the controller for fail-safe operation with no supply present.

The ATS controller shall include a “Product Available Output” and an input to receive availability information from the RTSE. The controller shall analyse / test its condition (self-test) periodically and communicate through dry contacts or communications to report the ability of the transfer switching equipment to operate (watchdog function).

1. **Functions and performance**

The ATS controller shall also include the following functions:

* Smart configuration assistant on first power up
* Internal storage for up to 3000 events with an embedded “search by date” mode.
* Phase rotation detection with override facility.
* 2 Load shedding programs: smart (related to configurable power level) or standard (all transfer operations).
* Configurable timers, thresholds and alarms through the display.
* Integrated In-phase Monitor for fast transfer RTSE applications.
* Lift control signal with adjustable pre-transfer and post-transfer timers.
* Automatic operation inhibition modes with or without genset start.

The ATS controller shall provide a programmable engine exerciser with four independent customisable routines to exercise the Genset. Exercising shall be able to be performed with or without load transfer, on a daily, weekly, bi-weekly, monthly or yearly basis. It shall also be possible to configure non-cyclic exercise runs. Configuration shall be accessible through the display or via communications with a downloadable software. Access to the exerciser settings should be password protected.

The ATS controller shall include On-Load and Off-Load tests associated with Mains-Gen and Gen-Gen applications (at minimum the test shall run the genset for a configurable period of time). These tests should be operable manually through the keypad, remote inputs, MODBUS / Ethernet communication or through the configuration software. A dedicated TEST button, user customisable for On-load or Off-load testing, shall be provided on the front face for initiating tests.

The ATS controller shall have a Maintenance mode where service operators can enter the last inspection date as well as configure maintenance alarms according to the number of cycles, switch operations, time since last inspection and genset running times. The operator shall be able to add a maintenance phone number which is to be displayed in case of failure or maintenance requirement.

The ATS Controller shall display real-time measurements for both sources and the load. It shall also display source and switch position status, timers (pop-up active timers with large font), source thresholds, alarms and operating mode. It should also include 3 independent password protected user profile levels (operation, configuration & maintenance). A “source present” indication shall be provided in case a source is present but not within its availability thresholds.

If a major fault or a critical alarm is activated, the controller shall alert the user with a pop-up notification, as well as through an LED on its front face, and the event will be logged by the controller.

1. **Manufacturer**

Acceptable manufacturer in line with this specification is SOCOMEC “ATyS C65” or equal and approved. Alternative solutions must list any deviations from this specification.