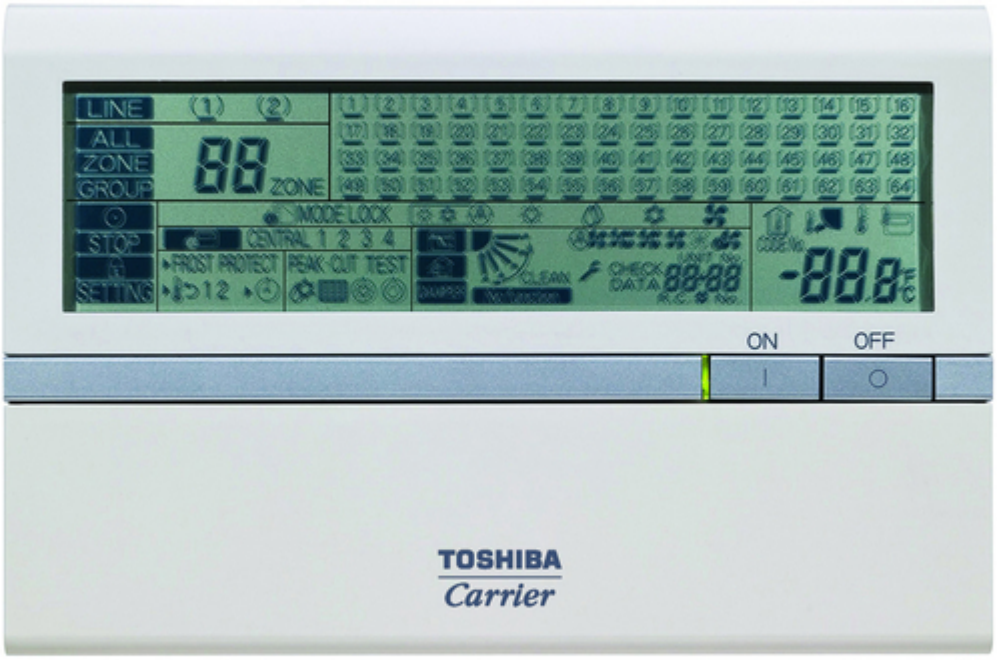
LINE
ALL
ZONE
GROUP
STOP
SETTING
ZONE
MODE LOCK
CENTRAL 1 2 3 4
FROST PROTECT
PEAK CUT TEST
CLEAN
CHECK
DATA
ON
OFF
TOSHIBA
Carrier

Toshiba BMS-SM1280ETLE Service Manual

Smart manager with data analyzer

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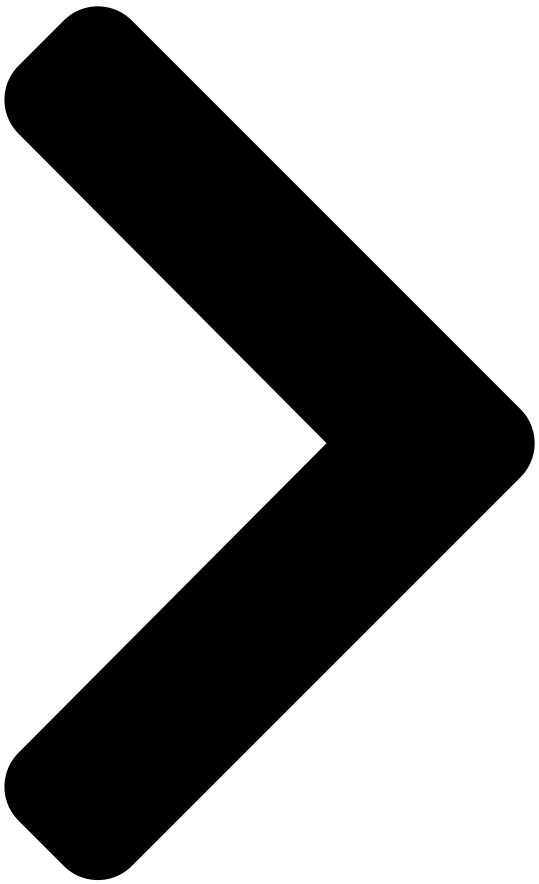

