



ADS 410

ANGLE_DETECTION_SYSTEM

Operator's Manual



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BLANK
UNTIL COMPLETION

WARNING:

Changes or modifications to the radio device not expressly approved by Dragan Technologies Inc could void the user's authority to operate the equipment (FCC §15.21).

ANTENNA:

This product is factory equipped with Linx 900-935MHz range, 1.2 dBi whip antenna. Modifications, alterations and use of any other antenna is not permitted.

WARNING:

The installer of this radio equipment must ensure that the antenna is located or pointed such that it does not emit RF field in excess of Health Canada limits for the general population; consult Safety Code 6, obtainable from Health Canada's website www.hc-sc.gc.ca/rpb."

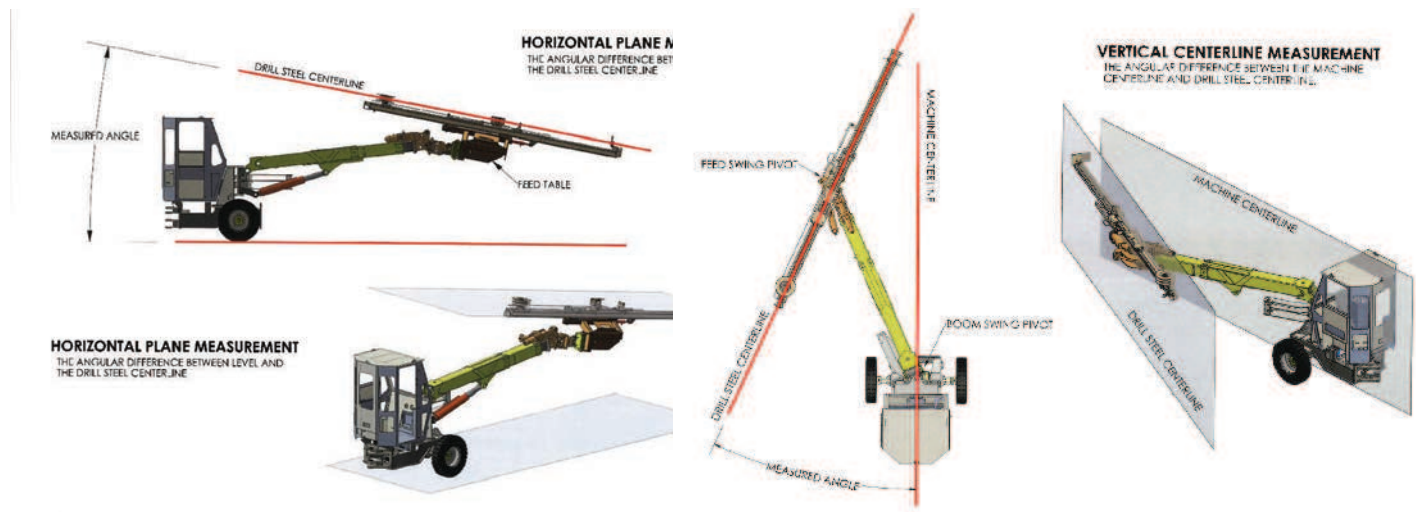
Overview ADS 410 Angle Detection System

The **ADS 410 Angle Detection System** is designed and developed to aid in drilling accurate blast hole patterns for underground mining.

The **ADS 410 Angle Detection System** is capable of monitoring and controlling angles and depths for 1 or 2 boom Drill Jumbos .

- **Angular Accuracy** - the **ADS 410 Angle Detection System** indicates the angle of the drill steel in relation to the horizontal and vertical bubble level of the Drill Jumbo centerline. Lessens the need for alignment markers.
- **Depth Control** - the **ADS 410 Angle Detection System** monitors and displays the depth of the hole being drilled.

