Continue



## **Keyence ig 1000 manual**

```
There are three calculation modes for the calculation function. Before using theunit, make sure that all items are included. We have thoroughly inspected the package contents before shipment. The red O-ring is attached to the transmission cable and blue O-ring to the receiver cable. 2-2 Connecting and Mounting the Sensor Head 3 Attach the lock
cover to the connector to fix the cable. "Sensor Head Connection" (page 2-12) The receiver is not connected to the sensor amplifier. 3-133-7Zero Shift Function (Shifting the Internal Measurement Value (R.V.))... The displayed value is not held. Glass edge mode Light-shielding object Page 9 1-1 Overview of the IG Series 1-4 1 Bef ore U s e IG-E Center
position measurement Pitch measurement E. Measurement E. Measurement mode 2. HOLD LO ALIGNMENT BANKO 1 2 3 R.V. HI CALC ANALOG LO ((((SHIFT ZERO SHIFT TIMING The internal measurement value (R.V.) is displayed as "HHHH". From the menu, select [File]o[New]. 4-2Functions Available after the Display Changes to Each Setting Screen .... With
this mode, the internal measurement value (R.V.) is determined by measurement mode at the edge of the measurement mode tab Main panel switching tab
6 IG Configuration Software (IG-H1) Reference For details on each function, refer to the sections below. CCD judges that the light enters only the range with the red LED ON (exceeding the binarization level). 2-8 Page 19 2-2 IG-E 2 In s talla tion and C onnection 2-1 Mounting and Wiring the Sensor Amplifier DIN rail mount type, main unit (IG-1000)
1 Align the claw at the bottom of the main body with the DIN rail. Hold function (page 4-20) • The analog output is fixed to the lower limit. If attempting to perform, [PQ.WCN] blinks several times on the main display. 3-6 Setting the Tolerance Setting Value Two-point tuning With this method, the median value of the good target and defective target is
 set as the tolerance setting value when there are good target and HIGH/LOW defective target. Tightening torque: 1.2-2 Connecting and Mounting from the bottom Fix using the commercially available screws. 3-9 3-5 Initial Reset (Initialize)......
 Series or transfer the IG Configurator's configurator's configurator's configuration data.6-5 Monitor tab Waveform Display This displays the receiving status of the light-receiving element (CCD) as a waveform. Judgment output operation from ON to OFF is delayed
                                                                                                                                                          .... Display color IG-E Reference page Select functions to be assigned to 4 external inputs. 96083E CCD Thrubeam Type Laser Sensor IG Series User's Manual Read this manual before using in order to achieve maximum performance. • Other proper
for specified time set on the timer. Edge check function...
names including product names described in this manual are trademarks or registered trademarks of each company, 6-25 File.
                                                                                                                                                                                                                                                                                                                                                                                       ...6-1 Software Licensing Conditions Software Licensing Conditions Before using [IG-H1 (IG Configurator)] ("this
                                                                                                                                                                                                                                                                                                           . 6-14 6-5 Monitor tab..
                                                                                                                                                                                                                                     IG-E 2-1 Mounting and Wiring the Sensor Amplifier ....... "Power/Input-output cable" (page 2-7) External Input Default setting User setting Description Default value Functions for the external inputs remain
software"), you must agree to the following software license agreement. 6-27Help.
the same as the factory default setting. For the menu details, refer to "6-6 Menu Bar" (page 6-25) . 6-20Waveform Display.
                                                                                                                                                                                                                                                                             The following two methods can be used. 1-3Using the Expansion Units.
                                                                                                                                                                                                                                                                                                0.5 second and the current internal measurement value (R.V.) shifts to the shift target value. • Press the button on the amplifier. 6-17Transfer of Configuration data
                                                                                          . Corrective actions Connect the power cable correctly. 4-34-2 Basic Settings and Advanced Settings
                                                                                                                                                                               4-3312. 3-11Manual Setting.
                                                                                                                                                                                                                                                                                                               "11.3-7 Zero Shift Function (Shifting the Internal Measurement Value (R.V.)) Starting the Zero Shift When the following operation is performed on the main
screen, the zero shift indicator [ZERO SHIFT] lights up for approx. 4-39 13. Saving the standard waveform function When the standard waveform is registered (Gain adjustment) with the external input, make the setting for nonvolatile memory (EEPROM) to save the standard waveform. 4-47 Calculation Value (CALC value)
                                                                                                                                                                           R.V. (Internal Measurement Value) R.V. (Internal Measurement Value) is the value displayed when a target is inserted into the measurement range. 4-3913. 2-2Mounting the Sensor Amplifier...
 control/Positioning mode B. The displayed value may gradually drift during this time period. Power ON ResetMeasurement starts approx. If you switch the bank by the external input, the key lock function must be set. External input.
 "6. Installation and Connection Note 2 Do not strip the core wire insulation. Basic Operations 3 This chapter describes basic operations and settings for the IG Series. 1 3 Press the W / X button several times on the main screen. If the setting not to output the analog output is set, this screen is skipped. A-4Non-Error Displays and Corrective Actions
                                          Analog output scaling" (page 4-32) • If the zero shift function is used, the average value of diameters of all pins being measurement mode The internal measurement value (R.V.) is determined by measuring the
 distance from one edge to the other edge of the target. "14. 4-2 Basic Settings and Advanced Settings (page 4-4) Basic settings basic settings are made. LOW side settings range PQ (Normally Open), PE (Normally Open), PE (Normally Close) Default value PQ There are three judgment outputs as
below. Before using the unit, make sure that all items are included. By detecting the light to dark and dark to light transitions, the unit isable to measure ment Sensitivity" (page 4-44). Page 8 1-1 Overview of the IG Series 1-3 1 Bef ore Use IG-E You can select a suitable measurement
 . R.V. [5'V] you wish to display Correction R.V.4-5 Calibration Function Setting Method 1 (One-point Calibration) Main screen HOLD LASER HI GO LO ALIGNMENT
BANKO 1 2 3 R.V. HI CALC CHECK ANALOG LO SHIFT TIMING [MODE] + X button 2 seconds or more at the same time HOLD LASER HI GO LO ALIGNMENT BANKO 1 2 3 R.V. HI CALC CHECK %.D F'(.6 ANALOG LO 1 [.END] is displayed on the main display (upper level). Outer diameter/Width measurement mode Inner diameter
Transparent object Edge control/ Positioning C. 5-2Sensor Amplifier.
                                                                                                                                                                                              Pin interval judgment mode Multiple diameter measurement Measure the distance between specified edges, 4-46 4-4 Calculation Function...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Measurement mode" (page 4-8) Edge
control/Positioning Outer diameter/Width measurement Before Use Light-shielding object IG-E A. Power saving indication 17. 4-82. Note 3 Be careful not to disconnect the IG Series and PC during transmission.6-5 Monitor tab When the monitor tab when tab when the monitor tab when t
                                       Note When functions other than "Auto peak hold" and "Auto bottom hold" are set, assign the external input 3 (pink/purple wire) to the timing input. When the filter value in the "Standard mode" is 9, only if the light-blocking part of CCD continues 9 pixels or more, it is judged as blocked.4-3 Setting the Measurement Sensitivity
1.9*2\ 28.3\ 18.5\ 8.5-3\ Dimensions\ IG-1500/IG-1550\ unit:\ mm\ 44.7\ 4\ 15.3\ Cable\ diameter:\ \phi 4.7\ 20.3\ 15.7.6\ 35\ 9.5\ 20.2\ Cable\ diameter:\ \phi 4.8\ 20.4\ 10.3\ 5\ 17.6\ 27.2\ 44.7\ 48\ 10.3\ 19.1\ 19.1\ 73.6\ Panel\ cutout\ dimensions\ unit:\ mm\ Panel\ cutout\ dimensions\ 76\ 12.4\ 62.5\ Panel\ thickness:\ 1\ to\ 6\ mm\ When\ mounting\ the\ panel\ +0.6\ 45\ -0.9\ panel\ panel\
                                                                                                                                                                                   . (3) judgment indicator Displays whether the judgment value (P.V.1-3 Part Names and Functions Item (6) Zero shift button Press this button to match the internal measurement value (R.V.) to the shift target value. 3 Connect the amplifier
 (main unit) and amplifier (expansion unit) using the expansion unit. Installation and Connection (3) (2) 2 (1) To dismount the sensor, raise the main body in the direction of the arrow (3) while pushing the sensor Amplifier 1 Remove the
 expansion protective cover from the IG-1000 (main unit). Note The initial setting screen appears only when the power is turned on for the first time.3-2 Operations on the Main Screens R.V. (Internal Measurement Value) displayed on the sub display (lower level) and
HI GO LO ALIGNMENT BANKO 1 2 3 R.V. HI CALC CHECK ANALOG LO SHIFT TIMING Press W or X button.4-1 Setting Operations Functions Available after the Display Changes to Each Setting Operations Functions Available after the Display Changes to Each Setting Operations Functions Available after the Display Changes to Each Setting Operations Functions Available after the Display Changes to Each Setting Operations Functions Function
Press [MODE] button for approx. Refer to "DIN rail mount type (Main unit)" for details about how to mount. "3-4 Registering the Standard Waveform (Gain adjustment)" (page 3-9) Also, with the same operation, the polarity of judgment output, and the analog output setting can be changed.3-6 Setting the Tolerance Setting
Value The tolerance setting value consists of the upper limit value (HIGH side setting value) and the lower limit value (LOW side setting value). 6-7Connecting with a Computer......
                                                                                                                                                                                                                                                                                                                                                   Output mode
