UAPC™

Unattended PC Terminal Installation and Setup Guide

16672300A
(6/03)

This manual describes the operation and functionality of the UAPC unattended terminal.

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FCC NOTICE

This device complies with Part 15 of the FCC Rules and the Radio Interference Requirements of the Canadian Department of Communications. Operation is subject to the following conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his or her own expense.

ORDERING INFORMATION

It is most important that the correct part number is used when ordering parts. Parts orders are machine processed, using only the part number and quantity as shown on the order. Orders are not edited to determine if the part number and description agree.

TRADEMARKS

CUSTOMER FEEDBACK

Your feedback is important to us! If you have a problem with this product or its documentation, or a suggestion on how we can serve you better, please fill out and send this form to us. Or, send your feedback via email to: quality_feedback.mtwt@mt.com. If you are in the United States, you can mail this postpaid form to the address on the reverse side or fax it to (614) 438-4355. If you are outside the United States, please apply the appropriate amount of postage before mailing.

Your Name:		Date:
Organization Name:		METTLER TOLEDO Order Number:
Address:		Part / Product Name:
		Part / Model Number:
		Serial Number:
		Company Name for Installation:
Phone Number: ( )	Fax Number: ( )	Contact Name:
E-mail Address:		Phone Number:

Please check the appropriate box to indicate how well this product met your expectations in its intended use?	
	Met and exceeded my needs
	Met all needs
	Met most needs
	Met some needs
	Did not meet my needs

Comments/Questions:

DO NOT WRITE IN SPACE BELOW; FOR METTLER TOLEDO USE ONLY

☐ Retail ☐ Light Industrial ☐ Heavy Industrial ☐ Custom

RESPONSE: Include Root Cause Analysis and Corrective Action Taken.

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PRECAUTIONS

READ this manual BEFORE operating or servicing this equipment.

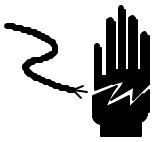
FOLLOW these instructions carefully.

SAVE this manual for future reference.

DO NOT allow untrained personnel to operate, clean, inspect, maintain, service, or tamper with this equipment.

ALWAYS DISCONNECT this equipment from the power source before cleaning or performing maintenance.

CALL METTLER TOLEDO for parts, information, and service.



⚠ WARNING

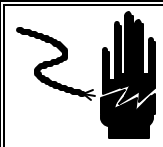
DISCONNECT ALL POWER TO THIS UNIT BEFORE INSTALLING, SERVICING, CLEANING, OR REMOVING THE FUSE. FAILURE TO DO SO COULD RESULT IN BODILY HARM AND/OR PROPERTY DAMAGE.

⚠ CAUTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES.

⚠ WARNING

ONLY PERMIT QUALIFIED PERSONNEL TO SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS AND ADJUSTMENTS THAT MUST BE MADE WITH POWER ON. FAILING TO OBSERVE THESE PRECAUTIONS CAN RESULT IN BODILY HARM AND/OR PROERTY DAMAGE.



⚠ WARNING

FOR CONTINUED PROTECTION AGAINST SHOCK HAZARD, CONNECT TO PROPERLY GROUNDED OUTLET ONLY. DO NOT REMOVE THE GROUND PRONG.

WARNING!

THE UAPC DATA TERMINAL IS NOT INTRINSICALLY SAFE! DO NOT USE IN AREAS CLASSIFIED AS HAZARDOUS BY THE NATIONAL ELECTRIC CODE (NEC) BECAUSE OF COMBUSTIBLE OR EXPLOSIVE ATMOSPHERES.

WARNING!

USE ONLY THE POWER CORD SUPPLIED OR AN EQUIVALENT TYPE. U.S. MODELS USE UL APPROVED TYPE SJT CORD; EC MODELS USE HARMONIZED APPROVED TYPE H05VV-F CORDS.

⚠ WARNING!

IMPROPER INSTALLATION OF THE POWER CABLE WILL RESULT IN PERSONAL INJURY AND/OR DAMAGE TO THE EQUIPMENT. THE HOT WIRE MUST BE APPLIED TO "L", NEUTRAL TO "N" AND GROUND TO ⏚

CONTENTS

1 Introduction

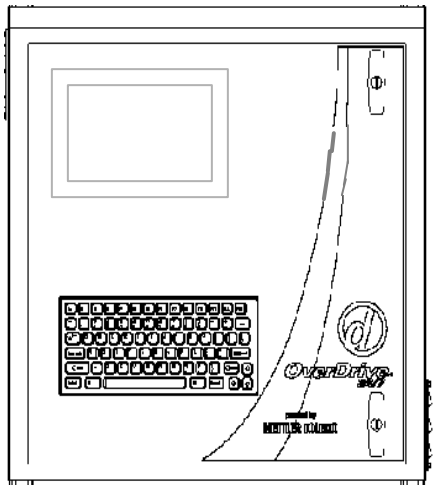
Overview

The following information is intended to help you install and configure the METTLER TOLEDO Unattended PC Terminal (UAPC). Please read the information thoroughly prior to beginning installation. Only qualified technicians should do internal wiring, install options, and/or do any programming.

Note: The specific hardware configuration of the UAPC data terminal is detailed in the assembly and wiring diagrams that accompany the equipment. Please reference those diagrams as you review the information provided here.

This document references the METTLER TOLEDO JAGXTREME terminal. Please refer to the JAGXTREME Terminal Technical Manual for details on configuring the discrete I/O and serial ports and for setting up scale interfaces.

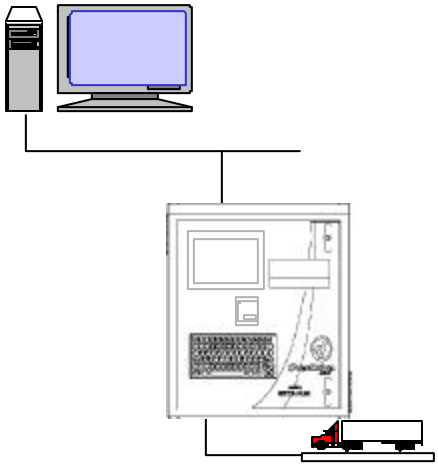
The print server hub used in the UAPC data terminal is provided by LINKSYS®. For more information, refer to the LINKSYS User Guide supplied with the equipment.



