

FAIRBANKS SCALES ENGINEERING SPECIFICATIONS FOR:
MODEL FB2560 DRIVER ASSIST TERMINAL

Section _____

DRIVER ASSIST TERMINAL

PART 1 – GENERAL

- 1-1 **SCOPE.** This section covers the requirements for one Driver Assist Terminal (DAT) for use in the _____. The Driver Assist Terminal shall be furnished and installed complete as specified hereinafter, including the services of the manufacturer's service representative.
- 1-1.01. **Acceptable Manufacturer.** The Driver Assist Terminal furnished under this section shall be manufactured by Fairbanks Scales or equal ISO accredited manufacturer.
- 1-2 **GENERAL.** Equipment furnished and installed under this section shall be assembled, calibrated and placed in proper operating condition in full conformity with wiring, specifications, engineering data, instructions and recommendations of the equipment manufacturer unless exceptions are noted by the Engineer.
- 1-2.01. **General Equipment Stipulations.** The General Equipment Stipulations shall apply to all equipment furnished under this section.
- 1-2.02. **Governing Standards.** The scale systems shall have been issued a Certificate of Compliance by the National Type Evaluation Program, (N.T.E.P.) and shall conform to the following federal, state, local, and industrial standards.
- 1-2.03. National Bureau of Standards, NBS Handbook 44, "Specifications, Tolerances, and Technical Requirements for Weighing and Measuring Devices".
- 1-2.04. National Electrical Manufacturers Association and the National Electrical Code.
- 1-2.05. Applicable state regulations for commercial weighing devices.

(PROJECT NAME)

(CONTRACT NO.)

-1-

(ENGINEERING FIRM)
(DATE)

- 1-2.06. Power Supply. Unless otherwise specified, the power supply to the equipment will be a dedicated 120 volts, single phase, 60 Hz. Where control voltages lower than the power supply voltage is required, suitable control power transformers shall be furnished.

PART 2 – PRODUCTS

- 2-1. DRIVER ASSIST TERMINAL DESIGN. The Driver Assist Terminal shall be a Fairbanks Scales model FB2560 Driver Assist Terminal or approved equivalent.

- 2-1.01. The Driver Assist Terminal shall be N.T.E.P. approved with an Accuracy Class of III / IIIL.
- 2-1.02. The Driver Assist Terminal shall feature a Category II Audit Trail.

2-2. DRIVER ASSIST TERMINAL HARDWARE SPECIFICATIONS

- 2-2.01. Enclosure shall be a stainless steel weather proof lockable enclosure specifically designed for outdoor use.
- 2-2.02. Processor shall be a Quad Core 1.8 GHz processor minimum.
- 2-2.03. Memory shall be 4 GB RAM minimum.
- 2-2.04. On board storage shall be a minimum of 8 GB
- 2-2.05. Serial Ports shall be a minimum of three (3) RS232 ports.
- 2-2.05.1. One RS232 port shall be capable of being configured for RS485.
- 2-2.06. Minimum of four (4) USB 2.0 ports standard.
- 2-2.07. Minimum of one (1) USB 3.0 ports standard.
- 2-2.08. Dedicated 20 mA interface for interfacing with remote displays. Interface shall support both active and passive remote displays.
- 2-2.09. External QWERTY keyboard interface shall support USB keyboards for use during system configuration. Driver Assist Terminal shall provide adequate space to store the USB keyboard inside the Driver Assist Terminal.

