



2DXe

Excavator Indicate Systems



Quick Reference Guide



2DXe

Quick Reference Guide

Part Number 7010-0856
Rev. A

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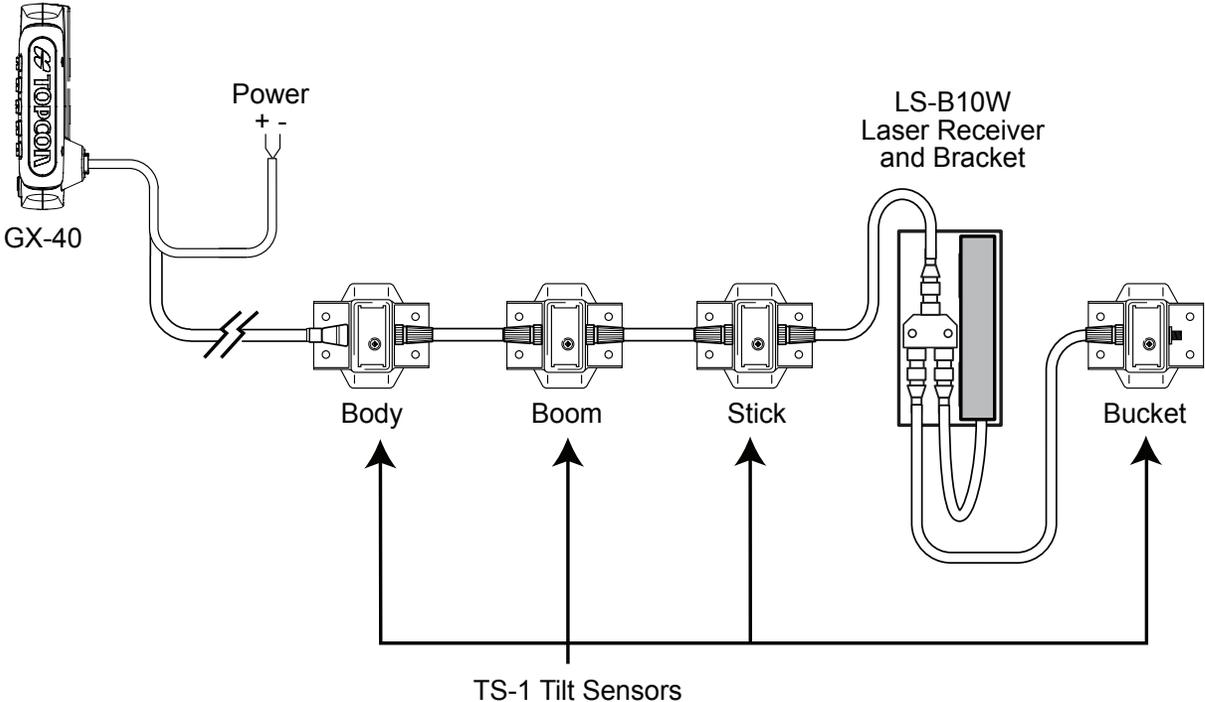
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2DXe Cable Connections



Main Screen

The Main Screen interface is divided into several functional areas:

- System Configuration:** Represented by a blue icon of a stylized 'S'.
- Surface Mode:** Represented by an icon of a brown surface with a red arrow pointing down.
- Transfer Position:** Represented by an icon of a yellow excavator bucket.
- Adjustment Controls:** A vertical column of five buttons on the right side:
 - Red up arrow: Increase Elevation Set Point
 - Red down arrow: Decrease Elevation Set Point
 - Icon of a slope triangle with a plus sign: Increase Slope
 - Icon of a slope triangle with a minus sign: Decrease Slope
 - Yellow bucket icon: Reference Button
- Display Area:** A central area showing a cross-section of a bucket (brown) on a blue surface. Below this, a green bar displays:
 - Bucket: X: +0.2%
 - Elevation Set Point: 0.000 (with a red down arrow pointing to it)
 - Distance from Grade: 0.007m

Main Screen

Image	Description
	System Configuration allows the user to view the machine configuration, system options, and change the bucket configuration, set the elevation reference point, and view sensor data in real-time.
 	Surface Mode allows the user to toggle between single slope or to select, edit or create a complex slope profile.
	Transfer Position allows the user to set a reference point before moving the machine. After the machine is moved, this point is referenced and the elevation is matched to its previous value.
 	Elevation applies a cut or a fill to the elevation offset. Press both the Increase/Decrease Elevation soft keys together to set the reference point to zero (0).

