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Electro-Magnetic Compatibility (EMC)

This product complies with Council Directive 2004/108/EC when installed and used in accordance with the relevant instructions.

Service and Technical Support - contact Digi-Star Technical Support 1-920-563-9700

Our policy is one of continuous improvement and the information in this document is subject to change without notice.

Check that the software reference matches that displayed by the instrument.

This manual refers to Software Issue: GC100:Iss01Rev01Lib01

Document number: S/DC/500-10-696:

Issue: 2.1:

Issue Date 15.8.13

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1.0 PURPOSE & TECNICAL SPECIFICATIONS

1.1 Purpose
The Digi-Star Cab Control Touch (CCT) is a device designed to be mounted in the cab of a wheel loader, tractor loader, telescopic loader, or skid steer loader. The CCT 400 & 500 are designed to communicate via Digi-Star’s ERM (external radio modules) with a Digi-Star EZ or TMR series scale indicator mounted on a feed mixer that are equipped with a compatible internal or external radio. The CCT 400 will also communicate with other Digi-Star Indicators such as the GT400.

The CCT400 will also communicate with any ERM to a TST7600 equipped with the same ERM unit. The CCT500 will not work with TST7600, however. The advanced functions of the CCT500 will only work with the EZ3400, EZ3600V, EZ4600, TMR3610, and TMR4610.

The CCT displays the same information that is displayed on the scale indicator that the CCT is communicating with. In addition the CCT will remotely control a number of the most common scale indicator functions. This manual details the information that is displayed and the control functions.

Communication via radio limited in range by a number of factors including the type of radio that the CCT is paired with, position and placement of the antennas, interference by electronic “noise”, and physical barriers such as buildings and walls. Communication requires a clear “line-of-sight” between the two radios. The user of the CCT should be able to see the scale indicator on the feed mixer that he or she is attempting to communicate with.

Both the CCT-400 & CCT-500 share the same display unit. It is possible to convert a CCT-400 to a CCT-500. Contact Digi-Star for details at: www.digi-star.com

1.2 Technical Specifications

<table>
<thead>
<tr>
<th>Power supply:</th>
<th>10 - 30 Volts DC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current consumption:</td>
<td>500mA</td>
</tr>
<tr>
<td>Display:</td>
<td>High brightness (400mcd) colour, 4.3” widescreen format (480 x 272) LCD with resistive touch-screen</td>
</tr>
<tr>
<td>Front panel switches:</td>
<td>4 backlit physical keys for application specific functions</td>
</tr>
<tr>
<td>Processor:</td>
<td>MIPS32 M4K running at 80MHz</td>
</tr>
<tr>
<td>Memory:</td>
<td>128kB RAM</td>
</tr>
<tr>
<td></td>
<td>512kB Flash</td>
</tr>
<tr>
<td></td>
<td>2MB on-board non-volatile memory</td>
</tr>
<tr>
<td></td>
<td>SD card reader and USB 2.0 host for pen drive</td>
</tr>
<tr>
<td>Communication Ports:</td>
<td>Two CAN 2.0B ports (J1939/ISO 11783)</td>
</tr>
<tr>
<td></td>
<td>Two uncommitted RS232 ports</td>
</tr>
<tr>
<td>Inputs:</td>
<td>Eight - can be configured as analogue or digital</td>
</tr>
<tr>
<td>Outputs:</td>
<td>Three - 1 amp each</td>
</tr>
<tr>
<td>Speaker:</td>
<td>1.5 Watt for alarms etc</td>
</tr>
<tr>
<td>Protection:</td>
<td>Reverse polarity protection</td>
</tr>
<tr>
<td>Enclosure:</td>
<td>Custom ABS Enclosure (front and rear cover)</td>
</tr>
<tr>
<td>Mounting:</td>
<td>Free-standing</td>
</tr>
<tr>
<td>EMC:</td>
<td>2004/108/EC ISO 14982</td>
</tr>
<tr>
<td>Temperature:</td>
<td>-20°C to +70°C operating temperature</td>
</tr>
<tr>
<td>Vibration:</td>
<td>5G @ 10 to 500Hz</td>
</tr>
<tr>
<td>Shock:</td>
<td>50G</td>
</tr>
<tr>
<td>Sealing:</td>
<td>IP65</td>
</tr>
<tr>
<td>Dimensions:</td>
<td>W: 133mm x H: 113mm x D: 50mm</td>
</tr>
</tbody>
</table>
1.3 Physical Specifications
2.0 SAFETY DURING USE

⚠️ Danger: Indicates a imminently hazardous situation that, if not avoided, could result in death or very serious injury.

