

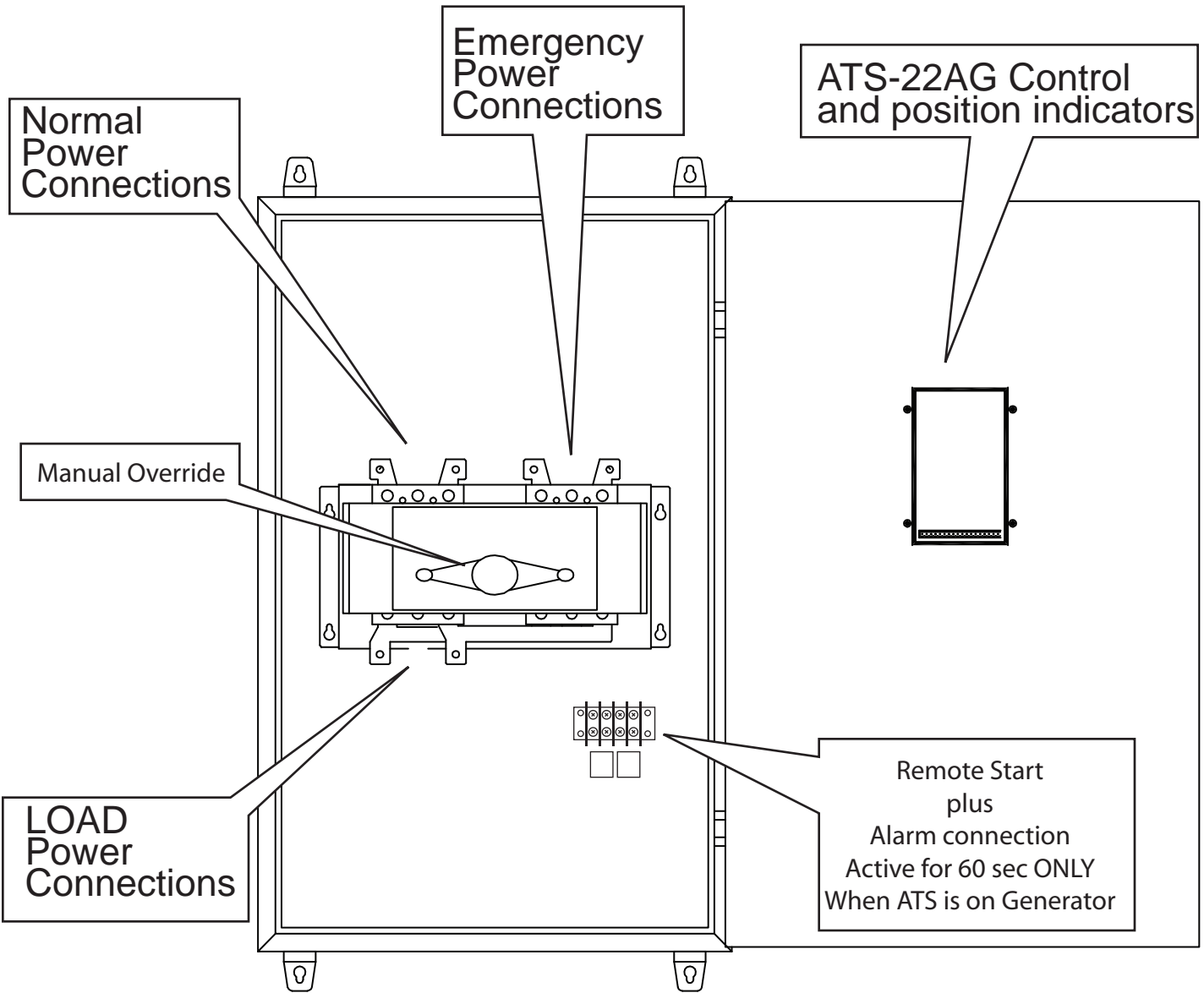
**MTS Power Products
MIAMI FL 33142**

ATS-21/22AG

Automatic Transfer Switch And Control PLC Operator's Manual



***Dedicated Single Phase
Transfer Switch
With Touch Screen Controls***



400 amp size in typical enclosure with location of customer connections

INTRODUCTION

1.1 Preliminary Comments and Safety Precautions

The manual covers installation, operation and maintenance of the ATS-22AG Automatic Transfer Switch and Controller. This manual is for use by authorized and qualified personnel only.



