DISPLAY UNIT FOR GTP901 SURVEY WHEEL ENCODER

ECU902

User's Manual

GEOSCANNERS AB
advanced survey systems

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Product Documentation

To prevent damage to your Geoscanners' product or injury to yourself or to others, read the following safety precautions in their entirety before using this equipment. Keep these safety instructions readily available to all who use this equipment.
The consequences that could result from failure to observe the precautions listed in this section are indicated by the following symbol:

This icon marks warnings. To prevent possible injury, read all warnings before using this Geoscanners' product.

This icon marks useful information like tips, good to know things, and on hand information

Turn off immediately in the event of malfunction:

Should you notice smoke or an unusual smell coming from the equipment or power adapter, unplug the power adapter taking care to avoid burns. Continued operation could result in injury. After unplugging the power adapter, take the equipment to a Geoscanners' authorized service center for inspection and eventual repairs.

Do not use in presence of flammable gas:

Do not use electronic equipment in the presence of flammable gas, as this could result in explosion or fire.

Keep out of reach of children:

Failure to observe this precaution could result in injury.

Do not disassemble:

Touching the product's internal parts could result in injury. In the event of malfunction, the product should be repaired only by a qualified technician. Should the product break open as the result of a fall or other accident, take the product to a Geoscanners-authorized service center for inspection.

Use appropriate cables:

When connecting cables to the input and output jacks, use only the cables provided or sold by Geoscanners for the purpose of maintaining compliance with product regulations.

- No part of this manual may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language in any form, by any means, without Geoscanners' prior written permission.
- Geoscanners reserves the right to change the specifications of the hardware and software described in these manuals at any time and without prior notice.
- Geoscanners will not be held liable for any damages resulting from the use of this product.
- While every effort has been made to ensure that the information in these manuals is accurate and complete, we would appreciate it were you to bring any errors or omissions to the attention of your local Geoscanners' representative (address provided separately) or by contacting us directly at info@geoscanners.com.

Use Only Geoscanners' Brand Electronic Accessories

Geoscanners control units and systems and accessories are designed to the highest standards and include complex electronic circuitry.
Only Geoscanners' brand electronic accessories (including chargers, batteries, AC adapters, and cables) certified by Geoscanners specifically for use with this Geoscanners system are engineered and proven to operate within the operational and safety requirements of this electronic circuitry.
The use of non-Geoscanners electronic accessories could damage the system and may void your Geoscanners warranty.

Servicing the System and Accessories

The ground penetrating radar system and its components are precision devices and require regular servicing. Geoscanners recommends that the system and components be inspected by the original retailer or a Geoscanners-authorized service representative once every one to two years, and that it be serviced once every three to five years (note that fees apply to these services).
Frequent inspection and servicing are particularly recommended if the system is used for critical operation. Any accessories regularly used with the system, such as cables or chargers, should be included when the system is inspected or serviced.