FILE NO. A11-015

SERVICE MANUAL

TOSHIBA

Leading Innovation

SMART MANAGER WITH DATA ANALYZER

Model name:

BMS-SM1280ETLE

PRINTED IN JAPAN, Feb. 2012, TDOC

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(410 pages)

Desktop Toshiba Satellite A300 Maintenance Manual

(263 pages)

Desktop Toshiba Tecra A3 Maintenance Manual

Personal computer (202 pages)

Desktop Toshiba Qosmio PX30t Series User Manual

(149 pages)

Desktop Toshiba Libretto 100CT User Manual

User manual (236 pages)

Desktop Toshiba DX1210 series User Manual

(168 pages)

Desktop Toshiba Satellite L300 Maintenance Manual

(252 pages)

Desktop Toshiba TECRA C50-C Series User Manual

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Desktop Toshiba Satellite L650 Maintenance Manual

(188 pages)

Desktop Toshiba Portege 2000 Maintenance Manual

(270 pages)

Summary of Contents for Toshiba BMS-SM1280ETLE

Page 1 FILE NO. A11-015 SERVICE MANUAL SMART MANAGER WITH DATA ANALYZER Model name: BMS-SM1280ETLE PRINTED IN JAPAN, Feb. 2012, TDOC...

Page 2: Table Of Contents

Contents Safety precautions .....3 1 Product overview.

Page 3: Safety Precautions

Safety precautions Important safety-related information is described on the product and in this Service Guide. Read the following description on labels and symbols carefully and follow their directions. [Explanation of labels] Label Explanation Indicates that the repair engineer and other third-party individuals in the vicinity may be DANGER exposed to immediate risk of death or serious injury if operation is not performed correctly.

Page 4 WARNING Do not allow unauthorized personnel other than repair engineers to enter areas where fault diagnosis and repair work is conducted. Unauthorized persons may suffer injury from tools and disassembled parts. Restricted area Connect lead wires with crimping terminals and turn the closed end upwards to avoid exposure to water.

Page 5: Product Overview

Product overview This product is an air-conditioning control system to control and monitor the operation state of air conditioners in a building by using a computer with the mouse at a customer site. The system enables intensive management, operation control, and energy-saving operation for the air conditioners of up to 128 groups. The display and operation are available on a Web browser.

Page 6: System Configuration

System configuration Alarm output TCC-LINK 1 Operation output Schedule Timer Outdoor unit ALL Start input Fire alarm input ALL Stop input Indoor unit TCC-LINK 2 Central Controller RS-485 Ethernet Energy Monitoring Relay I/F Power meter Power meter Power meter Digital I/O Relay I/F Fire alarm input Lock input...

Page 7 System Devices Configuration EXTENDED SYSTEM Device Name Number of Units Model Remarks Connected Indoor Unit (TCC-LINK based model) Up to 64 units per line Max 128 Up to 128 units in total for 2 lines Energy Monitoring Relay Interface BMS-IFWH5E Up to 8 electric energy meters per Max 4 BMS-IFWH5E...

Page 8: List Of Functions

List of functions Function Details User account Number of user registrations Type of user account Administrator Power user Guest Air conditioner category Category structure 3 levels Monitoring air conditioner status Start / Stop Operation mode Set temperature Fan speed Louver Remote control prohibition / permission Warning...

Page 9 Function Details Master schedule Number of registrations Settable period Up to 12 months later including current month Number of set points per day 10 settings Interval of set point 1 minute Settable parameters Start / Stop Operation mode Set temperature Remote control prohibition Return back Save...

Page 10: Product Specification

Product specification BMS-SM1280ETLE (Smart Manager with data analyzer) Central Controller Power supply Use the supplied power unit. Power consumption Operating 0 to 40 °C, 10 to 90% RH temperature / humidity (no condensation) Dimensions 120(H) x 180(W) x 64(D) mm Mass 0.8 kg...