1.2 Overview

Transfer switches protect critical electrical loads against loss of power. A standby (emergency) generator backs up the normal grid power. The transfer switch connects either the NORMAL (Power Co. Grid) or the generator EMERGENCY to the LOAD. When power is lost the switch transfers the load to the generator. Eventually after the grid is restoration, the ATS connects the load back to the grid.

1.3 Product Overview

The ATS-22AG is a programmable automatic transfer switch Controller. It's suitable for single phase systems only, and including all necessary monitoring and protections.

The ATS-22AG features:

- Smart touch screen (touch sensor) design.
- Compact size with user-friendly LED display.
- All programming and operations are done from the front screen interface.
- Monitors grid and emergency for over and under voltage anomalies.
- Monitors grid and emergency for over and under frequency anomalies.

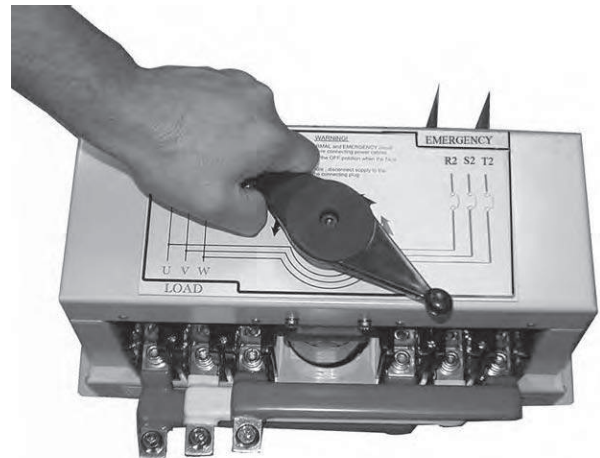
- Programmable exerciser with Load.
- Exerciser set for one time per week with load.
- Emergency position contacts for Auto-Dialer
- Simple programming on-site
- Auto-saved settings (memory preserved throughout all power disconnects and resets).
- Front panel display provides source status and fail alarm indications.

1.4 Functions / Features

The primary function of ATS-22AG controller is to monitor grid / normal street power and provide the necessary intelligence to operate the ATS switch

1.4.1 Operational Simplicity

Installation, programming and use of the ATS-22AG controller is designed to be easy. The friendly front panel simplifies routine operation, programming and adjustments.



Emergency Manual override

Line 1: Time Delay Emergency to Normal (TDEN)

TDEN delays the transfer from the emergency back to the grid, permitting the stabilization of the grid before returning. Timing begins when the grid becomes available.

Adjustable TDEN time range: 00 to 990 sec

Line 2: Time Delay Normal to Emergency (TDNE)

TDNE delays the transfer from normal to emergency to permit stabilization of the generator before the transfer is made. Timing begins when the generator becomes available. (sometimes called the warm-up timer)

Adjustable TDEN time range: 0.0 to 250 sec

Line 3: Time Delay Engine Start (TDES)

This timer prevents nuisance start because of momentary electrical glitches. If power normalizes before the countdown ends, the controller skips the engine start and resets the timer.

Adjustable TDES time range: 0 to 30 sec

Line 4: Time Delay Engine Cool-down (TDEC)

TDEC permits the generator to run unloaded after the ATS return to the grid. Timing begins when the ATS connects back to grid power *(If you already have cool-down on the Generator Controller this time is also added to the ATS cool-down timer)*

Adjustable TDEC range: 0 to 999 sec

Line 5: Time Delay Center OFF Position

This timer temporarily stops the switch in the center OFF position (completely cut off) before proceeding to normal. Useful in some computerized system that need time in OFF to reset.