⚠️ Warning: Indicates a potential hazardous situation that, if not avoided, may result in death or very serious injury.

⚠️ Caution: Indicates a potential hazardous situation that, if not avoided, may result in a minor injury.

2.1 Exposure to Radio Frequency
Exposure to energy from radio frequencies is an important safety issue. As this product uses the WiFi and Cellular system of a smartphone or tables please consult with the safety information provided with the device that the App operates with.

2.2 Prior to Operation
Read and understand this manual and learn all controls before you use the equipment. Check that the area is clear of people, animals, and obstacles before starting any work. Identify possible hazards.

2.3 Check System Before Use
Before using the App with the Digi-Star weighing system read the Operator’s Manual for the scale indicator and the WiFi system. Follow all instructions.

Digi-Star cannot be held responsible for deviations and problems arising from incorrect use of the scale indicator, incorrect calibration, or settings. Furthermore Digi-Star cannot be held responsible for deviations and problems arising from technical problems to the system.
3.1 Hard Keys
Hard keys are located under the screen and are pressed to operate. A click will be felt when button is depressed and the unit will make a “beep” noise when volume is turned on.

- HOME  Return to the Main Operating Screen from any other screen
- SETUP  Select the Setup Menu for radio channel and other system settings
- ESCAPE Return to the previous screen
- ENTER Confirm or Store a setting
3.2 Soft Keys

Soft keys are located on the display of the unit and are operated by tapping or touching the screen gently. It is possible to operate the soft keys while wearing gloves.

**NOTE!** DO NOT use a sharp-pointed object when touching the screen - the screen may be damaged beyond repair!

3.2.1 Keys on the CCT-400 & CCT-500

1. ![ZERO](image) - Zero balance the scale indicator

2. ![Net Gross](image) - Toggle between Net and Gross weights

3. ![Tare](image) - Temporarily Zero the scale indicator [Net mode]

4. ![Hold Freeze](image) – Hold or Freeze temporarily the displayed Weight

5. ![Next Ingredient](image) – Manually advance to next Ingredient

6. ![Register Print](image) – Register or Print the displayed Weight

7. ![Mixer Radio](image) - Mixer Radio Channel (number above mixer changes with channel selected)

8. ![Radio Good](image) - Radio with Good Connection

   - ![Radio No Connection](image) - Radio with No Connection

   - ![No Radio](image) - No Radio connected to CCT
3.2.2 Advanced Function Keys on CCT-500
The advanced function keys of a CCT-500 work when the CCT-500 is connected to Digi-Star EZ & TMR 3600 and higher series, non-touchscreen, Indicators. The additional keys on the main screen are shown below. See section 5.0 – CCT-500 OPERATION for additional details on CCT-500 operation.

1. Direction Control Keys to move Cursor and Enter
2. Choose Recipe
3. Change Quantity
4.0 CCT-400 & CCT-500 BASIC OPERATION

4.1 Turning Indicator ON & OFF
Press and release the ON/OFF button which is enclosed in the rubber button on the lower left side of the device. Press on the left side where “RDS” is moulded into the rubber.

4.2 Zero Balance the Indicator
1. Press and hold for 3 seconds to zero balance the weighing indicator.
2. ZERO will flash on the screen and the displayed weight will change to 0.
4.3 Loading Weights Using Tare and Net/Gross
When weighing it is important to keep note of whether the scale is in Gross or Net weight mode. At the top of the display screen the weighing mode, Gross or Net, will flash.