- 2-2.10. Ethernet Interface shall be through an external IEEE 802.3, 100Base-T compatible, 10/100/1000 Mbps RJ45 connection.
- 2-2.11. Instrument shall be accessible through a standard PC browser using standard ethernet interface. Use of any special software application for access instrument is prohibited.
 - 2-2.11.1. Use of serial converters or similar means to obtain ethernet connectivity is prohibited.
- 2-2.12. The Driver Assist Terminal display shall be a full color graphics display.
- 2-2.13. The Driver Assist Terminal display shall provide minimum resolution of 800 x 480.
- 2-2.14. Display size shall be a minimum of 6.0" x 3.5" (7.0" diagonal)
- 2-2.15. Display shall be a TFT LCD with LED backlighting.
- 2-2.16. Display shall include touch screen as a standard feature.
- 2-2.17. The Driver Assist Terminal shall provide means for an optional weatherproof, metalize alphanumeric keyboard.
- 2-2.18. The Driver Assist Terminal shall provide means for an optional proximity card reader for reading proximity cards presented by the Driver.
- 2-2.19. The Driver Assist Terminal shall provide means for an optional barcode card reader for reading barcode cards presented by the Driver.
- 2-2.20. The Driver Assist Terminal shall provide means for an optional magnetic card reader for reading magnetic cards presented by the Driver
- 2-2.21. The Driver Assist Terminal shall provide means for an optional Transcore RFID reader for reading vehicle mounted RFID tags.
- 2-2.22. The Driver Assist Terminal shall provide means for optional Loop Detectors for automatically "zero-ing" scale before a vehicle enters and/or detecting when the vehicle is not fully scale borne.
- 2-2.23. Up to two IP cameras can be interfaced to a single Driver Assist Terminal. Images will be stored in the Driver Assist Terminal system, but not printed on tickets.

- 2-2.24. Still images can be captured and stored as part of the completed transaction record.
- 2-2.25. The Driver Assist Terminal shall display graphic image of vehicle on weigh screen when scale platform is loaded. Image shall be full color graphic image, line drawing or outline drawing of a vehicle are not acceptable. Vehicle type and color shall be selectable from a library of available images residing on the instrument.
- 2-2.26. The Driver Assist Terminal load cell interfaces shall include support for Fairbanks Scales Intalogix Technology (digital interface for analog load cell communication) or standard analog load cell interfaces. Use of proprietary load cells to obtain a digital interface is prohibited.
- 2-2.27. The Driver Assist Terminal shall be able to detect water in scale pit if equipped with digital interface for load cell communication. If detected, Driver Assist Terminal shall display a message for the Operator on the weight screen. Instrument shall also be capable of emailing notice of this condition to multiple recipients.
- 2-2.28. The Driver Assist Terminal shall be capable of driving up to 32 load cells.
- 2-2.29. The Driver Assist Terminal shall have the ability to network up to five Terminals together, using a standard TCP/IP ethernet network, each instrument controlling separate scale platform, automatically sharing transaction data, allowing any Terminal to complete an open transaction started on a different Terminal on the network.
- 2-2.30. The Driver Assist Terminal shall be capable of interfacing to serial or USB printers for the purpose of producing tickets or reports.
- 2-2.31. Instrument shall be manufactured in the United States.
- 2-3. DRIVER ASSIST TERMINAL FUNCTIONS. The Driver Assist Terminal shall be a self-contained, operating unit providing a digital weight instrument driven by appropriate conditioning and control circuitry. The Driver Assist Terminal shall provide the capability to directly print a certified weight ticket.
- 2-3.01. The Driver Assist Terminal shall feature a programmable Display rate with settings from 0.1 to 10 seconds in 0.1 second intervals.

- 2-3.02. The Driver Assist Terminal shall feature programmable Zero button settings from 0 to 100% Zero capability. Zero button shall also have the capability to be completely disabled. Zero settings must also allow for a programmable Zero band threshold to be established based on weight, to facilitate a single print per weighment.
- 2-3.03. The Driver Assist Terminal shall include a blind counter to track scale activity when platform is loaded, but no transaction is processed.
- 2-3.04. The instrument shall have the ability to automatically control traffic lights based on threshold weight settings, selectable time delays and transaction status.
- 2-3.05. The Driver Assist Terminal shall have the ability to control combination remote display and traffic light devices through a single 20 mA interface.
- 2-3.06. The Driver Assist Terminal shall have the ability to automatically assign an ID to a new Inbound transaction.
- 2-3.07. The Driver Assist Terminal shall prompt the Driver for one single piece of information at a time, such as Vehicle ID, Customer ID, Product ID, etc. Each prompt shall be an individual screen. Screens requiring the driver to respond to more than one data point on the same screen are prohibited.
- 2-3.08. The Driver Assist Terminal shall provide an optional Review Screen, to allow the Driver to review the entered transaction data before storing the transaction or printing a ticket. If not desired, this function can be disabled during system configuration.
- 2-3.09. The Driver Assist Terminal shall provide an option for the Driver to correct errors when using the Review Screen option.
- 2-3.10. The Driver Assist Terminal shall provide an option to either automatically begin a transaction by prompting for Vehicle ID or for Driver to present their magnetic, barcode or prox type card; or the system can prompt the Driver to select Inbound or Outbound transaction type to begin the transaction.
- 2-3.11. The Driver Assist Terminal shall have the ability to store 500,000 individual tare weights. Each stored Tare will include the Tare ID, unit of measure, date stored and vehicle description.

