CruzPro®
D110

DSP
1000 Foot Depth Sounder

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Introduction

The D110 is a compact digital depth gauge.   The D110 uses
Digital Signal Processing (DSP) to reliably display water depth
from 1.2 to 1000 feet (0.3 to 365 Metres).   Depth can be
displayed in feet, metres or fathoms. Variable display damping
is provided.

The D110 has programmable shallow, deep and anchor drag
alarms built-in and can display the depth in feet, metres or
fathoms.   A keel offset from -20.0 to +20.0 feet can be entered
so the D110 shows the depth below the surface, below the keel
or below the transducer.   Under 20 feet, Meters or Fathoms,
the depth is displayed in tenths.

The D110 outputs NMEA 0183 serial data as a standard $SDDPT
(Depth below the transducer) sentence.   If not required, the
NMEA 0183 data line can be programmed as an external alarm
output.

A separate backlight control wire turns the backlights on and
off.   Five levels of backlighting (including OFF) can be
selected and all set-up, calibration constants and alarm values
are saved to non-volatile memory.

The D110 works with a 120kHz depth transducer and both
through-hull and transom mount transducers are available.

Specifications

Power supply: 9.50 to 16.00 VDC, .037 amps nominal

Operating temperature: 32 to 122 F (0 to 50 C)

Size: 4.3" x 4.3" x 3.5" deep (110 x 110 x 89 mm).

Depth range: 1.2 to 1000 feet (0.3 to 365 Metres)

Resolution: 0.1 Feet, Meters or Fathoms below 20.0, full digits above 20

Keel offset adjust range: -20.0 to +20.0 feet

Alarms: Shallow depth alarm
Deep depth alarm
Anchor drag alarm

Display: 4 digit LCD
Feet, Metres and Fathoms icons
Alarm ON/OFF icons
5 levels of backlighting
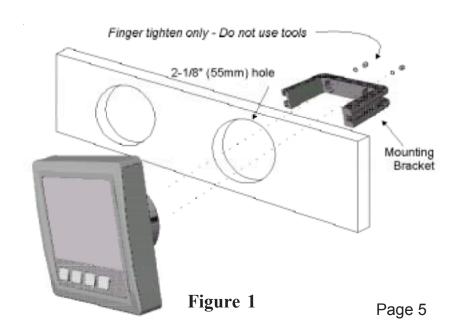External and internal ON/OFF control for backlights
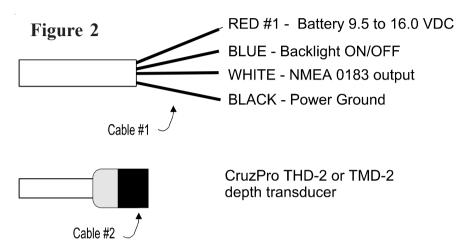Variable display damping

NMEA 0183: $SDDPT, Depth below transducer

Installation

Before starting the installation, please read this entire section first. Finger tighten the screws that mount the instrument bracket - It is not necessary or recommended to use tools.

● Drill a 2-1/8" (55mm) mounting hole where you desire to mount the instrument (Figure 1).

● Connect the various wires from Cable 1 and Cable 2 as shown in Figures 2 and Figure 3.

● Carefully check all your wiring against figures 2 and 3 and then mount the instrument in the hole. Use only finger tension to tighten the bracket hold-down nuts

Finger tighten only - Do not use tools

2-1/8" (55mm) hole

Mounting Bracket

Figure 1

Figure 2

RED #1 - Battery 9.5 to 16.0 VDC

BLUE - Backlight ON/OFF

WHITE - NMEA 0183 output

BLACK - Power Ground

Cable #1

CruzPro THD-2 or TMD-2
depth transducer

Cable #2

WHITE - NMEA 0183 out

RED - Battery +

5 Amp Fuse

BLUE
LIGHTS On/Off

BLACK
Ground

Battery
+9.5 TO +16.0 VDC

To 120kHz depth transducer

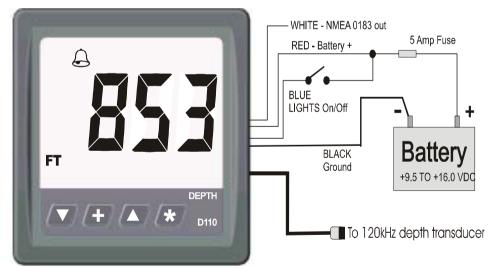## Figure 3

Operation

Key Functions

The ▼, ✚, ▲ and ✳ keys are used to select what to display, set backlight levels, turn alarms on/off, set alarms values, set/change keel offset and display damping.   New information is automatically saved to non-volatile memory.

Turning Alarms ON/OFF

Press the ▲ key 1/2 second to turn alarms ON.   The alarm icon will light. Press the ▼ key 1/2 second to turn the alarms and alarm icon OFF.