1. After loading the first ingredient into the mixer press \( \text{TARE} \) key to set a temporary zero.

2. Load the first amount (in this example 1390 lbs). “Gross” will be flashing.

3. Press \( \text{TARE} \) to set the weighing indicator temporarily to zero.

4. The value 0 is displayed and “Net” will flash in the header.

5. Add the next amount to be loaded (in this example 3800 lbs). “Net” will continue to flash.

6. Press \( \text{TARE} \) to display the total amount loaded. In this example: 1390 + 3800 = 5190 lbs in total weight has been added to the Mixer. “Gross” will flash at the top of the display.
4.4 Hold Function
The Hold mode is utilized while operating the mixing or when moving the Mixer to “Hold” the weight from the time before the mixer was moved. Utilizing the Hold function can increase the accuracy of the loading and unloading process for users looking to increase the precision of their operation.

1. Press \[\text{Hold}\] to hold the displayed weight. The word “HOLD” will be displayed.
2. Press \[\text{Hold}\] again to return to normal weighing mode. The weight will once again be displayed.

4.5 Print Function

Note: For print functionality an optional serial (printer) port on the scale indicator on the mixer is required.

1. Press the \[Print\] key to activate the print function on the scale indicator. The functionality depends on the type and settings of the scale indicator.

4.6 Ingredient Advance

Note: Ingredient advance is used to jump to the next ingredient when using a batching indicator.

1. Press the \[Advance\] key to manually advance to next ingredient.
4.7 Select a Ration on CCT-500

1. Press to view the 1st ration in the list. Repeatedly press to scroll through the list of available rations. Or press the down arrow to scroll through the list.

2. Press to select the current ration displayed.

3. If Resize is turned off, press again to start the ration.

4. Pressing will also start the ration.

5. If resize is turned on, press to go to the number keypad screen. From this screen, resize the ration.

6. Press to switch between the number of animals and amount per pen or load. Use the numbers to either change the head count or change the amount for each pen or load. As soon as you begin typing it will overwrite the current entry.

7. To accept the change, press .

8. Press to go back to the main screen.

9. Repeat steps 1-8 for all other rations.
5.0 INDICATOR SETUP & CONNECTIONS

5.1 Setting Mixer & CCT Radio Channel(s) for use with non-WiFi ERM Modules

The CCT must be connected with a Digi-Star ERM 2.4, 2.4X, or 900 radio module and the scale indicator on the mixer must be equipped with a matching internal or external radio. ERM radios require Digi-Star EZIII indicators equipped with a J905 serial port and version 9.B software or newer. See Digi-Star manual D3986 ERM 2.4 – 2.4X – 900 User Manual for details on the installation of the ERM Radio Module.

In order to communicate with the scale Indicator on the mixer the radios on the mixer Indicator and the CCT must be on the same channel. Twenty four channels are available and it is possible for one CCT to communicate with up to 24 different mixers equipped with scale Indicators.

5.2 Mixer Indicator Radio Channel Selection

It is recommended that the mixer indicator(s) be setup first. For best performance on systems with six (6) or less radios, use channels 1 – 6. No two mixer Indicators operate on the same channel, or scale number. Each mixer indicator must be set to a unique channel.

If after setting up the radio channels degraded performance is encountered, it is most likely due to interference from other radio systems. Try using other channels between 1 and 6 before trying channels 7 to 24.

5.3 Mixer Indicators without Numeric Keypads and Internal Radios

In order for the Internal Radio to function REMOTE must be set to ON, and the Mixer Indicator Radio Channel (SCL NO) must be set between 1 and 24. NOTE - This process is performed on the Indicator front panel.

1. Enter Setup by pressing and holding [Net-Gross] and then pressing and holding [On] for three seconds
2. Press [Net/Gross] or [Select] to advance to {MENU 2}
3. Press [On] to advance to {REMOTE}
4. Press [Net/Gross] or [Select] to set to {ON}
5. Press [On] to save setting and advance to {SCL NO}
6. Press [Net/Gross] or [Select] to set desired radio Channel {1 to 24}
7. Hold [Tare] and press [On/Off] to return to indicator operation.
5.4 Mixer Indicators without Numeric Keypads and External (ERM) Radios

In order for the External Radio to function both the REMOTE and External Radio (EXTRAD) must be set to ON, and the Mixer Indicator Radio Channel (SCL NO) must be set between 1 and 24. NOTE - This process is performed on the indicator front panel.

