



Toshiba TOSLINE-S20 Instruction Manual

Tosline-s20 active star coupler

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TOSHIBA
TOSLINE-S20

Active Star Coupler(ASC25)

Instruction Manual

REQUIREMENTS

Keep this instruction manual where it can be easily referred to by users and those responsible for the equipment.

Read this instruction manual carefully before using the equipment.

After this instruction manual has been read, keep it

beside the equipment.

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Summary of Contents for Toshiba TOSLINE-S20

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REQUIREMENTS Keep this instruction manual where it can be easily referred to by users and those responsible for the equipment. Read this instruction manual carefully before using the equipment.

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[Page 4: Introduction](#)

TOSLINE-S20 Active Star Coupler (ASC25) Instruction Manual 6F3B0360 Introduction The brochure is an instruction manual for Active Star Coupler (ASC25) which is a modified version of general use Active Star Coupler (ASC22). The Active Star Coupler (ASC25) is specially designed to connect TOSLINE-S20 data communication network with a station provided with F07 Type Optical Connector, such as TOSVERT- /S250W/W Drive Station.

[Page 5](#) ASC25 Instruction Manual...

[Page 6: Overview](#)

TOSLINE-S20 Active Star Coupler (ASC25) Instruction Manual 6F3B0360 Overview The Active Star Coupler is used for distributing fiber optic signals in a TOSLINE-S20 network. The TOSLINE-S20 is a Bus-style transmission system. If the power is off in one of the stations on this bus, communication is not possible before or after that station.

[Page 7](#) ASC25 Instruction Manual...

[Page 8: System Configurations](#)

TOSLINE-S20 Active Star Coupler (ASC25) Instruction Manual 6F3B0360 System Configurations Adoption of the Active Star Coupler provides a system configuration illustrated below. Basic configuration The maximum applicable number of F01 (FC) Type connector stations is two. The maximum applicable number of F07 Type connector stations is eight.

[Page 9](#) ASC25 Instruction Manual...

[Page 10: Outline Of Functions](#)

TOSLINE-S20 Active Star Coupler (ASC25) Instruction Manual 6F3B0360 Outline of Functions Basic functions When the Active Star Coupler receives a signal from one channel among ten of them, it transmits this signal (unchanged) from its remaining nine ports. The drawing given below illustrates the case that data input from Port 1, and the data are output from ports 2 through 10.

[Page 11](#) ASC25 Instruction Manual...

[Page 12: Specifications](#)

TOSLINE-S20 Active Star Coupler (ASC25) Instruction Manual 6F3B0360 Specifications The section describes the specifications of the Active Star Coupler. General specifications General specifications of Active Star Coupler are given below. Item Specification Voltage Rating 100/110 V AC, 50/60 Hz 200/220 V AC, 50/60 Hz Fluctuation range 85 to 132 V AC, 47 to 66 Hz 170 to 250 V AC, 47 to 66 Hz...

[Page 13](#) Functional specifications The functional specifications of the Active Star Coupler are listed below. Item Description Number of connectable Max. 10 stations for FC Type Silica glass optical fiber cable (JIS C6820) connector GI 50/125 m (core dia./clad dia.) Applied optical fiber for F07 Type H-PCF (hard clad silica glass core fiber) cable connector...

[Page 14: Hardware](#)

TOSLINE-S20 Active Star Coupler (ASC25) Instruction Manual 6F3B0360 Hardware The section describes the hardware of Active Star Coupler. Product construction Active Star Coupler main unit (1 unit) Pet Name : ASC25 Product Code : SASC25*US Target apparatus for connection : TOSLINE-S20 fiber optic network stations. (Various kinds of stations, ASC22, ASC25) Fuse (2 pieces) Rating: 250 V AC, 3 A...

[Page 15: Component Identification](#)

Component identification Names of the components of Active Star Coupler are given below. Terminal block Fuse holder Optical connector Status display LED Function setting -S20 Rubber feet Figure 6.2 Front view of the unit Name Status display LED Display of operational state (TX1 to 10, POWER, COMM) Terminal block Power supply and Relay contact output...

[Page 16: Function Setting Switch](#)

TOSLINE-S20 Active Star Coupler (ASC25) Instruction Manual 6F3B0360 Function setting switch Arrangement and names of function setting switches are given below. Figure 6.3 Name Description Setting the function of preventive Preventive measures to single-wire measures to single-wire breaking breaking Setting the function of preventive Preventive measures to single-wire TX10 measures to single-wire breaking...