Main Screen

Image	Description
 	<p>Slope increases or decreases the angle of the slope being cut.</p>
  	<p>Reference displays the reference type currently used for the vertical reference. The reference type is either bucket/laser, bucket, or laser. Select the reference type in the <i>System Options Screen</i>.</p> <p>Press Reference to take an automatic reference measurement.</p>

System Configuration Screen

Save Changes
and Return to Main Screen



Bucket:



Bucket Selection



Live Sensor Data View



Roll
1.00
3.20

Machine Configuration



Elevation Reference Point

System Options



System Configuration Screen

Image	Description
	Save and Exit saves changes and returns to the <i>Main Screen</i> .
	Configure Machine Components allows the user to view the machine measurements, calibrate the sensors, create multiple bucket configurations, and define the laser receiver position.
	System Options allows the user to define the location of the lightbar, the lightbar LED extents, global settings (including units display and background color), and serial parameters, as well and selecting system settings such as the language and background color.
	Bucket Selection allows the user to select from defined buckets created in the <i>Machine Configuration Screen</i> .

System Configuration Screen

Image	Description
 A small icon showing a digital display with the word "Roll" at the top, "1.00" in the middle, and "3.20" at the bottom, all within a rectangular frame.	<p>Live Sensor Data displays the pitch and roll values of the sensors in real time.</p>
 A small icon showing a yellow bucket with a red arrow pointing downwards from its center, indicating a reference point.	<p>Elevation Reference Point allows the user to select the reference point of the bucket: Left, Middle, or Right. The reference point is used to calculate the current position of the bucket.</p>

Machine Configuration Screen



Machine Configuration Screen

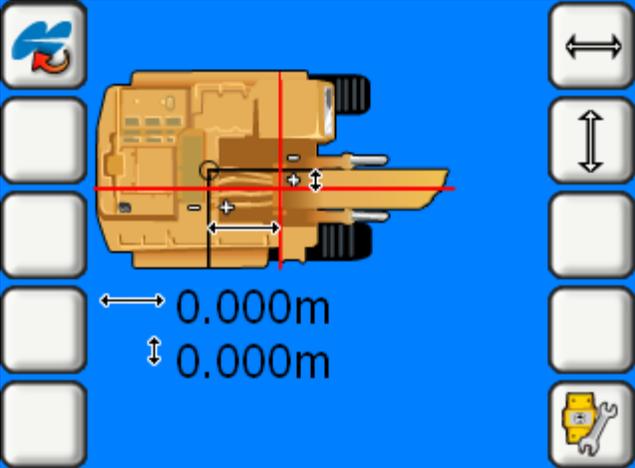
Image	Description
	Save and Exit saves changes and returns to the previous screen.
	Configure Body allows the user to turn the sensor on or off, edit body measurements, and configure the body sensor.
	Configure Boom allows the user to turn the sensor on or off, edit boom measurements, and configure the boom sensor.
	Configure Secondary Boom allows the user to turn the sensor on or off, edit secondary boom measurements, and configure the secondary boom sensor.
	Configure Stick allows the user to turn the sensor on or off, edit stick measurements, and configure the stick sensor.

Machine Configuration Screen

Image	Description
	Configure Bucket(s) allows the user to edit, add, and delete bucket configurations, scroll through bucket configurations, and configure the bucket sensor.
	Configure Laser Sensor allows the user to select the referencing method, edit laser sensor measurements, calibrate the laser sensor, and turn the laser sensor on and off.