1. Enter Setup by pressing and holding [Net-Gross] and then pressing and holding [On] for three seconds
2. Press [Net/Gross] or [Select] to advance to {MENU 2}
3. Press [On] to advance to {REMOTE}
4. Press [Net/Gross] or [Select] to set to {ON}
5. Press [On] to advance to {EXTRAD}
6. Press [Net/Gross] or [Select] to set to {ON}
7. Press [On] to save setting and advance to {SCL NO}
8. Press [Net/Gross] or [Select] to set desired radio Channel {1 to 24}
9. Hold [Tare] and press [On/Off] to return to indicator operation.

5.5 Mixer Indicators with Numeric Keypads and Internal Radios

In order for the Internal Radio to function REMOTE must be set to ON, and the Mixer Indicator Radio Channel (SCL NO) must be set between 1 and 24. NOTE - This process is performed on the indicator front panel.

1. To activate the Remote output feature, with the Indicator in the normal weighing mode, set REMOTE (D.A.N. 218) to {ON}
2. To set the Radio Channel, with the Indicator in the normal weighing mode, set SCL NO (D.A.N. 231) to {1 – 24}

5.6 Mixer Indicators with Numeric Keypads and External (ERM) Radios

In order for the External Radio to function both the REMOTE and External Radio (EXTRAD) must be set to ON, and the Mixer Indicator Radio Channel (SCL NO) must be set between 1 and 24. NOTE - This process is performed on the Indicator front panel.

1. To activate the Remote output feature, with the Indicator in the normal weighing mode, set REMOTE (D.A.N. 218) to {ON}
2. To activate the External Radio feature, with the Indicator in the normal weighing mode, set EXTRAD (D.A.N. 229) to {ON}
3. To set the Radio Channel, with the Indicator in the normal weighing mode, set SCL NO (D.A.N. 231) to {1 – 24}
5.7 Setting up Radio Channels on the CCT & ERM

The CCT combination must be setup to match the radio channel(s) setup in the steps above. The CCT in the loader can be setup to communicate with between 1 and 24 mixers equipped with Digi-Star indicators with radio.

When the CCT is used with multiple mixers the CCT is pre-programmed to the match the radio channels in use. The CCT can then be easily switched between different mixers with just a few quick screen presses.

5.7.1 Enter Setup Menu

1. Press  brings up the Setup menu.

2. The Menu screen at left is displayed. To access the RADIO menu press  

3. Enter the Technician Password of 1234 by pressing the 1 thru 4 keys.

4. Press the  Enter key
5. An expanded Menu as shown at left will be displayed

6. Touch the “Radio” line once to highlight

7. Press the Return key

8. The Enabled Scales Radio Channel list will be displayed as shown at left. The “X” next to each channel signifies that this channel is turned off.

9. For each Radio Channel activated on the mixer(s) press the Channel line to highlight

10. Press

11. The “X” will change to a “✓” signifying that that channel is now available. In the example at left channels 1 thru 3 are active and setup.

12. Press

13. Press

14. Press on front of indicator to exit and return to Main Screen.
15. The number above indicates the channel and mixer that the CCT is tuned to communicate with.

16. Press (in this example) to change mixers.

17. The Select Scale Radio Channel screen as shown at left will be displayed. Only the Radio Channels activated in the steps above will be shown.

18. Choose the Mixer Radio Channel desired by pressing the Channel Number.

19. Press the key to save the change and return to the Main Screen.

20. The Mixer Radio Channel selected will now be displayed over the Mixer Radio Channel key on the Main Screen.

21. Check the “RADIO” status icon. The color indicates the current radio status.

- Radio with Good Connection
- Radio with No Connection to Indicator
- No Radio connected to CCT
6.0 CONNECTION & MOUNTS

6.1 Power Connections in Loader

### Power Connection

<table>
<thead>
<tr>
<th>Power Connection</th>
<th>CCT400 or CCT500</th>
<th>ERM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brown</td>
<td>+12VDC</td>
<td>Use 5 amp fuse</td>
</tr>
<tr>
<td>Blue</td>
<td>- Neg.</td>
<td></td>
</tr>
</tbody>
</table>
6.2 Mounting

Standard Mount Kit (supplied with indicator)

NOTE! Damage to the mount will occur if adjusting knobs are not loose before adjustment.

⚠️ Warning Do not drill into a ROPS or FOPS frame.

Optional Suction Cup Ram Mount (Other ram mount types are available)