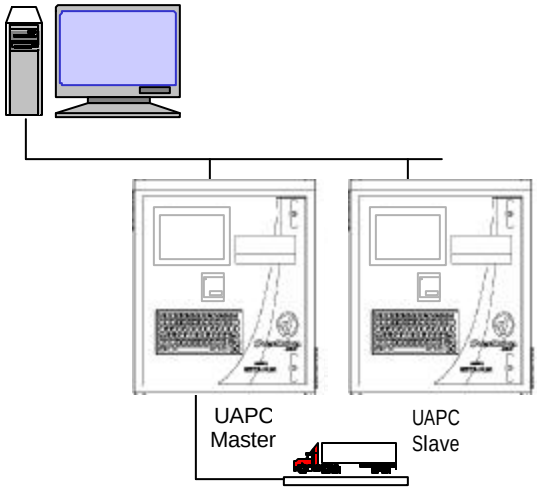
Basic Unattended PC Terminal (UAPC)

UAPC Overview

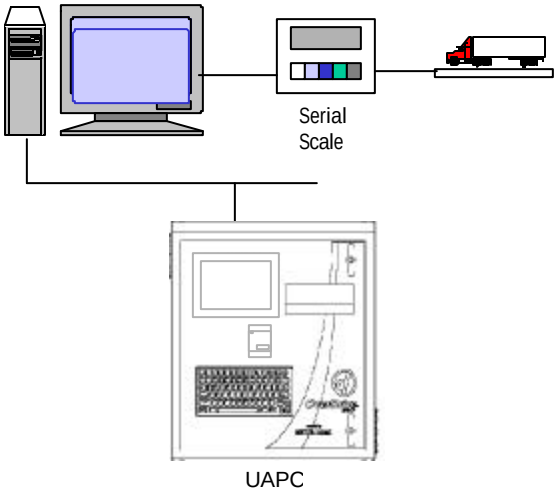
The UAPC data terminal is designed for use with METTLER TOLEDO's OverDrive™24/7 vehicle software in situations in which the processing of vehicles is operated in an "unattended" (no operator support) manner. It includes a touchscreen PC loaded with optional OverDrive™24/7 vehicle software, and can communicate with a personal computer (PC) or other processing unit via an Ethernet connection. The UAPC data terminal is available in a variety of hardware configurations based on the layout of the unattended operation site and the needs of the unattended operation. There are four basic configurations of the UAPC data terminal as detailed below.



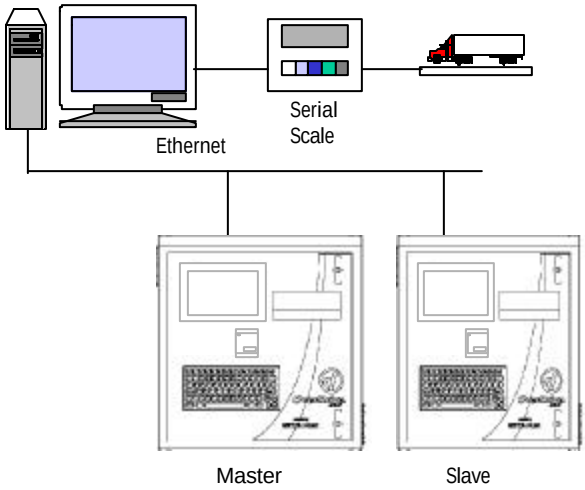
UAPC Hardware w/Scale



Dual UAPC Hardware w/Scale



UAPC Hardware w/ Serial Scale



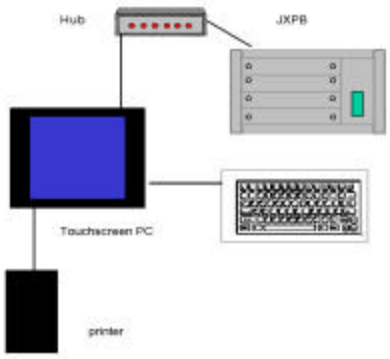
Dual UAPC Hardware w/ Serial Scale

UAPC Model Numbers

XXXX	X	X	X	X	X	X	X	X
Model	Scale Interface	**Printer Type**	**Reader Interface**	**Intercom**	**Loop Interface**	**I/O**	**Heater**	**Power**
UAPC	0 = no interface 1 = Single/dual analog 2 = triple/quad dual analog 3 = Power cell	0 = no printer 1 = thermal kiosk printer	0 = no reader 1 = US proximity reader 2 = Euro proximity reader	0 = no intercom 1 = intercom	0 = no loop interface 1 = dual loop interface	0 = no additional I/O 1 = 2 in/2 out 2= 2 in / 4 out 3 = 0 in / 6 out	0 = no heater 1 = heater	0 = 110VAC 1 = 220VAC

UAPC Basic Configuration

The internal configuration of the UAPC data terminal consists of a touchscreen PC, a blind JAGXTREME (JXPB) terminal connected to a hub and a PC keyboard. Additional peripherals devices, such as proximity readers, may be added as required to meet the needs of the unattended operation.



The JAGXTREME terminal can control traffic signals and barriers, read loops, and communicate with serial devices such as prompting displays, proximity card readers, and magnetic badge readers. The terminal may also be used as the scale interface to the PC, connecting to either an analog or POWERCELL scale sensor.

The physical interface between the PC is connected to the JAGXTREME terminal using 10BASET Ethernet. Through this interface the JAGXTREME terminal communicates and directs the status of the JAGXTREME's connected I/O back to the PC.

Keyboard

The 81-character QWERTY backlit keyboard is used to enter data (such as driver ID number) needed to complete weighing transactions.

Display

The PC includes a 12.1" touchscreen display. A separate scoreboard weight display is available as an option.

Options and Accessories

The UAPC can be equipped with the following options and accessories:

Printer

A kiosk style thermal printer with paper cutter can be installed in the driver station to print information about a weighing transaction on a driver's ticket. It prints 48 columns per line.

Card Reader

An RFID proximity card reader with LED status indicator installed in the front door of the UAPC is optionally available.

Intercom

An AIPhone model LE-DA slave station intercom speaker installed in the front door of the UAPC is optionally available

Heater

A 200W, thermostatically controlled, panel heater installed inside the UAPC enclosure is optionally available. A heater is recommended when the optional printer is used.

Pole Mounting Strap (METTLER TOLEDO Part # 90804100C)

A bracket for mounting the enclosure to an existing 4" o.d. pole is optionally available.