Backlight Intensity

Press ✚ the key 1/2 second to adjust the backlight level for night viewing. Each time you press the ✚ key 1/2 second, the level will get brighter 1, 2, 3, 4, OFF, 1, 2, ... etc.   The blue backlight ON/OFF control wire in cable #2 must be switched to +12/24V for the backlights to work.

Selecting Feet, Metres or Fathoms

While viewing the depth display quick press both the ▼ and ▲ keys simultaneously. Each time you do this, the units will switch from Feet to Metres to Fathoms to Feet, etc. The alarm values and keel offset will also change automatically to reflect the new units.

Setting Shallow Alarm

Press and hold the ▲ key for ten (10) seconds until you hear a long beep. The Shallow Depth Alarm value will be displayed. Use the ▼ and ▲ keys to set the desired alarm value. Press the ✚ key to save the shallow alarm value to memory.

Setting Deep Alarm

Press and hold the ▼ key for ten (10) seconds. You will hear a beep and the Deep Depth Alarm alarm value will be displayed. Use the ▼ and ▲ keys to set the desired alarm value. Press the ✚ key to save the deep depth alarm value to memory.

Setting Anchor Drag Alarm

After anchoring, set the shallow alarm a few feet more shallow than the actual displayed depth. Similarly set the deep alarm a few feet deeper than the actual displayed depth. Make allowances for local tidal changes to prevent false alarms.

Setting Keel Offset

While viewing Depth, press the ▼ and ✚ keys for ten (10) second until you hear a long beep. The keel offset will be displayed. Use the ▲ and ▼ keys to change the value and press the ✚ key to save your entry. The keel offset will be added to the displayed value of the depth. A negative keel offset is used to enable the D110 to display depth below the keel or transducer. A positive keel offset enables you to display actual water depth when the transducer is placed below the surface level by up to 20 feet.

Setting Display Damping

While viewing Depth press and hold the ▲ , ▼ and ✱ keys for ten (10) seconds until you hear a long beep. The display damping value is shown. Use the ▲ and ▼ keys to change the value and press the ✚ key to save your entry. A larger value of damping will slow down the flickering of the displayed digits but result in a slower response to depth changes. The display damping limits are 5 to 20 with 10 being the default value.

Selecting NMEA 0183 or External Alarm Output

The NMEA 0183 serial data line can be programmed to function as an external alarm output

To toggle the data line between NMEA 0183 and External Alarm Output, press and hold down both the ▼ and ▲ keys for 10 seconds (until you hear a long beep).   The display will briefly show "dAtA" / or "E-AL" to show you which mode is selected.   The new output mode is automatically saved to memory. A 5V signal (10 mA Max.) is output whenever an alarm condition exists and the alarms are enabled.

NMEA 0183 Sentence

The D110 outputs serial data of depth in NMEA 0183 format. The sentence is output in the following format:

Depth: $SDDPT,xxx.x,yyy.y*CS
xxx.x = Depth in Metres   yyy.y = Keel offset in Metres
*CS = Check Sum

Notes and Warnings

a)   The displayed depth should be used as a guide and cannot always be relied on to be correct.   Surface clutter, schools of fish, air bubbles under the transducer caused by other boats, thermoclines and high speed operation of your boat can cause the depthsounder to mis-read.

b) A display of " - - - - " means the unit has not acquired or is no longer able to track the bottom.

Notes

Other CruzPro Products

- Depthsounders/w Keel Offset, Deep/Shallow/Anchor Drag Alarms
- PC Based DSP Fishfinder for Windows98, NT, SE, XP, 2000
- Speed/Temperature/Logs
- Digital DC Volts Gauge/w Alarms
- Digital DC Volts Gauge/w Alarms for 3 Battery Banks
- Digital Amps Gauge
- DC Volts/Amps/Amp-Hour Monitors
- AC Volts/Amps/Freq/kW Monitors
- LPG/Petrol Gas Detectors/Alarms
- Bilge Water Alarms/w Stainless Steel Water Sensor
- Intelligent Bilge Pump Controllers/w Stainlesss Steel Water Sensors
- Intelligent Windlass Controller/Chain Counters
- Digital Fuel Gauges & Fuel Consumption Calculator
- Digital Tank Level Gauges for 1 or 3 Tanks /w Separate Alarms
- Smart 4 step Alternator Regulator
- Marine Security System/w Reliable Intrusion Sensors
- RPM/Engine Hours/Elapsed Time Gauges/w Alarm
- Digital Engine Temperature Gauge/w Alarms
- Digital Oil Pressure Gauge/w Alarms
- Digital Temperature Gauges for 1 or 3 Areas /w Alarms
- Digital Clock/Watch/Race Timers/w 8 Alarms
- 8 and 16 Amp Light Dimmers / Motor Speed Controller
- Solar Panel Charge Controllers 6/8/9 & 20 Amps
- 4 & 8 Channel NMEA Combiners/RS-232 Convertors
- Engine/Exhaust Temp. Monitor & Digital Pyrometer
- NMEA 0183 Remote Data Repeater/w 4 Input Channels

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