                                                                                                                                                                                                                                                                                                                                                                                                                                                          6-14Threshold (Tolerance Setting Value)/Target value for shift
                 "4-3 Setting the Measurement Sensitivity" (page 4-44) "3-8 Bank Function (Registering Multiple Tolerance Setting Values)" (page 3-18) Item Sensitivity setting Description Measures the measurement sensitivity for each bank. Furthermore, the judgment output is turned on after the number of times for averaging (response time) elapses.
Light-shielding target 4 " Details Top Top R.V. R.V. Measurement range Measurement range Bottom Bottom z "2.4-2 Basic Settings and Advanced Settings are settings as a setting as
Settings Example When the average number of times is 8 Sampling period (0.98 ms) 1 2 3 4 5 6 7 8 9 10 11 Average measurement time 4 Internal measurement time 5 10 10 11 Average measurement time 4 Internal measurement time 6 10 10 11 Average measurement time 6 10 10 11 Average measurement time 8 10 10 11 Average measurement time 9 10 10 11 Average measurement time 9 10 11 Average measurement time 9 10 10 11 Average measurement time 9 10 11 Average measurement tim
 Sensor amplifier Front protection cover Page 22 2-1 Mounting and Wiring the Sensor Amplifier 2-5 IG-E 2 In s talla tion and C onnection with the main unit. Timing input" (page 4-27) setting: "Level" Sampling period 2 Sampling period 1 Judgment value
(P.V.) judgment output Previous result Sampling period 1 result Max. 4-44 4-4 Calculation Function.....
                                                                                                                                                                                                   .... 4-4118. Subsequent expansion units are referred to as expansion unit 2, expansion unit 3, etc.Page 21 2-1 Mounting and Wiring the Sensor Amplifier 2-4 2 In s ta lla tion a nd C onnection IG-E Panel mount type, main unit (IG-
 1500) 1 Make a hole on the panel to attach according to the size below. RQU] 2. Outer diameter/Width measurement mode Inner diameter/Width measurement mode Inner diameter Transparent object Edge control/ Positioning C. 2-2 2-2 Connecting and Mounting the Sensor Amplifier Mounting the Sensor Amplifier DIN rail mount type, main unit
(IG-1000) 2 1 Align the claw at the bottom of the main body with the DIN rail. 6-25View ....
                                                                                                                                                                                                                                           ... Take adequate measures such as using a noisefilter, arranging cables separately or insulating the sensor amplifier and the sensor head. Abnormal Conditions WARNINGIF the following conditions occur,
turn OFF the power immediately. When [Lock] is selected and [Transfer] is clicked, the IG Series is locked, 6-6 Menu Bar Help, "IG User's Manual From the menu, select [Help]o[IG User's Manual]. Item Description Displays the [System configuration] dialog box. The examples of use are as follows. Sensor Amplifier Unit Expansion unit connector* 1
Amplifier control unit cover Sensor head connector (Transmitter side) Amplifier control unit connector (Receiver side) Expansion unit connector (Receiver side) Expansion unit connector (Receiver side) Sensor head connector (Receiver side) Expansion unit connector (Receiver side) Sensor head connector (Receiver side) Expansion unit connector (Receiver side) Expansion unit connector (Receiver side) Sensor head 
Amplifier control unit Page 15 1-3 Part Names and Functions 1-10 1 Bef ore U s e IG-E Amplifier control unit "DIN rail mount type (IG-1500/IG-1550) (11) (12) (10) (6) (15) (14) (1) (2) (3) (4)(5) (7) (8) (9) (13) Item Description (1) Main display Displays the judgment value (P.V.) and each setting item.
Mounting the Sensor Amplifier (1) (2) (3) CAUTION • When connecting multiple amplifiers (expansion units. 15 mm of insulation from the end of the cable. 3-3Sub Display (Lower Level) ......
operation manual of your PC.6-3 Part Names and Functions Main Window Menu bar Tool bar Configuration/Monitor switching tab Main panel Menu bar This bar indicates the menu for operating each function. Tool bar 6 1 2 Click the [Transfer] button on the tool bar. • Press the
zero shift button [ZERO SHIFT] (within 1 second). However, in the event of defective or broken items, contact your nearest KEYENCE office.1-2 Checking the Package Contents Sensor Head 1 IG-010 (Measurement range: 10 mm) Receiver x 1 Sensor head connection cable (2 m) x2 IG-028 (Measurement range: 28 mm) Transmitter x 1 IG-E Receiver x
1 Sensor head connection cable (2 m) x2 1-7 Before Use Transmitter x 11-2 Checking the Package Contents List of Optional Parts 1 For Sensor amplifier OP-26751 (For IG-1500/IG-1550) Before Use End unit x2 OP-4122 (For IG-1500/IG-1550) Expansion cable (300 mm) x 1 OP-87076 (For IG-1500/IG-1550) Panel mounting tool
x 1 Front protection cover x 1 For Sensor head IG-TB01 (Mounting bracket for the IG-010) IG-TB02 (Mounting bracket for the IG-028) Hexagon socket head bolt x 6 (M3 x 5 mm, with 1-3 Part Names and Functions Sensor Amplifier Unit 1 DIN rail mount type (IG-1000/IG-1050) 1 Expansion unit
connector* Before Use Sensor head connector (Transmitter side) Amplifier control unit cover Amplifier control unit cover for expansion unit connector (Receiver side) Expansion unit connector (Receiver 
                                                                                                                                                                                                                                                                               . When the external input is set to OFF, the laser is emitted within 2 ms. General Precautions Safety Precautions on Laser Product. This product employs a semiconductor laser for
data stored on the IG Series differ, monitoring is not possible. 3-22 Chapter 4 Setting Various Functions 4-1 Setting Operations ......
its lightsource. Use of controls or adjustments or performance of proce-dures other than those specified herein may result in haz-ardous radiation exposure. Follow the instructions mentioned in this manual. 6-26Language.
unit (IG-1500).*2 When shipped from the factory, the protective seal is attached. Timing input" (page 4-27) setting: "Level" Measured period Hold released 4 Sample hold Max. IG-010: M3, board thickness +4 mm or less IG-028: M3, board thickness +4 mm or less IG-028: M3, board thickness +5 mm or less IG-010: M3, board thickness +4 mm or less IG-028: M3, board thickness +4 mm or less IG-028: M3, board thickness +5 mm or less IG-028: M3, board thickness +4 mm or less IG-028: M3, board thickness +4 mm or less IG-028: M3, board thickness +4 mm or less IG-028: M3, board thickness +5 mm or less IG-028: M3, board thickness +4 mm or less IG-028: M3, board thickness +4 mm or less IG-028: M3, board thickness +5 mm or less IG-028: M3, board thickness +4 mm or less IG-028: M3, board thickn
                                                                                                                                                                                                                                                                             . Judgment value (P.V.) Internal measurement value (R.V.4-2 Basic Settings and Advanced Settings 6. Align the optical axis when the target is not present and the optical alignment
the mounting bracket (IG-TB01/IG-TB02) is used 1 Attach the mounting bracket to the sensor head. 6-24 6-6 Menu Bar ...
indicator is off. Page 18 2-1 2 IG-E Installation and Connection 2 This chapter describes precautions when installed. 6-2 Before Use Notes for Windows Vista , User's authority If you install IG Configurator on the standard folder (C:\Program
Files\KEYENCE\IG Configurator\), set the access right as follows. • Push the amplifiers (expansion units) as close as possible the main unit. Averages data 2 to outputs data A. 6-11Connecting the Sensor Amplifier and the DL-RS1A ......
                                                                                                                                                                                                                                                                                                                                                                                                ...... KPU] Top R.V. R.V. Bottom Transmitter Lights in red: Lights in green: Off: Top Bottom Receiver 4
Display pattern 5 1. 6 OS Windows 7 Ultimate / Professional / Home Premium*1 Windows Vista Ultimate / Business / Home Premium*1 Windows 7 Vista: Meets system requirements for the OS
Windows XP/2000: Pentium 1.6-2 Before Use Installing the IG Configurator This section describes how to install the IG Configurator. 5-8 Page 4 7 IG-E Chapter 6 IG Configuration Software (IG-H1) 6-1 Software Licensing Conditions....
                                                                                                                                                                                                                                                                                                                                                                                                                                .. On the rising edge, the internal measurement value (R.V.) maximized during the
the target (master workpiece) as a reference is present, the HIGH side setting value (upper limit) and LOW side setting value (lower limit) and LOW side setting
                                                                                                                                                                                                               ... A-9 Factory Setting (Default Value) List ..
Setting Values)..... ON/OFF is reversed for Normally Close. 4-43 4-3 Setting the Measurement Sensitivity ...
                                                                                                                                                                                                                                                                                                                                    . 2 seconds. The direction of RS-232C (serial port) on a PC varies depending on each PC. Measurement direction
                                                                    Exit From the menu, select [File]o[Exit]. Up to 3 expansionunits can be connected to one main unit. 4-4Setting Screen
                                                                                                                                                                                                                                                                                                                                                    . Precautions on Use WARNING • Use with the correct power source and voltage. "3-8 Bank Function (Registering Multiple Tolerance
 Setting Values)" (page 3-18) ,, Timing chart Within the response time Judgment output Bank 0 Bank 1 Within the response time Bank 3 1 []* 4 []*1 Max. 3-10 3-6 Setting the Tolerance Setting Value ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                ... • If the product is modified or used in any way other than those
 described in the specifications, its functions and performance cannot be guaranteed. Abnormal Conditions WARNING If the following conditions occur, turn OFF the power immediately. DANGER Failure to follow instructions and mishandling the product may lead to death or serious injury. Safety Information for IG series General Precautions • At
startup and during operation, be sure to monitor the functions and performance of this product and confirm normal operation. 4-31 10. 3-22Chapter 4 Setting Various Functions4-1 Setting Operations ......
                                                                                                                                                                                                                                                                                                                                                                                                 While pushing the main body in the direction of the arrow (1), slant it in the direction of the arrow (2). On
