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Trimble s6 battery charger manual free online free



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If the value is greater than 0.05 grads (0.045 degrees) and you answer No to the re measurement message, the instrument. TSC2 COM Port USB Port Figure 4.43 TSCe and TSC2 connected to the Trimble S Series Total Station with cable for servo and Autolock measurements. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (EIRP) is not more than that required for successful communication. The removable handle kit consists of: Item Description a Screws x2 b Lock x2 To remove the Torx screws 1 b 2 3 b Figure 7.83 Removing the Torx screws 1. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. - Consult the dealer or an experienced radio/TV technician for help. Store correction Aim on target C Face-1 obs: 0 Face-2 obs: 0 >> New observation Change face >> New observation Change face 6. Trimble S Series Total Station User Guide 117 7 Options & Accessories C Caution - When the Trimble CU is removed from the Robotic Holder it is recommended to have the Trimble CU in suspend mode. • Weak Signal. Fit the antenna on top and connect the antenna cable to the antenna connector on the Trimble Robotic Holder. Trimble S Series Total Station User Guide CHAPTER 6 Instrument Technology Q Distance Measuring Technology Q Distance Measuring Technology Q Distance Measuring Technology Q Power

ication Trimble S Series Total Station User Guide 81 6 Instrument Technology Angle Measuring Technology 6.1 The principles of angle measurement are based on reading an integrated signal over two opposite areas of the angle sensor and producing a mean angular designed to operate with an antenna having a maximum gain of 2.0 dBi. Antennas having a higher gain are strictly prohibited per regulations of Industry Canada. The Robotic Holder and the Trimble CU will go to suspend mode if the battery level is low (battery capacity less than 2%). Fit the washer (c) on the antenna cable (b) and fit the antenna cable (b), from underneath, to the antenna holder. Trimble DR Plus Technology Trimble DR Plus Technology provides extended range of Direct Reflex measurement technology provides extended ran button, four LEDs on the Trimble S Series Total Station battery show the power level. Note - This safety backup of the instrument parameters and functions will work only when Bat low appears on the display: it will not function if you remove the battery during operation. Press the Trigger key for 1 second. The following sections describe the two systems. Then press C to change to face 1. This equipment has been tested and found to comply with IEC 60825-1 January 2001, 21 CFR 1040.10, and 1040.11 except for deviations persuant to Laser Notice No. 50, dated July 26, 2001. In Suspend mode the instrument will turn off automatically at suspend time out. 3 2 1 Figure 7.74 Detach Trimble CU from Trimble Robotic Holder Trimble Robotic Holder, slide the holder onto the standard rod adapter until the holder to the Rod 70.1 To attach the Trimble Robotic Holder, slide the holder onto the standard rod adapter until the holder to the Rod 70.1 To attach the Trimble Robotic Holder to the Rod 70.1 To attach the Trimble Robotic Holder, slide the holder onto the standard rod adapter until the holder to the Rod 70.1 To attach the Trimble Robotic Holder to the Rod 70.1 To attach the Trimble Robotic Holder to the Rod 70.1 To attach the Trimble Robotic Holder to the Rod 70.1 To attach the Trimble Robotic Holder to the Rod 70.1 To attach the Trimble Robotic Holder to the Rod 70.1 To attach the Trimble Robotic Holder to the Rod 70.1 To attach the Trimble Robotic Holder to the Rod 70.1 To attach the Trimble Robotic Holder to the Rod 70.1 To attach the Trimble Robotic Holder to the Rod 70.1 To attach the Trimble Robotic Holder to the Rod 70.1 To attach the Trimble Robotic Holder to the Rod 70.1 To attach the Trimble Robotic Holder to the Rod 70.1 To attach the Trimble Robotic Holder to the Rod 70.1 To attach the Trimble Robotic Holder to the Rod 70.1 To attach the Trimble Robotic Holder to the Rod 70.1 To attach the Trimble Robotic Holder to the Rod 70.1 To attach the Trimble Robotic Holder to the Rod 70.1 To attach the Trimble Robotic Holder to the Robotic Holder to for 3 seconds. If the value is greater than 0.05 grads (0.045 degrees), then the instrument must be mechanically adjusted at the nearest authorized Trimble service center. With its exclusive MultiTrack[™] technology and Target ID capabilities, surveyors can choose the type of target, passive or active, that best suits the jobsite conditions and be confident that they will find and lock to the correct target. Trimble Vision Technology Now available with optional Trimble Vision Technology, the Trimble Vision Technology, the Trimble Vision Technology Now available with optional Trimble Vision Technology. when the equipment is operated in a residential or commercial environment. 1 2 3 Figure 7.67 Assembling the traverse target 1. Use one of the following as an alternative to the Multi Battery Adapter: Use an external 12 V car battery. • Immediately prior to high precision angle measurements in one face. It is also exceptionally useful for working in poor visibility and darkness conditions, and for automatically checking to reference targets during measurements. Set laser pointer Set mode: Off Next >> Set -AdjustmentsBack... Push the battery downwards until the catch clicks in place. Trimble S Series Total Station User Guide Options & Accessories 7 Traverse Target 7.2 Traverse Target Kit 1 72.1 When assembling the Traverse target from the Traverse target kit 1 to the Prism base it is important to fit the supplied adapter to get a correct assembly. Cancel. Product Warranty Information For applicable product warranty information, please refer to the Warranty Card included with this Trimble product, or consult your Trimble dealer. For example, when you measure to a small object at 50 m with a background object at 50 m. See figure 6.51 88 Trimble S Series Total Station User Guide Instrument Technology 6 Point 1 Figure 6.51 Point 3 Offset measurement With offset measurements, you can accurately measure difficult locations with DR instruments, and eliminate beam divergence errors. Servo and Autolock Mode 41.1 A TSC2 controller can be connected to the Trimble S Series Total Station instrument on press theorem. Trigger key for 1 second or press the Trimble CU power key. Attaching a Battery 71.2 1. See figure 7.62 Figure 7.6 locks onto and tracks only the target with the correct Target ID. CAim the instrument to the center of the target plate and then inspect the position of the red laser spot in relation to the telescope cross-hairs. See figure 6.52 Green light Figure 6.52 Green light Figure 6.52 Green light Figure 6.52 Green light Trimble S Series Total Station User Guide Red light Instrument Technology 6 B C Tip You can use the Tracklight for clearing sight lines and as an aid to find prisms in the dark or unfavorable sighting conditions. External power can be provided by one of the following: • Multi Battery Adapter • Car cigarette lighter 98 Trimble S Series Total Station Multi Battery Adapter, you can connect up to three Trimble S Series Total Station batteries. If the difference between the read out angles is significant, you should carry out both a horizontal and vertical angle collimation adjustment. TSC2 Figure 4.44 74 TSC2 connected to the Trimble S Series Total Station with Bluetooth wireless technology for servo and Autolock measurements. See figure 7.70 +12V COM Figure 7. connection with quick release Built in 2.4 GHz radio Rugged ergonomic design with safety bumper to protect the Trimble S Series Total Station batter powers the Trimble CU and radio during robotic operation. See Power Supply on page 97 C Caution - Always remove the battery from the external radio after use. The system provides endless horizontal and vertical motion, including endless fine adjustment. Check the alignment of the laser spot and the cross-hairs. Taiwan The product option Pane BT Attachment Part Number: 58240001 has certificate number: 005NYCA0338. Hold the target ID at an angle and let the two used batteries slide out. See figure 7.72. • The servo drives are continuous and endless allowing for rapid repeat manual pointing of the instrument with no end stops. Screw the target (1) on to the prism base (3) Trimble S Series Total Station User Guide 113 7 Options & Accessories Measuring the Target Height 70.1 There is a height measurement mark on the side of the prism base that can be turned out for easier reading of the height. This allows you to accept a DR measurement that is below the normal instrument specification. 52 Trimble S Series Total Station User Guide Setup 4 As observations are made on the first face (either face 1 or face 2), the angle values are stored and the observation counter increases. Then press C to accept the new trunnion axis tilt value. With the Trimble I.S. Rover, you have the freedom to use the best tool for the jobsite conditions, optimizing your productivity. In addition, there are stored and the observation counter increases. angle measurement system compensates for the following automatic corrections: • Instrument mislevelment (deviation of the plumb axis). 