



# Toshiba TH850A Instruction Manual

Industrial robot



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**INSTRUCTION MANUAL**

# TRANSPORTATION AND INSTALLATION MANUAL

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Make sure that this instruction manual is delivered to the final user of Toshiba Machine's industrial robot.

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Before operating the industrial robot, read through and completely understand this manual.

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After reading through this manual, keep it nearby for future reference.

## INDUSTRIAL ROBOT

### Notice

January, 2009

TOSHIBA MACHINE CO., LTD.

STE80753-2 **Industrial Robot**

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## Summary of Contents for Toshiba TH850A

[Page 1](#) TRANSPORTATION AND INSTALLATION MANUAL Notice Make sure that this instruction manual is delivered to the final user of Toshiba Machine's industrial robot. Before operating the industrial robot, read through and completely understand this manual. After reading through this manual, keep it nearby for future reference.

[Page 2](#) TRANSPORTATION AND INSTALLATION MANUAL Copyright 2009 by Toshiba Machine Co., Ltd. All rights reserved. No part of this document may be reproduced in any form without obtaining prior written permission from Toshiba Machine Co., Ltd. The information contained in this manual is subject to change without prior notice to effect improvements.

[Page 3](#) TRANSPORTATION AND INSTALLATION MANUAL Preface This manual describes the basic specifications of the industrial robot and controller, and how to unpack and install them. Specifically, it describes how to unpack the shipment containing the equipment, how to install the equipment, how to connect wiring and air piping, and how to attach tools.

[Page 4](#) TRANSPORTATION AND INSTALLATION MANUAL Precautions on Safety Important information on the robot and controller is noted in the instruction manual to prevent injury to the user and persons nearby, prevent damage to assets and to ensure correct use. Make sure that the following details (indications and symbols) are well understood before reading this manual.

[Page 5](#) Wiring the robot before installation could lead to electric shocks or injuries. • Always use the power voltage and power capacity designated by Toshiba Machine. Failure to do so could lead to device faults or fires. • Always use the designated power cable. Using a cable other than that designated could lead to fires or faults.

[Page 6](#) TRANSPORTATION AND INSTALLATION MANUAL CAUTION • NEVER lift the robot by the arm 2 cover or arm 2. Doing so will apply an excessive force on the robot's mechanism section and could lead to faults. • For the controller, secure the ample space for air vent. Heating of controller could lead to malfunction.

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## [Page 12: Specifications](#)

TRANSPORTATION AND INSTALLATION MANUAL Specifications Name of Each Part Fig. 1.1 shows the name of each part of the robot. (The figure below shows the TH1050A.) Axis 2 Wiring panel (rotation) Cover Ball screw spline (tool shaft) Axis 1 (rotation) Eyebolt Arm 2 Tool flange...

## [Page 13: External Dimensions](#)

TRANSPORTATION AND INSTALLATION MANUAL External Dimensions Fig. 1.2 to Fig. 1.4 refer to the external dimensions of each robot. Wiring panel Space for cable connection Fig. 1.2 External dimensions of the robot (TH850A) STE80753 - 12 -...



[Page 14](#) TRANSPORTATION AND INSTALLATION MANUAL Wiring panel Space for cable connection Fig. 1.3 External dimensions of the robot (TH1050A) STE80753 - 13 -...

[Page 15](#) TRANSPORTATION AND INSTALLATION MANUAL Hand I/O connector panel Z400 upper limit position Z200 upper limit position Space for cable Z200 lower limit position connection Z400 lower limit position Fig. 1.4 External dimensions of the robot (TH1200A) STE80753 - 14 -...

### [Page 16: Specifications Table](#)

TRANSPORTATION AND INSTALLATION MANUAL Specifications Table Item Specifications Structure Horizontal multi-joint type SCARA robot Model TH850A TH1050A TH1200A Applicable controller TS3100 Mass of actuator 76 kg 80 kg 83 kg No. of controlled axes 850 mm 1050 mm 1200 mm...

### [Page 17: Transportation](#)

TRANSPORTATION AND INSTALLATION MANUAL Transportation Unpacking The robot and controller are shipped separately in corrugated cardboards. Fig. 2.1 shows each packaging state. Open the packages in a location easily accessible, where the equipment is to be installed. Take careful precautions not to damage the robot and controller. After opening the packages, make sure that all the accessories are present and that nothing has been damaged during transport.