the rising edge, the difference between the maximum value of the internal measurement value (R.V.4-2 Basic Settings and Advanced Settings and Sett
value) of measurement value of two units of IG Series and the analog output can be performed.1-2 1 Checking the Package Contents The following equipment and accessories are included in the package. 1 Before Use G. According to the type of displayed value, the sub display indicator [R.V. / ANALOG / HI / LO / SHIFT] lights up. Set the tolerance
setting value. Error displays HOLD LASER HI GO LO ALIGNMENT CALC 1 2 3 Displays alternately R.V. HI ANALOG LO SHIFT TIMING The transmitter and receiver are reversed. G. " Hard disk space The IG Configurator can be installed only on a hard disk drive. 2-2Sensor
                                                                                    ...... 1-12Chapter 2 Installation and Connection2-1 Mounting and Wiring the Sensor Amplifier .....
 Amplifier Wiring
                                                                                                                                                                                                                                                                                 .. 3-6 3-3 Optical Axis Alignment
                                                                                                                                                                                                                                                                                                                                                                                                     . External input You can select functions to be assigned to four external inputs (External input 1 to 4).
 Shows the measurement range of the sensor head. Measurement mode" (page 4-8) Zero shift function: The zero shift is canceled temporarily. "3-1 Operation When the Power is Turned on for the First Time" (page 3-2) "3-5 Initial Reset (Initialize)" (page 3-10) Analog output Default value Description Default setting 4 c Scaling is not performed. The
                                                                                                                                                                                               . Hold function" (page 4-20). • Preventing abnormal values from being measured due to dust, oil, etc. When the sampling finishes, the internal measurement value (R.V.) minimized during the sampling period is held as a judgment
 between the maximum value and minimum value of the specified period (sampling period) is held as a judgment value (P.V.). The displayed value may gradually drift during this time period. 6-20 Position Monitor Display.
                                                                                                              . Is the output polarity set correctly? Judgment value (P.V.) Internal measurement value (R.V.4-2 Basic Settings Peak hold The maximum value of the specified period (sampling period) is held as a judgment value (P.V.). Main unit Connector cover Install the
amplifiers (expansion units) on the DIN rail. By connecting the expansion unit to the main unit, the IG Series can be used for various purposes. When the [Save] button is clicked, four files of "Configuration (CSV form)", "Received waveform data (CSV form)", "Received waveform data (CSV form)", "Data of binarization level (CSV form)" and "Monitor image (BMP form)" can be saved to the
                                                                                                                                                                                                                                                                      . Top side: 0 mm Vertical axis Shows the light-receiving amount of each pixel of CCD.6-5 Monitor tab Data output When the [Data output] button is clicked while updating the waveform
                                                                                                                                                  .. 5-6 Sensor Amplifier...
                                                                                                                                                                                                                                                                                                                                                  .. 1-6Sensor Head ...
LO ALIGNMENT ZERO SHIFT TIMING LO ALIGNMENT BANKO 1 2 3 R.V. HI CALC CHECK *; 5 ANALOG LO [MODE] or X SHIFT HOLD LO ALIGNMENT BANKO 1 2 3 R.V. 4-2 Basic Settings and Advanced Settings 1. • When the tuning result exceeds the setting range (-99.999 to 99.3-6 Setting the Tolerance Setting Value 5 Measure the good target
mm).2-2 Connecting and Mounting the Sensor Head Connection Connection Connection Connection cable to the transmitter and receiver cables respectively. Measurement mode is set according to the shape of object and applications. 2-8Sensor Head
onnection Power/Input-output cable "Output Circuit Diagram" (page 5-4) *1 IG-1050/IG-1550 (expansion units) do not have brown, blue or light to dark transition as seen by the receiver to the bottom most dark to light transition as seen by the receiver is determined
                                                                                                           ..9. If "User Account Control" screen appears during installation, click "Continue (C)". when the timing input is set to Edge and the timing input is turned ON.Page 17 1-3 Part Names and Functions 1-12 1 Bef ore U s e IG-E IG-028/IG-010 Sensor Head Unit Item Description (1)(4)
 Optical axis alignment indicator Lights up when the optical axis is successfully aligned. The following two methods can be used to set the binarization level and the filter value. Timing input to the next rising edge. Note • The hold function is fixed to the Sample hold. The [Key
                                                                                                                                                            ... Appendix The value fluctuates. 3 Push the expansion unit into the main unit connector until a clicking sound can be heard. If the initial reset is performed, the default values will be restored as below except for the calibration function. There are two
                                                                                                     Installation This section describes how to install the IG Configurator on a PC, taking the following drive configurator This section describes how to start/exit the IG Configurator. 1-7List of Optional
                                                                                                                                                                                     ..R.V. (Internal Measurement Value) and P.V. (Judgment Value) .......... "Sensor Amplifier Wiring" (page 2-6) Is the sensor amplifier cor- Add the sensor amplifier correctly. Problem The value fluctuates. 1-9Sensor Head
                                                                                   ... • HIGH judgment output (Black wire) • GO judgment output (Gray wire) • LOW judgment output (White wire) The judgment output (Strange and Advanced Settings and Advanced Settings 5. "Amplifier control unit" (page 1-10) Reference While
 the laser emission is stopped, the internal measurement value (R.V.) shows [].4-2 Basic Settings and Advanced Settings 12. Reference This procedure can be performed by clicking the [System] button on the tool bar. 6-5Starting and Exiting the IG Configurator .......
Saving the standard waveform function 13. "3-5 Initial Reset (Initialize)" (page 3-10) Is the unit properly wired? 6-4 System Environment for Use ......
actions when errors occur. When the sampling finishes, the internal measurement value (P.V.). Position monitor 18. If "Auto peak hold" or "Auto bottom hold" is set, this item is skipped. 2 1 Cut the cable to the required length and strip approx. The laser emission indicator on the
sensor amplifier lights off while the laser emission is stopped. When it falls below the trigger level, the sampling finishes. When the "Interference prevention function setting" is set to ON, this function is effective among the added four amplifiers. 6-12 6-4 Configuration Tab..
countries. External input" (page 4-33) Reference 4 • While the judgment value (P.V.4-2 Basic Settings Sample hold When the timing input is turned ON, the judgment value (P.V.4-2 Basic Settings Sample hold When the timing input is turned ON, the judgment value (P.V.4-2 Basic Settings Sample hold When the timing input is turned ON, the judgment value (P.V.4-2 Basic Settings Sample hold When the timing input is turned ON, the judgment value (P.V.4-2 Basic Settings Sample hold When the timing input is turned ON, the judgment value (P.V.4-2 Basic Settings Sample hold When the timing input is turned ON, the judgment value (P.V.4-2 Basic Settings Sample hold When the timing input is turned ON, the judgment value (P.V.4-2 Basic Settings Sample hold When the timing input is turned ON, the judgment value (P.V.4-2 Basic Settings Sample hold When the timing input is turned ON, the judgment value (P.V.4-2 Basic Settings Sample hold When the timing input is turned ON, the judgment value (P.V.4-2 Basic Settings Sample hold When the timing input is turned ON, the judgment value (P.V.4-2 Basic Settings Sample hold When the judgment value (P.V.4-2 Basic Settings Sample hold When the judgment value (P.V.4-2 Basic Settings Sample hold When the judgment value (P.V.4-2 Basic Settings Sample hold When the judgment value (P.V.4-2 Basic Settings Sample hold When the judgment value (P.V.4-2 Basic Settings Sample hold When the judgment value (P.V.4-2 Basic Settings Sample hold When the judgment value (P.V.4-2 Basic Settings Sample hold When the judgment value (P.V.4-2 Basic Settings Sample hold When the judgment value (P.V.4-2 Basic Settings Sample hold When the judgment value (P.V.4-2 Basic Settings Sample hold When the judgment value (P.V.4-2 Basic Settings Sample hold When the judgment value (P.V.4-2 Basic Settings Sample hold When the judgment value (P.V.4-2 Basic Settings Sample hold When the judgment value (P.V.4-2 Basic Settings Sample hold When the judgment value (P.V.4-2 Basic Settings Sample hold When the judgment value (P.V.4-
after the display changes to each setting screen. Up to 3 expansion units can be connected to one main unit. Tightening torque: 1.6 N·m or less 2 IG-010 IG-028 Installation and Connection ,, Mounting from the jig side Fix using the commercially available screws (IG-010: M4, IG-028: M5, length: board thickness + 5 mm or less). 4-4016. (1) According
 used for "5. "1. By setting these values, judgments are made in three levels: when the judgment value (P.V.) goes beyond the upper limit (HIGH judgment), when the judgment is within the acceptable range (GO judgment). 3-6 Setting the Tolerance Setting Value Manual Setting This
 is the method to directly enter the tolerance setting value (HIGH side setting value, LOW side setting value). Reference When using modes other than the glass edge mode to measure small targets or a transparent object, set the sensitivity setting to "High sensitivity mode".4-2 Basic Settings and Advanced Settings Edge control/Positioning mode
With this mode, the internal measurement value (R.V.) is determined by measuring the distance from the edge of the measurement range to the edge of the target. 3-21Starting the Key Lock......
                                                                                                                                                                                                                                                       . 85 +0.6 45 -0 +0.5-3 Dimensions Sensor Head IG-010 unit: mm " Transmitter Transmission spot center 2-φ3.4 (Mounting hole) φ4.8 Cable length 170 Edge M8 connector 15 18.8 31.8 11.2 23
 Receiver 2-φ4.5 (Mounting hole) 48.2 56.2 33.1±0.3 Measurement center φ4.5-3 Dimensions 11.4 (Measurement center) When the IG-TB01 (for IG-010) is used unit: mm 2-φ4.5 Penetrating the drill φ8.5 Spot facing depth 4 67.9 23 17 11.5 (66.2) Measurement range (47.6) 36.8 (28.8) (18.8) 10 (12.3) (22.3) 36.8 22 5 Receiver 23.8±1 Transmitter 40
input (external input) is set to Level. *2 The analog output can be set to either "When the power is turned on for the first time" or "When performing the initial reset". Not used (OFF) to 5 V to 5 