Pole Kit (METTLER TOLEDO Part # 90893200A)

A 10' high, 4" o.d., mounting pole with base kit for mounting to a concrete pad is optionally available.

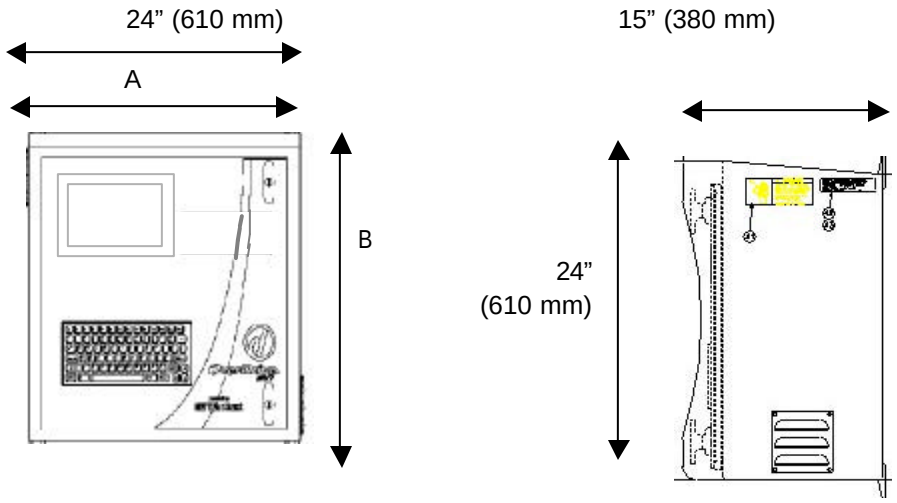
Scoreboard (METTLER TOLEDO Part # 86180003)

A six character, 4" HIGH, LCD digital display, RS-422 interface, 90-260VAC 50/60Hz, for display of vehicle weight is available.

Specifications

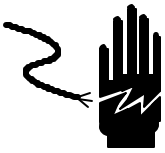
The UAPC data terminal conforms to the following specifications.

Physical Dimensions



Note: Wall mounting bracket-mounting hole spacing A = 22.5” (572 mm), B = 24.63” (626

Power Requirements



WARNING

DISCONNECT ALL POWER TO THIS UNIT BEFORE INSTALLING, SERVICING, CLEANING, OR REMOVING THE FUSE. FAILURE TO DO SO COULD RESULT IN BODILY HARM AND/OR PROPERTY DAMAGE.

The UAPC data terminal requires an input power source of 220 VAC or 115VAC. Rated current draw is nominally 6A (115VAC) or 3A (220VAC), but varies depending on which options are installed. Refer to the nameplate on the side of the enclosure for specific electrical requirements.

Operating and Storage Temperature

The standard UAPC data terminal (without printer) can be operated at temperatures ranging from –10°C to +40°C (14°F to 104°F). When a printer is used, the minimum operating temperature without an optional heater is 5°C (41°F). When using the optional heater, the minimum operating temperature is –30°C (-22°F). The storage temperature is -20°C to +60°C (4°F to 140°F).

Note, the UAPC is designed for use in typical outdoor environments. In very dirty environments with large amounts of airborne dust or particulates, it is recommended that a minimum 500BTUh air conditioner be installed, and existing openings sealed.

Hazardous Areas

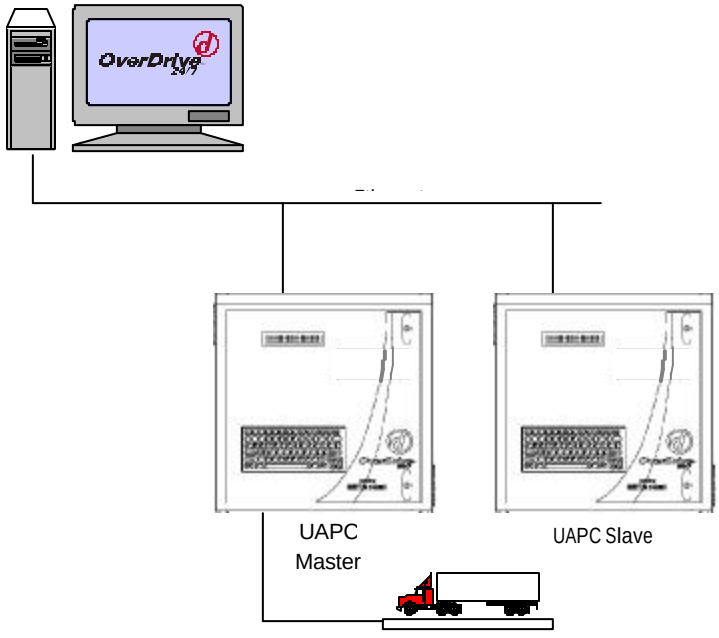
WARNING!

THE UAPC DATA TERMINAL IS NOT INTRINSICALLY SAFE! DO NOT USE IN AREAS CLASSIFIED AS HAZARDOUS BY THE NATIONAL ELECTRIC CODE (NEC) BECAUSE OF COMBUSTIBLE OR EXPLOSIVE ATMOSPHERES.

The UAPC data terminal is not intrinsically safe and must not be operated in areas classified as hazardous by the National Electrical Code (NEC) because of the combustible or explosive atmospheres in those areas. Contact your authorized METTLER TOLEDO representative for information about hazardous applications.

UAPC Master/slave Operation

Unattended configurations that require an inbound and outbound UAPC data terminal on a single scale must use a master/slave UAPC configuration. This configuration can be created using the JAGXTREME terminal's clustering technology. This technology enables the "slave" UAPC data terminal to write its serial peripheral information to the master UAPC data terminal, so that the master UAPC data terminal can communicate with the OverDrive PC.



For your notes

2 Installation

Unpacking and Inspection

This chapter explains how to install the UAPC unattended driver station. Please read this information thoroughly before you begin installation.

- Please inspect the package upon receipt from the carrier.
- If the shipping container is damaged, check for internal damage and file a freight claim with the carrier if necessary.
- If the container is not damaged, remove the driver station from its protective package, noting how it was packed, and inspect each component for damage.
- If you need to ship the driver station, it is best to use the original shipping container. It must be packed correctly to ensure its safe transportation.