Body Configuration Screen

Save Changes
and Exit



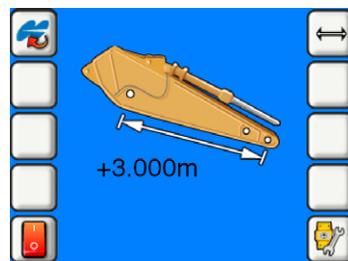
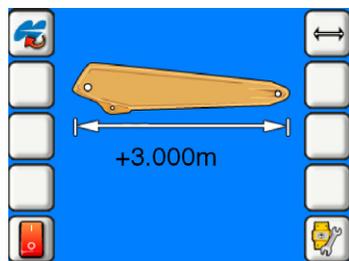
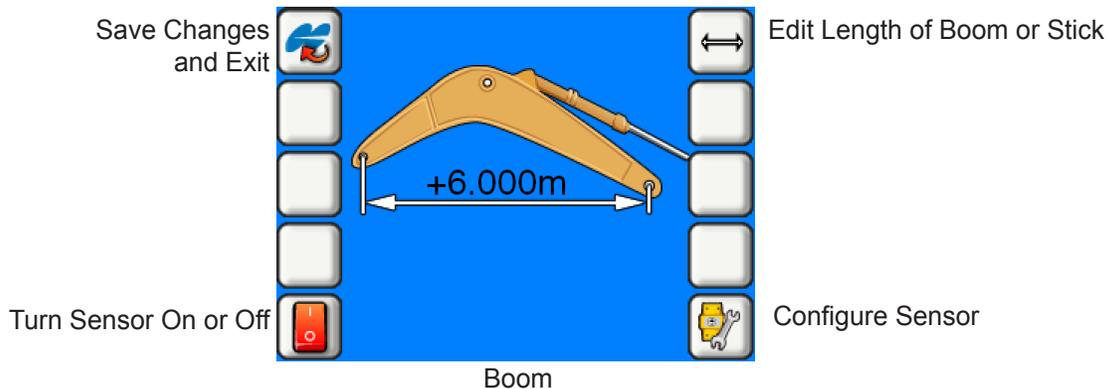
Edit Length of Body

Edit Width of Body

0.000m
0.000m

Configure Sensor

Boom, Secondary Boom, Stick Configuration Screens



Sensor Configuration Screen (Body/Boom/Secondary Boom/Stick)

The screenshot displays a central blue area with a yellow excavator arm and a sensor unit. The sensor unit is highlighted with a magnified view showing a yellow sensor housing with a white crosshair. Surrounding this central area are several control buttons and text labels:

- Save Changes and Exit:** A blue button with a white arrow pointing right and a red checkmark.
- Select Sensor Location:** A yellow button with a red crosshair.
- Select Sensor Orientation:** A black button with a white compass rose.
- Adjust Sensor Filtering:** A green button with three horizontal green bars.
- Sensor Termination:** A yellow button with a white wrench and a red crosshair.
- Select Sensor ID:** A red button with a white upward-pointing arrow.
- Calibrate Sensor:** A yellow button with a white wrench and a red crosshair.

At the bottom of the screen, the following text is displayed:

106 (Body)
Pitch 0.0° Roll 0.0°

Sensor Configuration Screen (Body/Boom/Secondary Boom/Stick)

Image	Description
	Save and Exit saves changes and returns to the previous screen.
	Select Sensor Location scrolls through the location options for the sensor: top, bottom, left, right, front, or back.
	Select Sensor Orientation scrolls through orientation options for the sensor: forward, right, or top.
	Adjust Sensor Filtering selects the amount of reaction for the sensor. A high value (4) dampens the sensor reaction. A low value (1), or no value causes faster sensor reaction.
	Sensor Terminated or NOT Terminated allows the user to open or close the communication loop between the body and the last sensor used.

Sensor Configuration Screen (Body/Boom/Secondary Boom/Stick)

Image	Description
 	Select Sensor ID selects the serial number of the sensor being configured.
	Calibrate Sensor displays the <i>Sensor Calibration Screen</i> for entering the pitch/roll offsets.

Sensor Calibration Screen (Body/Boom/Secondary Boom/Stick)

Save Changes and Exit

	Pitch	Offset		Increase Pitch Offset
	0.0°	0.0°		Decrease Pitch Offset
	Roll	Offset		Increase Roll Offset
	0.0°	0.0°		Decrease Roll Offset
	106 (Body)			

Bucket Configuration Screen

The screenshot shows a blue interface for configuring a bucket. At the top center, the text "DITCH 6FT" is displayed above a yellow bucket icon. On the left side, there are four buttons with labels: "Save Changes and Exit" (blue and red arrow icon), "Edit Bucket Configuration" (yellow bucket with pencil icon), "Add Bucket Configuration" (yellow bucket with red plus icon), and "Delete Bucket Configuration" (yellow bucket with trash can icon). On the right side, there are four buttons: a red up arrow, a red down arrow, a white empty button, and a yellow bucket with a wrench icon labeled "Configure Sensor".