### [Page 18: Transportation](#)

The mass and outer dimensions of each robot are shown in Fig. 2.2 to Fig. 2.4. For the mass and outer dimensions of the controller, see Fig. 3.9 of Para. 3.3.1. Mass of robot body 76 kg Clamp Fig. 2.2 Outer dimensions at transport (TH850A) STE80753 - 17 -...

[Page 19](#) TRANSPORTATION AND INSTALLATION MANUAL Mass of robot body 80 kg Clamp Fig. 2.3 Outer dimensions at transport (TH1050A) Fig. 2.4 Outer dimensions at transport (TH1200A) STE80753 - 18 -...

### [Page 20: Transporting The Robot](#)

It is possible to lift up and transport the robot. Pass the wire through the attached eyebolt, then lift up the robot carefully, as shown in Fig. 2.5. This figure shows the TH850A. Wire Fig. 2.5 Lifting up the robot STE80753 -...

[Page 21](#) Handling areas (shaded areas) DO NOT hold the tool flange and ball screw spline shaft. The above figure shows the TH850A. Fig. 2.6 Robot handling areas (shaded areas) After the installation, remove the clamp and eyebolt used for transport. STE80753...

### [Page 22: Transporting The Controller](#)

TRANSPORTATION AND INSTALLATION MANUAL CAUTION • When lifting up the robot by workers, hold the locations (shaded areas) by hands as shown in Fig. 2.6. If the arm 2, cover or ball screw spline shaft is held by hands, an unusually large force is exerted, resulting in a malfunction.

### [Page 23: Storage](#)

TRANSPORTATION AND INSTALLATION MANUAL Storage Avoid storing the robot and controller for long periods of time after unpacking them. If this is unavoidable, however, strictly observe the following precautions for storage. 2.3.1 Storage Precautions for the Robot CAUTION • Secure the base completely to prevent the robot from falling over. When placed directly on the floor, the robot is unstable and will fall over.

### [Page 24: Installation](#)

0.98 m/s or less Dust No inductive dust should exist. Consult with Toshiba Machine first if you wish to use the robot and controller in a dusty environment. No corrosive or combustible gas should exist. Sunlight The robot and controller should not be exposed to direct sunlight.

### [Page 25: Robot Installation](#)

TRANSPORTATION AND INSTALLATION MANUAL Robot Installation Before installing the robot, you should plan a layout, fully considering the working envelope (or operating range),

coordinate system and space for maintenance. 3.2.1 External Dimensions External view drawing of each robot is shown in Fig. 3.1 to Fig. 3.3. STE80753 -...

[Page 26](#) TRANSPORTATION AND INSTALLATION MANUAL 963 Z-stroke 400 mm 763 Z-stroke 200 mm Standard Z-stroke Option Z-stroke Fig. 3.1 External view (TH850A) STE80753 - 25 -...

[Page 27](#) TRANSPORTATION AND INSTALLATION MANUAL 963 Z-stroke 400 mm 763 Z-stroke 200 mm Standard Z-stroke Option Z-stroke Fig. 3.2 External view (TH1050A) STE80753 - 26 -...

[Page 28](#) TRANSPORTATION AND INSTALLATION MANUAL 963 Z-stroke 400 mm 763 Z-stroke 200 mm Standard Z-stroke Option Z-stroke Fig. 3.3 External view (TH200A) STE80753 - 27 -...

### [Page 29: Working Envelope](#)

For further information, see the user parameter instruction manual provided separately. (Axis 1 working envelope) (Axis 2 working envelope) (Axis 2 working envelope) (Axis 1 working envelope) Fig. 3.4 Working envelope (TH850A) STE80753 - 28 -...

[Page 30](#) TRANSPORTATION AND INSTALLATION MANUAL (Axis 1 working envelope) (Axis 2 working envelope) (Axis 2 working envelope) (Axis 1 working envelope) Fig. 3.5 Working envelope (TH1050A) STE80753 - 29 -...

[Page 31](#) TRANSPORTATION AND INSTALLATION MANUAL (Axis 1 working envelope) (Axis 2 working envelope) (Axis 2 working envelope) (Axis 1 working envelope) Fig. 3.6 Working envelope (TH1200A) STE80753 - 30 -...

### [Page 32: Coordinate System](#)

The robot's joint angle origin (0° or 0 mm position) is factory-calibrated according to the base reference planes. Fig. 3.5 shows the base coordinate system and origin of each axis joint angle. The same coordinate system is used for the TH850A, TH1050A, and TH1200A.