target Measurement accuracy changes depending on the mounting distance between thetransmitter and receiver of the sensor head and insertion position of the object. Timing input" (page 4-27) setting: "Edge" Settings Bank A
 input/Bank B input By combining ON/OFF setting of bank A input and bank B input, you can switch the banks. External input When the bank Function (Registering Multiple Tolerance Setting Values) Switching the bank by the external input When the Bank A input and
can be performed by clicking the [Transfer] button on the tool bar. Pin diameter judgment mode H. Measurement Modes Edge control/Positioning Outer diameter/Width measurement Modes Edge control/Positioning Outer diameter judgment mode H. Measurement Modes Edge control/Positioning Outer diameter judgment mode H. Measurement Modes Edge control/Positioning Outer diameter judgment mode H. Measurement Modes Edge control/Positioning Outer diameter judgment mode H. Measurement Modes Edge control/Positioning Outer diameter judgment mode H. Measurement Modes Edge control/Positioning Outer diameter judgment mode H. Measurement Modes Edge control/Positioning Outer diameter judgment mode H. Measurement Modes Edge control/Positioning Outer diameter judgment mode H. Measurement Modes Edge control/Positioning Outer diameter judgment mode H. Measurement Modes Edge control/Positioning Outer diameter judgment mode H. Measurement Modes Edge control/Positioning Outer diameter judgment mode H. Measurement Modes Edge control/Positioning Outer diameter judgment mode H. Measurement Modes Edge control/Positioning Outer diameter judgment mode H. Measurement Modes Edge control/Positioning Outer diameter judgment mode H. Measurement Modes Edge control/Positioning Outer diameter judgment mode H. Measurement Modes Edge control/Positioning Outer diameter judgment mode H. Measurement mode H. Meas
Configuration Software (IG-H1) 2 Click the [Communication settings] button.6-2 Before Use RS-232C Item Description COM ports are not present on the PC, the display shows blank and communication with the IG is not available.6-2 Before Use "When [Read out the
Optical Axis Alignment When the optical axis alignment indicators [ALIGNMENT] of transmitter, receiver and amplifier do not light even if the sensor head axis of the sensor head is installed and turned on, align the optical axis of the sensor head is installed and turned on, align the optical axis of the sensor head is installed and turned on, align the optical axis of the sensor head. A-7 Page 5 Page 6 Page 7 1-2 1 Bef ore Use IG-E 1-1 Overview of the IG Series This unit receives laser light from the
Measurement Value) and P.V. (Judgment Value) ......... After reading, keep this manual in a safe place so that you can refer to it at any time. Introduction This manual describes the basic operations and information of the IG Series. Use a direct currentstabilized power source which uses an insulation transformer. • When using a commercially available and III are the commercial 
switching regulator, make sure to ground the frameground terminal. The IG Series conforms to the CE Marking. * R.V. = Raw Value "3-6 Setting the Tolerance Setting Value" (page 3-11) The judgment value (P.V.3-2 Operations on the Main Screens Sub Display (Lower Level) The sub display can be switched with the arrow buttons W / X. 3-8 3-4
 Registering the Standard Waveform (Gain adjustment) ...... 2 ms Timing Input Max. Measurement mode: Only the Edge control/Positioning mode or Glass edge mode selectable "1. 4-173. 3 Push the expansion unit into the main unit connector until a clicking sound can be heard. 3-83-4 Registering the Standard Waveform (Gain adjustment)......
(1) When turning on the amplifier for the first Time" (page 3-2) (2) When performing the initial reset "3-5 Initial Reset (Initialize)" (page 3-10) • Expansion units with different setting of output polarity (such as an NPN output expansion unit to a PNP
 output main unit) cannot beconnected together. • When water or foreign matter enters the IG Series such as glass, more light is blocked by Transparent the edge of the target that the interior of the target.4-2 Basic Settings and
 Advanced Settings Pin position measurement mode The internal measurement value (R.V.) is determined by measuring the distance from the edge of the measurement indicator Displays whether the judgment value (P.V.) is HIGH
(over the upper limit), GO (within the acceptable range) or LOW (below the lower limit) against the tolerance setting value. • Press the [ZERO SHIFT] button (within 1 second)
                                                                                                                                                                                                                                                                                                  .5-1 Specifications Sensor Head Model Operation principle IG-028 CCD method Visible light semiconductor laser (Wavelength: 660 nm) Light source Laser class
 distance: 40 mm) φ0.5-1 Specifications Sensor Amplifier Output Analog output (selectable among ±5 V, 1-5 V, 0-5 V, 4-20 mA) Output resistance Maximum load resistance Repetition accuracy Display accuracy Temperature characteristics Update cycle Response delay time Time constant*3 Voltage output Current output ±5 V (full scale
 10 V) 4-20 mA (full scale 16 mA) 100: 350: ±1mV ±1.5 PA ±0.05 % of F.S. ±0.05 % of F.S. ±0.005 % of F.S. ±0.
Gray (GO judgment output)/Green (edge check output)/Green (edge check output)/Green (edge check output)/Green (edge check output)/White (LOW judgment output)/Green (edge check output)/White (LOW judgment output)/Green (edge check output)/Green (edge ch
 Purple(External input 3)/Purple (External input 3)/Purple (External input 4) 5-5 Specifications (Short-circuit current 2 mA o5-3 Dimensions Sensor Amplifier IG-1000/IG-1050 unit: mm Cable diameter: φ4.8 Ma x. 3-1 Operation When the Power is Turned on for the First Time...... Hold function ....
read/write setting switch is set to RW.6-2 Before Use "When [Start monitoring for IG.] is selected When selecting [Start monitoring for IG.] is selected Whe
minute, the power saving indication is activated with the sensor head. 4-51Response Time When the Bank A input, Bank B input are set for the external inputs, the bank a input, Bank B input, Bank B input, Bank B input are set for the external inputs. 2-
2 2-2 Connecting and Mounting the Sensor Head...... Doing somay cause fire or electric shock. Before disconnecting the cables, make sure to turn off the main unit. Otherwise, the unit may be damaged. Do not turn off the power while setting items. Item Timing Input Setting range NGXGN (Level), GFIG
(Edge) Default value NGXGN For details, refer to the "5. Furthermore, thejudgment output is turned on after the number of times for averaging (response time) elapses. Power supply may cause malfunction. Edge control/Positioning mode B. 15 When the cover is open: Max. Delay
                                                                                            ... Inner diameter D.1-1 Overview of the IG Series Center position measurement Pitch measurement E. Hold function The holding method is set for the judgment value (P.V.). 1General Precautions .....
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .. IG-E 6-1 Software Licensing
                                           .. Applicable standards are as follows: •EMC DirectivesEMI: EN60947-5-2 (class A)EMS: EN60947-5-2 • Low-voltage DirectivesEN60825-1The IG Series complies with the following UL/CSA standards and has obtained the UL/C-UL certifications. • Applicable standards UL508 Industrial Control EquipmentCAN/CSA C22.2
No.14-M05 Industrial Control Equipment UL File No. E301717 UL category NRKH, NRKH7Precautions For the IG Series power supply, be sure to use the UL Listing certified power supply that provides class 2 output as defined in NFPA70 (NEC: National Electrical Code) in the U.S.A. The IG Series has obtained the UL certification with the
combination of the sensor headand sensor amplifier. Then display the HIGH side setting value on the sub display (lower level). 3-17Canceling the Zero Shift (Reset)...
                                                                                                                                                                                                                                                                                                                         . " 11. 6-3 6-2 Before Use ....
                                                                                                                                                                                                                                                                                                                                                                                                                                                   . 20 ms Bank A input ON OFF Max.4-2 Basic Settings and Advanced
Settings Laser emission stop input The laser emission continues to stop while the laser emission stop input is ON. 6-28 Appendix Troubleshooting...
                                                                                                                                                                                                                                                                                                                      . If the read/write setting switch is set to R, communication is not possible.6-2 Before Use Connecting with a Computer For connecting the DL-RS1A to a
                                                                                                                                                                                                                                                                                                                                            • Confirm the DL-RS1A read/write setting switch is set to RW. 1Safety Precautions on Laser Product .
PC, refer to "RS-232C Communication Unit DL-RS1A User's Manual". The attaching method is the same for both transmitter and receiver. Shift target value .4 Index Symbol 2 heads Mode ..
Display Screen and Output" (page A-9) • If the object is in the following status, the internal measurement value (R.V.) becomes [].4-2 Basic Settings and Advanced Settings Glass edge mode Use this mode if the object is transparent such as glass.
expansion unit 1.2-1 Mounting and Wiring the Sensor Amplifier Panel mount type, main unit (IG-1500) 1 Make a hole on the panel to attach according to the size below. When the timing input is turned OFF, the next sampling period begins. Note • Before selecting [Read out the configuration data from IG.], check if the PC and the IG Series are
                                                                                                                                                                                                                                                                  .. • Confirm that the IG is turned on. Setting range: -99.999 to 99.999 Default value: 0.100 Timing Input When settings other than the Auto peak hold or Auto bottom hold are set, the
properly connected. 4-44Filter Value..
                                                                                                                                                  . 1-2Specialized Measurement Modes...
timing input can be set.6-4 Configuration Tab Item Analog output Scaling Upper limit Lower limit External Input: Function selection Input1 (Pink) 6 Description Default When arranging widthwise to attach when arranging widthwise to attach when the free range is set, the upper limit and lower limit tank of the set. When arranging lengthwise to attach when arranging widthwise to attach when arranging widthwise to attach when arranging widthwise to attach when arranging lengthwise to attach when arranging widthwise to attach when arranging lengthwise to attach when arranging widthwise width when arranging widthwise width when arranging widthwise width when arranging widthwise width when arranging widthwise widthwise width when arranging widthwise widthwise width when arranging widthwise wi
mm• X=48 x (number of amplifiers) -3 45mm X mm + 0.6-0 Min. 3-12Automatic Setting....
                                                                                                                                                                                                                       .... A-10 Index .....
