RS Technical Services Inc.

Design and Manufacture of Video Pipeline Inspection Systems
A Full Service Company
www.rstechserv.com

DD LITE 2

Model 40-3510

OPERATIONS MANUAL

Made in the USA

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Introduction

The DD Lite Cog-4 version is a simple text overlay device that can count distances from a reel, display pages, and observation data on screen. This device is menu driven and has help menus to guide users though setup screens. The DD Lite allows for five title screens to be stored and displayed, twenty six observation codes, one always on line for manhole information, and a comment line that can be configured to be on or off. The following manual will explain in detail the usage and configuration of the DD Lite Cog-4.

```
MH 125          TO          MH 126




11:22AM
03Aug04
   +5.5f
```

Figure 1: DD Lite

Help Menu

```
F2 Pointer On/Off
F3 Comment Mode On/Off
F4 Clear Comment Text
F5 Overlay On/Off
F6 Toggle Distance Mode
        (Primary/Alternate)
F7 Display Title Screens
ALT+P Preset Distance
ALT+Z Zero Distance
F12 Setup Menu

ENTER More
ESC Return To Overlay
```

Figure 2: F1 Help Menu

Pressing the F1 key will open the help menu. The help menu describes each function key used by the DD Lite. To exit the Help menu press the ESC (escape) key.

Function Keys

The function keys allow the user to quickly setup and run the main functions of the DD Lite.

F2 Pointer On/Off

```
MH 125            TO            MH 126



                  ▲




11:36AM
03Aug04
   +5.5f
```

Figure 3: F2 Pointer On / Off

Pressing F2 will display a triangle pointer on screen. To move the cursor press the up/down/left/right arrow keys on the keyboard. To turn the cursor off, press F2 again.

F3 Comment Mode On/Off

```
This is a test
MH 125              TO              MH 126




11:37AM
03Aug04
    +5.5f
```

Figure 4: F3 Comment Mode On/Off

Pressing F3 will turn on the line one comments on. On this line any alphanumeric text can be typed in. To clear the line the back space key may be used or the user can press F4 (Clear Comment Text). To turn the comment line off, press F3 again.

F5 Overlay On/Off

Pressing F5 will clear the entire text overlay screen. Press F5 again to turn the text back on.

F6 Toggle Distance Mode

```
MH 125                    TO                    MH 126




11:38AM
03Aug04
   +1.7m
```

Figure 5: Toggle Distance Mode

To change the distance mode from Feet to Meters press F6. This should only be used if the user wishes to count in meters when the reel is configured for feet. If your reel is configured for meters use the Encoder Option setup from the Setup menu to change the distance label.

F7 Display Title Screens

<div align="center">

RS Technical Services
1327 Clegg St
Petaluma, CA 94954
707-778-1974
www.rstechserv.com

</div>

Figure 6: Display Title Screens

To display configured title screens press F7. Each screen will appear for the configured time. The keyboard will be locked while displaying pages. Once the pages have displayed the user will be able to add observations and change settings.

F12 Setup Menu

```
                    Setup Options


        F1 Set Time/Date
        F2 Set Display Options
        F3 Set Motor Speeds
        F4 Set Encoder Options
        F5 Set Title Screens
        F6 Set Observation Codes
        F7 Set Header Line



        ESC Return To Overlay
```

Figure 7: F12 Setup Menu

Pressing F12 will open the setup menu. Refer to the Setup Menu section of this manual for information about each setup option. To close the setup menu press ESC.

Setup Menu

Setup Options

```
F1 Set Time/Date
F2 Set Display Options
F3 Set Motor Speeds
F4 Set Encoder Options
F5 Set Title Screens
F6 Set Observation Codes
F7 Set Header Line


ESC Return To Overlay
```

Figure 8: Setup Menu

The Setup Menu will allow the user to configure the DD Lite's Display options, title pages, encoder options, and observation codes.

F1 Set Time/Date

```
             Set Time and Date

  Hour      <11 AM>
  Minute    <40>
  Date      <03>
  Month     <Aug>
  Year      <04>


     ENTER - Save changes and exit.
     ESC - Discard changes and exit.
     TAB - Change field.
     ARROW UP/DOWN - Change value.
```

Figure 9: Set Time and Date

To Set the Date and Time use the up and down arrow keys to change values and the tab key to move between the Hour, Minute, Date, Month and year fields. To save the changes and exit, press Enter. To cancel changes and exit, press ESC.

F2 Set Display Options

```
          Setup Data Display


   Show Time        <Yes>
   Show Date        <Yes>
   Show Pan/Tilt    <No >
   Show ID          <No >
   ID Text          <--RST-->
   Show Encoder     <Yes>


      ENTER - Save changes and exit.
      ESC - Discard changes and exit.
      TAB - Change field.
      ARROW UP/DOWN - Change value.
```

Figure 10: Set Display Options

The display option menu allows the user to configure what items will be on screen at all times. Use the up and down arrow keys to change values and the tab key to move between fields. In this example The Time, Date, and Encoder are enabled. The result would look as follows:

```
MH 125                 TO              MH 126
```

```
11:22AM
03Aug04
    +5.5f
```

Figure 11: Display Options

To change where the Time, Date and distance options show on screen use the up, down, left and right arrow keys on the keyboard while in the main screen of the DD Lite.