Guidelines

- Select a location for the UAPC data terminal. Typically, the data terminal is installed so that a driver can reach it from inside a vehicle that is parked on the scale.
- Make sure that the UAPC data terminal is installed at the right height and near the scale. Since trucks have varied heights, measure several trucks in the following manner. Measure from the scale platform to the bottom of the window opening (where the driver rests his or her arm when the window is open) and add approximately six inches to this figure. This height is where the bottom of the card reader should be located.
- Install traffic barriers, such as short poles, to protect the UAPC data terminal and/or traffic lights from trucks.
- The UAPC data terminal must be mounted in a position that will allow the drivers to use it without any part of the truck being off the scale.
- A UAPC data terminal can be mounted on a column or on a wall bracket.
- Cables for connecting to an input power source, the OverDrive PC, and any I/O enter the UAPC data terminal via user-installed conduits in the base of the enclosure.
- When installing the UAPC data terminal, provisions must be made for routing cables through a mounting pole or wall.

Wall Mounting

WARNING!

USE EXTREME CAUTION WHEN LIFTING AND MOVING THE UAPC DATA TERMINAL. DO NOT ATTEMPT TO LIFT AND MOVE THE DRIVER STATION BY YOURSELF OR INJURY COULD OCCUR.

- A bracket is included for mounting the driver station to a wall, using M8 x 45 mm (3/8" diameter x 1.75" long) expansion anchor bolts. Make sure that the wall and each embedded anchor can resist a pulling force of 150 pounds.
- Position the bracket on the wall at a height that will make it convenient for drivers to use the driver station. Make sure that the top of the mounting plate is level, and then mark the locations for the plate's bolt holes.
- Drill holes into the wall for the bolts or anchors. Depending on the application, you may need to provide an opening in the wall for the routing cables.
- Route the cables through the wall (if applicable). Bolt the mounting bracket securely to the wall.

Pole Mounting

An optional pole-mounting strap (METTLER TOLEDO Part # 90804100C) can be used to mount the UAPC data terminal to a 4" (102 mm) diameter pole. The pole-mounting strap should be fastened to the wall-mounting bracket with the included hardware. An optional 10' aluminum pole with base plate and anchors (METTLER TOLEDO part # 90893200A) is available.

Conduit

Three separate minimum 3/4" diameter conduits, or as required by local codes, are required to be installed through the bottom of the UAPC. Separate conduit for load cell signal cable, incoming power, and communication cable are required. An additional 1" diameter conduit for a ground rod must be provided.

Power Supply Connection

⚠ WARNING

ONLY PERMIT QUALIFIED PERSONNEL TO SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS AND ADJUSTMENTS THAT MUST BE MADE WITH POWER ON. FAILING TO OBSERVE THESE PRECAUTIONS CAN RESULT IN BODILY HARM AND/OR PROPERTY DAMAGE.

The UAPC data terminal requires a properly grounded power supply of 115 or 230 volts AC.

- Connect the power supply cable to terminal block inside the UAPC enclosure.
- Consult the wiring diagram supplied with the UAPC data terminal.

Grounding

The following information is typical for most UAPC systems but may not apply exactly to your system. Consult the drawings for your system for specific information and refer to local code requirements.

- Install grounded bushings on all metallic conduits inside the WIM cabinet, except for the ground wire conduit.
- Drive an 8' long, one-half inch diameter, copper-clad ground rod into the soil near the UAPC cabinet. You may have to dig a shallow hole first because the rod must be at least six inches below grade when installed.
- Run a #6 AWG solid copper, un-insulated wire from the ground rod into the UAPC cabinet through a 1" conduit.
- Connect the ground wire to the ground rod with a bronze ground clamp.
- Connect the other end of the ground wire to one of the conduit ground bushings. Connect all the conduit ground bushings together by daisy chaining them. Terminate the ground wire to suitable ground inside the UAPC cabinet.

Note: The ground system must meet National Electric Code requirements.

- Cover the ground rod with soil.

Remote PC Connection

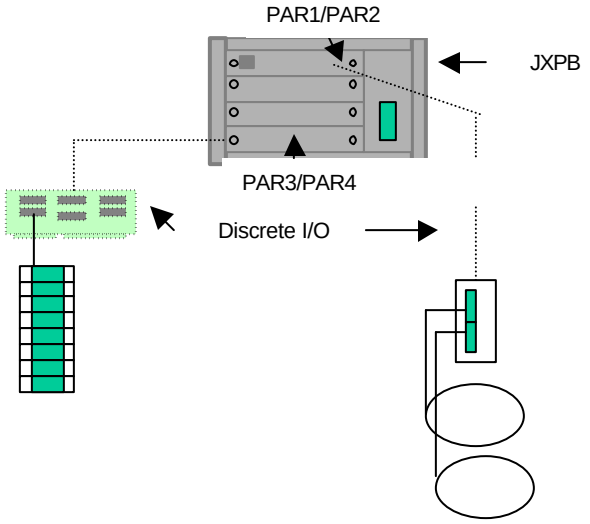
The UAPC data terminal is connected to a remote PC (such as in a building) via10BASET Ethernet cabling between the hub inside the UAPC enclosure and a switch or Ethernet port on the remote PC. The maximum cable distance is 300' (90 m). Longer distances require the use of fiber optic or a wireless connection.

Connection to Loops, Lights and Gates

Electrical connection to loops, lights, and gates is made within the UAPC enclosure. Refer to the wiring diagram supplied for the location of I/O connection points and loop detectors. Refer to Appendix A for suggested loop installation procedures.

UAPC Discrete I/O Operation

The UAPC uses the JAGXTREME terminal's discrete I/O to interface with field devices such as loops, traffic signals, and gates. The JAGXTREME terminal executes a program to read inputs from loops, and to manage the outputs, traffic signals and barriers (gates) based on information exchanged with the OverDrive PC.



NOTE: Traffic signals for axle scales are a unique case and will be handled by a special program and a separate module of the OverDrive PC software.

For each parallel input point (four on the JAGXTREME terminal's CPU and eight more on the optional multifunction card,) the UAPC data terminal can be configured to support the following list of input devices: none, entrance detector such as a loop, exit detector, entrance barrier (gate) limit switch, or exit barrier limit switch.

For each parallel output point (four on the CPU and eight more on the optional multifunction card), the UAPC can be configured to support the following list of output devices: none, entrance green, entrance red, exit green, exit red, entrance barrier, exit barrier.

I/O devices are assigned as described on the next page.