                                                                                                                                                                                                                                                                                                                                            ...Before Use 1 This chapter describes the overview of the IG Series and the name and function of each part. 4 ", Details Top Top R.V. R.V.
Measurement range Bottom Reference Bottom • If there is no object present, the internal measurement value (R.V.) becomes []. Top Top R.V. R.V.4-2 Basic Settings Inner diameter. Subsequent expansion units are referred to as expansion
unit 2, expansion unit 3, etc. Page 23 2-1 Mounting and Wiring the Sensor Amplifier 2-6 2 In s talla tion and C onnecting power/Input-output cable to the panel mount type main unit and connect theinput-output cable to the expansion units. 4-4 4-3 Setting the
                                                      ... The normal display is restored by pressing any of the buttons. 4-2 Basic Settings and Advanced Settings z Display example of the normal setting The range with the green LED ON is the measured target and the internal measurement value (R.V.) is determined. A-2 2 Display Screen and Output
The external input is not required. Interference caused by light diffraction function (only for IG-1000/1500) This function allows the amplifier to prevent the mutual interference caused by light diffraction between the "main unit" and the "expansion unit 1" only.
The same setting range and default value are set for each bank.6-4 Configuration Tab Advanced Settings and Adv
registering the standard waveform (Gain adjustment). 85mm Installation and Connection 45mm + 0.6 -0 * Panel thickness 1 to 6 mm • X=48 x (number of amplifiers) -3 2 3 Insert the back side of amplifier to the hole of panel.2-1 Mounting and Wiring the Sensor Amplifier Panel mount type, expansion unit (IG-1550) Several
expansion units can be used in connection with the main unit. ... KEYENCE supports customers from the selection process to line operations with on ... 1-81-3 Part Names and Functions......
                                                                                                                                                                                                                                                                                                                                                             .. "3-7 Zero Shift Function (Shifting the Internal Measurement Value (R.V.))" (page 3-16) (7) Sub display indicator Lights up
according to the type of values displayed on the sub display. The judgment value (P.V.) is shifted (offset) as well. Make the settings for NPN output and PNP output and PNP output and PNP output. Note • When connecting the expansion units, make sure to initialize the connected expansion units and set the output polarity. 4-47Addition Mode
                                                                                                                                                                                                   ... The IG Configurator starts, and the main screen and the [How to start] dialog box appears. Specify the two edges for measurement. Continuing to use this product under abnormal conditions may cause product failure. • When
                                                                                    6-12 6-4 Configuration Tab ...
water or foreign matter enters the IG Series to avoid any damage in the event that a problem occurs, 3-16Setting
                                                                                          head is connected, the initial setting screen appears after a few seconds. 5-5 5-3 Dimensions......
                                                                                                                                                                                                                                   .. 15 *1 Cable specification: IG-1000 12 cores, Nominal cross-section area brown/blue: 0.20 mm2, others 0.15 mm2: IG-1050 8 cores, Nominal cross-section area: 0.15 mm2 *2 Not mounted on the IG-1000.
Continuing to use this product under abnormal conditions may cause product failure. 2 Press S / T button to set the sensitivity setting and press X button.4-4 Calculation Function The internal measurement value (R.V.) for the "main unit" and the "expansion unit additionally installed next to the main unit (referred to as expansion unit 1)" can be
calculated (addition or subtraction). 4-47 4-5 Calibration Functions operable on the main screen and functions ope
[SET] button.3-7 Zero Shift Function (Shifting the Internal Measurement Value (R.V.)) The internal measurement value (R.V.) is shifted (offset) to an arbitrary shift target value. 4-2Functions Available on the Main Screen......
                                                                                                                                                                                                                                                                                                                                                                                                    ..... "Output Circuit Diagram" (page 5-4) Is the tolerance setting value set correctly? 4-49 A Addition
                                            . The IG Configurator finishes. 6-6 Menu Bar "Transfer the configuration data to the IG From the menu, select [Communication]o[Transfer the configuration data to IG]. Before transfer, check that the PC (IG Configurator) and the IG Series are properly connected. Measurement mode
                                                                                                                                                                                            . When the key lock function is active, operations other than switching the main screen and canceling the key lock function are disabled. "3-7 Zero Shift Function (Shifting the Internal Measurement Value (R.V.))" (page 3-16) (7) Sub
                                                                       ... 3-3 Sub Display (Lower Level) .....
display indicator Lights up according to the type of values displayed on the sub display. Short cut key: F1 " About IG Configrator From the menu, select [Help]o[About IG Configrator]. 6-12 Main Window ....
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ........... Functions other than "Auto peak hold" and "Auto
                                                                                                                                                                                                                                                                                                                                                                                                                  .. 5-4 Analog Output Scaling ........
bottom hold" are held using the external input (timing input). Connecting the units with the power turned ON may cause damage to the units. The following four tabs can be selected on the main panel switching selection screen
[MODE] or X 5. Measurement direction: Top [VQR] R.V. Bottom Transmitter Setting Various Functions Top Lights in red: Lights in green: Off: R.V. Top Bottom Received. Reference 6 • For details on each function, refer
to the sections below. Free range Setting Various Functions Scaling is performed.4-2 Basic Settings and Advanced Settings 11. 5-6Sensor Head ......
                                                                                                                                                                                                                                                                                                                          . 5-2 Sensor Head .
                                                                                                                                                                                                                                                                                                                                                                                                                                             . 1Abnormal Conditions...
Functions Operable on the Main Screen DIN rail mount type (IG-1000/IG-1050) 3 Panel mount type (IG-1500/IG-1550) Basic Operations Main screen HOLD LASER HI GO LO ALIGNMENT BANKO 1 2 3 R.V. HI CALC CHECK ANALOG LO SHIFT TIMING Press W or X button.3-2 Operations on the Main Screen Series Available Functions from
the Main Screen Main screen HOLD LASER HI GO LO ALIGNMENT BANKO 1 2 3 R.V. HI CALC CHECK ANALOG LO SHIFT TIMING Press [MODE] button for approx. 8 and 9 and Averages data 3 to outputs data A.4-2 Basic Settings and Advanced Settings 4. 3-213-10 Selecting the Display Unit ....
                                                                                                                                                                                                                                                        ..... If the judgment value (P.V.) fluctuates due to the vibration of the object, etc. Start IG Configurator starts with the following procedure. 3Precautions on UL Certificate
12. Note that the hysteresis affects the ON/OFF timing of the actual judgment output. 3-18 Setting items registered with the bank ...
                                                                                                                                                                   ...... 3-103-6 Setting the Tolerance Setting Value .....
                                                                                                                                                                                                                                                                                      .... Note Reference • Before selecting the monitor tab, check if the PC (IG Configurator) and the IG Series main unit are properly connected. How to go to the setting screen
Press the [MODE] button for approx. Sensor Amplifier Wiring Note • The number of core wire of Input-output cable for the main unit is 12, and the number of core wire of Input-output cable for the expansion units is 8. If the green LED all lights off, the internal measurement value (R.V.) is determined as [ ]. 6 IG Configuration Software (IG-H1)
Click the [Close] button after the files are saved.6-5 Monitor tab Function Screen The configurations of the sensor amplifier being monitored and the measurement status are displayed. HOLD LASER HI Appendix GO LO ALIGNMENT BANKO 1 2 3 R.V.2 Display Screen and Output Normally, the judgment value (P.V.) is displayed on the main display
(upper level). • Shield the other transmitter laser light to prevent it from entering the laser receiver. 4-206. "When [Create a new configuration/Monitor switching tab When the tab is switched between the configuration tab and the monitor tab, the main panel display is switched either to the
configuration screen or the monitor screen. 5-4 Output Circuit Diagram .....
                                                                                                                                                                                      .... • Use the interference prevention function. 4 Setting example 1 Item Expansion unit Main unit Main unit Setting Various Functions Expansion unit 1 1.4-4 Calculation Function Subtraction Mode In the subtraction mode, the value
obtained by subtracting the internal measurement value (R.V.) for the "expansion unit 1 (B)" from the internal measurement value (R.V.) for the "main unit (A)" is considered as the calculation value (R.V.) for the "main unit 1. By using the bank function, each setting item registered beforehand can be switched easily.3-8 Bank Function
(Registering Multiple Tolerance Setting Values) How to Switch the Bank The following two methods can be used to switch the bank. Setting range: -99.999 to 99.999 Default value: Default v
Configuration Tab Transfer of Configuration data Transfer the configuration data to the IG Series after all settings are complete. When the standard waveform is registered with the sensor amplifier button operation, it is saved on the nonvolatile memory (EEPROM) regardless of the settings and Advanced Settings 14. Delay timer 8.
```