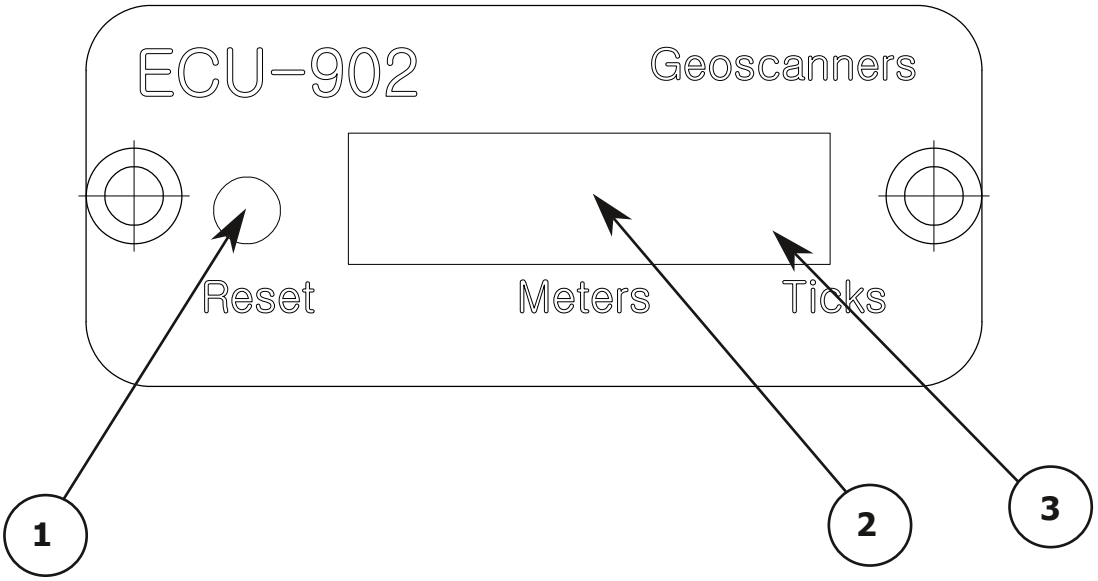
Description and specifications

The ECU902 is a display unit for the survey wheel encoder implemented in the borehole tripod GTP901. It provides a simple way of checking the used length of cable when the GPR display is not at a convenient distance.
The unit is absolutely transparent to the operation of the GTP-901 and will not introduce any delays or other artifacts to the pulses coming to the ground penetrating radar control unit.
The ECU902 can be freely calibrated for different available borehole cables suitable to be used with the borehole tripod GTP901.

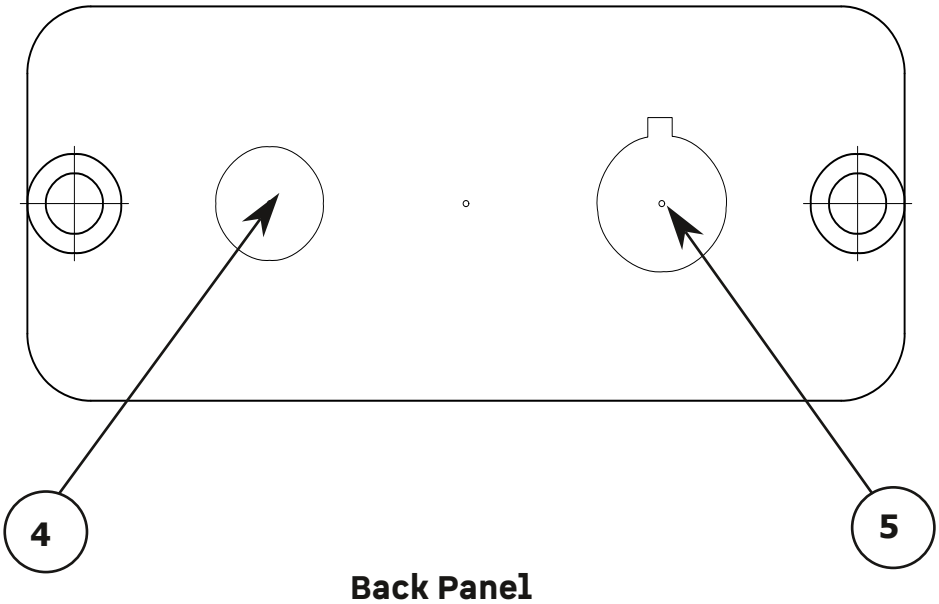
Specifications

Dimensions [mm] (LxWxH)	80x54x33
Unit Weight [g]	150
Standard Cable Length [mm]	1000
IP Rating	54
Power consumption [mA]	10
Calibration Value (on 12mm Cable)	177.4
Absolute Accuracy [mm] (on 12mm Cable)	8.52
Maximum length [m]	999.9