6.5 hours Three internal Radio page 124. Remove the Torx screws To fit the new screws : 1 b 2 3 b a a Figure 7.84 Fitting the new screws 1. Setting this value to a higher number gives shorter measurement time but is less accurate, especially when measuring to surfaces at greater distances or at oblique angles to the line of sight. Then press C to continue the Trunnion axis tilt test. eliminated by observing angles in both instrument faces. -Current valuesHA: 0.0010 VA: 0.0012 Aim at target >> New observation Change face C >> Store correction Cancel 4. The compliance to the applicable requirements is detailed in the official Declaration of Conformity document, which is filed at Trimble. Push the Target ID on to the mini rod until it locks in place. It applies to the Trimble S Series Total Station. 56 Trimble S Series Total Station User Guide Setup 4 Back 1. With GPS Search, waiting for target search becomes a thing of the past. To return to the Setup 4 Back 1. With GPS Search, waiting for target search becomes a thing of the past. 92 Trimble S Series Total Station User Guide Instrument Technology 6 Vertical motion knob Up Down Horizontal motion knob Up reticule location. As observations are made on the first face (either face 1 or face 2), the angle values are stored and the counter increases. Carry out a collimation test in the following situations: • Whenever the instrument may have been roughly handled during transport. External Radio 2.4 GHz 71.2 An external radio is available as an option for robotic measurements when using a controller not fitted with an internal radio. After that time, the system resets all parameters and functions to default values. Attaching the handle to the instrument: 1. The instrument warns the operator immediately of any mislevelments in excess of ±6 '(±0.11 grads). DO NOT look into the laser aperture when the laser is on. Detach the handle from the instrument. (((Click))) 3 2 Figure 7.79 126 Fitting battery from the radio: 1. If there is no movement between the inner circle of the optical plummet reticle in relation to the ground mark, no further adjusts the focusing lens. Unhook the top of the Trimble CU from the top edge of the panel attachment and remove the Trimble CU from the instrument, Figure 4.42 Fi Alternatively, to obtain an accurate measurement to the top mark (Ih), you can manually measure the slope distance from the ground to the bottom mark (Hm). See figure 6.49 Figure enables smaller objects, such as power lines and accurately measured. Reduce aiming error, avoid costly re-measurement and be confident in your results with Trimble SurePoint. • Horizontal and vertical collimation error. Screw the adapter (2) on to the prism base (3) and tighten. Registration The product option Panel BT Attachment Part Number: 58240001 contains a radio module that applies to the R&TTED 1999/5/EC. C Caution - For precision measurements, when using the 360 degree prism, it is important to turn the prisms is pointed at the instrument or a Trimble CU. See figure 6.54 Note - Due to the high speed servo it is important to use a high quality tripod and tribrach. 1 2 Figure 7.73 120 Attach Trimble CU to Trimble CU to Trimble CU to Trimble CU to Trimble CU before it is detached from the instrument. See page 84 Correction for Mislevelment 61.1 The Trimble S Series Total Station automatically corrects for mislevelments up to ±6 '. This is not a problem since the two axis have their own separate collimation data. Devices marked with PCC ID: HSW- 2410G The product option Panel BT Attachment Part Number: 58240001 contains radio module with FCC ID: PVH090103S Japan The Radio Side Cover 2.4 GHz Part Number: 58240001 contains radio module with FCC ID: PVH090103S Japan The Radio Side Cover 2.4 GHz Part Number: 58240001 contains radio module with FCC ID: PVH090103S Japan The Radio Side Cover 2.4 GHz Part Number: 58240001 contains radio module with FCC ID: PVH090103S Japan The Radio Side Cover 2.4 GHz Part Number: 58240001 contains radio module with FCC ID: PVH090103S Japan The Radio Side Cover 2.4 GHz Part Number: 58240001 contains radio module with FCC ID: PVH090103S Japan The Radio Side Cover 2.4 GHz Part Number: 58240001 contains radio module with FCC ID: PVH090103S Japan The Radio Side Cover 2.4 GHz Part Number: 58240001 contains radio module with FCC ID: PVH090103S Japan The Radio Side Cover 2.4 GHz Part Number: 58240001 contains radio module with FCC ID: PVH090103S Japan The Radio Side Cover 2.4 GHz Part Number: 58240001 contains radio module with FCC ID: PVH090103S Japan The Radio Side Cover 2.4 GHz Part Number: 58240001 contains radio module with FCC ID: PVH090103S Japan The Radio Side Cover 2.4 GHz Part Number: 58240001 contains radio module with FCC ID: PVH090103S Japan The Radio Side Cover 2.4 GHz Part Number: 58240001 contains radio module with FCC ID: PVH090103S Japan The Radio Side Cover 2.4 GHz Part Number: 58240001 contains radio module with FCC ID: PVH090103S Japan The Radio Side Cover 2.4 GHz Part Number: 58240001 contains radio module with FCC ID: PVH090103S Japan The Radio Side Cover 2.4 GHz Part Number: 58240001 contains radio module with FCC ID: PVH090103S Japan The Radio Side Cover 2.4 GHz Part Number: 58240001 contains radio module with FCC ID: PVH090103S Japan The Radio Side Cover 2.4 GHz Part Number: 58240001 contains radio module with FCC ID: PVH090103S Japan The Radio Side Cover 2.4 GHz Part Number: 58240001 contains radio Matt Number: 58240001 contains radio Matt Number: 5824001 contains radio Matt Number: 5824001 contains ra Series Total Station User Guide Instrument Technology 6 • Immediately prior to high precision angle measurements in one face, especially where the vertical angles significantly deviate from the horizontal plane. When the on/off and battery low indicator LED starts to flash the battery will have approximately 40 minutes operation time remaining. The instrument firmware version appears on the screen. The focus motion knob is on the side of the instrument may have been roughly handled during transport. C Caution - Use only the gray cables with 6-pin Hirose connectors from Trimble when connecting a cable to the Trimble Robotic Holder. Off Mode In the off mode the Trigger key LED and face 2 display is off. www.trimble.com Contact Information Trimble Navigation Limited Engineering and Construction Division 5475 Kellenburger Road Dayton, Ohio 45424-1099 USA 800-538-7800 (toll free in USA) +1-937-245-5600 Phone +1-937-233-9004 Fax www.trimble.com Copyright and Trademarks © 2004 - 2008, Trimble Navigation Limited. field application software includes: • Standard Deviation. To turn off the Robotic Holder and the Trimble CU press the reasonable protection against harmful interference in a residential installation. - Cancel. Once the instrument has stored the correction values, the Adjustments menu appears. The distance unit is coaxial with the line of sight and transmits an intensity modulated optical measuring beam that is reflected by a natural surface on which the beam is directed. Then Press C to measure and record angles. 1 Figure 7.78 Fitting battery to external radio 2. When one screw must be adjusted the opposite screw must be adjusted to marked with Part Numbers 58052019, 58012019 and 58022019 contain a radio module that applies to the R&TTED 1999/5/EC and are intended to be used only in France. For this reason an Autolock collimation check needs to be carried out on a regular basis (under the same conditions as the HA/VA collimation check) to ensure that any slight misalignment is corrected for. A smaller measuring tight corners and vertices at close range. Slide the instrument. Turn the screw securing the battery lid. • Off mode • On mode • Suspend mode Stand Alone 63.1 Instrument only, no Trimble CU connected. Magdrive is a trademark. The suspend time out is set in the Trimble CU operating system. By default, the min.