.. 20 ms Min.4-2 Basic Settings and Advanced Settings Timing Input When the timing input is turned ON while using the hold function, the judgment value (P.V.) is held. 4 ", Details Top B C Top R.V. A Measurement range Bottom B R.V. A C Bottom z "2. 1-6Sensor

sensor head connection cable to the required length and attach the new connector to use the sensor. 2-12Chapter 3 Basic Operations3-1 Operations When the Power is Turned on for the First Time............ 4-174. Reference "3-8 Bank Function (Registering Multiple Tolerance Setting Values)" (page 3-18) Starting the Key Lock HOLD LASER HI GO LO ALIGNMENT BANKO 1 2 3 R.V.3-10 Selecting the Display Unit When a particular operation is performed during the initial setting is necessary for both the main unit and the expansion units when units are added. For the panel

. Panel mount type (IG-1500/IG-1550) Left: T side DIN rail mount type (IG-1000/IG-1050) Top: T side Red O-ring The connecting and Mounting the Sensor Head Attaching the sensor head cable connector (OP-84338) Cut the

Saving zero shift value function ...

Unit, was indee than 10 influes after the power is turied on for the statuted waveforms. 42 Days C. C. Thomas and Section Sciences and
Names and Functions
HIGH judgment output and LOW judgment output operations from OFF to ON is delayed. Hold function 6. When arranging lengthwise to attach When arranging widthwise width widthwise widthwis
range of one sensor head can be measured. Some or allof the set data may be lost. Page 54IG-ETable of Contents Introduction Safety Information for IG series
unit. Up to 3 expansion units can be connected to one main unit. Setting items Default value HIGH side setting value . "5-1 Specifications" (page 5-2) When the mounting distance is long and the object increases. Measurement mode" (page 4-8) "2.6-4 Configuration Tab Threshold
(Tolerance Setting Value)/Target value for shift Main panel switching tab 6 For details on each function, refer to the sections below. Measurement direction as seen by the receiver is defined as point C.4-2 Basic Settings and Advanced Settings Pin interval judgment of the top most light to dark transition as seen by the receiver is defined as point C.4-2 Basic Settings and Advanced Settings Pin interval judgment of the top most light to dark transition as seen by the receiver is defined as point C.4-2 Basic Settings and Advanced Settings Pin interval judgment of the top most light to dark transition as seen by the receiver is defined as point C.4-2 Basic Settings and Advanced Settings Pin interval judgment of the top most light to dark transition as seen by the receiver is defined as point C.4-2 Basic Settings and Advanced Settings Pin interval judgment of the top most light to dark transition as seen by the receiver is defined as point C.4-2 Basic Settings Pin interval judgment of the top most light to dark transition as seen by the receiver is defined as point C.4-2 Basic Settings Pin interval judgment of the top most light to dark transition as seen by the receiver is defined as point C.4-2 Basic Settings Pin interval judgment of the top most light to dark transition as seen by the receiver is defined as point C.4-2 Basic Settings Pin interval judgment of the top most light to dark transition as point C.4-2 Basic Settings Pin interval judgment of the top most light to dark transition as point C.4-2 Basic Settings Pin interval judgment of the top most light to dark transition as point C.4-2 Basic Settings Pin interval judgment of the top most light to dark transition as point C.4-2 Basic Settings Pin interval judgment of the top most light to dark transition as point C.4-2 Basic Settings Pin interval judgment of the top most light to dark transition as point C.4-2 Basic Settings Pin interval judgment of the top most light to dark transition as point Pin interval judgment of the top most light to dark transiti
mode The intervals (openings) of transmitted light as seen by the receiver are measured and judged if they are all within the acceptable range. Hysteresis" (page 4-30) Delay timer off 4 The delay
Contents 5-4Apalog Output Circuit • Turn ON the zero shift input of external input for 20 ms or more 1
Contents
General Telegraphy Model of the model of the first of the
runction (Registering Multiple Tolerance Setting Values) Using the bank function, you can register up to four patterns of specified tolerance settings. [MODE] or A button Description The Calculation function is not used.4-5 Cambration Function when there is difference between the internal measurement value (R.v.) and the actual dimension of the
object, the value can be corrected. 3CE Marking
the IG Series can be used forvarious purposes. Page 11 1-6 1 Bef ore U s e IG-E 1-2 Checking the Package Contents The following equipment and accessories are included in the package. 3-18Setting items registered with the bank
Basic Settings and Advanced Settings Zero shift input When the zero shift input When the zero shift input is set to ON, the internal measurement value (R.V.) is shifted (offset) to an arbitrary shift target value. 4-54 Chapter 5 Specifications 5-1 Specificatio
is disassembled. Do not stare into the beam. Sensor Head IG-010/IG-028Wavelength 660 nmOutput 62 PWPluse width 48 PsFDA(CDRH)Part1040.10 * Class 1 Laser ProductIEC60825-1 Class 1 Laser ProductIEC6083EPage 3IntroductionThis manual describes the basic operations and information of the IG Series. Read this manual carefully to ensure
performance and function of the IG Series for safe use. Keep this manual in a safe place for future reference. Make sure this manual is kept by an end user finally. Symbols alert you to matters concerning the prevention of human injury and product damage. Provides advanced and useful information for operation. Provides reference
pages.DANGERFailure to follow instructions and mishandling the product maylead to death or serious injury.WARNINGFailure to follow the instructions may lead to injury.CAUTIONFailure to follow the instructions may lead to injury.CAUTIONFailure to follow the instructions may lead to injury.WarningFailure to follow the instructions may lea
environmentTo use this product normally and safely, do not install this product in the following locations. Product failure may occur. High-humidity, dusty and poorly-ventilated locations where the unit is exposed to direct sunlight. Locations where there is corrosive or combustible gas. Locations where the unit may be
directly subjected to vibration or impact. Locations where water, oil or chemicals may splash onto the unit. Locations where static electricity tends to be generated Influence of dirt Measurement errors may occur due to dust, water, oil, etc Blow away dirt on the transmitter and the receiver with clean air. The judgment indicator on the sensor
amplifier operates in the same way as Normally Open regardless of the output mode 5. 2 ZERO SHIFT TIMING Calibration setting SHIFT Press [MODE] button and X button for approx.4-5 Calibration Function Setting Method 2 (Two
point Calibration) Main screen HOLD LASER HI GO LO ALIGNMENT BANKO 1 2 3 R.V. HI CALC CHECK ANALOG LO 1 [ .END] is displayed on the main display
(upper level). "15.6-5 Monitor tab Item Configuration 6 Description IG Configuration Software (IG-H1) Sensitivity tab When the [Register the standard waveform] button is clicked, the standard waveform can be registered (Gain adjustment). Article 1 License agreement 1 KEYENCE grants you nonexclusive license of this software, provided that you
observe this agreement.6-1 Software Licensing Conditions Trademarks • Windows 2000, XP and Vista are registered trademarks of Microsoft Corporation in the United States. 2 seconds on the main screen. "10.4-2 Basic Settings and Advanced Settings Pin diameter judgment mode The diameters of all targets in the measuring range are measured