Adjustable time delay range: 0 to 99 sec

Lines 6, 7, 8, & 9: Over / Under Voltage and Loss of one wire sensing

The controller monitors the voltage from grid and the generator. The client can program over & under voltage window. (Refer to program table line 6, 7, 8, & 9

O/V adjustment range : 110VAC to 300VAC

O/V reset value: -10VAC (Not adjustable)

U/V adjustment range: 80VAC to 240VAC

U/V reset value: +10VAC (Not adjustable)

Programmable exerciser

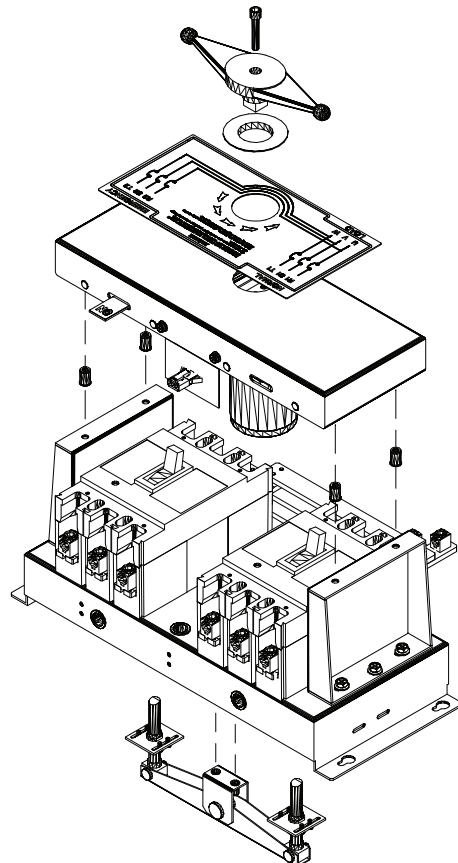
It can be set to exercise one time per week at any day and time, with load. The length of the exercise is also set. (Refer programming lines 10, 11, 12, 13, 14 & 15)

NOTICE

COMMON ALARM provides AN auxiliary dry contact for use when the ATS is in Emergency position (Its ON only for 60 sec)

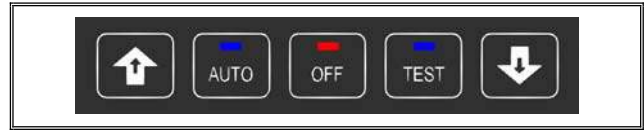
REPLACEMENT PARTS

Replacement parts are available. When ordering parts provide the Model and Serial Number. From the transfer switch name-Plate. Contact MTS Power in United States call 1-800- 541-7677 World Wide call 305-634-1511



1: LED Test

Touch & hold the OFF button , all LEDs light up.



2: OPERATION

2.1 Display Window

The ATS-22AG controller has a 4-digit, 7-segment displayer to monitor all parameters, setting and messages. The screen displays:

- Voltage / frequency
- Current Time HH:MM (In OFF only)
- Sec. delay countdown
- Program setting parameters



2.3 Operate Touch Buttons

The front panel has 5 sensitive capacitive touch buttons.

2.3.1 Increase (▲) Button

When programming the up (▲) button increases the displayed parameter by one unit. If held, the up (▲) button continues to scroll.

2.3.2 Decrease (▼) Button

When programming touching the down (▼) button decreases by one unit. If held, the down (▼) button continues to scroll.

2.3.3 Auto Button

In AUTO, the ATS-22AG runs in automatic mode lighting the corresponding LED to indicate the ATS is in AUTO. In AUTO controller automatically starts the generator, transfer and retransfers from grid to generator as commanded.

2.3.4 Test Button

Touching the TEST button simulates a power failure and begins a testing sequence. for 20 min and then return to AUTO.

If at any time the generator fails in TEST mode the ATS returns to AUTO if Normal power is available.