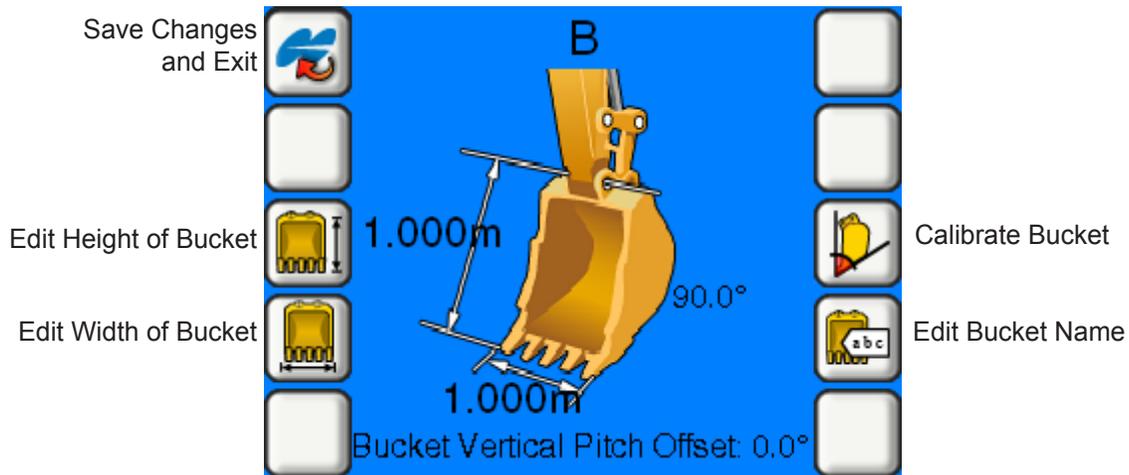
Bucket Configuration Screen

Image	Description
	<p>Save and Exit saves changes and returns to the previous screen.</p>
	<p>Edit Bucket Configuration displays the <i>Bucket Configuration Screen</i> for the selected bucket.</p>
	<p>Add Bucket Configuration displays the alpha-numeric entry screen for entering the name of a new bucket configuration.</p> <p>After entering a new bucket name, the <i>Bucket Measurement Screen</i> appears. See <i>Bucket Measurement Screen</i> section on page 20.</p>
	<p>Delete Bucket Configuration deletes the selected bucket configuration.</p>

Bucket Configuration Screen

Image	Description
 	Select Bucket Configuration scrolls through the bucket configurations.
	Configure Sensor displays the sensor configuration screen for entering the location, orientation, filter state, and other settings.

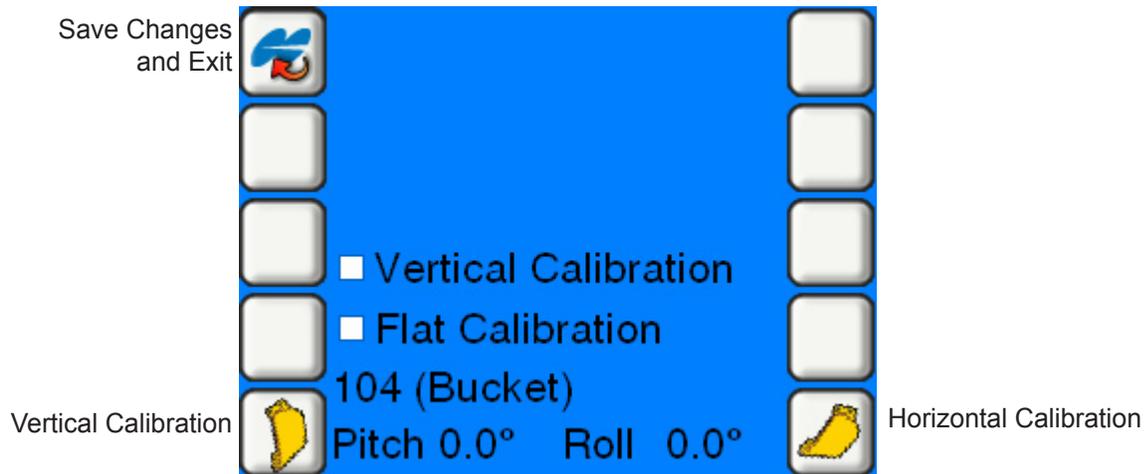
Bucket Measurement Screen



Bucket Measurement Screen

Image	Description
 A square icon with a blue arrow pointing right and a red arrow pointing left, indicating a return or save action.	Save and Exit saves changes and returns to the previous screen.
 A square icon showing a yellow bucket with a vertical double-headed arrow indicating its height.	Bucket Height displays the numeric entry screen for entering the measured height of the bucket.
 A square icon showing a yellow bucket with a horizontal double-headed arrow indicating its width.	Bucket Width displays the numeric entry screen for entering the measured width of the bucket.
 A square icon showing a yellow bucket with a red pencil and a black line, representing calibration.	Calibrate Bucket displays the <i>Vertical/Horizontal Calibration Screen</i> for the bucket.
 A square icon showing a yellow bucket with a text input field containing 'abc' and a cursor, representing editing the name.	Edit Bucket Name displays the numeric entry screen for editing the name of the bucket.