F4 Set Encoder Options

```
        Set Encoder Primary Mode


Counting Sense       <Up>
Decimal Places       <1>
Units Label          <f>
Preset Value         <5.500>
Scale Factor         <0.1000000>
                     (units per count)
    ENTER - Save changes and proceed to
            alternate mode setup.
    ESC - Discard changes and exit.
    TAB - Change field.
    ARROW UP/DOWN - Change value.
    F9 - Calibrate encoder
```

Figure 12: Set Encoder Options

The Encoder Options menu allows the Counting Sense, Decimal Place, Units Label, Distance Pre-Set, Scale Factor, and Calibration to be set. Use the up and down arrow keys to change values and the tab key to move between fields.

Set the counting Sense to Up to have the counter count up as the cable is pulled out. Set the counting sense to down to have the counter count down as the counter is pulled out.

If more (or less) than one decimal place of precision is needed the decimal places option may be changed to 0, 1, 2, or 3 decimal places.

The units label may be changed to f or m for feet or meters.

The preset value allows the user to set a preset distance into the encoder. This distance will vary from camera to camera. It also depends if the user measures from the center of the manhole or start of the pipe.

Scale factor allows the user to manually set how many units per count will be used. On a 10 count counter, the unit will count .1 units per count. On a 20 count counter the system will count .05 units per count. The scale factor can also be found by calibrating the encoder. Press F9 to calibrate the encoder.

```
        Calibrate Encoder



Press Enter to zero encoder count

Or press ESC to abort
```

Figure 13: Calibrate Encoder - Zero Count

To begin press enter to zero the encoder.

Calibrate Encoder

Enter calibration distance
then press Enter
Calibration Distance····<10.000>

Or press ESC to abort

Figure 14: Calibrate Encoder -Enter Distance to Calibrate Over

Enter the distance of cable to calibrate the system with. Ten feet (or meters) is enough to provide an accurate count, but longer distances can be used to create an even more accurate count.

Calibrate Encoder

Run calibration distance through
encoder then press Enter

Or press ESC to abort

Figure 15: Calibrate Encoder - Pull Cable

Pull the cable off of the reel for the set distance entered. Make sure that the cable has been measured accurately or it will through the whole calibration off. Once the cable has been pulled press enter to close the calibration window.

Once all of the Encoder options have been set, Press enter to save and close. To cancel and close, press ESC.

F5 Set Title Screens

```
           Edit Title Screens


Number of screens    <2>
Seconds to display   <07>
Edit screen number   <1>




ENTER - Save changes and exit.
ESC - Discard changes and exit.
TAB - Change field.
ARROW UP/DOWN - Change value.
F1 - Edit selected screen.
ESC when done.
F4 to clear.
```

Figure 16: Edit Title Screen

The title screen editor allows the number to screens to be set, how long the screens will be displayed, and what will be displayed on each screen. Use the up and down arrow keys to change values and the tab key to move between fields. The number of screens may be set to 0, 1,2,3,4, or 5. The number of seconds to display a page may be set from 0 to 30. To edit a screen tab down to edit screen number and press the up or down key to select the page to be edited. Press F1 to open the page edit for the selected page or press F4 to clear the page from memory.

```
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     1327 Clegg St
Petaluma, CA 94954
     707-778-1974
  www.rstechserv.com
  Contact: Bob
```

Figure 17: Edit Selected Page

When in page editing mode, a cursor will blink black and white. The cursor can be moved by pressing the up, down, left or right arrow keys. Type in the desired information to be displayed then press ESC when finished to close the selected page editor.

Once all page editing has been completed press Enter to save and close the settings, or press ESC to cancel and close.

F6 Set Observation Codes

```
          Edit Observation Codes


   Seconds to display    <05>
   Display on line       <15>
   Edit code ALT +       <A>


   ------------------------------------------------
   Lateral Left
   ------------------------------------------------


    ENTER - Save changes and exit.
    ESC - Discard changes and exit.
    TAB - Change field.
    ARROW UP/DOWN - Change value.
```

Figure 18: Set Observations Codes

Set observation codes allows the user to set the number of seconds observations are displayed, which line the observation will show on, which code to edit, and the code itself. Use the up and down arrow keys to change values and the tab key to move between fields. To set a Code move the cursor to Edit Code field and use the up and down arrows to the letter of the field to be changed. I this case the letter A will be changed to Lateral Left. Repeat this procedure for all of the codes to be setup and press enter to save and close the settings, or press esc to cancel and close.

F7 Set Header Line

```
                Edit Header Line

Display on line          <02>
Show Header              <Yes>


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ENTER - Save changes and exit.
ESC - Discard changes and exit.
TAB - Change field.
LETTER KEYS - Edit header line.
```

Figure 19: Set Header Line

Set Header Line allows the user to display one line of text at all times such as manhole numbers. In this screen the line to which the text is displayed can be set, the line can be toggled on and off, and the text for the line can be changed. Use the up and down arrow keys to change values and the tab key to move between fields. To change the manhole numbers in this example, tab down to the text line and use the arrow keys to move to the number. The numbers can be overwritten as well as the text if need be. To save the changes and close, press Enter. To cancel the changes and close, press ESC.

Zeroing and Presetting Distance

When starting a run the distance counter can be either set to zero or to the predefined distance set in the Encoder options. To set the distance counter to zero, press Alt-Z. To set the distance counter to the predefined distance, press Alt-P.

Adding Observations

MH 125   TO   MH 126

11:22AM
03Aug04
   +5.5f
Lateral Left

Figure 20: Adding observations

To add observations the observation codes must first be setup. Refer to the F6 Set Observation Codes section of the setup menu for more information on how to setup observation codes. To put observation text on screen press CTRL plus a letter on the keyboard. In the example above Lateral Left was displayed by pressing CTRL-A on the keyboard.