BTB TYPE AUTOMATIC TRANSFER SWITCH (ATS)

UL Programmable Automatic Transfer Switch Operation Manual



Main Switch Rated Current 2P/200A Main Switch Rated Voltage 690 Vac Patent Number : M553490 U.S. Patents Pending UL 1008 E511560



CONTACT US TODAY! JOVAL INDUSTRIAL LLC MIAMI EL USA P. 1-877-335-6825 www.jovalindustrial.com

Easy on Screen programing without Reading the Manual

After connecting the battery press OFF for 5 sec and program each line with up/down arrow advance to the next line pressing OFF again The instrucions apper under each line you are programing

Joval Industrial Miami FL USA

www.jovalindustrial.com

TABLE OF CONTENTS

Sect	ion	Page
SECT	OIN 1 : SAFETY PRECAUTIONS	
SECT	OIN 2 : RECEIVING INSPECTION	
2.1	Sample Instalation	3
2.2	Contents of Shipping Container	3
2.3	Overview of Exterior	4
2.4	Dimensions	4
2.5	Operation Buttons And Display Screen	5
SECT	OIN 3 : INSTALLATION	
3.1	Installation Precautions	6
3.2	Recommended Wire Sizes and Torque Values	6
3.3	Description of Connection Terminals	6
SECT	OIN 4 : SYSTEM PARAMETER SETTINGS	
4.1	Precautions When Connecting Power	7
4.2	System Parameter Settings	7
4.3	Screen Saver	7
4.4	System Parameter Settings Table	8
SECT	OIN 5 : FUNCTIONAL TEST	
5.1	Functional TEST	9
5.2	Manual Transfer Knob	10
5.3	Safety Lock	10
SECT	OIN 6 : PRODUCT INTRODUCTION	
6.1	Display Parameters	11
6.2	Monitoring Protection	11
6.3	Electrical Characteristics	11

SECTOIN 7 : OPTIONAL ACCESSORIES

Easy on Screen programing without Reading the Manual

After connecting the battery press OFF for 5 sec and program each line with up/down arrow advance to the next line pressing OFF again The instrucions apper under each line you are programing

SECTION 1 : SAFETY PRECAUTIONS



This manual contains information for the installation, wiring, suitable applications, operation and maintenance of th Automatic Transfer Switch. This manual should be read before operating the device.

AWARNING

Installation, wiring and setting of system parameters for this Automatic Transfer Switch should be done by qualified technical personnel. Improper installation, wiring or system settings may result in personal iniurv or damage to the equipment.

SECTION 2 : RECEIVING INSPECTION

The product should be inspected immediately after delivery to determine whether any damage has occurred due to collision during shipping. Also check that the product model and system voltage and the number of poles all match. If the container or the product is short of any items, or damaged, immediately contact the agent you purchased the unit from.

2.1 Sample Instalation



A CAUTION

Model nos. correspond to utility voltage range. If improper model is used it will cause malfunction or damage to equipment.

2.2 Contents of Shipping Container

- 2.2.1 ATS without enclosure : 1. Automatic Transfer Switch (1 set) 2. 5/16" hex key 1 ea.
- 2.2.2 ATS with enclosure : 1. Automatic Transfer Switch (1 set) 2. 5/16" hex key 1 ea.
 3. Enclosure 1 ea. 4. Enclosure mounting hooks 4 ea.

BTB Type ATS

3

Attachment Holes Generator Utility Power ď ø Power Input Input 0 0 Safety Lock Manual Transfer Knob 0 Switch Lever **Reset Hole** O 0 0 Color LCD Battery terminals 10 to 40 Vdc display Function Remote start and button auxiliary contact output terminals lO C Load Output 0 Ο Slot for Communication Module

2.4 Dimensions (Figure 2)



BTB Type ATS

2.3 Overview of Exterior (Figure 1)

4





Easy on Screen programing without Reading the Manual

After connecting the battery press OFF for 5 sec and program each line with up/down arrow advance to the next line pressing OFF again The instrucions apper under each line you are programing

BTB Type ATS

SECTION 3 : INSTALLATION

3.1 Installation Precautions (Figure 3)

- 1. When connecting power cables to the Automatic Transfer Switch reserve room for action of the transfer switch lever (Distance 80mm) to avoid hindering the action of the lever and preventing the switch from operating normally. All power cables should be fixed to the housing with tie straps.
- 2. The phase sequence of the Utility and Generator power must be the same to prevent reversal of operation of 3-phase motors.