Bucket Vertical/Horizontal Calibration Screen



Bucket Vertical/Horizontal Calibration Screen

Image	Description
 The icon shows a blue arrow pointing right and a red arrow pointing left, both curved, indicating a return or save action.	Save and Exit saves changes and returns to the previous screen.
 The icon shows a yellow bucket sensor with a vertical double-headed arrow next to it, indicating vertical orientation.	Vertical Calibration calibrates the vertical orientation of the bucket sensor with the bucket at 90°.
 The icon shows a yellow bucket sensor with a horizontal double-headed arrow below it, indicating horizontal orientation.	Horizontal Calibration calibrates the horizontal orientation of the bucket sensor with the bucket at 0°.

Bucket Sensor Configuration Screen

The screenshot displays the Bucket Sensor Configuration screen with the following elements:

- Save Changes and Exit:** Represented by a blue circular arrow icon.
- Select Sensor Location:** Represented by a yellow sensor icon with a red crosshair.
- Select Sensor Orientation:** Represented by a black crosshair icon.
- Adjust Sensor Filtering:** Represented by three horizontal green bars.
- Sensor Termination:** Represented by a yellow sensor icon with a red lightning bolt.
- 101 (Bucket):** The selected sensor ID.
- Pitch 0.0° Roll 0.0°:** The current sensor orientation values.
- Select Sensor ID:** A red upward arrow icon.
- Calibrate Sensor:** A yellow sensor icon with a wrench.

The central image shows a yellow excavator bucket with a sensor mounted on it. A blue callout box highlights the sensor, which is shown in a larger, detailed view to the right.

Bucket Sensor Configuration Screen

Image	Description
	Save and Exit saves changes and returns to the <i>Calibration Screen</i> .
	Select Sensor Location scrolls through the location options for the sensor: top, bottom, left, right, front, or back.
	Select Sensor Orientation scrolls through orientation options for the sensor: forward, right, or top.
	Adjust Sensor Filtering selects the amount of reaction for the sensor. A high value (4) dampens the sensor reaction. A low value (1), or no value causes faster sensor reaction.
	Sensor Terminated or NOT Terminated allows the user to open or close the communication loop between the body and the last sensor.
	Notice: <i>The user must terminate the bucket sensor for optimal performance.</i>

Bucket Sensor Configuration Screen

Image	Description
 	Select Sensor ID selects the serial number of the sensor being configured.
	Calibrate Sensor displays the <i>Sensor Calibration Screen</i> for entering the pitch/roll offsets.

Laser Sensor Configuration Screen

The screenshot displays a central diagram of a boat with a laser sensor mounted on its deck. The diagram includes the following dimensions and angles:

- 0.150m: Vertical distance from the sensor to the top of the boat.
- 0.000m: Vertical distance from the sensor to the bottom of the boat.
- 2.000m: Length of the boat.
- 90.0°: Angle between the boat's longitudinal axis and the sensor's measurement line.

Configuration options are arranged around the diagram:

- Save Changes and Exit:** Top-left button with a blue and red icon.
- Select Referencing Method:** Middle-left button with a yellow boat icon.
- Turn Sensor On or Off:** Bottom-left button with a red power icon.
- Enter Sensor Location Measurement:** Top-right button with a boat and red sensor icon.
- Enter Sensor Location Measurement:** Middle-right button with a boat and red sensor icon.
- Enter Light Cells Location Measurement:** Bottom-right button with a boat and red sensor icon.
- Calibrate Sensor:** Bottom-right button with a crossed-out sensor icon.