Output Assignments

0 – Nothing Connected
1 – Entrance Green Traffic Signal (Direction 1)
2 – Entrance Red Traffic Signal (Direction 1)
3 – Exit Green Traffic Signal (Direction1)
4 – Exit Red Traffic Signal (Direction 1)
5 – Entrance Barrier (Direction 1, Exit for Direction 2)
6 – Exit Barrier (Direction1, Entrance for Direction 2)
7 – Illumination
8 – Entrance Green Traffic Signal (Direction 2)
9 – Entrance Red Traffic Signal (Direction 2)
10 – Exit Green Traffic Signal (Direction 2)
11 – Exit Red Traffic Signal (Direction 2)

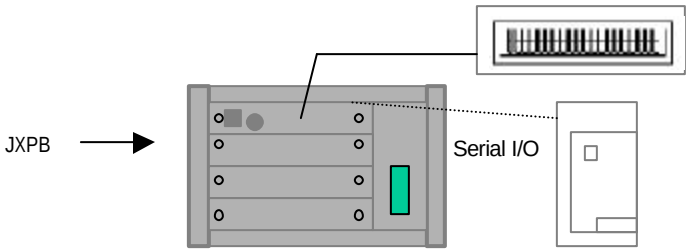
Input Assignments

51 – Entrance Loop (Loop 1 for bi-directional)
52 – Exit Loop (Loop 2 for bi-directional)
53 – Entrance Barrier Limit Switch (LS1 for bi-directional)
54 – Exit Barrier Limit Switch (LS2 for bi-directional)
56 – Start Weighing Cycle Pushbutton

A particular site may have no high level I/O devices, all of the devices listed above, or any number in-between. The default setup for the I/O when the JAGXTREME UAPC program is run for the first time is no inputs or outputs assigned.

UAPC Serial I/O Operation

The UAPC data terminal uses the JAGXTREME terminal's serial I/O to interface to serial devices such as prompting displays and card readers. For each of the four serial ports (two standard on the JAGXTREME terminal's CPU and two optional on the multifunction I/O card), the UAPC data terminal can be configured to support serial devices.



The serial device selection supported by the JAGXTREME terminal is configured with a two-digit number. This number defines the protocol used by the JAGXTREME terminal to talk to the serial device and defines how the JAGXTREME program passes data between the serial device and the OverDrive PC.

The numbers are as follows:

0 – Nothing connected to the port

UAPC Serial Output Devices:

1 – Four-Line LCD Display

UAPC Serial Input Devices:

Input device numbers will use the first digit to define the terminating character for the input string as follows:

4 – Line Feed (Hex 0A, Decimal 10)

5 – Carriage Return (Hex 0D, Decimal 13)

6 – End of Text (Hex 03, Decimal 3)

7 – Serial Keyboard (second digit ignored)

The second digit of the input device number will define which characters of the string need to be removed before passing the data to the PC. This digit is used as follows:

0 – Don't remove any characters (including the terminating character)

1 – Remove the last character only

2 – Remove the last two characters

3 – Remove the first character and the last character

4 – Remove the first character and the last two characters

5 – Remove the first character and the last three characters

3 UAPC JAGXTREME Setup

UAPC Startup Sequence

Upon applying power to the UAPC data terminal, the JAGXTREME terminal will initiate its standard power-up sequence to validate the contents of its RAM with the hardware configuration that it reads at power-up. If the RAM and hardware configuration have a conflict, the JAGXTREME terminal will suspend operation leaving the UAPC terminal non-functional.

Once the JAGXTREME terminal has completed its power-up sequence, it will automatically load the FILE1.BAS application program and begin executing the UAPC application. This must be configured in JagBASIC setup.

The first step in the UAPC application is to read the file named SETUP off the RAM disk. If the UAPC application program cannot find this file, it will not properly execute a transaction with the OverDrive software. It will default to no serial and I/O connections, and a full-length truck scale).

NOTE: To create a SETUP file, simply access the OverDrive "Hardware Setup" screen, make a change, and then save the settings. Upon exiting the screen, OverDrive will transmit the information to the UAPC, forcing it to create the SETUP file on its RAM disk.

UAPC JAGXTREME RAM Disk File

File	Description
JAGXCAL.DMT	Calibration data stored in the JAGXTREME's memory
JAGXLIT.DMT	Literal and Printer Templates stored in the JAGXTREME's memory (not used in this application)
JAGXSRAM.DMT	All setup parameters stored in JAGXTREME's memory
MONITOR.LOG	Condition monitoring log file stored in JAGXTREME's memory
MASTER DIR	**Files Residing on Master UAPC**
REMNODE	Allows for setting which node/scale instrument (setup in JAGXTREME) has the scale card in a clustered configuration
FILE1.BAS	Program required for UAPC application
TYPE0.BAS	Program required for UAPC application
TYPE1.BAS	Program required for UAPC application
TYPE2.BAS	Program required for UAPC application
SETUP	UAPC setup file supplied by OverDrive software, required for UAPC operation
SETTINGS.LCD	Sets contrast and brightness of 4 line LCD display
SERKEYB.MAP	Program required for UAPC application
SLAVE DIR	**Files Residing on Master UAPC**
SLAVE.BAS	Program required for UAPC application
FILE1.BAS	Program required for UAPC application
REMNODE	Allows for setting slave unit as unit with the scale card
SETTINGS.LCD	Sets contrast and brightness of 4 line LCD display
SERKEYB.MAP	Program required for UAPC application
SLVSETUP	Defines serial port settings of Slave UAPC

UAPC Configuration Types

The UAPC supports several possible configurations. If there are two UAPC's with a single scale (for two direction weighing), then one is configured as a Master and the other as a Slave. If only one UAPC is used on a scale, then it is the same as a Master.

Master UAPC Only/ JAGXTREME with scale card

In this case, simply set up the scale(s) and calibrate as required for the installation. When loading the JagBASIC files for the Master, do NOT load the REMNODE file, or put " 0" for the value in the file if you do load it. The file can be edited manually via a text editor such as Notepad and then transferred to the JAGXTREME via FTP. The JagBASIC program in the UAPC will detect the scale(s) and use them to get the weight. Note that if more than one scale (multiple platforms) is configured, you must also configure a SUM scale within the JAGXTREME Scale Interface program block. For this configuration, the Jag Scale checkbox in the OverDrive™ unattended configuration screen must be checked.