[Page 17](#) On the port which entered the stop transmission, when the switch is turned to "OFF" position after the circuit operation is resumed, the transmission is reactivated on receiving signals from other port. When the switch is turned to "ON" position again, the function is also reactivated. When the function is in "OFF"...

[Page 18: Led Display](#)

TOSLINE-S20 Active Star Coupler (ASC25) Instruction Manual 6F3B0360 LED display Status display LEDs are found on the front panel of the unit of Active Star Coupler. Through these LEDs, the operating status of Active Star Coupler is identified. Display and name of LED Arrangement and names of LEDs on the front panel of ASC25 are shown below.

[Page 19: Optical Connector](#)

Optical connector For the transmission cables of the Active Star Coupler, the optical fiber cables (cords) are used. Position and name of optical connector The Active Star Coupler has ten optical connector connection ports, CH1 through CH10. They are positioned on the front panel of the unit: CH1 and CH10 are FC Type connectors, and CH2 through CH9 are F07 Type connectors.

[Page 20: Terminal Block](#)

TOSLINE-S20 Active Star Coupler (ASC25) Instruction Manual 6F3B0360 Terminal block Power supply Connect the power supply cables to the power source terminal block (M3.5 screws) of ASC25 using appropriate crimping terminals. Insufficient connection may damage the terminal block. Do not supply the power source to other users via the power source terminal block. Power source side 100 V AC/200V AC terminal (e.g., Power source panel)

[Page 21: Fuse Holder](#)

Fuse holder When power source is connected, and the POWER lamp of LED is not turned ON, fuse may be blown. In that case, cut OFF the power supply, and replace the fuse in the fuse holder at front panel of the Active Star Coupler. Then turn the power source switch to "ON" position, again. Fuse rating:.....

[Page 22: Start Up And Power Down Methods](#)

TOSLINE-S20 Active Star Coupler (ASC25) Instruction Manual 6F3B0360 Start up and Power down methods Start up method Connect power supply cables to individual stations which are connected to the Active Star Coupler. Connect the connecting station with the Active Star Coupler, or an Active Star Coupler with another Active Star Coupler (in the case of daisy-chain connection), using respective transmission cables.

[Page 23](#) ASC25 Instruction Manual...

[Page 24: Precautions On Using Active Star Coupler](#)

TOSLINE-S20 Active Star Coupler (ASC25) Instruction Manual 6F3B0360 Precautions on using Active Star Coupler Precautions on the function of preventive means to single-wire breaking Observe the following-listed cautions on using the function of preventive mean to single-wire breaking. Even if the function is set, it is not actuated for about 10 seconds after power "ON". In the case that the power is "ON"...

[Page 25](#) ASC25 Instruction Manual...

[Page 26: Installation And Wiring](#)

TOSLINE-S20 Active Star Coupler (ASC25) Instruction Manual 6F3B0360 Installation and Wiring Method for mounting the main unit The Active Star Coupler may be installed within a cubicle, on a table, or onto a panel. Installation in a cubicle Cubicle Active Star Coupler L-shape bracket Base for the unit...

[Page 27](#) Mounting Active Star Coupler onto a panel For panel mounting of the Active Star Coupler, horizontal mount shall be applied using the L-shape brackets. Do not mount the Active Star Coupler upside down or vertical position. When the mounting of the Active Star Coupler is made by using the L-shape brackets, remove the rubber feet at bottom of the main body.

[Page 28: Connection Of Optical Fiber Cables \(Cords\)](#)

TOSLINE-S20 Active Star Coupler (ASC25) Instruction Manual 6F3B0360 Connection of optical fiber cables (cords) Connection is made between FC Type connectors, or between F07 Type connectors. For the case of CH1 and CH10, the connectors are FC Type, so that a transmission connector (TX) of the Active Star Coupler shall be connected to the FC Type receiving connector (OR) on the target station, and that a receiving connector (RX) of the Active Star Coupler shall be connected to the FC Type transmission connector (OT) on the target station, using respective optical cables.

[Page 29: Optical Parts](#)

Optical parts Optical fiber cable For the optical parts of FC Type, refer to the "T2/T3 stations of the instruction manual (6F3B0354)". The following is the description on optical parts of F07 Type. As the optical fiber cable, use H-PCF (Hard Plastic Clad silica glass optical Fiber) cable that satisfies the following-given requirements.