Laser Sensor Configuration Screen

Image	Description
	<p>Save and Exit saves changes and returns to the <i>Calibration Screen</i>.</p>
  	<p>Select Referencing Method sets the referencing method used to determine the cutting edge location to a known reference point: bucket, laser, or bucket and laser.</p> <p>Notice: <i>When using the bucket and laser referencing method, the bucket reference takes priority over the laser reference.</i></p>
	<p>Sensor On/Off allows the user to turn the sensor on or off.</p>
	<p>Enter Sensor Location Measurement sets the sensor distance from the bucket pivot point to the laser location along the pivot line.</p>

Laser Sensor Configuration Screen

Image	Description
	Enter Sensor Location Measurement sets the distance square off the pivot line to the sensor.
	Enter Measurement for Light Cells Location sets the distance light cells to the center of the stick.
	Calibrate Sensor calibrates the angle of the laser sensor.

System Options Screen



System Options Screen

Image	Description
	<p>Save and Exit saves changes and returns to the previous screen.</p>
	<p>Lightbar Configuration allows the user to configure the lightbar extents, on-grade location, intensity, location, and orientation and to turn the lightbar on and off.</p>
	<p>Display Configuration allows the user to configure the display orientation, language, background color, and units.</p>
	<p>Select Reference Method sets the reference method used to determine the cutting edge location to a known reference point. The user can select laser, bucket or bucket and laser.</p>
	<p>Configure Data Output allows the user to configure the data output rate, baud rate, bit rate, parity, and stop bits, and to turn Data Output on or off.</p> <p>The default setting is off.</p>

Lightbar Configuration Screen



Lightbar Configuration Screen

Image	Description
	<p>Save and Exit saves changes and returns to the previous screen.</p>
	<p>Lightbar LED Intensity</p>
 	<p>Set Lightbar On-grade Location</p>
	<p>Lightbar On/Off</p>

Lightbar Configuration Screen

Image	Description
	Adjust Extents of Each LED
	Adjust Extents of Deadband
	Lightbar on Display indicates that the lightbar is connected to the display.
	Lightbar on Hotshoe indicates that the lightbar is connected to the hotshoe.
	Lightbar Location in Cab, Left/Right selects the location of the lightbar to ensure that it will show the same light pattern - red on the top and green on the bottom.

Display Configuration Screen

The screenshot shows a blue configuration screen with several settings. On the left, there are three labels: 'Save Changes and Exit', 'Portrait/Landscape', and 'Language'. The main area contains the following text: 'English', 'Screen Rotation: 0', 'Units Examples:', 'Distance: 7.69'', 'Angle: 46.5°', and 'Grade: +52.2%'. On the right, there are four settings with corresponding icons: 'Screen Background Color' (a color wheel), 'Display Units, Feet/Meters' (the text 'ft'), 'Display Units, Decimal Place' (the text '0.00'), 'Select Angular Units' (an icon of a right triangle with an angle of 0.0°), and 'Select Grade Units' (an icon of a right triangle with a percentage sign).

Save Changes and Exit		English		Screen Background Color
		Screen Rotation: 0		Display Units, Feet/Meters
Portrait/Landscape		Units Examples:		Display Units, Decimal Place
		Distance: 7.69'		Select Angular Units
		Angle: 46.5°		Select Grade Units
Language		Grade: +52.2%		

Display Configuration Screen

Image	Description
	Save and Exit saves changes and returns to the previous screen.
	Portrait/Landscape Mode
	Select Language
	Screen Background Color
	Display Units, Meters/Feet

Display Configuration Screen

Image	Description
 <p>0.000</p> <p>0.0</p> <p>0.00</p>	<p>Display Units, Decimal Place</p>
 <p>0.0°</p> <p>0°0'</p> <p>GONS</p>	<p>Display Units in Decimal Places, DMS, or GONS</p>

Display Configuration Screen

Image	Description
	Display Units in Percentage, Rise-Run, or Run-Rise
	
	

Data Output Configuration Screen

The screenshot shows a blue screen with the TOPCON logo in the background. On the left side, there are five touch-sensitive buttons: a 'Save Changes and Exit' button with a blue and red icon, a 'Serial Parameters' button, a button showing '115200,8,N,1', an 'Output Rate: 1 Hz' button, and a 'Turn Data Output On/Off' button with a red power icon. On the right side, there are five buttons for configuration: 'Output Rate' (set to 'HZ'), 'Baud Rate' (set to '9600..115200'), 'Bit Rate' (set to '7 8'), 'Parity' (set to 'N O E'), and 'Stop Bits' (set to '1 2').