-max range is 2–300 m. The following techniques can be used: • Use Autolock. HA/VA collimation Tracker collim. For vehicle or ATV always use the TSC2 controller, which has been designed to withstand the shock and vibration conditions associated with that type of use. Trimble S Series Total Station User Guide 73 4 Setup Connecting With Bluetooth wireless Technology C Caution - Before starting the Bluetooth wireless Technology C Caution - Before starting the Bluetooth device, make sure that the regulations of the country that you are working in allows the use of Bluetooth wireless Technology C Caution - Before starting the Bluetooth device, make sure that the regulations of the country that you are working in allows the use of Bluetooth device, make sure that the regulations of the country that you are working in allows the use of Bluetooth device, make sure that the regulations of the country that you are working in allows the use of Bluetooth device, make sure that the regulations of the country that you are working in allows the use of Bluetooth device, make sure that the regulations of the country that you are working in allows the use of Bluetooth device, make sure that the regulations of the country that you are working in allows the use of Bluetooth device, make sure that the regulations of the country that you are working in allows the use of Bluetooth device, make sure that the regulations of the country that you are working in allows the use of Bluetooth device, make sure that the regulations of the country that you are working in allows the use of Bluetooth device, make sure that the regulations of the country that you are working in allows the use of Bluetooth device, make sure that the regulations of the country that you are working in allows the use of Bluetooth device, make sure that the regulations of the country that you are working in allows the use of Bluetooth device, make sure that the regulations of the country that you are working the Bluetooth device, make sure that the regulation device, make sure that the regula technology. Connect the Multi Battery Adapter to the external power port on the Trimble S Series Total Station User Guide 57 4 Setup 1. Push the battery is to the holder until it clicks into place (2). The instrument will go to off mode if the battery is very low (battery capacity less than 2%). To change the laser pointer setting press A to select On or Off Set laser pointer Set mode: Off >> Next Set 3. The laser is used to visibly indicate the point being measured, and is especially useful when employing the DR reflectorless EDM for measurement. The distance unit generates many short laser pulses, which are transmitted through the telescope to the target. f. Aim accurately towards the same point as that used in face 2. The adjusting screws are of a high tension because they are self locking. Press A to scroll to Trunnion coll. External Communication 6.5 minutes are of a high tension because they are self locking. The communication port on the base of the Trimble CU to the instrument can be used for external communications to a computer or data collector. Hook the top of the panel attachment, Figure 4.39 Figu point at the center of the target in both horizontal and vertical axes. Aim on target >> New observation Change face Face-1 obs: 0 C >> New observation test. The internal radio is a 100 mW radio that operates in the public free 2.4 GHz band. Caution - Do not use the laser pointer as an aid when searching for prisms, the reflected light can daze your eyes. In prism-mode, the High Precision unit operates as a fast and precise long-range distance meter. A dot appears beside the battery symbol when battery power is low. Measure the bottom mark to the top ridge of the mark. SplitVision When a Target ID is added to a prism the instrument will lock onto and track the active Target ID horizontally and the passive prism vertically. Press A to scroll to Tracker collim then press C. The instrument service info appears on the screen. The instrument service info appears on the screen. battery with a flashing LED, the operating time will be between 5 and 15 minutes. Trimble S Series Total Station uses a red laser pointer. The Trimble S Series DR 300+ Total Station uses a red laser pointer. Trimble S Total Station Features: Powerful and flexible, ready for anything Trimble DR Plus technology for long range and superior accuracy unmatched fast and smooth performance with MagDrive servo technology for long range and superior type Absolute encoder with diametrical reading Accuracy (Standard deviation based on DIN 18723) 3" (1.0 mgon) Angle Display (least count) 0.1" (0.01 mgon) Angle ± 5.4' (±100 mgon) Distance measurement Accuracy (RMSE) Prism mode Standard 2 mm + 2 ppm (0.0065 ft + 2 ppm) Standard deviation according to ISO17123-4 1 mm + 2 ppm (0.003 ft + 2 ppm) Tracking 4 mm + 2 ppm (0.013 ft + 2 ppm) DR mode Standard 1.2 sec Tracking 0.4 sec DR mode Standard 1-5 sec Tracking 0.4 sec Range Prism mode (under standard clear conditions) 1 prism 2500 m (8202 ft) 1 prism Long Range mode 5500 m (18,044 ft) (max. The Trimble MultiTrack Target will provide active tracking for up to 8 hours from one fully charged battery. c. - Setup Bluetooth device Reference HA Adjustments... Laser pointer - Setup- C Radio settings Bluetooth device Reference HA >> Adjustments... 1. Upon registration you may select the newsletter, upgrade or new product information you desire. Compensator calib. As with any bright light source, such as the sun, electric welding arcs or arc lamps, common sense applies. to continue with trunnion axis tilt collimation. * Trimble S6 DR 300+ 3" Robotic Total Station [ID- X1650] - 2.4 GHz Radio - Robotic - Autolock - This Unit Was Calibrated By A Trimble 58252001 Docking Station * Trimble 58252001 Docking Station Pole Bracket w. Then Press C to measure and record angles g. See figure 6.55 Focus motion knob Figure 6.55 Pocus servo Trimble S Series Total Station User Guide ∞ Instrument to one of three different modes When one or more observations has been taken on each face, and the number of observations on each face are the same, the software calculates and displays the new trunnion axis tilt value. The Trimble S Series Total Station radio baud rate is 115200 bps. Battery Recycling Requirements The product contains a removable Lithium-ion battery. enables a single operator to control the instrument and carry out measurements or set/stakeout from the rod at the point. If for any reason the alignment of the tracker deviates from the line of the telescope cross hairs, then errors in position of the point. batteries are recycled. >> HA/VA collimation Tracker collim. ±5 grads (± 4.5 degrees) to the horizontal and at a minimum distance of 100 m (328 ft.). When the battery capacity is between 0 and 10% one LED is flashing. Mini rod Spring lock Adapter Figure 7.64 Fitting or removing the Target ID. b. 6. The required antenna impedance is 50 ohms Then press C to save the correction values. C Caution - Use only the gray cables with 6-pin Hirose connectors from Trimble when connectors from Trimble S Series 7 Passive mode: In passive mode the instrument can lock onto and track a prism. The Autolock collimation test automatically observes angular measurements to a target in both faces, the tracker collimation test automatically observes angular measurements to a target in both faces. 58021019 contain a radio module that applies to the R&TTED 1999/5/EC and are intended to be used in all European Community member states, except France. Trimble S Series Total Station has been designed to deliver the most states and are intended to be used in all European Community member states. operating time in the field. Laser pointer 7. - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected. To correct the horizontal adjustment port and turn it as shown in Figure 4.35. Insert two new AA size batteries. - The instrument will automatically point towards a selected reference target to check for instrument movement during measurements. See figure 7.66 Battery lid Series Total Station User Guide Options & Accessories 7 Trimble MultiTrack Target 7.1 The Trimble MultiTrack target provides fully coaxial passive and active tracking via an integrated 360° prism ring and 2 active 360° LED rings. 114 Trimble S Series Total Station User Guide Options & Accessories 7 or 0.158m (0.518ft) Hm Figure 7.69 Hc Th Target height measurement The measurement t to obtain a vertical measurement to the bottom mark (Hc). 78 Trimble S Series Total Station User Guide Instrument Technology 6 Trimble S Series Total Station With Autolock A Trimble S Series Total Station with Autolock can automatically lock and track a prism target. In order to adjust the laser pointer it has to be switched On, see page 4-60 1. The laser pointer it has to be switched New York and track a prism target. generally not readily visible with the human eye. Trimble S Series Total Station User Guide CHAPTER 7 Options & Accessories 7 In this chapter: Q Autolock Technology Q Trimble Robotic Holder Q Radio Q Radio Antenna Extension Kit Q Removable Handle Option Trimble S Series Total Station User Guide 101 7 Options & Accessories Autolock Technology, which is used for a conventional measurement with Autolock. When the Target ID is on, the current target ID appears. Release Notice This is the November 2008 release version 06.00 of the Trimble S Series Total Station user guide, part number 57127002. Trimble S Series Total Station User Guide 83 6 Instrument Technology Correction for Trunnion axis of the telescope from its required position at right angles to the plumb axis of the instrument. C Warning - Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous LED or laser radiation exposure. See figure 6.50 Measured distance Required distan beam that uses a smaller measuring area, the error can not be completely eliminated. Servo Technology 6.2 The Trimble S Series Total Station is equipped with servo controlled motors to position the instrument and focus the telescope. C C Caution - Viewing the laser spot on the adjustment target through the telescope is safe. Remove the screw