and judged if they are all within the acceptable range. 4-32 11. Analog output scaling for the judgment value (P.V.) is set. 2Precautions on Use
010: 3 to 500 mm • IG-028: 50 to 500 mm If the distance is beyond the above ranges, align the optical axis after mounting distance and insertion position of a target Measurement accuracy changes depending on the mounting distance between the transmitter and receiver of the sensor head
and insertion position of the object.2-2 Connecting and Mounting from the sensor side Fix using the commercially available screws (IG-010: M3, IG-028: M4). 3-18How to Switch the Bank
Method
installed near noise source such as a power source or high-voltage line, operational errors or product failure may occur. Mount the transmitter/receiver correctly. Problem Check points Button operations are ignored. For details on DL-RS1A, refer to "RS-232C Communication Unit DL-RS1A User's Manual". Page 14 1-9 1 Bef ore U s e IG-E 1-3 Part
Names and Functions DIN rail mount type (IG-1000/IG-1050) *1 When shipped from the factory, the protective cover for expansion slots is installed on the main unit (IG-1000). and the judgment output repeats ON/OFF. The power saving indication is activated as soon as the
setting is complete. (LOW side 1st point confirmation operation) The internal measurement value (R.V.) is imported as a good target measurement value. 3-193-9 Key Lock Function
transitions, the unit is able to measure those areas accurately.1-1 Overview of the IG Series Specialized Measurement mode: Inner diameter/Opening measurement [E. • When the internal measurement value (R.V.) is [], it is regarded as
0.000. (2) Laser emission indicator Lights on while the laser beams are emitted. IG-E 5-1 Specifications
Manual Setting
Button
transmitter and receiver near the center of the range where the optical axis alignment indicators [ALIGNMENT] light up.3-4 Registering the Standard Waveform before measuring. • Set the external input (zero shift input) to ON for 20 ms or more.** When the zero shift input is set for the
external input 1 (pink wire), the zero shift is enabled by the external input. Measurement mode" (page 4-8). However, in theevent of defective or broken items, contact your nearest KEYENCE office. Page 12 1-2 Checking the Package Contents 1-7 1 Bef ore U s e IG-E Sensor Head IG-010 (Measurement range: 10 mm) Transmitter x 1 Receiver x 1
Sensor head connection cable (2 m)x 2 IG-028 (Measurement range: 28 mm) Transmitter x 1 Receiver x 1 Sensor head connection cable (2 m)x 2 Page 13 1-2 Checking the Package Contents 1-8 1 Bef ore Use IG-E For Sensor head connection cable (2 m)x 2 Page 13 1-2 Checking the Package Contents 1-8 1 Bef ore Use IG-E For Sensor head connection cable (2 m)x 2 Page 13 1-2 Checking the Package Contents 1-8 1 Bef ore Use IG-E For Sensor head connection cable (2 m)x 2 Page 13 1-2 Checking the Package Contents 1-8 1 Bef ore Use IG-E For Sensor head connection cable (2 m)x 2 Page 13 1-2 Checking the Package Contents 1-8 1 Bef ore Use IG-E For Sensor head connection cable (2 m)x 2 Page 13 1-2 Checking the Package Contents 1-8 1 Bef ore Use IG-E For Sensor head connection cable (2 m)x 2 Page 13 1-2 Checking the Package Contents 1-8 1 Bef ore Use IG-E For Sensor head connection cable (2 m)x 2 Page 13 1-2 Checking the Package Contents 1-8 1 Bef ore Use IG-E For Sensor head connection cable (2 m)x 2 Page 13 1-2 Checking the Package Contents 1-8 1 Bef ore Use IG-E For Sensor head connection cable (2 m)x 2 Page 13 1-2 Checking the Package Contents 1-8 1 Bef ore Use IG-E For Sensor head connection cable (2 m)x 2 Page 13 1-2 Checking the Package Contents 1-8 1 Bef ore Use IG-E For Sensor head connection cable (2 m)x 2 Page 13 1-2 Checking the Package Contents 1-8 1 Bef ore Use IG-E For Sensor head connection cable (2 m)x 2 Page 13 1-2 Checking the Package Contents 1-8 1 Bef ore Use IG-E For Sensor head connection cable (2 m)x 2 Page 13 1-2 Checking the Package Contents 1-8 1 Bef ore Use IG-E For Sensor head connection cable (2 m)x 2 Page 13 1-2 Checking the Package Contents 1-8 1 Bef ore Use IG-E For Sensor head connection cable (2 m)x 2 Page 13 1-2 Checking the Package Contents 1-8 1 Bef ore Use IG-E For Sensor head connection cable (2 m)x 2 Page 13 1-2 Checking the Package Contents 1-8 1 Bef ore Use IG-E For Sensor head cable (2 m)x 2 Page 13 1-2 Checking the Package Contents 1-8 1 Bef ore Use IG-E For Sensor head cable (2 m)x 2 Pag
RS1A" is required. 4-17 B Saving the standard waveform functionL Laser emission stop input
Direction
(expansion units) on the panel. For the amplifier mounting method, refer to the "Panel mount type, main unit". Make sure to use the IG Series sensor head together with the IGSeries sensor head together with the IGSeries sensor head together with the IGSeries sensor head together with over current protection device which is rated
30V or more and not more than 1A. Other Precautions CE Marking Precautions on UL Certificate Page 75IG-ER.V. (Internal Measurement Value) 6-11 6-3 Part Names and Functions
4-40) Is the transmitter/receiver correctly mounted? Type Setting items 1. Click the [Yes] button on the confirmation dialog box for the transfer of configurations. 4-492 heads Mode
standard waveform when the unit is used for the first time, the setting environment is changed, or the measurement sensitivity is changed and standard waveform registration are initialized. Specified edges interval measurement mode
Page 10 1-1 Overview of the IG Series 1-5 1 Bef ore U s e IG-E The IG Series include main units (IG-1000, IG-1500) and expansion units (IG-1050, IG-1550). Display pattern 1 1. (Initial value: "mm") "3-5 Initial Reset (Initialize)" (page 3-10) Main screen HOLD LO ALIGNMENT CALC CHECK LASER HI GO BANKO 1 2 3 ANALOG LO R.V. HI SHIFT ZER
SHIFT TIMING While pressing the [MODE] button, press the [SET] button 5 times. Setting Various Functions of the IG Series. Measurement mode: Pin position measurement [G. (8) Sub display Displays the internal measurement value (R.V.), analog output value and each setting (selection) item. Connect
the receiver correctly. Pin position measurement mode F. 3 Arrange the panel mounting tool in the direction below, fix to the amplifier from the back and attach the front protection cover to the amplifier from the back and attach the front protection cover to the amplifier. 6-21Monitor Tool Bar
to insert. Read this manual carefully to ensure performance and function of the IG Series for safe use. 3-16Starting the Zero Shift
recommended in case of accidents such CDROM damage, etc. The [System setting] dialog box appears. 6-16Advanced settings and Advanced settings and Advanced settings and clicking the system setting the system setting is
changed. "5. When this setting is OFF, the laser emission timing is synchronized within 20 Ps. (When the average number of times is set to hsp: within 40 Ps) "3.4-2 Basic Settings and Advanced Settings 16. This section describes the judgment."
oranges. or river and occurred build appear of the second control and results of the figure and the figure of the second control and the second contr

Measurement mode Edge control/Positioning 2.4-4 Calculation Function Note • When the 2 heads mode is used, the functions of the "main unit" are restricted as below. Hysteresis 9. 1. 3-3Page 63IG-EWarm UpTo use the

..... Average number of times (Response time) 4. All rights reserved. Page 21IG-ESafety Information for IG series. At startup and during operation, be sure to monitor the functions and performance of this product and confirm normal

.... A-2Error displays and corrective actions .......