Page 11 BMS-IFWH5E (Energy monitoring relay interface) Power supply 220 - 240 V, AC 50 / 60 Hz Power consumption Operating temperature / 0 to 40 °C, 10 to 90% RH humidity 6-Ø5.5 Storage temperature -20 to +60 °C mounting holes Dimensions 66(H) x 193(W) x 246(D) mm 63.6 Mass...

Page 12: Installation Of The Smart Manager With Data Analyzer

Installation of the Smart Manager with data analyzer CAUTION • Do not twist communication wires (used between indoor unit and outdoor unit and used for central control) and input/ output wires with power wires or bundle them together with power wires in a metal tube. Doing so may cause malfunction.

Page 13 Power unit installation method and orientation There are five installation methods for this power unit as shown below: surface mount and wall mounts. Use the attached screws. No good REQUIREMENT Do not install the unit in any of the following places. •...

Page 14 Combining the central controller and power unit You can combine the central controller and power unit using the supplied brackets as follows in order to control them as one unit Power unit Bracket Panel Combination method Fix the brackets and the central controller box together using the screws on the box.

Page 15: Connection Of Power Cables / Earth Wires / Communication Cables

Connection of power cables / earth wires / communication cables Connect power cables, communication cables, and earth wires to the specified terminals on the terminal block. REQUIREMENT Attach a round pressure terminal to the end of each wire except those for digital input and output. The power terminals on the central TCC-LINK U1 and U2 controller have polarity.

Page 16 Length of stripped power cable Length of stripped TCC-LINK Length of stripped RS-485 Length of stripped digital Input / communication cable communication cable Output communication wire Attach a round pressure terminal to Attach the supplied clamp filter to the LAN cable. Loosen the screw with the screw the end of each wire of the power * Wind the LAN cable around the clamp filter as shown...

Page 17 <Specifications for Wiring> Use the following materials to connect signal lines and power lines (locally procured) Line Type / Wire size / Length 2-core shield wire For TCC-LINK 1.25mm², 1000m max. (total length including 2.00mm², 2000m max. air conditioner area) 2-core shield wire For RS-485 1.25mm², 500m max.

Page 18: Product Connection Diagram

Product connection diagram BMS-IFWH5E • BMS-IFDD03E (Energy Monitoring Relay Interface, Digital Input / Output Relay Interface) Installation Method and Orientation Installation Space and Maintenance Space There are five installation methods for this relay interface A side space for connecting through cable inlets as shown below: surface mount and wall mounts.

Page 19 7-2. Digital input / output relay interface (BMS-IFDD03E) Connect power cables, earth wires, and signal wires to the specified terminals on the terminal block. To connect 2 cables, change the preset cable clamp to the provided one and fix the cables with the cable clamp as shown in the figure.

Page 20: Switches For Setting (Smart Manager With Data Analyzer)

Switches for setting (Smart Manager with data analyzer) 8-1. Smart Manager with data analyzer (BMS-SM1280ETLE) The settings switch is installed on the rear of the Smart Manager with data analyzer. 1 2 3 Must be set ALL ON ALL OFF...

Page 21 <DS23> Factory default: All OFF <1> Smart Manager with data analyzer main / sub selection DS23 OFF: Main 2 3 4 5 6 7 8 ON: Sub Normally, this bit is set to OFF. When two Smart Manager with data analyzer units are used as a main unit and a sub unit with the same mode setting, set this bit to OFF (Main) for one unit and to ON (Sub) for the other unit.

Page 22 Factory default: All OFF <DS24> DS24 <1> to <3> Timer input switching 2 3 4 5 6 7 8 These bits switch operation when the weekly timer has changed. • Use (1) and (2) only in the remote control mode. •...

Page 23 <DS25> Factory default: All OFF <1> Always OFF DS25 • Always set this bit to OFF. 2 3 4 <2> Synchronization of zone setting data OFF: With synchronization ON: Without synchronization This bit specifies whether to perform synchronous communication of zone setting data between Smart Manager with data analyzers.

Page 24 8-2. Energy Monitoring Relay Interface (BMS-IFWH5E) The following settings are necessary to use Energy Monitoring Relay Interfaces. Address setting SW1 Address set switch When two or more Energy Monitoring Relay Interfaces are used, set a different address for each unit to avoid address duplication.