As well, hole depth can be controlled by entering a desired hole depth; Drill steel will retract when the predetermined distance is reached. (Optional feature)



Overview ADS 410 Angle Detection System

ON/OFF switch

Antenna

USB port
Programming

Power port

Left Boom Sensor

Right Boom Sensor

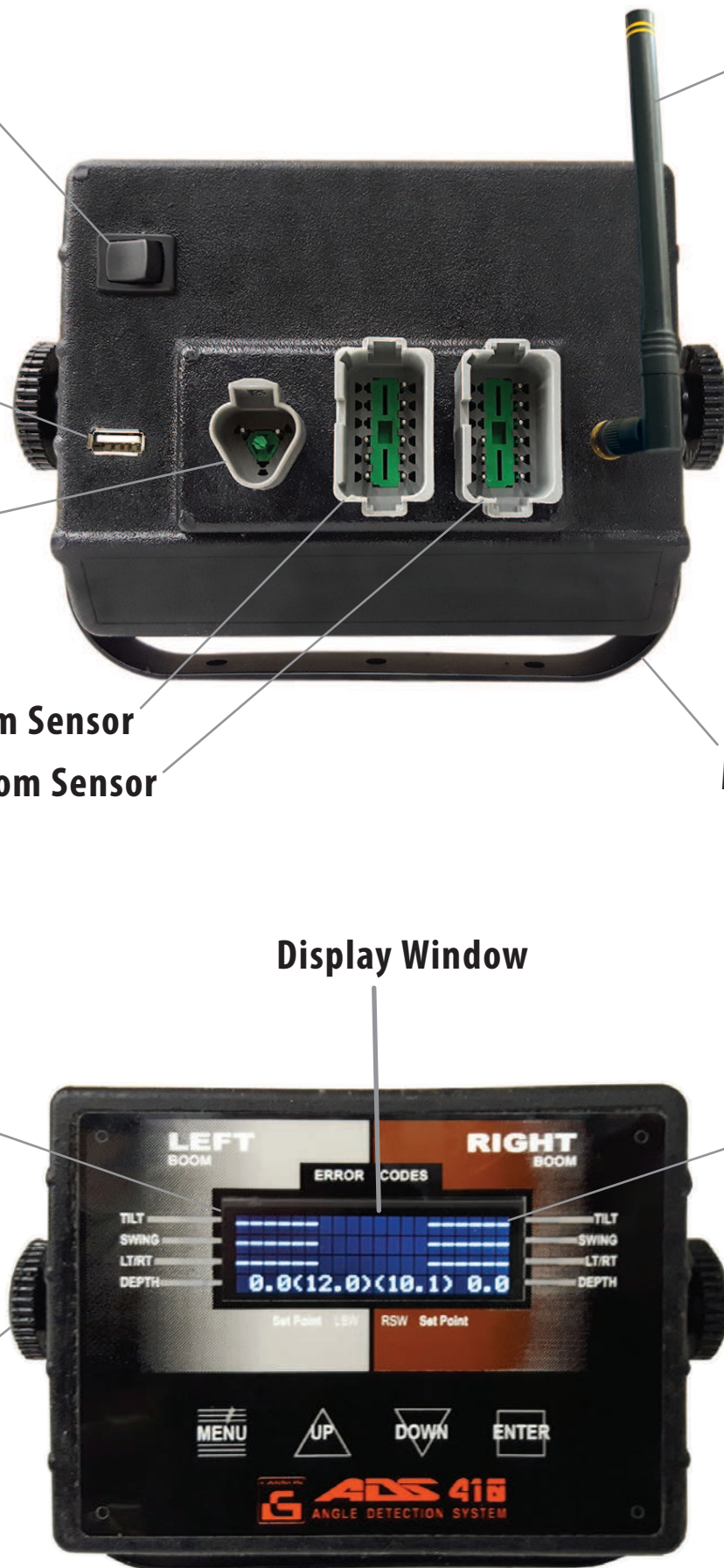
Mounting Bracket

Display Window

Left Boom Display

Right Boom Display