### [Page 33: Installing The Robot](#)

To align the robot position in the base coordinate system, or to replace the robot, provide adequate reference planes. Then, contact such reference planes to the base reference planes and secure the robot. The same base is used for the TH850A, TH1050A, and TH1200A. CAUTION •...

### [Page 34: Installing The Controller](#)

TRANSPORTATION AND INSTALLATION MANUAL Installing the Controller 3.3.1 External Dimensions External view of the controller is shown in Fig. 3.9. Mass of controller: 17 kg Fig. 3.9 External view of controller STE80753 - 33 -...

### [Page 35: Precautions For Direct Installation](#)

TRANSPORTATION AND INSTALLATION MANUAL 3.3.2 Precautions for Direct Installation It is necessary to provide a clearance of 50 mm or more in the horizontal direction and a clearance of 100 mm or more in the upward direction near the controller. CAUTION •...

### [Page 36: Rack Mounting Dimensions](#)

TRANSPORTATION AND INSTALLATION MANUAL 3.3.3 Rack Mounting Dimensions When mounting the robot controller in a rack, set the side brackets using the screw holes provided on both ends of the front panel, and secure the controller to the rack. The side brackets 1 in Fig. 3.11 are optional. Fig.

[Page 37](#) TRANSPORTATION AND INSTALLATION MANUAL As the cable connectors are connected to the rear side of the controller, provide a space of 110 mm on the rear side. For maintenance, the upper cover should be removed. (See Fig. 3.12.) Keep this in mind when installing the controller. At maintenance, the controller should be removed from the rack.

### [Page 38: Precautions For Handling The Teach Pendant](#)

TRANSPORTATION AND INSTALLATION MANUAL When the controller is mounted on the rack, the weight of the controller should be supported with the legs of the controller. Screw holes for rack-mounting the controller are used for securing the controller panel, and the weight of the

controller cannot be supported only with these screws.

### [Page 39: Safety Measures](#)

TRANSPORTATION AND INSTALLATION MANUAL Safety Measures When installing the robot, provide sufficient space to carry out the work safely. Clarify the hazard zone, and provide a safety fence so that other persons cannot enter the zone easily. The hazard zone is the zone near the robot's working space where a hazardous state could occur if a person enters.

### [Page 40: System Connections](#)

TRANSPORTATION AND INSTALLATION MANUAL System Connections Cable Wiring This section describes the various types of cables and connectors and explains how these are to be connected. 4.1.1 Connector Arrangement on the Controller The cables connected to the robot controller are shown in Fig. 4.1. Fig.

### [Page 41: Connecting The Power Cable "Acin" \(1 Of Fig. 4.1; Plug Connector Attached\)](#)

TRANSPORTATION AND INSTALLATION MANUAL In the subsequent paragraphs, we explain how to connect cables 1 to 4 inclusive. For information on how to connect cables 5, 6 and 7, refer to the Interface Manual. 4.1.2 Connecting the Power Cable "ACIN" (1 of Fig. 4.1; plug connector attached) The power cable is used to supply the main AC power to the controller.

[Page 42](#) TRANSPORTATION AND INSTALLATION MANUAL DANGER • Be sure to use the designated wire. Failure to do so could lead to fires or faults. • When connecting the connector and wires, make sure not to mistake the terminal arrangement. • After making the connection, use a tester, etc., to confirm the connection. For the terminal arrangement, see Para.

### [Page 43: Connecting The Motor Cable "Motor" \(2 Of Fig. 4.1\) \(Cable Attached\)](#)

TRANSPORTATION AND INSTALLATION MANUAL 4.1.3 Connecting the Motor Cable "MOTOR" (2 of Fig. 4.1) (Cable attached) The motor cable connects the controller and robot, and supplies the power required to rotate the motor from the controller servo driver to each axis feed motor of the robot. The connector for connecting the motor cable is MOTOR (2 of Fig.

### [Page 44: Connecting The Robot Control Signal Cable "Hand" \(4 Of Fig. 4.1\) \(Cable: Option\)](#)

TRANSPORTATION AND INSTALLATION MANUAL 4.1.5 Connecting the Robot Control Signal Cable "HAND" (4 of Fig. 4.1) (Cable: option) The robot control signal cable is used for motor brake ON and OFF, and input and output of robot control signals such as hand operation signal. The connector for connecting the robot control signal cable is HAND (4 of Fig.