Master UAPC Only/ External JAGXTREME on same network

In this case, you must set up both JAGXTREMES as a network cluster, giving each JAGXTREME a unique IP address and a node number from 1 to 6. Edit the REMNODE file to include the node number of the JAGXTREME that will function as the scale instrument, and load that into the Master UAPC JAGXTREME with the rest of the JagBASIC files. Note that if more than one scale is configured on the external JagXtreme scale instrument, you must also configure a SUM scale on that JAGXTREME in order for the UAPC to work properly. It is necessary that the UAPC JAGXTREME have all internal scales disabled by first setting the number of scales to 1, secondly setting the scale "A" type to NONE, and lastly setting the number of scales to 0. For this configuration, the Jag Scale checkbox in OverDrive™ must be checked.

Master and Slave UAPC

In this case, you must set up both JAGXTREME as a network cluster, giving each JAGXTREME a unique IP address and a node number from 1 to 6. Typically the JAGXTREME in master UAPC would be assigned node #1 and the slave JAGXTREME node # 2.

The default setting of the Master UAPC REMNODE file is "0", indicating that this is the Master JAGXTREME and that it has a scale card. In the event that the slave JAGXTREME has the scale card then the Master REMNODE file must be changed to "2" (pointing toward the node that has the scale card), and the Slave REMNODE file must be changed to "1" (pointing toward the master UAPC).

Load the REMNODE file into the Slave UAPC JAGXTREME with the rest of the JagBASIC files. The Slave UAPC display will mimic the Master UAPC display. The scale interface setting in the Slave UAPC JAGXTREME will be ignored by the Slave UAPC JagBASIC programs. The Slave gets its weight information from the Master UAPC only. For this configuration, the Jag Scale checkbox in OverDrive™ must be checked.

Setup of Slave UAPC COM Ports

The slave UAPC hardware configuration can not be configured directly from OverDrive™. The configuration file, SlvSetup, can be edited manually via a text editor such as Notepad and then transferred to the JAGXTREME via FTP. The SlvSetup file has four lines, each representing a COM Port. The top line represents COM 1, second line COM 2, etc. See page 4-3 for a description of the hardware codes. The default settings are:

"42" COM 1 = badge reader

"1" COM 2 = not configured

"0" COM 3 = not configured

"0" COM 4 = not configured

JAGXTREME Configuration

Note: Reference the JAGXTREME Terminal Technical Manual for assistance in using the web server interface for configuring and setting up a JAGXTREME terminal.

On a typical UAPC data terminal, the JAGXTREME terminal can be set up using its Ethernet embedded web server. Different JAGXTREME setup parameters are required depending on which UAPC configured is used – see pp 3-2 and 3-3 for further details. JagBasic is only running on the Master UAPC, therefore, the Configure JagBASIC settings only are made on the master UAPC JAGXTREME terminal.

Config JagBASIC

Setting	**UAPC JAGXTREME**
Passwd	User settable
Keyboard	Keyboard
Display	None (default) or JagXtreme (displays weight)
Autostart	Y
Manual Start	N

Config. Discrete

Inputs PAR1	Polarity	Assign
1	+ Only	None
2	+ Only	None
3	+ Only	None
4	+ Only	None
Outputs PAR2		
1	+ Only	None
2	+ Only	None
3	+ Only	None
4	+ Only	None

Config. Discrete (optional multifunction PCB)

Inputs PAR3	Polarity	Assign
1	+ Only	None
2	+ Only	None
3	+ Only	None
4	+ Only	None
5	+ Only	None
6	+ Only	None

7	+ Only	None
8	+ Only	None
Outputs PAR4		
1	+ Only	None
2	+ Only	None
3	+ Only	None
4	+ Only	None
5	+ Only	None
6	+ Only	None
7	+ Only	None
8	+ Only	None

Config. Serial Setup

COM1	Card Reader
Baud Rate	9600
Data Bits	8
Parity	N
Flow	None
Stop Bit	1
Connection	None
COM2	N/A
Baud Rate	N/A
Data Bits	N/A
Parity	N/A
Flow	N/A
Stop Bit	N/A
Connection	N/A

Cluster IP Setup (Master/slave UAPC Only)

JAGXTREME Setup	Master	Slave
Terminal #	1	2
Terminal 1 IP	None Entered	IP of Master
Terminal 2 IP	None Entered	None Entered
Terminal 3 IP	None Entered	None Entered
Terminal 4 IP	None Entered	None Entered
Terminal 5 IP	None Entered	None Entered
Terminal 6 IP	None Entered	None Entered

For your notes

4 UAPC OverDrive™ Setup

UAPC Configuration Within OverDrive™

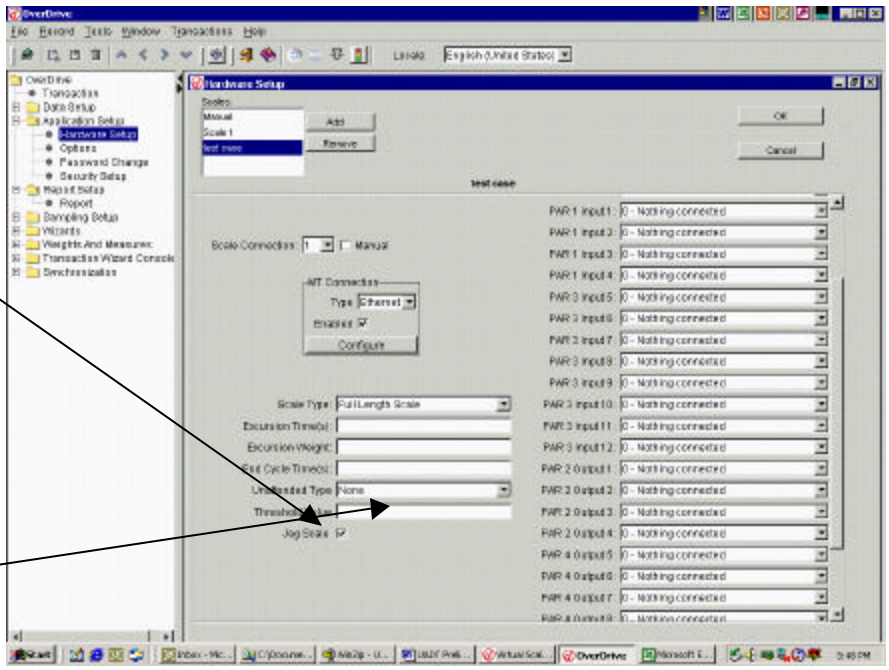
The serial port protocols and discrete I/O of the UAPC are defined in OverDrive™ in the "Hardware Setup" configuration screen. Refer to the OverDrive™ manual, part number (*)16398200A, for further details.