Adjustment Nob
Adjusts angle of
Monitor

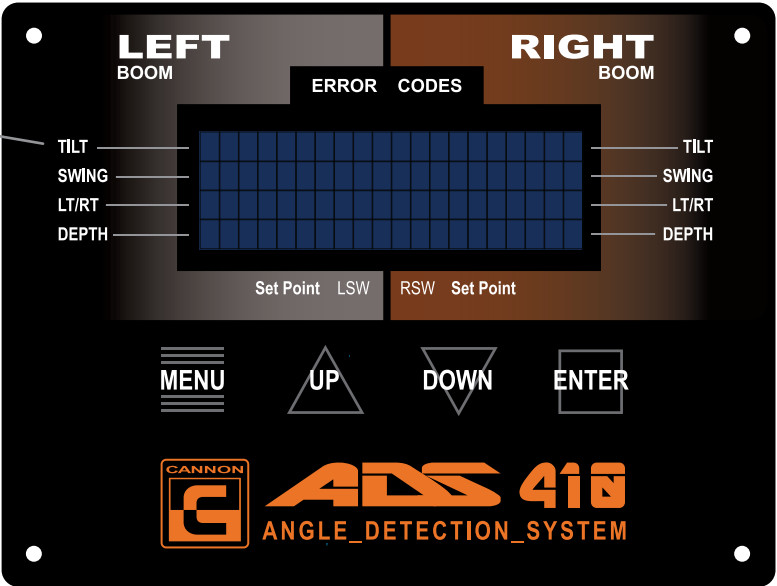
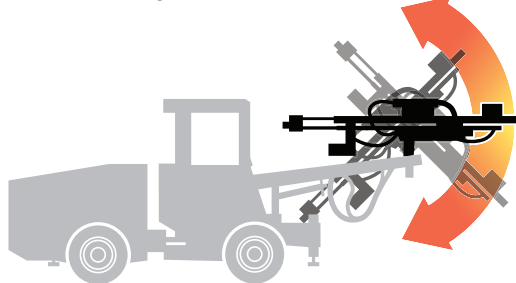


Display Monitor Overview

The Display Unit monitors and displays **Tilt, Swing, LT/RT, Depth** and **Error Codes**.

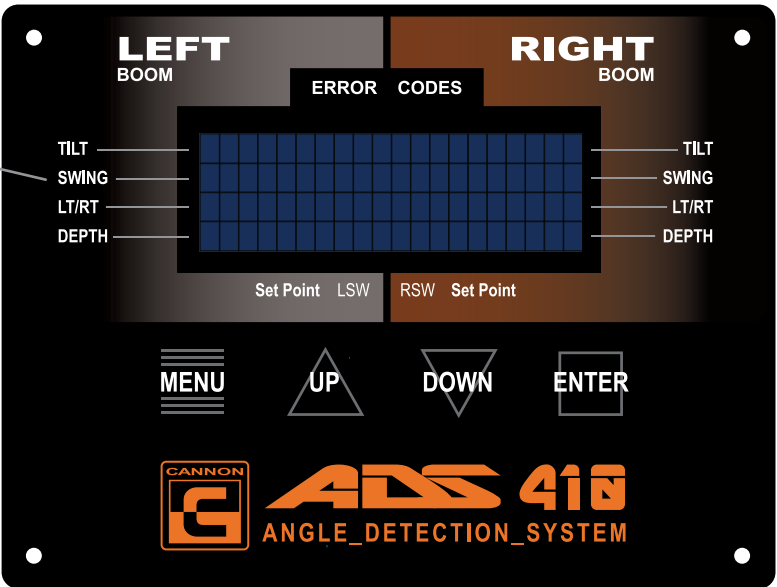
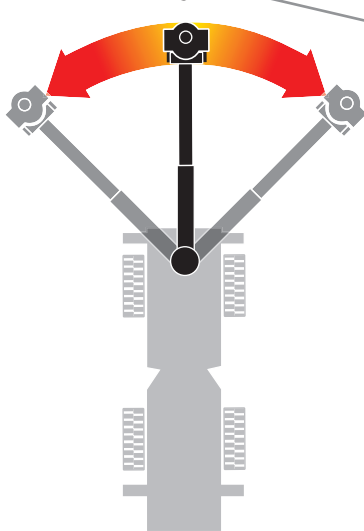
TILT

Tilt monitors and displays the tilt angle of the boom in degrees.