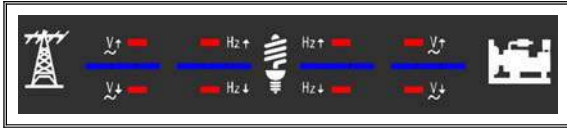
2.3.5 OFF Button

Touching the OFF turns the ATS-22AG OFF engaging a flashing red LED disabling all functions and the screen shows the Time of Day

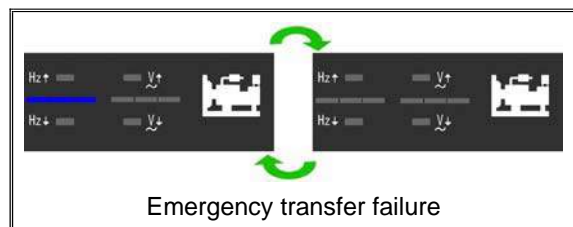
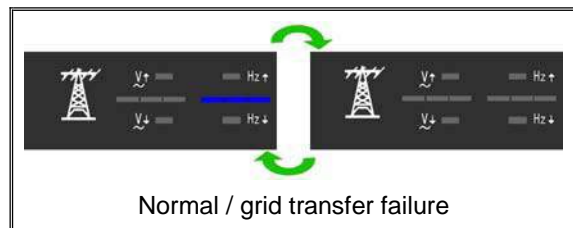
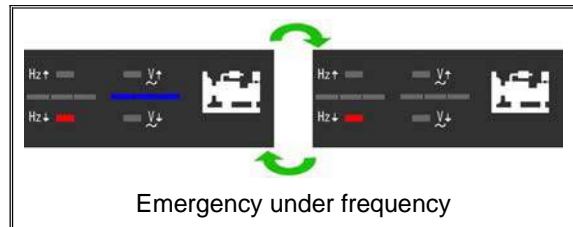
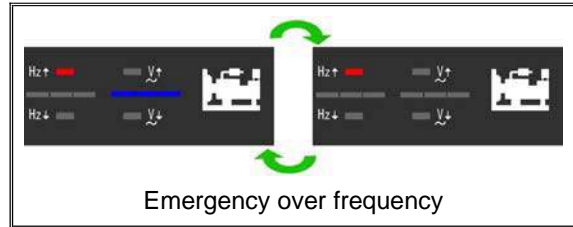
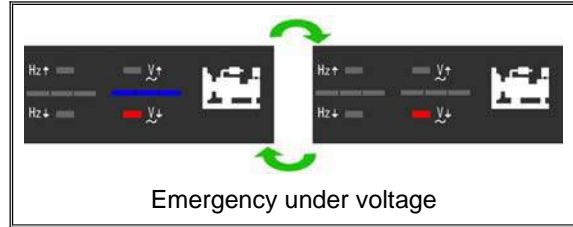
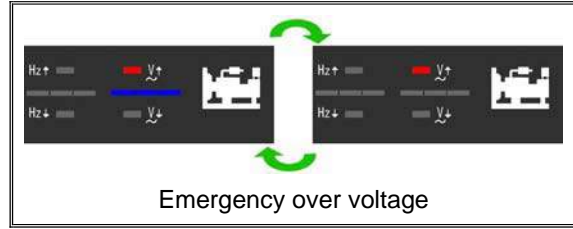
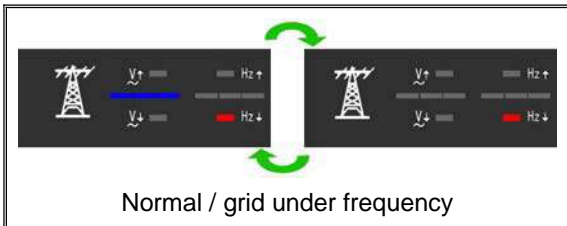
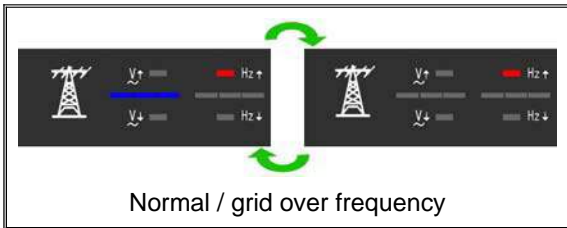
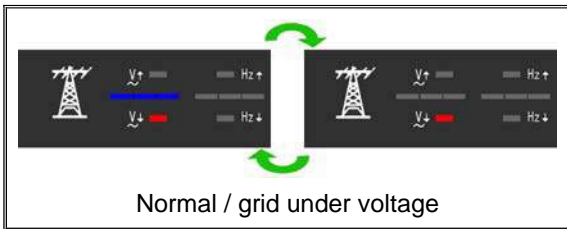
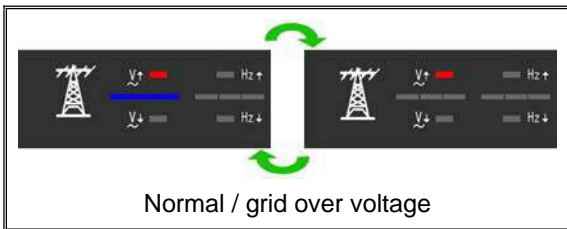
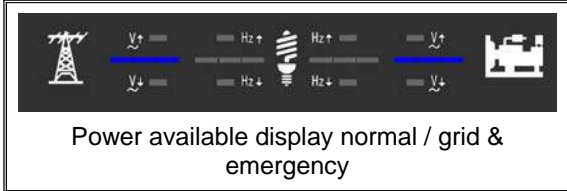