To access UAPC setup, go to Application Setup/Hardware Setup in the OverDrive™ tree.

JAGXTREME with Scale Interface Board

Note! If the JAGXTREME in the UAPC includes a scale card, this box must be checked!

Note! Unattended type must be set to "touchscreen."



UAPC Configuration Screen within OverDrive™

OverDrive™ will support up to six different scale configurations. Each configuration can be uniquely setup per the specific UAPC configuration ordered (UAPC hardware with scale, UAPC hardware with serial scale, etc.). The unattended type must be set to "touchscreen".

OverDrive™ Scale Setup Parameters

Field	Values	Description
Enabled	checked or empty	Enables the UAPC configuration
Unattended	checked or empty	Enables the UAPC configuration
Scale Connection	1 thru 6	The number of the UAPC “scale” connection to OverDrive™ (MTConnections)
MTConnections	Serial or Ethernet format IP, subnet mask (Ethernet only)	Defines the physical connection of the scale terminal to the OverDrive™ PC
Scale Type	Full Length, Axle, Split-Weigh	Type of scale platform for the particular scale configuration
Excursion Time	1-9 seconds	Axle scale parameter used to determine when a new axle has rolled onto the scale
Excursion Weight	In scale units (lbs or kgs)	Ditto above
End Cycle Time	1-20 seconds	Ditto above

OverDrive™ Hardware Setup Parameters

Field	Values	Description
Unattended Type	4-line LCD, JAGX HMI, Touchscreen, none	Defines the type of operator display on the UAPC
HW Connection	7 thru12	The number of the UAPC “hardware” connection to OverDrive™
HW Configure	IP, subnet, format	Defines the physical connection of the scale terminal to OverDrive™
Serial Port 1-4	Code	Description
1	42 or 44	Card Reader SmartPass AVI Reader
2	1	4-Line Display
3	0	Future Use
4	0	Future Use
PAR Inputs	0, 51-56	Defines the physical discrete I/O connection of UAPC
PAR Outputs	0, 1-11	Defines the physical discrete I/O connection of UAPC

The parameters selected are assembled by the OverDrive™ software and sent to the UAPC's JAGXTREME terminal where they are read and stored on the UAPC's JAGXTREME terminal RAM disk (file name: SETUP). The file can be viewed/copied via the UAPC data terminal's Ethernet port using standard FTP commands. The file is an ASCII text file that contains 34 records. A listing of the file is provided with the description of each element contained in the file.

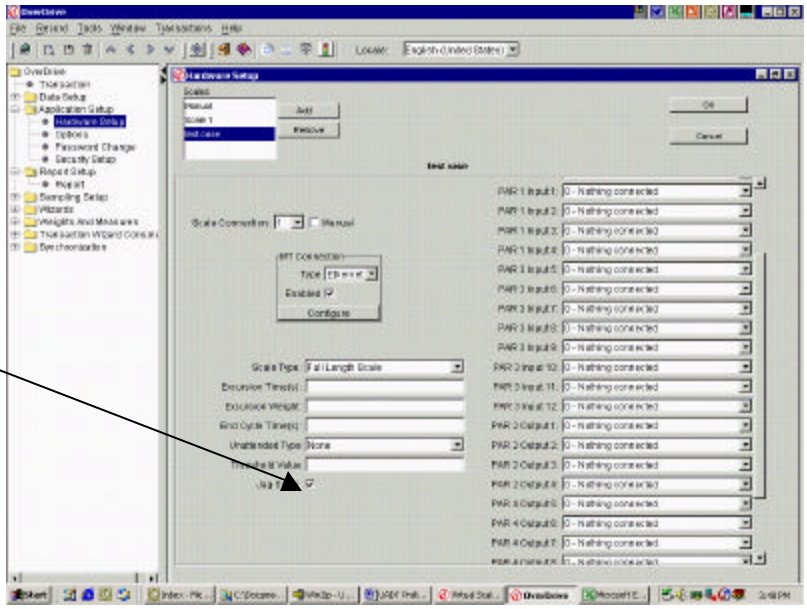
" 42" COM1 "4" terminating character = LF, "2" remove the last two characters

" 1"	COM2 "1" 4-line display
" 0"	COM3 "0" nothing connected
" 70"	COM4 "7" serial keyboard "0" don't remove any characters
" 0"	Input2 "0" no connection
" 0"	Input3 "0" no connection
" 0"	Input4 "0" no connection
" 0"	Input5 "0" no connection
" 0"	Input6 "0" no connection
" 0"	Input7 "0" no connection
" 0"	Input8 "0" no connection
" 0"	Input9 "0" no connection
" 0"	Input10 "0" no connection
" 0"	Input11 "0" no connection
" 0"	Input12 "0" no connection
" 1"	Output1 "1" entrance Green traffic light
" 2"	Output2 "2" entrance Red traffic light
" 3"	Output3 "3" exit Green traffic light
" 4"	Output4 "4" exit Red traffic light
" 0"	Output5 "0" no connection
" 0"	Output6 "0" no connection
" 0"	Output7 "0" no connection
" 0"	Output8 "0" no connection
" 0"	Output9 "0" no connection
" 0"	Output10 "0" no connection
" 0"	Output11 "0" no connection
" 0"	Output12 "0" no connection
" 1000"	Scale threshold value 1000 lbs or kgs (note this value must not be zero)
" 0"	Scale type "0" full length
" 5"	Excursion time five seconds
" 750"	Excursion weight 750 lbs or kgs
" 10"	End cycle time ten seconds

JAGXTREME Without Scale Card (Serial Scale)