Page 25 8-3. Digital Input / Output Relay Interface (BMS-IFDD03E) The following settings are necessary to use Digital Input / Output Relay Interfaces. Address setting SW1 Address set switch When two or more Digital Input / Output Relay Interfaces are used, set a different address for each unit to avoid address duplication.

Page 26: Mode Setting For Smart Manager With Data Analyzer

Mode setting for Smart Manager with data analyzer Operation mode You can switch the functional mode of the Smart Manager with data analyzer between the central control mode and remote control mode. The mode is switched with the dip switch DS23-<6>. OFF side:

Central control mode This Smart Manager with data analyzer is used as a central control unit.

Page 27: Zone Setting

Zone setting What is zone? • A zone is a control unit consisting of a combination of any indoor units and the settings of indoor units in a zone can be configured collectively. • You can make up to 64 zones pairing any of up to 64 groups in a line. By using lines 1 and 2, you can set up to 128 zones in total.

Page 28: Changing Return-Back Time / Temperature Settings

Changing return-back time / temperature settings What is return-back? When the return-back function is activated, the temperature setting exceeding the return-back temperature will automatically be adjusted to the return-back temperature after a certain period of time to prevent extremely high / low temperature setting.

Page 29: Test Run

Test run Start the system to perform operation check by following the procedure below. 12-1.Preparation Item Details Procedure Preparation Discuss with a customer to determine details of the Refer to the Owner's manual of the Setting following. File Creation Software. •...

Page 30 12-2.Operation check Complete the test run of air conditioners before operation check. Item Details Procedure Start-up check • Turn on the all air conditioners. For further details, refer to the Installation • Turn on the all interfaces. manual of each device. •...

Page 31 12-3.Check Items before test run Check item Has the electrical work (power supply and communication wiring work) been completed? Key point 1.When the Energy Monitoring Relay Interface or Digital Input / Output Relay Interface is connected, check that the polarity (A / B) of the wiring is correct. 2.Check that the terminal resistance has been set.

Page 32 12-4.Procedure of test run check Check item Procedure Controller operation 1.Turn on the controller and check that the LCD displays "Line" and "All". check Error message × 1) Check if the controller is turned on. The frame line only is 2) Check if the controller internal wiring is defective or displayed;...

Page 33 Check item Procedure PC connection check Start the browser software of the PC to be connected. Enter http://the controller's IP address/**/index.html in the address bar of the browser, and check that the login window is displayed. (**: language code) English http://192.168.2.30/en/index.html German http://192.168.2.30/de/index.html...

Page 34 Check item Procedure Air conditioner In the zone window, select all the floors and display the "General" tab. connection check Check if all the indoor unit operation statuses are obtained (if the units are connected). (Facing test) Error message × NG1: The display is as follows.

Page 35 Check item Procedure Digital Input / Output Check the connection when the Digital Input / Output Relay Interface is connected and the locking Relay Interface or fire alarm interlocking is set. connection check Locking interlocking operation check Display "Alarm List" on the PC, and check that the S07:BMS-IFDD communication error is not detected.

Page 36 Check item Procedure Energy Monitoring Check the connection when the Energy Monitoring Relay Interface is connected and an energy Relay Interface meter input name is set in the setting file. connection check Display "Alarm List" on the PC, and check that the S06:BMS-IFWH communication error is not detected.

Page 37: Troubleshooting

Troubleshooting About the check codes If there is a problem with the air handling unit or if the controller detects anything unusual with the system, a check code is displayed in the warning list on the computer screen or the LCD of the controller. Check code Description Action...

Page 38 13-1.Trouble with connection 13-1-1. Logon screen is not displayed. Cause Solution The controller is not turned on. Turn on the controller. The HUB is not turned on. Turn on the HUB. The LAN cable is not connected. Check that the LAN cable is inserted into the controller and PC and connect them.

Page 39 13-2.Trouble with web screen 13-2-1. Takes long time to display. Cause Solution The network is busy. Connection via an intra-company LAN may slow the Web screen display due to a busy network. Use the system during off-peak hours of network use, or use a dedicated network to connect a PC with the controller.