2.4 Panel LED Outputs

Eight individual red and blue LEDs light bars perform or indicating each function.



Information concerning the LEDs output



SECTION 3: OPERATION

3.1 General

The four functions of the ATS-22AG:

- In AUTO
- In OFF
- In TEST mode
- Programming

The practical use of each operation under each category is explained in this section. It is assumed that prior sections are understood, and the operator has a basic understanding of the hardware.

3.2 IN AUTO

The AUTO mode of the ATS-22AG controller provides automatic engine start, stop, and power transfer and retransfers from source to source as dictated by the values previously programmed.

The ATS-22AG constantly monitors the condition of both the grid and/or generator providing the intelligence for the transfer operations.

In AUTO the ATS can start the generator, using a normally open dry remote start connection. Next to the remote is the connections for the Common Alarms which are activated only for 60 sec. when the ATS moves to the Emergency Position

3.3 IN OFF

In OFF the ATS-22AG disables all the transfers and protection functions with all LED indicators OFF leaving the display screen showing only the time of day. The user can test the LEDs by touching the OFF button.

Reset the clock once a year. The wrong time can affect the schedule exerciser. Without power, the controller can maintain the clock working for up to a week.

However, when in programming, the OFF button allows you to move to the next program line and then change the values for that line using down (▼) and up (▲) buttons.

3.4 Manual TEST (TEST)

Touching TEST simulate a loss of normal/grid power. Permitting the controller to start the engine and carry out a power transfer UNDER load for 20 min.

After 20 Minutes the Control automatically return to AUTO.

If at anytime the Generator stops when under TEST and NORMAL Power is available the ATS return to Normal.

3.5 Programming Instruction

You program the ATS-22AG from the front faceplate.

To start, set the controller to OFF and touch & hold the OFF button for 5 seconds (The screen flashes 3 times). The word "Vr2.0" appears on the display for 2 seconds, showing the software version.

You are ready to start the line-by-line programming sequence. Always touch the OFF key to move to the next line, to change the parameters, on each line use the up (▲) and down (▼) arrows. Repeatedly touching the up (▲) or down (▼) key, changes the displayed by one. To change faster, hold the buttons down.

Remember to always touch the "OFF" button to move to the next line or until the "End" appears on the screen. **Note:** To end and exit at any time, hold the "OFF" key down for 4 seconds.

If you make an error or need to return to factory settings, stay or reenter programming and then hold the AUTO keys down for 4 seconds, until the word "Au.Po" appears on the screen verifying that all programming lines are factory reset back like in the manual. (See line-by-line programming table for ATS-22AG factory settings).

3.7 To enter the Line by Line Programming Table – Simply touch and hold the OFF button for 5 sec. and after the screen flashes 3 times – remove finger

To go from one line to the next touch OFF each time & change values by using the UP/Down Arrows.