Data Output Configuration Screen

Image	Description
	Save and Exit saves changes and returns to the previous screen.
	Turn Data Output On or Off
	Output Rate 1,5, or 10 Hz; default is 10. 10 Hz = 10 sec.
	Baud Rate 9600, 19200, 38400, 57600, 115200; default is 115200.
	Bit Rate 7, 8; default is 8.

Data Output Configuration Screen

Image	Description
 A square button with rounded corners and a light gray gradient, containing the text "NOE" in black, bold, uppercase letters.	Parity None (N), Odd (O), Even (E); default is N.
 A square button with rounded corners and a light gray gradient, containing the text "12" in black, bold, uppercase letters.	Stop Bits 1, 2; default is 1.

Single Grade Mode Screen

The screenshot displays the 'Single Grade Mode Screen' with a blue background. At the top, it shows 'X Gradient: +20.0%'. In the center is a right-angled triangle with a slope of +20.0%, a horizontal base of +16.400, and a vertical height of +3.28. The interface is surrounded by several control buttons:

- Save Changes and Exit:** Represented by a blue and red circular arrow icon.
- Switch between Complex and Single Slope Profile:** Represented by a brown block with a red arrow icon.
- Grade Units:** Represented by a right-angled triangle with a percentage sign icon.
- Measure Grade:** Represented by a yellow measuring tape icon.
- Edit Slope of Grade:** Represented by a right-angled triangle with a percentage sign icon.
- Edit Horizontal Distance of Grade:** Represented by a right-angled triangle with a horizontal line icon.
- Edit Vertical Distance of Grade:** Represented by a right-angled triangle with a vertical line icon.

Below the main interface are four empty white square buttons.

Single Grade Mode Screen

Image	Description
	Save and Exit saves changes and returns to the previous screen.
  	Grade Units allows the user to display the grade units in percentage, rise-run, or run-rise.
 	Measure Grade allows the user to measure the first point of grade, and then measure the second point of grade.

Single Grade Mode Screen

Image	Description
	Enter Slope of Grade allows the user to enter the slope of grade.
	Enter Horizontal Distance of Grade allows the user to enter the horizontal distance of grade.
	Enter Vertical Distance of Grade allows the user to enter the vertical distance of grade.

Complex Profile Mode Screen

The image displays the 'Complex Profile Mode Screen' for 'Profile: C2'. The central area features a blue background with a black profile line graph. A yellow bird icon is positioned on the left side of the profile line, and a yellow light icon is positioned below the profile line. The text 'Profile: C2' is displayed at the top center of the screen. Surrounding the central area are various control buttons:

- Save Changes and Return to Main Screen:** A button with a blue and red circular arrow icon.
- Change to Single Grade Mode:** A button with a brown ground icon and a red line.
- Edit Current Profile:** A button with a brown ground icon, a red line, and a green pencil icon.
- Add New Profile:** A button with a brown ground icon, a red line, and a red plus sign icon.
- Delete Current Profile:** A button with a brown ground icon, a red line, and a grey trash can icon.
- Select Profile:** A button with a red upward arrow icon.
- Mirror Current Profile:** A button with a brown ground icon, a red line, and two red circular arrows icon.
- Edit Current Profile Name:** A button with a brown ground icon, a red line, and a white speech bubble icon containing 'abc'.

Complex Profile Mode Screen

Image	Description
	Save and Exit saves changes and returns to the previous screen.
	Change to Single Grade Mode allows the user to switch to single grade mode.
	Edit Current Profile
	Add New Profile
	Delete Current Profile

Complex Profile Mode Screen

Image	Description
 Two square buttons with rounded corners. The top button contains a red upward-pointing arrow, and the bottom button contains a red downward-pointing arrow. Both buttons have a light gray gradient and a drop shadow.	Select Profile scrolls through saved profiles.
 A square button with rounded corners and a light blue gradient. It features a white speech bubble containing the letters 'abc' and a red line graph with a rising trend, all set against a background of a brown and gold striped pattern.	Edit Current Profile Name
 A square button with rounded corners and a light blue gradient. It features two red circular arrows forming a loop and a red line graph with a rising trend, all set against a background of a brown and gold striped pattern.	Mirror Current Profile

Profile Configuration Screen

Save Changes and Exit

Cancel and Exit

Edit Current Segment

Add New Segment

Delete Segment

C2

Horizontal	Vertical	Gradient
Start	Start	Start
100.000	+20.000m	+20.0%
50.000m	0.000m	Flat
75.000m	+30.000m	+40.0%