Page 40 13-2-5. After logon, the dialog message “The system is being prepared.” appears. Cause Solution The controller is not turned on. Turn on the controller. Wait for 5 minutes and logon again. The HUB is not turned on. Turn on the HUB and log on again. The LAN cable is not connected.

Page 41 13-2-8. The screen does not switch or takes long time to switch. Cause Solution Operating schedule is displayed and set. If many operating schedules are displayed and set, switching the screen takes long time after the operating schedules are set. After selecting a zone of the air conditioner, perform “Change Operating Schedule”...

Page 42 13-2-13. The floor, tenant, area, or air conditioner is not displayed in the proper order. Cause Solution The inputs in the setting file are incorrect. The floor, tenant, and area are displayed in the order of the floor number, tenant number, and area number set in the setting file. Change the display order as needed.

Page 43 13-3.Other troubles 13-3-1. The date or time change is not applied. Cause Solution The internal processing of the controller is prioritized. The internal processing of the controller may be given priority over a setting operation from the browser. Try to change the date or time again. 13-3-2.

Page 44 13-3-6. Clicking [OK] or [Cancel] does not close the window or takes some time for the window to close. Cause Solution Operating schedule is displayed and set. If many operating schedules are displayed and set, closing the operating schedule window takes some time after [OK] or [Cancel] is clicked. Wait for the window to close without performing any operation.

Page 45 13-3-11. No daily report file is found. Cause Solution The controller was not turned on at the time of meter- If the controller is off at the time of meter-reading, the daily report file of the reading. day is not created. The accumulated operation hours and electricity amount are added up to the daily report file of the next day, so the values in the daily reports will be correctly summed up.

Page 46 13-4-4. Lock input does not stop the air conditioner. Cause Solution 1.Check if communication error with the digital input / output relay Communication error with the digital input / output relay interface. interface is detected. 2.Check if communication error with the air conditioner is detected. 1.Check if communication error with the digital input / output relay Communication error with the air conditioner.

Page 47 13-4-7. Communication error with the digital input / output relay interface is displayed. Cause Solution The digital input / output relay interface is not turned on. Check if the “POWER” LED of the digital input / output relay interface illuminates. The RS-485 communication wiring is not connected or Check the conduction of the communication wiring.

Page 48 13-5.Questions about functions Questions Answer What is the procedure to create a setting file? Please read the Operating Instration of the Setting File Creation Software. How many air conditioners can be connected? Up to 128 units of air conditioners can be connected. Note that up to 64 units can be connected per TCC-LINK line.

Page 49 Questions Answer What are the PC requirements for connecting to the 1.PC running Windows XP or Vista or 7 without any problem. Also, the controller? PC must have Internet Explorer 8.0 / 9.0 or Firefox 7.0 / 8.0. 2.If you use the Monthly Report Creation Software, you need to install Microsoft Excel 2002 or later on your computer.

Page 50: Check Points

Check points 14-1.Network wiring Check point Check that the LAN cable is connected to the connector on the upper side of the controller, and the connector’s LED illuminates. Check that the LAN cable is connected to the PC that is connected to the controller via the network, and check that the PC operates normally.

Page 51 14-5.Facing test Check point At both sides of the controller and handy remote

controller, perform setting and display check. Before starting the check, discuss and determine the air conditioners checking order and procedure. Check 1: Check that the unit name and operation state match between the controller and the handy remote controller. Check 2: Check that the setting operation from the controller can change the setting in the handy remote controller.

Page 52 Check point Check the RS-485 send circuit of the interface. Error message Enable the test mode 2 at the interface, and check that communication waveform is output between A and B of the RS-485 terminal block of the interface. The RS-485 send circuit of the interface is normal. Check the RS-485 send circuit of the controller.

Page 53 14-9.How to identify defective part at S06 (BMS-IFWH communication error) or S07 (BMS-IFDD communication error) occurrence Check point Check if the RS-485 LED (Green) is blinking at the Energy Monitoring Relay Interface or the Digital Input / Output Relay Interface. Error message (If blinking) Defective part:...