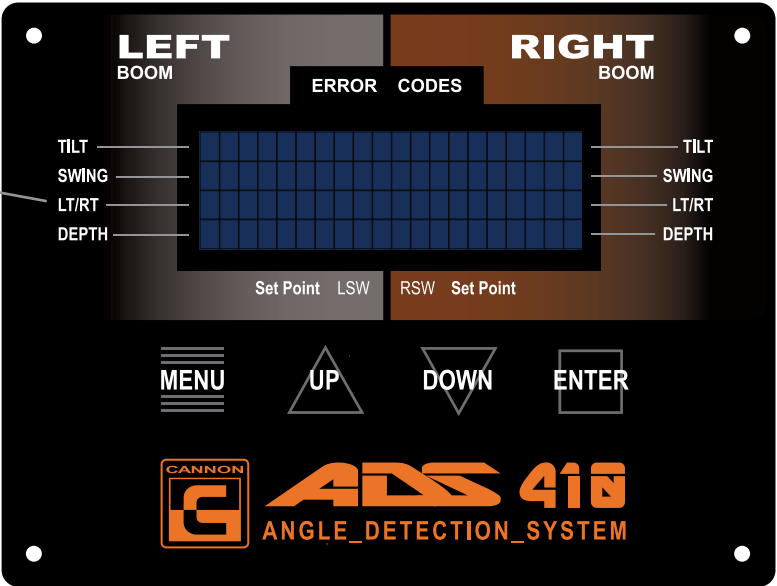
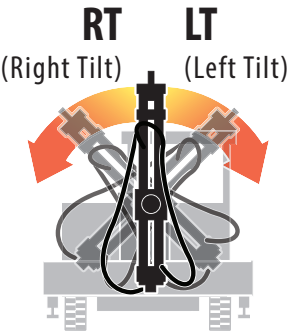
SWING

Swing monitors and displays the swing (azimuth) angle of the boom in degrees.



LT/RT

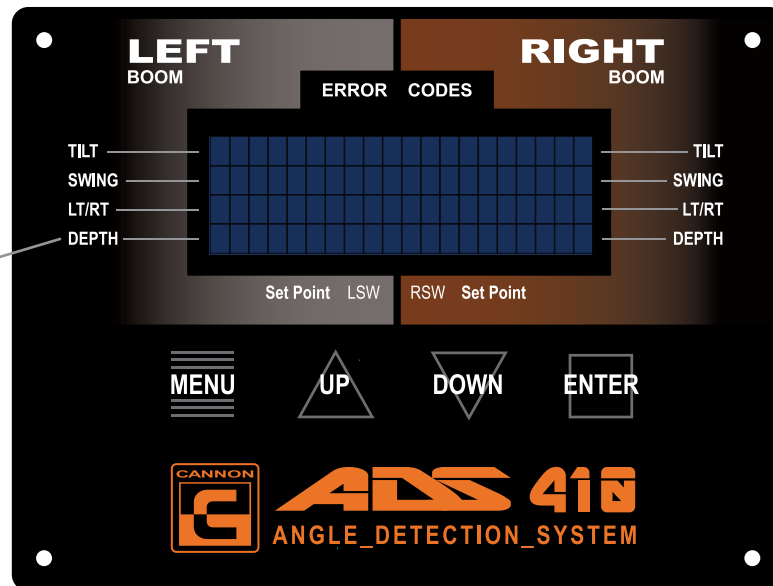
LT/RT monitors and displays the Left and Right Tilt angle of the feeder arm in degrees.



Display Monitor Overview (continued)

Depth

Depth monitors and displays the depth of the hole/s being drilled.



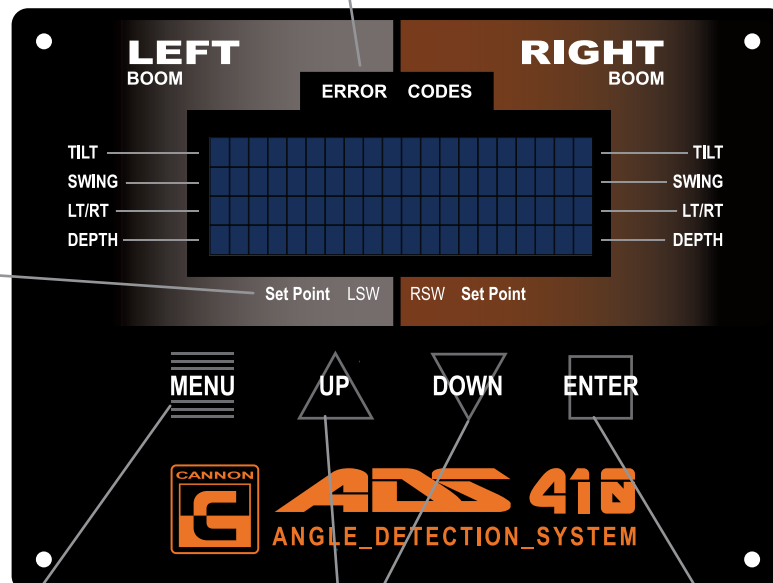
ERROR CODES

Indicates possible system **ERRORS**.