locks (b) with a small screw driver. Repeat this process for the same number of times as in face 2. The Autolock collimation correction values are then applied to all subsequent angle measurements observed when Autolock is enabled. The radio for the Trimble CU is available as an optional integrated module in the Trimble robotic holder. Angles observed in a single face are corrected for collimation errors, which removes the need to measure in both instrument faces. Fit the screw locks (b). When one or more observations have been taken on each face, and the number of observations on each face are the same, the software calculates and displays the new horizontal and vertical collimation values. Pull out the two plugs from the adjustment ports on top of the telescope housing. When observing measurements to a tight corner, the distance meter beam divergence introduces a range error caused by the size of the sampling area. VA Collimation errors detailed above. Important Information 1 Laser Safety Before using the instrument, make sure that you understand this user guide, as well as all equipment and job site safety requirements. Trimble S Series Total Station User Guide 53 4 Setup Perform the test over a similar distance as that you will be working on, but at least 100 m. 3 Battery Packs * AC Adapter/Charger * Power Cord * User Manual On CD-ROM * QTY. Note - The accuracy specification for Active mode is valid within 15° from horizontal. Selection of the appropriate mode can be made via the field software interface while selecting the 360 target with Target ID prism type. Power Management 71.1 Off Mode In the off mode the Robotic Holder will be off. C Caution - When adjusted. Note - Make sure to select the correct lock and tracking of the target. >> Laser pointer 4. See figure 6.56 Press Open Figure 6.56 Removing and replacing the internal battery Trimble S Series Total Station User Guide 97 6 Instrument Technology To check the power supply in the Trimble S Series Total Station User Guide 97 6 Instrument Technology To check the power supply in the Trimble S Series Total Station User Guide 97 6 Instrument Technology To check the power supply in the Trimble S Series Total Station User Guide 97 6 Instrument Technology To check the power supply in the Trimble S Series Total Station User Guide 97 6 Instrument Technology To check the power supply in the Trimble S Series Total Station User Guide 97 6 Instrument Technology To check the power supply in the Trimble S Series Total Station User Guide 97 6 Instrument Technology To check the power supply in the Trimble S Series Total Station User Guide 97 6 Instrument Technology To check the power supply in the Trimble S Series Total Station User Guide 97 6 Instrument Technology To check the power supply in the Trimble S Series Total Station User Guide 97 6 Instrument Technology To check the power supply in the Trimble S Series Total Station User Guide 97 6 Instrument Technology To check the power supply in the power supply in the technology T received light is detected and represents the distance. You may have others, which vary from state/jurisdiction to state/jurisdiction. • Use average measurement methods in the field software. • Trunnion axis tilt. C 96 Caution – When the Trimble CU is removed from the instrument it is recommended to to have the Trimble CU in suspend mode. calibration is used to correct the positions of all points measured using the Autolock function. 1 2 Figure 7.76 C Detach Trimble Robotic holder are not designed for mounting on a vehicle. 5. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communication. The following limited warranties give you specific legal rights. The height measurement mark is 0.158 m (0.518 ft.) below the target (signal) height. The instrument will also turn on if you connect a 12 V power supply or data communication cable to the foot connector. You can use a USB memory with the Trimble Robotic Holder to transfer data between the office and the field or between two field devices. Trimble S Series Total Station User Guide 107 7 Options & Accessories LED Information The Target ID has been tested and complies with the regulations for a Class 1 LED product. Integrated Surveying Put the equipment in your truck or van to the best possible use by combining your GNSS with your robotic rod into a Trimble I.S. Rover^M. See figure 7.63 ID number Selection button On for 60 seconds On continuously Display Battery low On / Mode button Figure 7.63 Battery lid Target ID controls Press the power button one or more times to access the following modes: • On for 60 seconds • On continuously • Off A bar appears beside the active mode. The instrument will go to suspend mode if the battery is very low (battery capacity less than 2%). Figure 4.36 Top mark Top ridge of bottom mark Bottom mark Bottom mark Figure 4.36 Instrument height marks When there is a Trimble CU or TSC2 attached running a field application software, the software has additional functions that reduce the bottom mark measurement to the required vertical instrument height to the trunnion axis, see Figure 4.37 and the following paragraph. Suspend Mode In the suspend mode the Robotic Holder and the attached Trimble CU will be in suspend mode and the suspend mode back up battery in the Trimble CU will be charging. To correct the vertical adjustment precision. To calculate the total instrument height (Ih), insert the measured slope distance (Hm) into the formula below: 2 Ih = 0, 158 + Hm - 0, 091 66 Trimble S Series Total Station User Guide 2 Setup 4 Adjusting the Optical Plummet 4.2 1. Slide the holder off the rod bracket (2). C Caution - Make sure that the handle is firmly attached before you lift the instrument. Then press C to continue to Trunnion collimation. Trimble So to actively correct for unwanted movement every time. The Tracklight can be used during stakeout in all operational modes, and is also of great benefit when operating in robotic mode as a means of checking that the instrument is tracking, or when trying to reacquire lock by walking into the sight line of the tracker, or using the remote joystick control in robotic mode. Firmware version >> Service info C Next service date 2008-10-17 or in242 Hours Select Language 40.1 In the Select language it is possible to select the language for the Face 2 display. If the battery is completely discharged, all LEDs are unlit. In obstructed areas, Trimble Access seamlessly switches to optical measurements. 3 2 1 Figure 7.72 Detaching a Trimble CU 70.1 1. Manual sighting errors are reduced. To exit the Setup menu press A to scroll to Exit (to level) and then press C. 124 Trimble S Series Total Station User Guide Options & Accessories 7 Indicator LED Com port Figure 7.77 Battery External radio 2.4 GHz For information regarding charging of the battery. The bottom mark is 0.158 m (0.518 ft.) below the top mark. See figure 7.69 and the following paragraph. Lift up this side of the battery (2). Connect the AC to DC converter to 100 V-250 V 50 Hz-60 Hz power. Figure 4.37 Hc Ih Instrument height measurement The measured distance (Hm) is corrected for the slope of the measurement to obtain a vertical measurement to the bottom mark (Hc). The instrument's advanced error compensation provides fast, accurate measurement procedure. Figure 4.46 Correct way to lift the instrument Do not hold the Trimble CU as you lift the instrument or you may accidentally push the lock release button, causing the Trimble S Series Total Station User Guide CHAPTER 5 Instrument, Figure 4.47 76 Wrong way to lift the instrument Trimble S Series Total Station User Guide CHAPTER 5 Instrument or you may accidentally push the lock release button, causing the Trimble S Series Total Station User Guide CHAPTER 5 Instrument or you may accidentally push the lock release button, causing the Trimble S Series Total Station User Guide CHAPTER 5 Instrument or you may accidentally push the lock release button, causing the Trimble S Series Total Station User Guide CHAPTER 5 Instrument or you may accidentally push the lock release button, causing the Trimble S Series Total Station User Guide CHAPTER 5 Instrument or you may accidentally push the lock release button, causing the Trimble S Series Total Station User Guide CHAPTER 5 Instrument or you may accidentally push the lock release button, causing the Trimble S Series Total Station User Guide CHAPTER 5 Instrument or you may accidentally push the lock release button, causing the Trimble S Series Total Station User Guide CHAPTER 5 Instrument or you may accidentally push the lock release button, causing the Trimble S Series Total Station User Guide CHAPTER 5 Instrument or you may accidentally push the lock release button, causing the Trimble S Series Total Station User Guide CHAPTER 5 Instrument or you may accidentally push the lock release button, causing the Trimble S Series Total Station User Guide CHAPTER 5 Instrument or you may accidentally push the lock release button, causing the Trimble S Series Total Station User Guide CHAPTER 5 Instrument or you may accidentally push the lock release button, causing the Trimble S Series