[Page 45](#) TRANSPORTATION AND INSTALLATION MANUAL Square connectors: ENC, HAND, SYSTEM, INPUT, OUTPUT, TRIG, CONV Firstly, completely insert the cable side connector into the controller connector. Then tighten the lock screws on both ends of the cable side connector with a screwdriver. A loose screw can cause a contact failure or other accident. To avoid this, make sure that the screws are clamped completely.

### [Page 46: Examples Of Connector Terminal Arrangement](#)

TRANSPORTATION AND INSTALLATION MANUAL 4.1.7 Examples of Connector Terminal Arrangement Power cable connector ACIN Connects to controller. Type: JL04HV-2E22-22PE-B DANGER Manufacturer: • Completely connect the Japan Aviation grounding cable. Electronics Industry Otherwise, an electric shock Single phase, AC 200 ~ 240 V, or fire may be caused if a 50/60 Hz fault or electric leak...

[Page 47](#) TRANSPORTATION AND INSTALLATION MANUAL Universal input signal cable connector INPUT Connects to controller. Type: DHA-RC36-R132N-FA Manufacturer: DDK, Ltd. Universal output signal cable connector OUTPUT Connects to controller. Type: DHA-RC40-R132N-FA Manufacturer: DDK, Ltd. System input/output signal cable connector SYSTEM Connects to controller. Type: 52986-5079 Manufacturer: Molex Trigger input connector TRIG...

[Page 48](#) TRANSPORTATION AND INSTALLATION MANUAL Emergency stop, safety input, and external P24V supply connector EMS Connects to controller. Type: ML-4000CWJH-10PGY Manufacturer: SATO PARTS Brake connector BRK Connects to controller. Type: 1-1827876-6

### [Page 49: Controller Connector Signals](#)

TRANSPORTATION AND INSTALLATION MANUAL Controller Connector Signals 4.2.1 Connector Signal Connection Diagrams Diagrams showing which signals correspond to which terminals are shown in Section 2 of the Interface Manual. 4.2.2 Jumpers for Safety Related Signals The following system input signals are provided to serve for the safety purpose. System input signals SYSTEM-12 ( STOP )

[Page 50](#) TRANSPORTATION AND INSTALLATION MANUAL CAUTION • Unless the signals of SVOFF and emergency stop contacts 1, 2 are jumpered, the controller servo power cannot be turned on. • Unless the CYCLE signal is jumpered, the controller enters the cycle operation mode.

### [Page 51: Separating Control Panel From Controller](#)

TRANSPORTATION AND INSTALLATION MANUAL Separating Control Panel from Controller 4.3.1 Removing Control Panel Remove the control panel in the following manner. Loosen the four (4) screws at the four (4) corners, which secure the control panel. Remove these screws, then carefully draw out the control panel toward your side. Caution: Be careful of the cable connected on the rear side.

### [Page 52: Control Panel Mounting Dimensions](#)

TRANSPORTATION AND INSTALLATION MANUAL 4.3.3 Control Panel Mounting Dimensions The dimensions of mounting the control panel are shown in Fig. 4.6. Cross truss head screws ( $\phi 3 \times 6$ , ZN3-B) are used. Fig. 4.6 Control panel mounting dimensions STE80753 – 51 –...

### [Page 53: Mounting Dummy Panel On Controller](#)

TRANSPORTATION AND INSTALLATION MANUAL 4.3.4 Mounting Dummy Panel on Controller When the control panel has been disengaged from the controller, mount a dummy panel on the place where the control panel was set before, as shown in Fig. 4.7. The dummy panel, set parts, etc.

### [Page 54: Dimensions When Separating Control Panel](#)

TRANSPORTATION AND INSTALLATION MANUAL 4.3.5 Dimensions when Separating Control Panel Fig. 4.8 shows the connections of the control panel and dummy panel. Provide a clearance of 50 mm or more (with cover, 60 mm or more) on the rear side of the separated control panel.

### [Page 55: Tool Interface](#)

As shown in Fig. 5.1, the tool is centered with the  $\phi 20H7$  mating section. The tool direction is adjusted by means of the  $5 \times 5$  keys and secured with four (4) M5 bolts. The same tool flange is used for the TH850A, TH1050A, and TH1200A. Axis 3 upper limit position...

### [Page 56: Tool Wiring And Piping](#)

TRANSPORTATION AND INSTALLATION MANUAL Tool Wiring and Piping The robot is provided with wiring and air piping for the tool. These wiring and piping extend to the arm 2 and are used as follows: 5.2.1 Tool Signals (Controller Side) The controller is provided with the tool signals of eight input signals for sensors, eight control signals for solenoid valves, DC24 V (P24V) signal, and DC24 V GND (P24G) signal.