Set Point (LSW/RSW)

Selecting Set Point LSW/RSW sets depth limit switch, which stops drilling process when desired depth is reached.

LSW (Left Switch) is for the left Boom
RSW (Right Switch) is for the right Boom



Menu

Press **Menu** to select a function:
Tilt, Swing, LT/RT, and Depth.

UP and Down

Use UP and DOWN scroll buttons to select a function.

ENTER

Press **ENTER** to save selection to system.

Initial Setup

ADS 410 Angle Detection System

The **ADS 410 Angle Detection System** has to be calibrated before operating.

On the drill's computer; Locate the **Lake Shore Systems Manager** application icon

Launch the **ADS 410 Angle Detection System** application .



Main Window

1. Select **Double** or **Single** Boom

2. **Tilt** Option
Select **Yes** if installed.

3. **Depth** Option
Select **Yes** if installed.

A screenshot of the ADS 410 Angle Detection System main window. The window has a dark background with orange and white text. At the top left is the 'CANNON' logo and 'ADS 410 ANGLE DETECTION SYSTEM' text. The 'Boom Config' dropdown is set to 'Double'. Under 'Installed Options', 'RT/LT' and 'Depth' are both set to 'Yes'. The 'Status' is 'Connected' and 'Firmware ver.' is '1,8'. Under 'Device's RFID', 'Display', 'Left Boom Unit', and 'Right Boom Unit' are all set to '208'. There is a 'Send' button below the RFID settings. At the bottom, there are fields for 'Depth Calibration Factor (DCF)' for 'Left' and 'Right', both showing '000.00', and a 'Calculate' button.

ADS 410
ANGLE DETECTION SYSTEM

Boom Config :
Double

Status : Connected
Firmware ver. : 1,8

Installed Options :

RT/LT : • Yes • No

Depth : • Yes • No

Device's RFID

• **Display** : 208

• **Left Boom Unit :** 208

• **Right Boom Unit :** 208

Send

Depth Calibration Factor (DCF) :

Left : 000.00 **Right :** 000.00

Calculate

4. **Set Device's RF-ID**
(Radio Frequency Identification number).
All numbers have to be the same
for devices to communicate.

5. Select **Send** to **enter** RF-ID
numbers into system

6. Select **Calculate** to automatically set **Depth Calibration Factor**
Selecting **Calculate** automatically launches **Depth Calibration**
window.

Depth Calibration Factor can be entered **manually.**

Note: If "No" is selected in **Installed Options**;
Depth Calibration Factor field will not appear.

Initial Setup (continued)

ADS 410 Angle Detection System

The **ADS 410 Angle Detection System** has to be calibrated before operating.

On the drill's computer; Locate the **Lake Shore Systems Manager** application icon

Launch the **ADS 410 Angle Detection System** application .

Depth Calculation Window

1. Follow the steps in the Depth Calculation window to set Depth Calibration Factor.

DEPTH CALIBRATION FACTOR

1 - Select the boom that you are calibrating :

2 - Bring the feed cylinder to the home position :

3 - Press the home button :

4 - Extend the feed cylinder to the maximum :

5 - Read the pulse count here : (To proceed to the next step, value cannot be zero)

6 - Press the maximum button:

7 - Enter the lenght of the stroke : (Use decimal feet only exe. 10"3/4 Enter 10.75)

8 - To calculate the pulses peer inch click here :

9 - To complete the procedure and save the settings press here :

10 - To repeat the procedure for the other Boom go back to step 1, otherwise click Exit :

Selecting **Maximum** stops readings

Use decimal point for fractions of feet.