Total Station User Measurement with Servo Q Autolock Measurement Q Robotic Measurement Trimble S Series Total Station User Guide 77 5 Instrument Operation Methods Introduction 5.1 This chapter describes the following instrument operational methods for the Trimble S Series Total Station: • Conventional measurement with servo • Autolock measurement • Robotic measurement Conventional Measurement with Servo 5.2 The Trimble S Series Total Station is equipped with the servo system, which provides the following advantages for conventional measurement: • When combined with the servo system, which provides the following advantages for conventional measurement: calculated position of the selected point. The most accurate solution to measure to tight corners and eliminates errors caused by beam divergence, is to use an offset measurement method such as that used in the field application software: 1. To detach the Trimble Robotic Holder from the rod, pull the release mechanism (1) 2. The frictionless motion removes servo noise and reduces instrument wear. 118 Trimble S Series Total Station User Guide 70.1 Options & Accessories 7 3. HA/VA collimation >> Tracker collim. C 64 Caution - To keep out moisture and dust, make sure that the plugs are correctly fitted in the adjustment ports. • SurepointTM technology corrects the instrument pointing for mislevelment and collimation / trunnion axis tilt errors in real time. Trimble S Series Total Station User Guide 85 6 Instrument Technology Distance Measuring Technology Distance Measuring Technology 6.2 Trimble S Series Total Station redefines surveying instrument performance with unsurpassed integration of servos, angle sensors and measurement technology. 3. The resultant angle measurement is an average of over 1200 observations. Do not overtighten the screws, this might damage the optics. The attached Trimble CU will be in suspend mode and the suspend mode back up battery in the Trimble CU will be charging. Secure the handle with the new screws. Throughout the adjustment procedure, keep the telescope pointing to the adjustments menu. The reflected light will not damage your eyes, but might be uncomfortable. Use Microsoft Windows Explorer to transfer the files from the Trimble CU to the memory. Press A to scroll through the available languages. Press A to scroll to Service info and then press C. The External Radio 2.4 GHz uses one 7.4 V Li-Ion battery as power supply. >> Firmware version version; RX.X.X C Service Info 40.1 In the Service info and then press C. The External Radio 2.4 GHz uses one 7.4 V Li-Ion battery as power supply. >> Firmware version version; RX.X.X C Service Info 40.1 In the Service info and then press C. The External Radio 2.4 GHz uses one 7.4 V Li-Ion battery as power supply. >> Firmware version version; RX.X.X C Service Info 40.1 In the Service info and then press C. The External Radio 2.4 GHz uses one 7.4 V Li-Ion battery as power supply. >> Firmware version; RX.X.X C Service Info 40.1 In the Service info and then press C. The External Radio 2.4 GHz uses one 7.4 V Li-Ion battery as power supply. >> Firmware version; RX.X.X C Service Info 40.1 In the Service info and then press C. The External Radio 2.4 GHz uses one 7.4 V Li-Ion battery as power supply. occasion or how many run time hours the instrument have left before service is recommended. 104 Trimble S Series Total Station User Guide Options & Accessories 7 Trimble Standard rod is available with the Trimble S Series Total Station. The instrument uses serve when performing a number of different operations such as turning the horizontal and vertical motion knobs, for automatic test and calibration, or when using Autolock technology for robotic surveying. 106 Trimble S Series Total Station User Guide Options & Accessories 7 Fitting and Removing the Target ID 1. Charging the Battery 64.3 The Trimble S Series Total Station instrument is provided with a battery charger that can charge five Trimble S Series Total Station batteries one after the other. Then press C to change between face 1 and 2. The Trimble S Series Total Station can lock onto and track a target in two different modes depending on the type of target. correctly leveled Collimation error Tracker collimation error (if the instrument is equipped with Autolock capability) Trunnion axis tilt Correct radio channel is selected (robotic measurements only) Laser Pointer beam alignment Measure instrument to adjust to the ambient temperature, see page 36 Trimble S Series Total Station User Guide 69 4 Setup Attaching the Trimble CU 4.2 1. 4. Turn on Autolock and let the instrument lock on to the same prism automatically, read out the horizontal and vertical angles. Aim accurately in face 2 towards a point at least 15 grads (13.5 degrees) above or below the point where the collimation test was made at a minimum distance of 30 m (66 ft.). Manual aiming Figure 7.61 Autolock Difference between aiming manually and Autolock How to Check Aiming 71.2 You can check how well the instrument is calibrated by measuring toward the prism with and without Autolock How to Check Aiming 71.2 You can check how well the instrument is calibrated by measuring toward the prism with and without Autolock How to Check Aiming 71.2 You can check how well the instrument is calibrated by measuring toward the prism with and without Autolock How to Check Aiming 71.2 You can check how well the instrument is calibrated by measuring toward the prism with and without Autolock How to Check Aiming 71.2 You can check how well the instrument is calibrated by measuring toward the prism with and without Autolock How to Check Aiming 71.2 You can check how well the instrument is calibrated by measuring toward the prism with and without Autolock How to Check Aiming 71.2 You can check how well the instrument is calibrated by measuring toward the prism with and without Autolock How to Check Aiming 71.2 You can check how well the instrument is calibrated by measuring toward the prism with and without Autolock How to Check Aiming 71.2 You can check how well the instrument is calibrated by measuring toward the prism with an observable and the Options & Accessories 1. • When the ambient temperature differs by more than 10°C (18°F) from the previous collimation test. Note: The laser pointer is mechanically aligned to the telescope cross hairs. Then press C to return to the adjustments menu. Trimble S Series Total Station User Guide 131 7 Options & Accessories 132 Trimble S Series Total Station User Guide Index A Accessory case battery kit 8 fitting 12 robotic kit 9 traverse kit 2 11 adjusting the laser beam 60-64 aligning the laser beam 60-64 aligning the laser beam 60-64 aligning the laser beam 60-64 alignment 60-64 divergence 87 C care and maintenance 13 carrying straps 6-7 charging the batteries 17-18, 99 cleaning 13 Collimation error 82 test 49-53, 82 communication 100 compensator calibration 46 Control Unit attaching 70 detaching 71 correction for deviation of plumb axis 82 B batteries charging 17-18, 99 conditioning 18-19 connecting external 22 connecting internal 20 disposing of 16 external 21 safety and environment information 16 battery change. Target ID 108 battery change Series xi Trimble S Series Accessories xii Trimble Target ID xiii DR 300+, laser and LED information 33-34 E environmental information batteries 16 European Union ix European Union ix European Union ix European Council Directive 89/336/EEC 2 exit menu 59 external battery 21 external battery 21 external battery 21 external batteries 16 European Union ix European Union II European Union II European attaching handle 30 detaching handle 29 High Precision, laser and LED information 31-32 I instrument attaching handle 29 height measurement 65-66 lifting 76 L Language 58 laser and LED information DR 300+ 61 alignment 60-64 turning on or off 44, 55, 57, 58 warning label 33 laser warning label 31 LEDs, battery charger 19 levelling 38 lifting instrument 76 M Min.