Ports and Indication



Front Panel



Back Panel

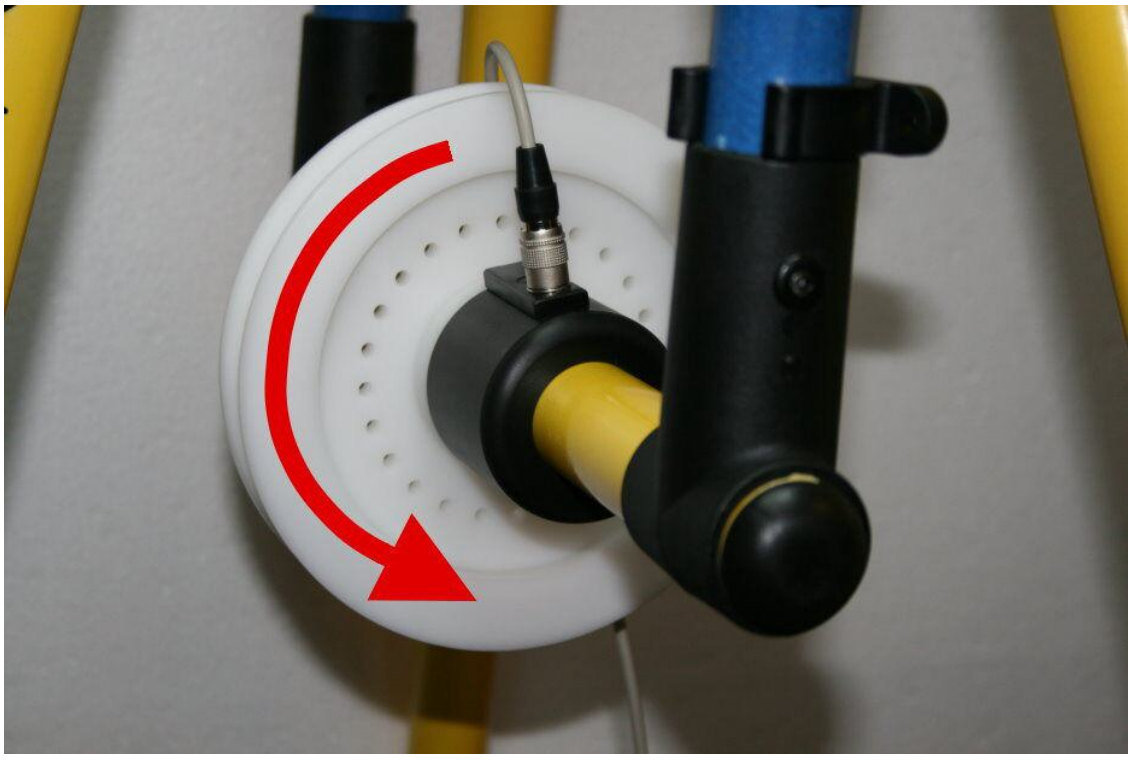
1. Reset button
2. Meters and Ticks Display
3. Ticks indicator
4. Cable Output to GTP901
5. Survey Wheel Port for Radar Unit

Operating Instructions

1. Connect the cable with the connector (4) to the GTP901 survey wheel encoder input. The connector has a positioning key, rotate the connector gently until it falls into place and then push to establisch connection.
2. Connect the survey wheel cable from your control unit or any smart adapter to the survey wheel port (5). The same is valid for this survey wheel cable as before, rotate the cable connector gently and push when it falls into place.
3. Apply power from your unit and four zeros should display if there is any other value then press the reset button (1).
4. Rotate the pulley and the encoder shows the distance in meters. At around 2.6 turns a meter should be read on display. If not then a calibration of the unit is needed.

Akula 9000C control units supply voltage to the encoder only while calibrating or collecting data. This is done to preserve battery power. Be sure you are in calibration or collection in distance mode otherwise the display will remain dark.

Pay attention to the fact that while rotating the pulley a dot right over the arrow "ticks" in the display will lit every time a pulse is received. This is to indicate that the unit is processing the input data.



The arrow in the picture shows the movement of the pulley going forward, this will result in the meter count in the ECU902 to increment. This is also the direction to get positive numbers in the SIR3000® from GSSI.

Calibration

The unit comes calibrated to the standard Geoscanners' cable however, because of cable slitage and tolerances on manufactured parts sometimes there may be a need to calibrate the unit. These are the simple steps to do that:

1. Press and hold the reset button (1) until the ticks indicator (3) starts to flash continuously.
2. Use a marked cable with ten (10) meters length and marks and accurately rotate with it the pulley until you reach the 10 meters mark.
3. Hold the cable and therefore the pulley still and press and hold the reset button (1) again until the current readout vanishes.
4. Click once on the reset button (1) to enter normal mode.
5. Now your ECU902 has a new calibration value.

If the new redouts are not accurate then repeat the calibration again.

It can be difficult to do the calibration alone, one has to keep the cable in contact with the pulley, rotate it accurately and operate the ECU902. It is therefore a good idea to do this together with someone who can aid with one of the operations to complete.

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