LINE	DISCRIPTION	VALUE	FACTORY SETTING
1	TDEN Time Delay Emergency to Normal	00 to 999 sec	10sec
2	TDNE Time Delay Normal to Emergency	00 to 250 sec	10sec
3	TDES Time Delay Engine Start	00 to 30 sec	05sec
4	TDEC Time Delay Engine Cool-down	00 to 999 sec	00sec
5	Time Delay in the OFF Position	00 to 25 sec	02sec
6	Normal over voltage protection setting	11 to 30 (110V to 300V)	27(270V)
7	Normal Under voltage protection setting	08 to 24 (80V to 240V)	18 (180V)
8	Generator over voltage protection setting	11 to 30 (110V to 300V)	27(270V)
9	Generator Under voltage protection setting	08 to 24 (80V to 240V)	18 (180V)
10	Set today's day of the week– Day	1 to 7 (Monday to Sunday)	current
11	Set today's hour – Hour	00 to 23	current
12	Set today's minutes	00 to 59	current
13	Set day of week to do the engine exercise	1 to 7 (Monday to Sunday)	6
14	Set the time to start the exercise	00 to 23 (24 Hr Clock)	12
15	Exercising duration	00 to 99 Minutes (0 = Do not exercise)	00
16	Exercise with load or without load	00) Without load 01) With load	01
17	Install & Enable Remote Ethernet Module KCU-30.	00) Disable 01) Enable	01
18	Restore Passwords to factory settings Monitor & Control-0000, Monitor only-9999	00) No 01) Yes	00

In case a KCU-30 is not installed Line 18 vanishes & is not used.
 Line 18 comes in handy if you forget your password for the KCU-30 when using remote monitoring software on your PC or Smart Phone. After a password reset remember to use a new password on your PC or Smart Phone App for your protection.
 To EXIT programming, press OFF for 5 sec.

3.8 Specification Summary

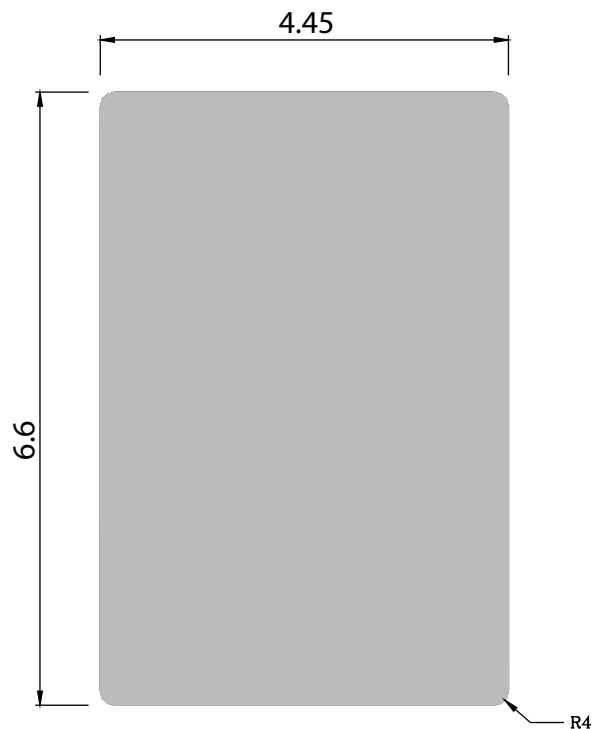
PARAMETER	SPECIFICATION
AC Voltage Measurement Range	50 VAC to 300 VAC 50/60 HZ
Frequency Measurement Range	40HZ to 75HZ
Remote Start Contact	7A @ 250VAC Max
Normal ON Contact	7A @ 250VAC Max
Emergency ON Contact	7A @ 250VAC Max
Auxiliary Contact Output	7A @ 250VAC Max
Operating Temperature	-4F to 160F
Storage Temperature	-4F to 160F
Operating Humidity	Maximum 90% relative humidity
Weight	0.55lbs 2%