-Max Range 87 Multi Battery Adapter 21 O optical plummet 28, 67 P packing for Transport 14 plumb axis correction 82 power management 97 precision measurement hints 36 R radio external 124 internal 124 radio noise emissions Canada 2 Reference HA 45 Robotic Holder 116-123 S safety battery viii-ix laser and LED v-viii Servicing 14 servo focus 93 Horizontal and vertical position 92 site measurement with Autolock 78 with robotic 79 with servo 78 standard Rod 105 T target height measurement 114-115 height measurement mark 114 target ID battery change 108 laser and LED information 108 option 105-108 Tracklight 90-91 Trigger key 25 trunnion axis tilt 49-53, 84 trunnion axis tilt 49-53, 84 trunnion axis tilt test 84 W warning label laser 31 laser pointer 33 Weak Signal 86 The distance measurement process will be carried out by the instrument until the preset standard deviation value has been achieved. When measuring in Standard mode, the instrument takes approximately 1.2 seconds to measure the distance. -Current valuesTrunnion: 0.0003 >> Store correction Cancel C -AdjustmentsBack... To receive information regarding updates and new products, please contact your local dealer or visit www.trimble.com/register. Aim manually at a prism and read out the horizontal and vertical angles. Angular measurements are observed in both instrument. With the laser pointer on, you can adjust the beam, For more information, see The Laser Pointer, page 60. When working at the maximum radio range, this can make a significant difference. See Setup on page 36 Trimble S Series Total Station User Guide 91 6 Instrument Technology Stable setup Figure 6.53 Unstable setup Queries Address any questions you may have about laser safety to: Trimble Navigation Limited 5475 Kellenburger Road Dayton, OH USA 45424-1099 Attention: Laser Safety Officer, Quality Assurance Group Phone (937) 233-8921 ext 824 or (800) 538-7800 Fax (937) 233-9661 Trimble S Series Total Station User Guide v Trimble S Series High Precision The Trimble S Series High Precision is a CLASS 2 LASER PRODUCT: The instrument contains visible and invisible laser sources: • A laser diode for distance measuring in DR mode and laser pointer function operating at 660 nm (visible laser sources: • A laser diode for distance measuring in DR mode and laser sources: • A laser diode for distance measuring in DR mode and laser sources: • A laser diode for distance measuring in DR mode and laser sources: • A laser diode for distance measuring in DR mode and laser sources: • A laser diode for distance measuring in DR mode and laser sources: • A laser diode for distance measuring in DR mode and laser sources: • A laser diode for distance measuring in DR mode and laser sources: • A laser diode for distance measuring in DR mode and laser sources: • A laser diode for distance measuring in DR mode and laser sources: • A laser diode for distance measuring in DR mode and laser sources: • A laser diode for distance measuring in DR mode and laser sources: • A laser diode for distance measuring in DR mode and laser sources: • A laser diode for distance measuring in DR mode and laser sources: • A laser diode for distance measuring in DR mode and laser sources: • A laser diode for distance measuring in DR mode and laser sources: • A laser diode for distance measuring in DR mode and laser sources: • A laser diode for distance measuring in DR mode and laser sources: • A laser diode for distance measuring in DR mode and laser sources: • A laser diode for distance measuring in DR mode and laser sources: • A laser diode for distance measuring in DR mode and laser sources: • A laser diode for distance measuring in DR mode and laser sources: • A laser diode for distance measuring in DR mode and laser sources: • A laser diode for distance measuring in DR mode and laser sources: • A laser diode for distance measuring in DR mode and laser sources: • A laser diode for distance measuring in DR mode and laser sources: • A laser diode for distance measuring in DR mode and laser sourc collim. USA Class B Statement - Notice to Users. Aim accurately towards the point. Autolock technology controls the instrument servos and aims the instrume up the tripod in a position for best stability, see figure 6.53. For instructions See Handle on page 29. The instrument will measure to the target in both faces automatically and then display the current values. Refit the plugs in the adjustment holes. 2. 54 Trimble S Series Total Station User Guide Setup 4 5. 7. Suspend Mode In the suspend

mode the Trigger key LED will flash once every other second, the face 2 display will be off. Unhook the top of the Trimble CU from the holder (3), figure 7.74. Press A to scroll to one of the following: - - Continue Then press C to continue the HA/VA collimation test. Measure two points on the face of the building. Push the lock release button on the bottom of the Trimble CU, Figure 4.41 (1) 2. With a smaller measuring area, these small objects can be easily missed. 62 Trimble S Series Total Station User Guide Setup 4 Clockwise = Down Counter Clockwise = Up Figure 4.34 Vertical position adjustment 3. Press A to scroll to Firmware version and then press C. The Bluetooth word mark and logos are owned by the Bluetooth SIG, Inc. Laser pointer -Current valuesHA: 0.0010 VA: 0.0012 C >> Continue Cancel 2. If the setup, tripod and/or tribrach is/are unstable the instrument servos might oscillate slightly in an effort to compensate for that instability. Fit the locking washer (d) and nut (e). Measure to the top ridge of the mark. Unscrew and remove the top part of the 360° prism. Angles observed in a single face are corrected for collimation errors, which eliminates the need to measure in both instrument faces. This product is covered by the following patents: CH 465584, CH 466800, CH 885399, DE 69005105, DE 69005106, DE 69706653.3, EPO 465584, EPO 466800, EPO 885399, J 2846950, J 3039801, SE 0203830-5, SE 524655, SE 8901219-9, SE 524655, SE 8901221-5, US 5229828, US 5313409 and US 6115112. >> Laser pointer Set mode: Off C >> Next Set Trimble S Series Total Station User Guide 55 4 Setup 2. • Surepoint[™] technology restores the instruments pointing after accidental bumps, vibration or wind. Connector on the TSC2 is connected from the TSC2 using cable part number 73840001. Compare the angles between manual and Autolock aiming. Autolock enables the instrument to automatically lock on to a prism, and then follow it precisely as it moves. The Robotic Holder and the Trimble CU will be in suspend mode until suspend time out occurs. Trimble S Series Total Station User Guide Setup 4 Measuring the Instrument Height 4.1 There are two measurement marks on the side of the instrument. The constant from the bottom mark to the top mark (0.158 m/0.518 ft.) is added to the Hc to obtain the vertical instrument height from the ground mark to the trunnion axis (Ih). This eliminates inaccuracies caused by eccentricity and graduation. If the rod holder is to the left of the measuring beam, they will see a red flashing light; if they are to the right, they will see a green flashing light. Removing the Trimble CU from the instrument, but files that are being saved or written to when the Trimble CU and Robotic holder in these situations is not recommended, and puts your equipment at risk of damage that is not covered by warranty. S6 The on-board camera integrates surveyed data with the live scene images, so you can verify the work that you've done before leaving the job site. This will give the radio 15 hours with a 2.4 Ah battery. DR 300+ 62.2 The DR 300+ is a pulsed laser distance unit that determines distances by precisely measuring the flight time of the transmitted light pulse. Figure 7.75 122 Attaching the Trimble Robotic Holder from the Rod 70.2 1. Trimble S Series Total Station User Guide Setup 4 Robotic Mode 41.2 The TSC2 is connected directly to the instrument via the built in radio. Push the bottom of the Trimble CU Detaching the Trimble Setup 4 (((Figure 4.40 (CLICK)))) Attaching the Trimble CU Detaching the CU C 4.1 Caution - When the Trimble CU is removed from the instrument it is recommended to to have the Trimble CU (1) and lift the bottom of the Trimble CU 73840019 Cable * Trimble 51005007 Wrench * QTY. Press A to scroll to one of the following: New observation. See Laser Safety on page v. Do not try to make the adjustment using a prism, the reflected light from a prism can be dazing. It is however important to make collimation test for both axes. When you have found the setting of your choice press A to select Set and then press C to store this setting. Fit the battery on to the holder (1). You must then change the battery within two hours to prevent losing instrument parameters and functions such as instrument parameters. then applied to a correction to the horizontal angle value and an automatic repointing of the telescope using Surepoint[™] to automatically correct the pointing of the telescope using Surepoint[™] to automatically correct the pointing of the telescope using Surepoint[™] to automatically correct the pointing of the telescope using Surepoint[™] to automatically correct the pointing of the telescope using Surepoint[™] to automatically correct the pointing of the telescope using Surepoint[™] to automatically correct the pointing of the telescope using Surepoint[™] to automatically correct the pointing of the telescope using Surepoint[™] to automatically correct the pointing of the telescope using Surepoint[™] to automatically correct the pointing of the telescope using Surepoint[™] to automatically correct the pointing of the telescope using Surepoint[™] to automatically correct the pointing of the telescope using Surepoint[™] to automatically correct the pointing of the telescope using Surepoint[™] to automatically correct the pointing of the telescope using Surepoint[™] to automatically correct the pointing of the telescope using Surepoint[™] to automatically correct the point surepoint[™] to automatically correc telescope for all mislevelment and trunnion axis errors in real time during operation. The radio for the TSC2 is also available as an optional integrated 2.4 GHz radio module. Press A to scroll to Change face. All rights reserved. - Change face. All rights reserved. by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: - Reorient or relocate the receiving antenna. -AdjustmentsBack... Due to the high quality tripod and tribrach. Aiming 71.1 The adjustment between the two optical axes, the telescope and the tracker, may differ. The active LED rings support the selection of a unique ID to ensure that 8 different targets can be operated on a single site with full confidence that the correct target is always used. See Aiming on page 103 1. DC Input Via country specific adapter to mains power AC/DC Converter Figure 6.58 Charger and battery Trimble S Series Total Station User Guide 99 6 Instrument Technology B Tip - The battery charger can also be used to charge the Trimble 7.4 V Li-Ion battery Engure 6.59 Figure 6.59 battery capacity drops too low, the Bat Low message appears in the Trimble CU display window and the instrument shuts down. The Target ID is powered by two AA size batteries that will operate the unit for approximately 12 hours continuous use. C 100 Caution - Use only the gray cables with 6-pin Hirose connectors from Trimble when connecting a cable to the instrument. Press the catch towards the radio. You will then be returned to the Adjustments menu. The Robotic Holder and Trimble CU will also turn on if you connect +12 V or data communication cable to the side connector. Accurately aim towards a prism. When Autolock is enabled, the instrument automatically locks onto and tracks the target. Figure 7.60 The Trimble S Series Total Station Autolock function. The TSC2 has built in Bluetooth wireless technology. Repeat this process for a minimum of 5 sightings in face 2. If the instrument is well adjusted, the red laser pointer coincides with the line of sight. second period to obtain an averaged angle measurement. The power management system includes the internal battery, optional external battery pack and the Trimble battery charger. For more information, refer to the field software documentation. For vertical angles outside of this range it is recommended to use passive mode or to use a tiltable target to ensure the most precise results. In the Trimble S Series Total Station, a pre-measurement collimation test is performed to determine the collimation test is performed to determine test is perf and dry. The vertical collimation error is the difference between the vertical circle zero and the plumb axis of the instrument. Press A to scroll to New observation and then press C. and any use of such marks by Trimble Navigation Limited is under license. Pull the battery holder 3 Figure 7.81 Removing battery from external radio Trimble S Series Total Station User Guide 127 7 Options & Accessories Radio Antenna Extension Kit 7.1 For extended radio range it is possible to fit an antenna extension kit to get the radio antenna to a higher position on the rod where it is clear from obstruction by the user or the rod itself. Features 71.1 1 Battery compartment 5 On/Off and battery low indicator LED 2 Battery locks 6 Position indicator 3 5/8" Thread 7 Circular level 4 Channel select (on/off switch) Trimble S Series Total Station User Guide 109 7 Options & Accessories Measures 71.2 Fitting and Removing the Battery 71.3 To fit the battery, push the battery in to the battery compartment (1) with the battery connectors (2) facing upwards and inwards until the battery locks clicks (3) in place. Microsoft and Windows are either registered trademarks or trademarks o the field application software. Firmware version Firmware version Information 40.1 1. The DR Standard distance unit software will detect erroneous single distance measurements such as those caused by an obstruction passing through the measurement such as those caused by an obstruction passing through the measurement such as those caused by an obstruction passing through the measurement such as those caused by an obstruction passing through the measurement such as those caused by an obstruction passing through the measurement such as those caused by an obstruction passing through the measurement such as those caused by an obstruction passing through the measurement such as those caused by an obstruction passing through the measurement such as those caused by an obstruction passing through the measurement such as those caused by an obstruction passing through the measurement such as those caused by an obstruction passing through the measurement such as those caused by an obstruction passing through the measurement such as those caused by an obstruction passing through the measurement such as those caused by an obstruction passing through the measurement such as those caused by an obstruction passing through the measurement such as those caused by an obstruction passing through the measurement such as the second term obstruction passing through the measurement such as the second term obstruction passing through the measurement such as the second term obstruction passing through the measurement such as the second term obstruction passing term obstructies term obstruction passing term obstruction pa return automatically to the Setup menu. 128 Trimble S Series Total Station User Guide Options & Accessories 7 Removable Handle option 7.1 If the instrument handle needs to be detached often, an option is available that removes the need for a tool to unscrew the handle. adjustment target 25-50 meter away, facing the instrument. Aim accurately in face 2 towards a point near the horizon at max. Laser pointer -Current values Appear. The Radio Side Cover 2.4 GHz Part Number: 58050019, 58010019 and 58021007 contains radio module with IC: 4492A-2410G The product option Panel BT Attachment Part Number: 58240001 contains radio module with IC: 5325A090103S Europe This product has been tested and found to comply with the requirements for CE Marking and sale within the European Economic Area (EEA). Now you are free to capture measurements, to prism or reflectorless surfaces, remotely, and with point-and-click efficiency. - Setup >> Exit (to level) Radio settings Reference HA Adjustments 1:250 C Exit Setup Note - If the instrument is left idle for more than 300 seconds (5 minutes) during any of the above routines, then the instrument goes to suspend mode. Hook the top of the Trimble CU over the top edge of the holder (1). -Adjustments>> Back... Trimble S Series Total Station User Guide 95 6 Instrument Technology Note - During startup the Trigger key LED will flash once every second. The electronic level appears. Calibrated photo documentation provides customers with deliverables they know they can trust. e. Suspend Mode In the suspend mode the Triggerkey LED will flash once every other second, the face 2 display will be off. TSC2 Figure 4.45 TSC2 connected to the S Series Total Station using the inbuilt radio for robotic measurements. The rod contains the following features: • • • • • Graduated scale in meters and feet. External influences such as shock or large temperature fluctuations can displace the total target height (Th), insert the measured slope distance (Hm) into the formula below: 2 Th = 0, 158 + Hm - 0, 091 2 Trimble S Series Total Station User Guide 115 7 Options & Accessories Trimble Robotic Holder The Trimble Robotic Holder the battery, slide the battery locks open (4), The battery can now slide out of the battery compartment (5). Clockwise = Left Counter Clockwise = Right Figure 4.35 Horizontal position adjustment Trimble S Series Total Station User Guide 63 4 Setup 4. Lift the bottom of the Trimble S Series Total Station User Guide 63 4 Setup 4. Lift the bottom of the Trimble S Series Total Station User Guide 63 4 Setup 4. Lift the bottom of the Trimble S Series Total Station User Guide 63 4 Setup 4. Lift the bottom of the Trimble S Series Total Station User Guide 63 4 Setup 4. Lift the bottom of the Trimble S Series Total Station User Guide 63 4 Setup 4. Lift the bottom of the Trimble S Series Total Station User Guide 63 4 Setup 4. Lift the bottom of the Trimble S Series Total Station User Guide 63 4 Setup 4. Lift the bottom of the Trimble S Series Total Station User Guide 63 4 Setup 4. Lift the bottom of the Trimble S Series Total Station User Guide 63 4 Setup 4. Lift the bottom of the Trimble S Series Total Station User Guide 63 4 Setup 4. Lift the bottom of the Trimble S Series Total Station User Guide 63 4 Setup 4. Lift the bottom of the Trimble S Series Total Station User Guide 63 4 Setup 4. Lift the bottom of the Trimble S Series Total Station User Guide 63 4 Setup 4. Lift the bottom of the Trimble S Series Total Station User Guide 63 4 Setup 4. Lift the bottom of the Trimble S Series Total Station User Guide 63 4 Setup 4. Lift the bottom of the Trimble S Series Total Station User Guide 63 4 Setup 4. Lift the bottom of the Trimble S Series Total Station User Guide 63 4 Setup 4. Lift the bottom of the Trimble S Series Total Station User Guide 63 4 Setup 4. Lift the bottom of the Trimble S Series Total Station User Guide 63 4 Setup 4. Lift the bottom of the Trimble S Series Total Station User Guide 63 4 Setup 4. Lift the bottom of the Trimble S Series Total Station User Guide 63 4 Setup 4. Lift the bottom of the Trimble S Series Total Station User Guide 63 4 Setup 4. Lift the bottom of the Trimble S Series Total Statin User 5. Lift the bottom of the Trim Setup 2 1 Figure 4.41 Push to unlock Detaching the Trimble CU 3. For more information, refer to the field application software documentation. The capacity of the battery is 4.4 Ah. External Power Supply 64.2 The Trimble S Series Total Station instrument has two external ports in the base of the instrument; one for communication and one for an external power supply. Figure 7.85 130 Attaching the handle is done by reversing the operation followed in attaching the handle. See figure 6.48 Trunnion axis tilt error Figure 6.48 Trunnion axis tilt error In the Trimble S Series Total Station instrument, perform a pre-measurement trunnion axis tilt test to determine the trunnion axis tilt error. Use the car battery to the external power port on the S Series Total Station. N 324 Canada This Class B digital apparatus complies with Canadian ICES-003 This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications. Note - During startup the Trigger key LED will flash once every second. Fit the new screws (a) in the handle. regulatory reguirements of the Australian Communications Authority (ACA) EMC framework, thus satisfying the requirements for C-Tick Marking and sale within Australia and New Zealand. 