- 2-3.12. The Driver Assist Terminal shall have the ability to store 250,000 individual Product or Material records. Each stored Product will include the Product ID, unit of measure, net weight running total, Product description and two programmable conversion factors.
- 2-3.13. The Driver Assist Terminal shall have the ability to display the stored Product list during the transaction by pressing a single key.
- 2-3.14. The Driver Assist Terminal shall display the description of the selected Product on screen when processing a transaction.
- 2-3.15. The Driver Assist Terminal shall have the ability to create Product Groups to associate and limit specific Products with specific Customer records.
- 2-3.16. The Driver Assist Terminal shall have the ability to store 250,000 individual Customer records. Each stored Customer will include the Customer ID, unit of measure, net weight running total, four lines of text for description, address, etc.
- 2-3.17. The Driver Assist Terminal shall have the ability to display the stored Customer list during the transaction by pressing a single key.
- 2-3.18. The Driver Assist Terminal shall display the four lines of description for the selected Customer on screen when processing a transaction.
- 2-3.19. The Driver Assist Terminal shall have the ability to store 1,000,000 (one million) completed transactions or a minimum of 10,000 with two (2) images per transaction.
- 2-3.20. The Driver Assist Terminal shall have the ability to display the Open/Inbound transaction list during the Outbound transaction by pressing a single key.
- 2-3.21. The Driver Assist Terminal shall have the ability to create ten (10) additional transaction based Operator prompts for capturing additional information during the transaction process. Data captured shall be available for printing on tickets and included in exported transaction data.
- 2-3.22. Transaction data can be printed, exported or emailed.
- 2-3.23. The Driver Assist Terminal shall produce the following reports:

2-3.23.1. Completed Transactions by date range

- 2-3.23.2. Incomplete transactions by date range
- 2-3.23.3. Transactions sorted by Product ID, by date range
- 2-3.23.4. Transactions sorted by Customer ID, by date range
- 2-3.23.5. Summary by Product
- 2-3.23.6. Summary by Customer
- 2-3.23.7. Voided transactions
- 2-3.23.8. Scale activity
- 2-3.23.9. List of stored Tares
- 2-3.23.10. List of stored Products
- 2-3.23.11. List of Product groups
- 2-3.23.12. List of stored Customers
- 2-3.23.13. Calibration report

2-3.24. The Driver Assist Terminal shall have the ability to export the following data:

- 2-3.24.1. Completed Transactions by date range
- 2-3.24.2. Incomplete transactions by date range
- 2-3.24.3. Transactions sorted by Product ID, by date range
- 2-3.24.4. Transactions sorted by Customer ID, by date range
- 2-3.24.5. Summary by Product
- 2-3.24.6. Summary by Customer
- 2-3.24.7. Voided transactions
- 2-3.24.8. Scale activity
- 2-3.24.9. List of stored Tares
- 2-3.24.10. List of stored Products
- 2-3.24.11. List of Product groups
- 2-3.24.12. List of stored Customers
- 2-3.24.13. Calibration report

2-3.25. Data shall be exportable in the following formats:

- 2-3.25.1. PDF
- 2-3.25.2. HTML
- 2-3.25.3. CSV

2-3.26. The Driver Assist Terminal shall provide the means to turn data headers turned on and off in exported CVS data.

2-3.27. Data shall be accessible through a standard PC browser.

2-3.28. Data shall be exportable to a standard USB flash drive.

2-3.29. The instrument shall support the means to email exported transaction data.