3.2 Recommended Cable Sizes and Torque Values

Cable Size and Recommended Torque							
Rated Current (A)	Cable Size	Torque	Expose conductor				
125	1 AWG (42.4 mm ²)	5/16 in. (23 N-m)	5/16 in.				
150	1/0 AWG (53.5 mm ²)						
175	2/0 AWG (67.4 mm ²)						
200	3/0 AWG (85.0 mm ²)		mm				
225	4/0 AWG (107.2 mm ²)		2 in. 1 31 '				
250	250 MCM (127 mm ²)		1.2				

3.3 Description of Connection Terminals



D

Joval Industrial Miami FL USA

SECTION 4 : SYSTEM PARAMETER SETTINGS

4.1 Precautions when Connecting Power

10 to 40Vdc power supply is required to set system parameter settings.





This screen indicates that the input voltage is too high and all power should be turned off immediately.

Green highlight represents the current setting Black

4.2 System Parameter Settings

All parameters of the ATS can be set directly from the operator panel. To enter setting mode press and hold \overrightarrow{OFF} for 4 seconds until the program version screen appears. See the screen below.



V

Use the \blacktriangle and \lor keys to change setting value. Press the \blacktriangle or \lor key to increase or decrease the setting value by 1 unit. If you hold down the \blacktriangle or \blacktriangledown key the setting value will increase or decrease continuously until the built-in limit is reached. After completing the individual settings, press *ENTER* to save the setting and skip to the next line. For the factory settings of each parameter refer to Table.4.4.

4.3 Screen Saver



highlight indicates setting range.

The following three ways will end setting mode and return to normal operation.

- 1. Press <u>ENTER</u> repeatedly until the last setting item is reached.
- 2. Press and hold *ENTER* for 4 seconds
- 3. No button is touched for 60 seconds



If the switch is not touched for 30 minutes the screen will go into Sleep Mode. Touch any button below to re-wake the screen or end the countdown screen. If there are any changes in status or faults power the screen will wake up automatically.

4.4 System Parameter Settings Table

LINE	DESCRIPTION	Setting Range	FACTORY SETTING
01			40
01	TDEN Time Delay Emergency to Normal	0 to 999 sec	10 Sec
02	TDES Time Delay Engine Start		10 Sec
03	TDEC Time Delay Engine Cool-down	0 to 250 sec	30 500
05	TDCE Time Delay in the OFE Position		05 500
00			00 300.
06	Utility over voltage protection	210 to 290 Vac	250V
07	Utility under voltage protection	160 to 230 Vac	190V
08	Generator over voltage protection	210 to 290 Vac	250V
09	Generator under voltage protection	160 to 230 Vac	190V
10	Set current Year	2017 to 2099	Current
11	Set current Month	01 to 12	Current
12	Set current Day of the Month	01 to 31	Current
13	Set current time Day of Week	Monday to Sunday	Current
14	Set current Hour	00 to 23 (24 hour system)	Current
15	Set current Minute	00 to 59	Current

8

BTB Type ATS

Joval Industrial Miami FL USA

www.jovalindustrial.com

Setting items for automatic exercise or remote monitoring

LINE	DESCRIPTION	VALUE	FACTORY SETTING
16	Set Day of Week for Automatic Exercise	Monday to Sunday	Saturday
17	Set the Hour to start Automatic Exercise	00 to 23 (use 24 hour system)	12
18	Duration of Automatic Excercise	0 to 99 Minutes (set 0 for no exercise)	0 Min
19	Auto Exercise test with load or without load?	With Load or Without Load	Without
20	Meter Display on front screen	Display Voltage (V) or Frequency (Hz)	Volts
21	Remote Control by KCUxxx Module	Disable or Enable	Disable
22	Read or Delete Event Logs?	No - Read or delete	NO