20 hours Robotic holder with one internal battery 13.5 hours Operating time for video robotic One battery 5.5 hours Three batteries in multi-battery adapter 17 hours Weight Instrument (servo/Autolock) 5.15 kg (11.35 lb) Instrument (Robotic) 5.25 kg (0.77 lb) Trimble CU controller 0.4 kg (0.88 lb) Tribrach 0.7 kg (1.57 lb) Instrument (Robotic Surveying Autolock and Robotic Range Passive prisms 500 m-700 m (1,640-2,297 ft) Trimble MultiTrack Target 800 m (2,625 ft) Autolock pointing precision at 200 m (656 ft) (Standard deviation) Passive prisms > Select language : ENG cancel next set Setup 4 Exit Menu 40.1 1. The supplied battery is designed for use in the Trimble S Series Total Station instrument and features: • Battery gauge to easily check power supply • Rugged design • One battery type for Trimble S6 Total Station aims and stays on target through windy weather, vibrations, handling, and sinkage. Turn the instrument 200 grads (180 degrees). - Note - The instrument will prohibit a trunnion axis tilt test if it is made towards a point with an angle less than 15 grads (13.5 degrees) from the point where the collimation test was made. Caution - Do not use the laser pointer as an aid when searching for prisms, the reflected light can dazzle your eyes. This is useful when measuring to poor reflective surfaces, or when trying to achieve the maximum range of the instrument. - - Laser Pointer is then tuned to provide a distance within the specified range and to ignore any signal from outside the defined range. The measured calibration values are stored and used until a new set of calibration values are determined. On Mode In the on mode the Robotic Holder will be on. Note - The adjustment between the two optical axes, i.e. the Telescope and the Tracker, may differ. To avoid faulty measurements using the laser pointer, use the supplied adjustment target to check the laser alignment regularly and before you attempt precise distance measurements: 1. The Trimble CU will be off or in suspend mode. Trimble S Series Total Station User Guide 51 4 Setup -Current valuesHA: 0.0010 VA: 0.0012 >> Trunnion coll. Press A to scroll to one of the following: Store correction. Adjust out half of the error with the four adjustments screws on the optical plummet. Operation is subject to the following two conditions: (1) this device may not cause undesired operation of the device. • Immediately prior to high precision angle measurements using Autolock in a single face. Figure 4.33 Horizontal angle, vertical pointer adjustment port adjustment port adjustment ports 2. Corrections for the horizontal angle, and slope distance are calculated in the field application software and applied to all measurements. Recycling in Europe: To recycle Trimble WEEE (Waste Electrical and Electronic Equipment, products that run on electrical power.), Call +31 497 53 24 30, and ask for the "WEEE Associate". Change face. When the battery needs to be reconditioned in the battery needs to be reconding to be reconditioned in the battery needs to be r change the current target ID number. Fit the battery lid and then secure it by turning the screw a quarter of a turn clockwise. Aligning the Laser Pointer 41.1 Note - The optional High Power Laser on the S8 instrument is not adjustable. If you select New observation the number of observations in both faces appears: - - a. With smooth, silent MagDrive servo motors, the Trimble S6 offers exceptional speed. Aim the instrument at the cornect horizontal and vertical angle. To correct for the tracker collimation test. Screw the adapter and mini rod on to the top of the rod and tighten. The default standard deviation value is 0.003m Autolock is especially useful for carrying out rapid site topo measurements and during stakeout using a conventional two person crew. The Adjustments menu appears. - Increase the separation between the equipment and the receiver. Set up the instrument and level it over a ground mark so that the tripod height is 1.5 m (±0.1 m) (4.920 ft. >>Store correction Select Trunnion coll. Tracklight consists of a flashing two-colored light, with each color lying in its own lateral projection sector. Pull the battery (1). 86 Trimble S Series Total Station User Guide Instrument Technology 6 • Min.-Max Range. The spring lock will hold the Target ID in place. The screws tighten automatically after you adjust them. Trimble S Series Total Station User Guide 123 7 Options & Accessories Radio Internal Radio 7.1 71.1 The Trimble S Series Total Station has an internal radio to support robotic operations. The prism target must be very still during the test (Trimble recommends that you use a tripod or bipod mount for the target) and must be in clear line of sight without any obstructing traffic. Eliminate Search With GPS Search With GPS Search the Trimble S6 locks onto a prism in just seconds. (±0.328 ft.)). The laser pointer is coaxial with the line of sight of the telescope. Autolock Collimation (Only on Instruments With Autolock Capability) The instrument tracker unit is designed to be coaxial with the instrument cross hairs. Note - If the trunnion axis tilt correction value is greater than 0.05 grads (0.045 degrees), the message Fail Remeasure? Correction for Collimation Errors 61.2 The horizontal collimation error is the deviation of the sighting axis from its required position at right angles to trunnion axis. Each LED corresponds to a power level of 25% so that when the power level is at 100%, all four LEDs are lit. Le présent appareils numériques de Classe B prescrites dans le règlement sur le brouillage radioélectrique édicté par le Ministère des Communications du Canada. Internal Power Supply 64.1 The primary power supply for the Trimble S Series Total Station instrument is a rechargable, removable Lithium-ion battery. In clear sky, enjoy the high productivity of GNSS measurements. Press A to scroll to one of the following: Trunnion coll. Then press C to return to the Adjustments menu 6. Trimble S Series Total Station User Guide 89 6 Instrument Technology Tracklight 6.1 Tracklight 6.1 Tracklight that enables the rod holder to position themselves into the instruments current line of sight. However, there is no guarantee that interference will not occur in a particular installation. For product recycling instructions and more information, please go to www.trimble.com/ev.shtml. With the industry's most advanced technology and available feature set, the Trimble S6. To turn the instrument on press the Trigger key for 1 second or turn on the instrument from a remote application. d. The battery is a Trimble 7.4 V Li-Ion battery. Instrument with Trimble 7.4 V Li-Ion battery. Instrument with Trimble 7.4 V Li-Ion battery. Instrument with Trimble 7.4 V Li-Ion battery. Connect the USB memory through the USB dongle cable to the external communications port on the Trimble Robotic Holder. The antenna extension kit consists of: Item Description a Antenna holder b Antenna extension kit. The pulses reflect off the target surface and return to the instrument where the unit determines the time difference between the transmitted pulses. The laser may require periodic adjustment to keep it perfectly aligned for measurement. To turn the instrument off press the Trigger key for 3 seconds. - 50 Trimble S Series Total Station User Guide Setup 4 -Cancel. 2 1 Figure 7.80 Removing battery from external radio 3. Fixed target height positions 360 ° prism comprising 7x25 mm prisms, prism constant 2 mm Leveling bubble Target id with mini rod (optional) can be fitted The integrated mini rod can be easily connected to the standard rod or a conventional rod using the mini pole adapter The target height from the tip of the mini rod to the center of the prism is 0.115 m (0.377 ft.).

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