[Page 30](#) TOSLINE-S20 Active Star Coupler (ASC25) Instruction Manual 6F3B0360 Optical fiber cord Any type of optical fiber cords may be applicable if only they have the transmission characteristics of optical fiber cable, given above, and they are connectable with F07 Type connector, further they have the following-listed mechanical strength characteristics.

[Page 31: Precautions On Handling Optical Fiber And Optical Connector](#)

List of optics-related parts Name Model, Rating Optical fiber cable 2001H-MMnn/"""" (Main line cable) (Standard optical fiber 2-C-LAP 2XCCV-HC-20/07 ("" denotes cable total length.) cable) (nn denotes exposed cord length.) Optical fiber cable with 2001H-M-"""" DCV-HC- (Cord with connector on one end) optical connector 20/07 (""...

[Page 32](#) TOSLINE-S20 Active Star Coupler (ASC25) Instruction Manual 6F3B0360 For connecting an optical connector and an optical fiber, align the key seats, and insert the connector until "click" sound is generated. Since the optical fiber has only 200 μm in diameter, accurate insertion is necessary to avoid increase in connection loss. To the optical transmission/receiving sections of the connector not in use, a black cap shall be applied to avoid incoming ambient natural lights.

[Page 33: Method Of Optical Connector Assembly](#)

Method of F07 optical connector assembly Assembly work of optical connector shall conform to the following-given steps. For detail, refer to the instruction manual attached to the assembly tools. Precautions of optical connector assembly work On assembling an optical connector, observe the following-listed precautions.

[Page 34](#) TOSLINE-S20 Active Star Coupler (ASC25) Instruction Manual 6F3B0360 Fold the tension member, and insert the collar through the jacket of optical fiber core wire until the collar went under the cord housing. The collar shall be exposed from the edge of housing removal by 1 mm or less.

[Page 35](#) Caution To remove the core cover (0.5 mm in diameter, semi-transparent), if the knife edge of jacket remover is damaged or if mal-manipulation of the knife is occurred, the clad (0.23 mm in diameter, transparent) of the optical fiber may be damaged (becoming cloudy in the surface). The clad of H-PCF optical fiber is an important section that protects the Silica glass core and that assures high strength and high reliability of the optical fiber.

[Page 36](#) TOSLINE-S20 Active Star Coupler (ASC25) Instruction Manual 6F3B0360 Assemble the optical connector. On assembling the optical connector, care should be given not to mix the

transmission side ferrule and the receiving side ferrule. Plug-holding cap Plug casing Spring
Optical fiber Projection Hole Cord bush...

[Page 37: Procedure Of Design For Laying Optical Fiber Cables](#)

Procedure of design for laying optical fiber cables For the use of TOSLINE-S20 optical fiber cable system, following-listed items shall be observed to lay cables/cords. Precautions of optical fiber cable system design Formulation of FC Type optical level diagram For FC Type, refer to the "T2/T3 stations instruction manual (6F3B0354)". Formulation of F07 Type optical fiber diagram On designing an optical system, formulate the optical level diagram and confirm that the light power has sufficient margin in advance.

[Page 38](#) TOSLINE-S20 Active Star Coupler (ASC25) Instruction Manual 6F3B0360 Receiving side end Transmission side end Receivable range Margin Applied optical cable gives 6 dB/km of transmission loss, (under the use of H-PCF). Connector connection loss is 1 dB/both ends, (2 dB/both ends for non-polishing case).

[Page 39](#) Precautions on ordering cables/cords On ordering the cables and cords, the following-listed precautions shall be observed. Cables and cords applied shall be those specified in the instruction manual. When the cable contractor is named, and when the cables specified in the instruction manual cannot be adopted, use the cables having the same characteristics with those specified in the instruction manual.

[Page 40](#) TOSLINE-S20 Active Star Coupler (ASC25) Instruction Manual 6F3B0360 Precautions on laying cables For handling optical connectors and cords, refer to the "7.4 Precautions on handling optical fiber and connector" of the instruction manual. Precautions on laying cables For the case of cable with connector, the front end cord and optical connector portions shall be carefully prepared not to apply direct force to the portions.

[Page 41](#) The transmission loss in the transmission line is the sum of the transmission loss across the optical fiber and the connection loss of aligner. Comparison with level diagram Comparing with the level diagram which was prepared during design stage, if the transmission loss of the transmission line is abnormally large, the portion structuring the transmission line should be abnormal.

This manual is also suitable for:

Asc25