SECTION 4: INSTALLATION INSTRUCTIONS

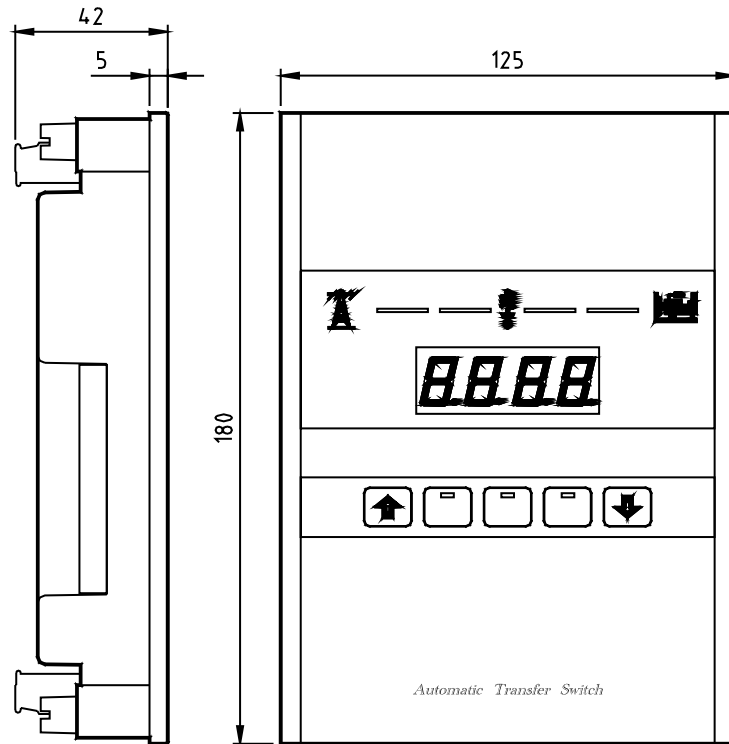
4.1 General

The ATS-22AG is made for front panel mounting.

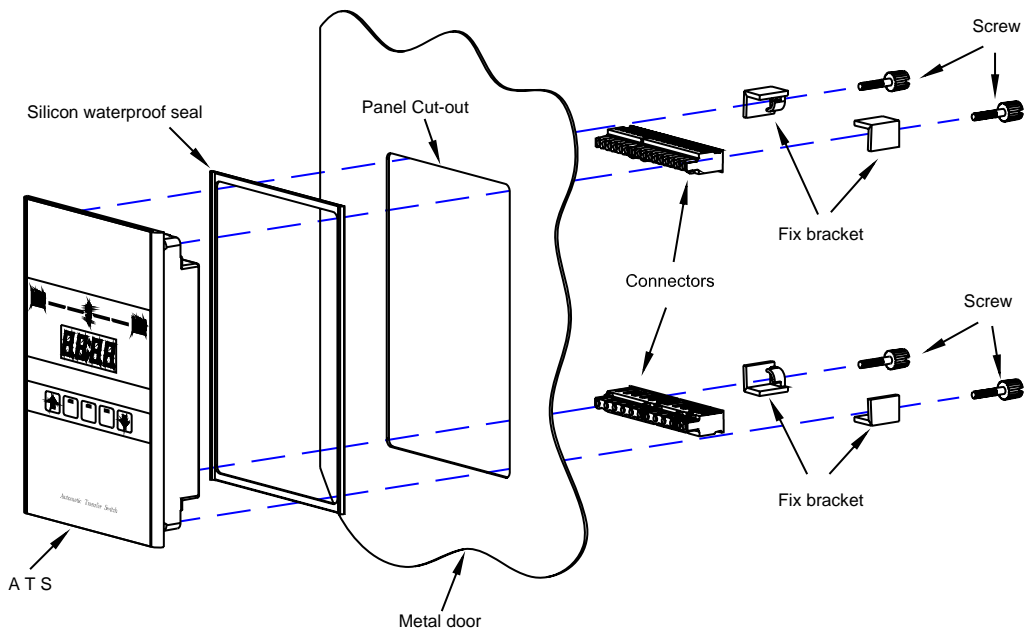
4.2 Panel Cut-Out (All Dimensions in Inches)



4.3 Unit Dimensions (All Dimensions in MM.)



4.4 Installation Reference



SECTION 5 : TYPICAL WIRING AG Unit