- 2-3.30. The Driver Assist Terminal shall support the means to automatically email a completed ticket once a transaction is completed.
- 2-3.31. The Driver Assist Terminal shall support the means to automatically email the entire days completed transactions records at the end of the calendar day.
- 2-3.32. The Driver Assist Terminal shall have the ability to manually email a specific transaction, by ticket number.
- 2-3.33. The Driver Assist Terminal shall have the means to capture up to two (2) static images from IP cameras. Images are to be stored by ticket number.
- 2-3.34. Stored images shall be viewable by ticket number or by date range. Individual images can be emailed or copied to a USB jump drive.
- 2-3.35. The Driver Assist Terminal shall have the means to self diagnose and email the following conditions at a minimum:
 - 2-3.35.1. Calibration Change
 - 2-3.35.2. Float Switch Condition = ON
 - 2-3.35.3. Load Cell Ghosted
 - 2-3.35.4. Load Cell Failure
 - 2-3.35.5. Routine Maintenance Required
 - 2-3.35.6. Remote Access Enabled
 - 2-3.35.7. Time and Date change
 - 2-3.35.8. Scale Behind Zero
 - 2-3.35.9. Blind Counter Increment
 - 2-3.35.10. Instrument Configuration Change
 - 2-3.35.11. Unauthorized Access Attempted
 - 2-3.35.12. Sectional Error
 - 2-3.35.13. Cell Motion Error
 - 2-3.35.14. Zero Shift
 - 2-3.35.15. Scale Capacity Exceeded
- 2-3.36. The Driver Assist Terminal shall have the ability to drive eight (8) 1000 load cells at a distance of 1,800 feet.
- 2-3.37. The Driver Assist Terminal shall visually 'flag' identified problem load cell(s) in diagnostic screen until flag is manually cleared to identify intermittent problems.

- 2-3.38. The Driver Assist Terminal shall provide the means to view all load cells for a single platform at the same time to allow for proper scale system analysis. Individual viewing of cells one at a time is not acceptable.

CELL	CAL.	CUR.	WT.	ERRORS	DATE
1	2665	22929	10999		
2	2664	22969	11006		
3	2846	22929	10991		
4	2864	22969	11003		
5	2865	23141	10990		
6	2860	23147	10996		
7	2631	22908	10998		
8	2620	22920	11001		

- 2-3.39. The Driver Assist Terminal shall be NTEP approved for wireless load cell communication.
- 2-3.40. The scale system shall have the ability to be 100% calibrated from the instrument. No calibration adjustments or trimming shall be allowed at the scale platform.
- 2-3.41. The Driver Assist Terminal shall have the means to calibrate the scale using the mV output of the connected load cells.
- 2-3.42. The Driver Assist Terminal shall have the ability to electronically 'ghost' a failed load cell when equipped with the digital interface for load cell communication.
- 2-3.43. The Driver Assist Terminal shall support remote troubleshooting by means of a standard PC browser. Use of any special software application to access the instrument is prohibited.
- 2-3.44. The Driver Assist Terminal shall have the means to provide continuous weight data. Weight data shall be provided serially or through the ethernet port.
- 2-3.45. The Driver Assist Terminal shall feature the ability to backup to internal flash memory card or USB jump drive.
- 2-3.46. The Driver Assist Terminal shall feature the ability to be backed up remotely using a standard PC browser. Use of any special software application to backup instrument is prohibited.

PART 3 – EXECUTION

3-1. INSTALLATION. The Driver Assist Terminal shall be installed by a scale company that has a minimum of five years of experience installing similar scale systems.

The scale company must have an established service center in _____ and have a current license on file with the local Weights & Measures Authority.

3-2. MANUFACTURER'S FIELD SERVICES. Where scheduled in the equipment schedule section, an experienced, competent, and authorized representative of the manufacturer shall provide field services for equipment furnished under this section. Field services shall meet the requirements of Manufacturer's Field Services in the quality control section.

3-3. FIELD TESTING AND ACCEPTANCE. The authorized representative of the manufacturer shall provide the required scale certification for capacity and accuracy to the Engineer as required by the local Weights and Measures Authority any other applicable State or County agency.

3-4. PERSONNEL TRAINING. An experienced, competent, and authorized representative of the manufacturer shall train the Owner's personnel in operating and maintaining the equipment specified in this section. The training provided shall meet the requirements specified in the quality control section. The number of training sessions and duration of each session shall be as scheduled in the equipment schedule section.

End of Section