Select Segment

Select Bucket Reference Point

Select Laser Reference Point

Measure Segment Point

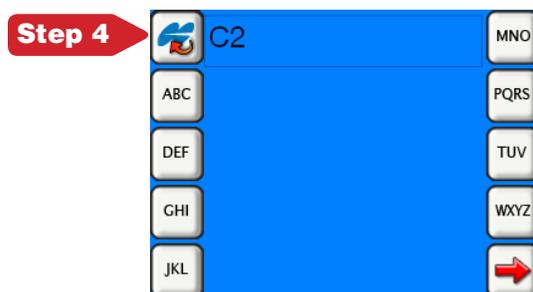
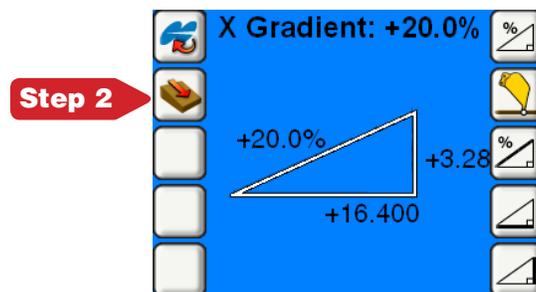
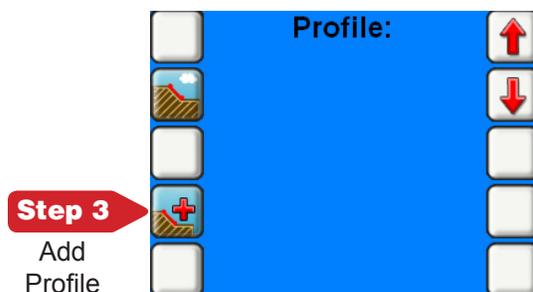
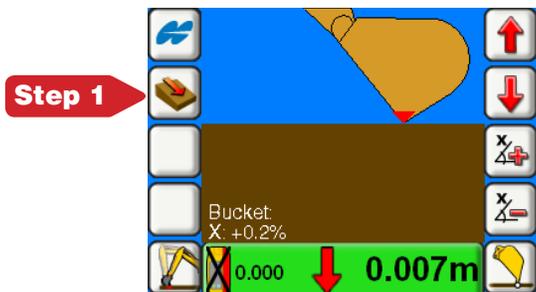
Profile Configuration Screen

Image	Description
	Save and Exit saves changes and returns to the previous screen.
	Cancel and Exit
	Edit Current Segment allows the user to edit the current segment.
	Add Segment allows the user to add a new segment.
	Delete Segment allows the user to delete the current segment.

Profile Configuration Screen

Image	Description
 	Select Segment scrolls through the line segments.
	Select Bucket Reference Point allows the user to select the reference point of the bucket.
	Select Laser Reference Point allows the user to select the reference point of the laser.
 	Measure First and Second Point of Segment

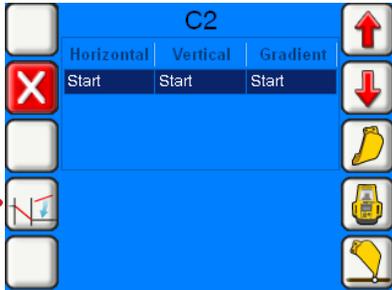
Create a Complex Slope



Create a Complex Slope

Step 5

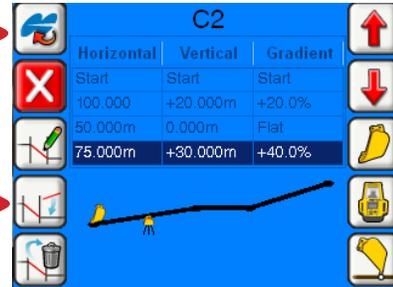
Add Segment



Step 9

Step 8

Add More Segments



Step 7

Save and Return

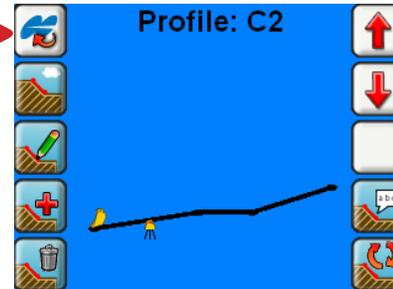


Step 6

Edit Segment

Step 10

Save and Exit





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ISO 9001:2000
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