[Page 57](#) TRANSPORTATION AND INSTALLATION MANUAL a-2) Input signal connector HAND (Type-P) Signal Input circuit and example of Signal name connections Input D-IN0 signal 0 Input D-IN1 Customer's side signal 1 Input D-IN2 signal 2 Input D-IN3 signal 3 Input D-IN4 signal 4 Contact or transistor Input...

[Page 58](#) TRANSPORTATION AND INSTALLATION MANUAL b-1) Output signal connector HAND (Type-N) Input circuit and example of Signal name Signal No. connections Output D-OUT0 signal 0 Customer's side Output D-OUT1 signal 1 DC relay Output D-OUT2 signal 2 Output DOUT3 signal 3 Output D-OUT4 Diode for preventing...

[Page 59](#) TRANSPORTATION AND INSTALLATION MANUAL b-2) Output signal connector HAND (Type-P) Input circuit and example of Signal name Signal No. connections Output D-OUT0 signal

0 Customer's side Output D-OUT1 signal 1 Output D-OUT2 signal 2 DC relay Output D-OUT3 signal 3 Output D-OUT4 signal 4...

### [Page 60: Tool Wiring](#)

TRANSPORTATION AND INSTALLATION MANUAL 5.2.2 Tool Wiring Five (5) input signals are provided for sensors, etc. and four (4) control signals for solenoid valves, etc. A supply power signal of P24V is also provided. They are connected to the controller. The wiring arrangement for these cables is shown in Fig. 5.2.

[Page 61](#) TRANSPORTATION AND INSTALLATION MANUAL From PLC, etc. Disconnect. Grommet inner dia. 7 mm JOES JOFS (CN4 side) Cable inlet (2 places) Fig. 5.2 Wiring to PLC, etc. Input/output signal connector CN0 (Type-N) Signal Input/output circuit Signal name (D-SUB) and example of connections (Cannon) Not used Customer's side...

[Page 62](#) TRANSPORTATION AND INSTALLATION MANUAL As input signals, no-voltage contacts or transistor open collector inputs are used. No-voltage contact specifications: Contact rating: DC24 V, 10 mA or over (circuit current: approx. 7 mA) Minimum contact current: DC24 V, 1 mA Contact impedance: 100 Ω or less Transistor specifications: Withhold voltage between collector and emitter: 30 V or over Current between collector and emitter: 10 mA or over (circuit current: approx.

[Page 63](#) TRANSPORTATION AND INSTALLATION MANUAL 4×M5 air joint for hand Wiring panel CN0 hand connector D-SUB connector 4×M5 air joint for hand CN0 hand connector Cannon connector (option) Details of wiring panel CN4 hand connector Connect to TS3100. Quick-operated joint 4×φ6 air tube 4×φ6 Quick-operated joint for hand...

[Page 64](#) TRANSPORTATION AND INSTALLATION MANUAL To brake OFF switch Robot base section To motor brake Color Signal name Pin Color Signal name Color Arm 2 top surface of robot Purple Black Black Gray White White Green Green Green Signal name Signal name Pin Color Color Signal name...

[Page 65](#) Direct wiring and piping by relocating the wiring panel to the lower side. Fig. 5.4 and Fig. 5.5 show the procedures for relocating the wiring panel and the wiring method, respectively. The same arm 2 is used for the TH850A, TH1050A and TH1200A. The figure below shows the TH850A. STE80753...

[Page 66](#) TRANSPORTATION AND INSTALLATION MANUAL Wiring panel Cover Nylon washer Cover 1. Remove the six (6) screws securing the 2. Remove the four (4) screws securing cover, then draw it upward and the wiring panel, then dismantle the disconnect. wiring panel. As all cables are connector-connected, disconnect all cables connected there.

[Page 67](#) TRANSPORTATION AND INSTALLATION MANUAL Guide Bracket The cables connecting the panel 6. Finally, secure the cover with the actuator are fabricated long disconnected in Step 3 to the location so that the panel can be mounted on where the panel was mounted the lower side, and are secured to before, then attach the cover.

[Page 68](#) TRANSPORTATION AND INSTALLATION MANUAL Tool connection by using the hollow hole (18 mm-dia.) on Z-axis ball screw shaft. Fixed stay (To be provided by customer.) Tool connection by Tool connection by attaching the fixed stays to mounting the wiring the lower side of the arm. panel on the lower side of the arm.