SECTION 5 : FUNCTIONAL TEST

5.1 Functional TEST

After wiring and system settings are completed, the user should perform (AUTO) and (TEST)

5.1.1 AUTO Functional Test



Easy on Screen programing without Reading the Manual

After connecting the battery press OFF for 5 sec and program each line with up/down arrow advance to the next line pressing OFF again The instrucions apper under each line you are programing

BTB Type ATS



5.2 Manual Transfer Knob when in OFF

The Manual Transfer Knob turns only in clockwise direction to force a transfer of the switch unless in AUTO mode and status of power inputs changes.

5.3 Safety Lock

The Safety Lock is an override device. Once it is locked the following functions will become ineffective.

- 1. The manual operation handle will not operate and the switch will be held in current position.
- 2. All protection functions and panel buttons on the controller will be disabled.
- 3. The generator will continue its current state either Running or Stopped.

Refer to the drawings below :



Step 1 : Push the safety lock inward

Step 2 : Use a padlock to secure the lock in a closed position

Joval Industrial Miami FL USA

BTB Type ATS

SECTION 6 : PRODUCT INTRODUCTION

6.1 Display Parameters

Graphic display of switch status Utility power All Phase Voltage and Frequency Generator power All Phase Voltage and Frequency Analog meter for load side voltage or frequency Fault Message and Warning Display

6.2 Monitoring Protection

Utility power All Phase Over/Under Voltage and Loss of Phase Protection

Generator power All Phase Over/Under Voltage and Loss of Phase Protection

Utility power Over / Under Frequency Protection

Generator power Over/Under Frequency Protection Transfer Failure Warning

Breaker Tripped Warning (Class CB only)

6.3 Electrical Characteristics

ITEM	SPECIFICATION
Operating Voltage	Refer to Model No.
AC Power Frequency	45 to 65 Hz
Remote Start Terminals capacity	7 Amp @ 250 Vac Max.
Utility power auxiliary contact capacity	3 Amp @ 250 Vac Max.
Generator power auxiliary contact capacity	2.5 Amp @ 12/24 Vdc
TDNE Time Delay Normal to Emergency	0 – 250 seconds
TDES Time Delay Engine Start	0 – 30 seconds
TDEN Time Delay Emergency to Utility	0 – 999 seconds
TDEC Time Delay Engine Cool-down	0 – 250 seconds
TDOF Time Delay in the OFF Position	0 – 99 seconds
Static Power Consumption	Below 3W
Operating Temperature	-20 to +70 ℃
Relative Humidity	Below 95%

6.4 MCS Rated Current 200 Amp Max 250 Amps

SECTION 8 : OPTIONAL ACCESSORIES

ModBus communication module (KCU-05) Refer to KCU-05 User Manual for installation instructions.

- 2. SNMP communication module (KCU-06) Refer to KCU-06 User Manual for installation instructions.
- 3. Ethernet (Dynamic IP) Communication Module (KCU-31) Refer to KCU-31 User Manual for installation instructions.
- 4 KCU communication module cable (1 meter).
- 5 KCU communication module Interface Module (KCU-IF)

WARNING

When an optional communication module is used with the Automatic Transfer Switch can enable remote control and monitoring of ATS status and also start the generator unit. When using a remote communication module it is necessary to follow the instructions below, otherwise it could lead to injury to personnel or death :

- 1. The generator should be surrounded by a protective fence.
- 2. A permanent warning sign must be posted clearly to alert personnel. The warning sign should convey that "Generator could start at any time".

3. When servicing or working around the ATS or generator the ATS safety lock should be latched and the generator controller in the (OFF) mode to ensure the safety of personnel.

Joval Industrial Miami FL USA