...... 4 ", Specifying the edge Setting Various Functions

.. Timing input Advanced setting 7. 6-26Communication ... ...... 2 ms ON OFF Min. To remove the panel mounting tool, widen the claws at both ends of the panel mounting tool using a slotted screwdriver, etc. When selecting the system configuration of the IG Series and clicking the [OK] button, the configurator starts with the default value for each configuration of the IG Configurator. 2 ms "6.4-2 Basic Settings and Advanced Settings z When Peak hold, Bottom hold or Peak-to-peak hold is set "6. Display Digit ........ Make the initial settings according to the following procedure. 0.5 sec. Pin diameter judgment mode 1-4 H.1-1 Overview of the IG Series include main units (IG-1000, IG-1500) and expansion units (IG-1050, IG1550). "3-6 Setting the Tolerance Setting Value" (page 3-11) Item Hysteresis Setting range 0.000 to 99.999 Default value 0.020 Judgment value (P.V.4-2 Basic Settings and Advanced Settings 9. 3-19 3-9 Key Lock Function . . "3-6 Setting the Tolerance Setting Value" (page 3-11) "3-7 Zero Shift Function (Shifting the Internal Measurement Value (R.V.6-4 Configuration Tab Sensitivity tab ... Measurement direction Setting Various Functions Basic setting 4 3. 2 To dismount the sensor, raise the main body in the direction of the arrow (3) while pushing the main body in the direction of the arrow (1). 4-2Functions Available after the Display Changes to Each Setting Screen.... 1-6 1-3 Part Names and Functions ......... .....1-1 Overview of the IG Series Measurement Principle 1 Before Use This unit receives laser light from the transmitter. Lock lever 4 Connect the sensor head connection cable on the transmitter side to the [T] connector of amplifier. ANALOG LO Q(([.ECN] is displayed on the main display (upper level). 4-32 Attaching the sensor head cable connector (OP-84338:) ..... Move the attaching angle of the transmitter and receiver cable (only for panel mount type) 2 Connect the power/input-output cable to the panel mount type main unit and connect the input-output cable to the expansion units.2-1 Mounting and Wiring the Sensor Amplifier Power/Input-output cable to the expansion units.2-1 Mounting and Wiring the Sensor Amplifier Power/Input-output cable to the expansion units.2-1 Mounting and Wiring the Sensor Amplifier Power/Input-output cable to the expansion units.2-1 Mounting and Wiring the Sensor Amplifier Power/Input-output cable to the expansion units.2-1 Mounting and Wiring the Sensor Amplifier Power/Input-output cable to the expansion units.2-1 Mounting and Wiring the Sensor Amplifier Power/Input-output cable to the expansion units.2-1 Mounting and Wiring the Sensor Amplifier Power/Input-output cable to the expansion units.2-1 Mounting and Wiring the Sensor Amplifier Power/Input-output cable to the expansion units.2-1 Mounting and Wiring the Sensor Amplifier Power/Input-output cable to the expansion units.2-1 Mounting and Wiring the Sensor Amplifier Power/Input-output cable to the expansion units.2-1 Mounting and Wiring the Sensor Amplifier Power/Input-output cable to the expansion units.2-1 Mounting and Wiring the Sensor Amplifier Power/Input-output cable to the expansion units.2-1 Mounting and Wiring the Sensor Amplifier Power/Input-output cable to the expansion units.2-1 Mounting and Wiring the Sensor Amplifier Power/Input-output cable to the expansion units.2-1 Mounting and Wiring the Sensor Amplifier Power/Input-output cable to the expansion units.2-1 Mounting and Wiring the Sensor Amplifier Power/Input-output cable to the expansion units.2-1 Mounting and Wiring the Sensor Amplifier Power/Input-output cable to the expansion units.2-1 Mounting and Wiring the Sensor Amplifier Power/Input-output cable to the expansion units.2-1 Mounting and Wiring the Sensor Amplifier Power/Input-output cable to the expansion units.2-1 Mounting and Wiring the Sensor Amplifier Power/Input-output cable to the expansion units.2-1 Mounting and Wiri

To specify the edge, when counting from the top, use a positive number (1 to 99). We have thoroughly inspected the package contents before shipment. Inner diameter D. "8. c Functions for the external inputs are changed from the factory default setting. Corrective actions Is there mutual interference? 6-3 6-2 Before Use

value (P.V.) display Judgment display Analog output value display Internal measurement value (R.V.) display Function selection tab "Sensitivity tab", "Tolerance setting value tab", "Measurement mode tab" The above four tabs can be selected. 4-4015. The laser emission continues to stopwhile the external input is ON. 5-2 5-2

operation. We recommend that you take substantial safety measures to avoid any damage in theevent that a problem occurs. If the product is modified or used in any way other than those described in thespecifications, its functions and performance cannot be guaranteed. When this product is used in combination with other devices, the functions and performance may be weaken, depending on the operating conditions, surrounding environment, etc. • Do not subject each device including peripheral devices to rapid temperature change. Product failure may occur due to condensation. \* The classification is based on IEC60825-1 standard following the Laser Notice No.50 from FDA (CDRH). Laser emission stop input when the laser emission stop input is set for the external input, the laser emission stop bysetting the external input, the laser emission stop input is set for the external input is set for the external input, the laser emission stop input is set for the external input is set for the external input is set for the external input, the laser emission stop input is set for the external input is set for the external input, the laser emission stop input is set for the external input, the laser emission stop input is set for the external input, the laser emission stop input is set for the external input, the laser emission stop input is set for the external input, the laser emission stop input is set for the external input, the laser emission stop input is set for the external input, the laser emission stop input is set for the external input, the laser emission input is set for the external input, the laser emission input is set for the external input, the laser emission input is set for the external input, the laser emission input is set for the external input is set for the external input, the laser emission input is set for the external input is set for the exter SHIFT TIMING (1) R.V. display screen Basic Operations \* Displayed only for the main unit and when the analog output is used.3-2 Operations on the Main Screens (1) R.V. displayed only for the main unit and when the analog output is used.3-2 Operations on the Main Screen Basic Operation Basic Operations on the Main Screen Basic Operation Basi object is skewed increasing measurement error. To increase the measurement accuracy, make the mounting distance as short as possible and move the insertion position of the object closer to the receiver. "6-4 Configuration Tab" (page 6-14) "6-5 Monitor tab" (page 6-20) Main panel The main panel displays the configuration screen and the monitor screen of the sensor amplifier.6-4 Configuration Tab When the configuration tab is selected, the sensor amplifier can be set. (lightshielding object). CCD IG Series User's Manual Read this manual before using in order to achieve maximum performance. Turn the power on again. Each amplifier's settings before the system setting change are not changed. The CCD is a linear array of light receiving lements. (8) Sub display Displays the internal measurement value (R.V.), analog output value and each setting (selection) item.1-3 Part Names and Functions Sensor Head Unit 1 IG-028/IG-010 Transmitter Receiver Before Use (7) Laser transmitter (6) Laser receiver (5) Position Monitor (1) Optical axis alignment indicator [ALIGNMENT] (2) Power indicator [POWER] (4) Optical axis alignment indicator Description Lights up when the optical axis is successfully aligned. Installation and Connection 2 This chapter describes precautions

while the target is not present within the measurement range. 1 35° 3 17.4 17.6 42.4 37.4 5 20 21.6 35.4 76.3 Min. CAUTION • When connecting the expansion units, make sure to initialize the connected expansion units, make sure to initialize the connecting power/Input-output output LOW judgment output GO judgment output GO judgment output GND External input 3 (Timing input) \*1 IG-1050/IG-1550 (expansion units) do not have brown, blue or li2-2 Connecting and Mounting the Sensor Head Mounting the Sensor Head Mounting the Sensor Head Mounting 2 Installation and Connection If the mounting distance between the transmitter and receiver is as follows, the optical axis alignment is not necessary when mounting within the "parallel acceptable range" and "tilt acceptable range". Timing input Calculation value = (A's R.V.) - (B's R.V.) Setting example 1 Only levels can be measured with the parallel movement of the object ignored. "Symbols alert you to matters concerning the prevention of human injury and product damage. Lock cover Locked 2 When removing the sensor head connection cable, push the lock lever and pull it out. GFI], Glass edge [F. 4 Judgment value (P.V.). • Addition Mode • Subtraction Mode • 2 heads Mode Note "1.4-4 Calculation Function Addition Mode In the addition mode, the added value of the internal measurement value (R.V.) for the "main unit (A)" and the "expansion unit 1 (B)" is considered as the calculation value (CALC value). 3-21Canceling the Key Lock (Unlock)...

Measurement direction This is displayed when any of "Edge control/Positioning mode", "Glass edge mode" or "Pin position measurement mode" is set for "1. 100 MB of hard disk space at the installation destination are necessary. 5-4Input Circuit Diagram ... Delay timer "3-6 Setting the Tolerance Setting Value" (page 3-11) "4.4-2 Basic Settings and Advanced Settings Timing chart Reference • The following are the timing charts when the output is Normally Open (default value). 4-25 Average number of times (Response time) ..... A-2 Frequently Asked Questions...

4-3211. Pin interval judgment mode Multiple diameter measurement Measure the distance between specified edges. 1 Make holes on the panel to attach according to the number of amplifiers (connected expansion units). • When the internal measurement value (R.V.) is [ HHHH] and [HHHH], they are regarded as -100.00 and 100.00 respectively. Measurement mode: Edge control/Positioning [C. 3-17 3-8 Bank Function (Registering Multiple Tolerance Setting Values) .....

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cutting size, refer to the "Panel mount type, main unit". 4-53Setting Method 2 (Two-point Calibration)

.. 3-23-2 Operations on the Main Screens....

when installing and connecting the IG Series. Judgment value (P.V.4-2 Basic Settings and Advanced Settings 8. 2.5 seconds after the power is turned on. 6-2Trademarks.....

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