[Page 69](#) TRANSPORTATION AND INSTALLATION MANUAL CAUTION • Be sure to use a highly flexible robot cable, which should be secured below the arm with a cable clamp, etc. Unless a robot cable is used, the wire may be broken. • When performing tool wiring and piping, take all necessary measures against breakage due to rub, etc.

### [Page 70: Tool Air Piping](#)

TRANSPORTATION AND INSTALLATION MANUAL The air tube is identified by the number and color. At piping, make sure that each tube is connected properly, referring to the below-mentioned. 1 : Red 2 : White 3 : Blue 4 : Yellow Air joint pitches of the panel D-SUB connector Cannon connector (option)

## [Page 71: Permissible Load Conditions And Program Setting](#)

Fig. 5.7. The permissible load conditions are shown in Table 5.1. The permissible load conditions are the same for both TH850A, TH1050A, and TH1200A. Table 5.1 Permissible load conditions...

## [Page 72: Load Conditions And Program Setting](#)

TRANSPORTATION AND INSTALLATION MANUAL Tool gravity center Robot arm Moment of inertia Tool Offset value of gravity center Fig. 5.7 Robot tool 5.3.2 Load Conditions and Program Setting This robot can automatically change the maximum speed, acceleration/deceleration and servo gain by using the PAYLOAD command in the program according to the load conditions.

[Page 73](#) TRANSPORTATION AND INSTALLATION MANUAL • The servo gain of each robot axis is automatically changed according to the set load conditions. Program examples Basic program examples using the PAYLOAD command are shown below. For further information, see the Robot Language Manual. (Program example 1) The robot is moved under the load conditions of 5 kg mass and 100 mm gravity center offset.

## [Page 74: Setting Maximum Speed And Robot Acceleration/Deceleration For Load Conditions](#)

TRANSPORTATION AND INSTALLATION MANUAL DELAY 1 PAYLOAD={3,30} MOVE P2+POINT(0,0,100) GOTO LOOP FIN: MOVE P0 DOUT(1) STOP Setting of PAYLOAD command In the default state, or when the PAYLOAD command is not used, the maximum speed and acceleration/deceleration are set to 100 % and the servo gain is set to the value under the minimum load.

[Page 75](#) TRANSPORTATION AND INSTALLATION MANUAL CAUTION • When guiding manually, the robot may vibrate if the load mass or gravity center offset is large. This is because the servo gain is not appropriate. When this happens, perform the following operation while setting the load conditions in the test run mode.

[Page 76](#) The maximum speed and acceleration/deceleration change with the load mass, as shown in Fig. 5.8 and Fig. 5.9. Setting of the maximum speed and acceleration/deceleration is the same for both TH850A and TH1050A. Acceleration/deceleration Acceleration/deceleration Maximum speed"...

[Page 77](#) TRANSPORTATION AND INSTALLATION MANUAL Acceleration/deceleration time Acceleration/deceleration time Maximum speed Maximum speed 8 10 12 14 16 18 20 22 8 10 12 14 16 18 20 22 Load (kg) Load (kg) Setting of maximum speed and Setting of maximum speed and acceleration/deceleration in relation to load acceleration/deceleration in relation to load mass (Axis 1)

[Page 78](#) Setting of acceleration/deceleration in relation Setting of maximum speed in relation to to offset (Axis 2) offset (Axis 2) Fig. 5.10 Setting of maximum speed and acceleration/deceleration in relation to gravity center offset (Axes 1 and 2) (TH850A and TH1050A) STE80753 - 75 -...

[Page 79](#) Setting of acceleration/deceleration in relation Setting of maximum speed in relation to to offset (Axis 4) offset (Axis 4) Fig. 5.11 Setting of maximum speed and acceleration/deceleration in relation to gravity center offset (Axes 3 and 4) (TH850A and TH1050A) STE80753 - 76 -...

[Page 80](#) TRANSPORTATION AND INSTALLATION MANUAL Load mass  $\leq$  10 (kg) 10 (kg) < Load mass  $\leq$  15 (kg) Load mass  $\leq$  7 (kg) Load mass > 15 (kg) 7 (kg) < Load mass  $\leq$  12 (kg) Load mass > 12 (kg) Offset (mm) Offset (mm) Setting of acceleration/deceleration in relation...

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This manual is also suitable for:

[Th1050aTh1200a](#)