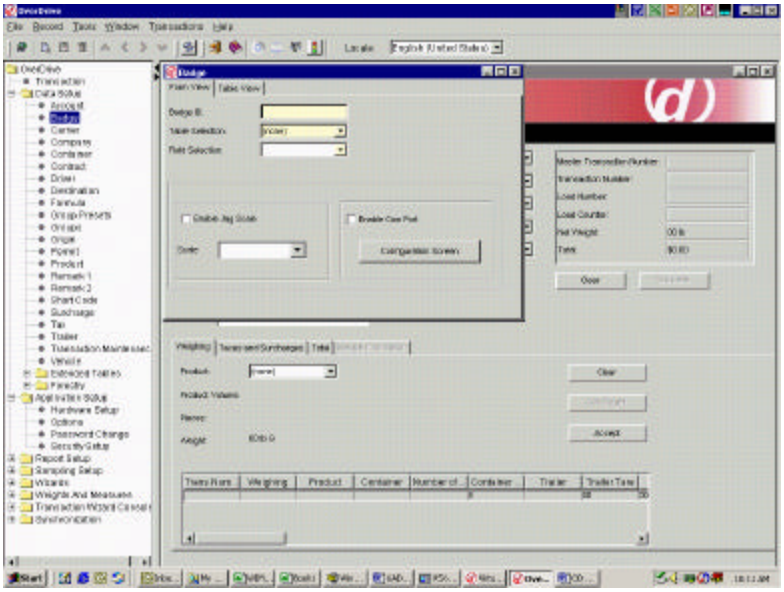
When the JAGXTREME inside the UAPC terminal does not have a scale card (a separate "serial scale terminal" is used), the communication settings between OverDrive™ and the serial scale are also set through the Application Setup/Hardware Setup in the OverDrive™. In this case the "Jag Scale" check box must be left blank!

Note: When the JAGXTREME inside the UAPC terminal does not have a scale card, the Jag Scale check box must be left blank.



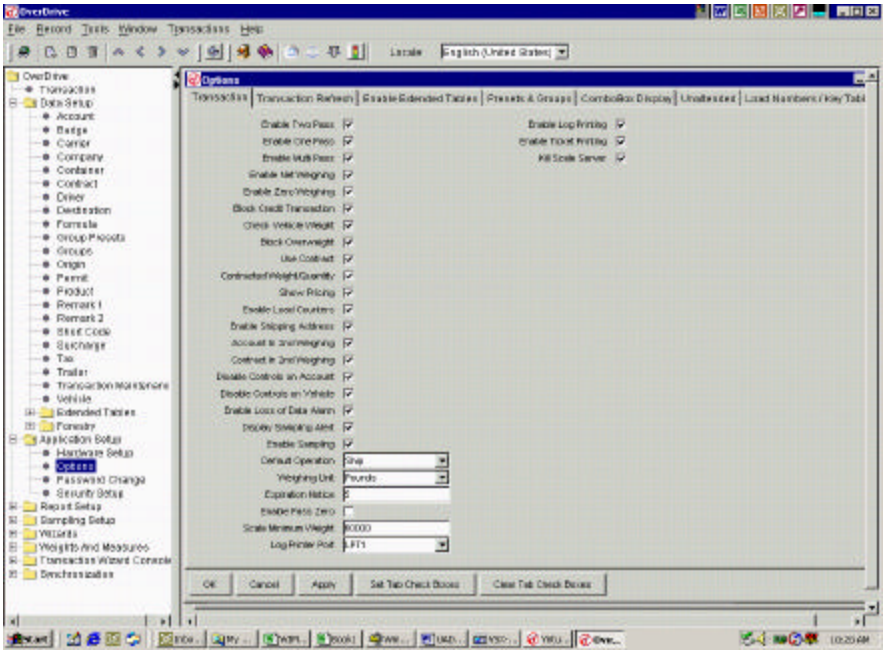
Badge Configuration

Optional proximity card reader badges can be set up within the OverDrive™ Data Setup/ Badge Screen as shown below. When a badge is held in front of the badge reader the badge number is automatically inserted in the "Badge ID" field. Other information regarding this badge, such as company name or driver name, can then be added using the Table Selection and Field Selection drop down menus.



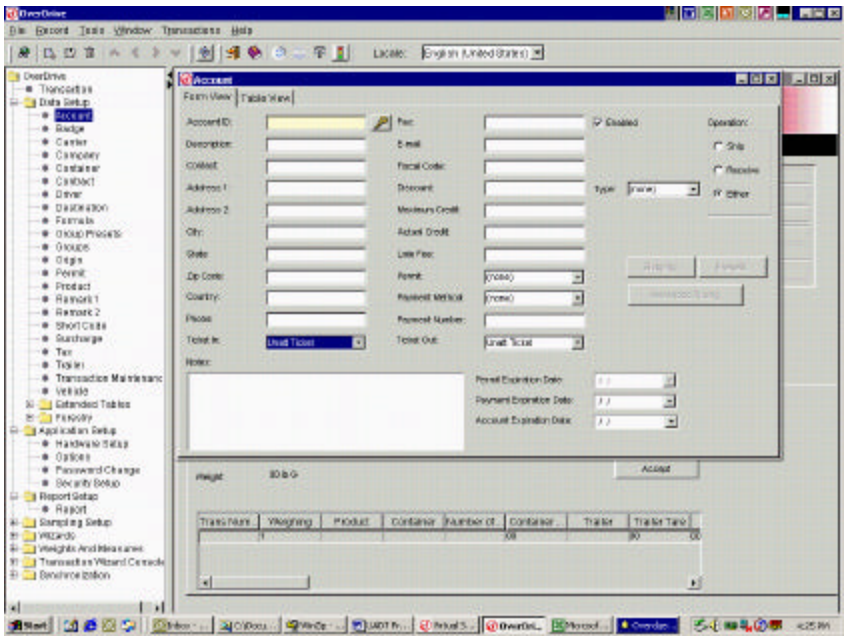
Scale Weight Threshold

The minimum weight on the scale required to process a transaction is configured via the Application Setup / Options screen within OverDrive™. The UAPC will not weigh the vehicle if the weight of the vehicle is below the minimum configured value.



Ticket Print Setup

Formats for ticket printing can be setup on the OverDrive™ Data Setup/Account screen. The Ticket In and Ticket Out drop down menus can be used to select “Unatt Ticket”. For further information on formatting inbound and outbound tickets refer to the OverDrive™ user manual.



For your notes

5 Operation

Overview

For a typical unattended mode transaction, a vehicle would be weighed twice. For example, an empty vehicle would be weighed to determine its tare weight. Then the vehicle would be loaded and weighed to determine its gross weight. The system can be configured to print a ticket after each weighing or after the second weighing only.

When a vehicle arrives at the scale, the driver must enter the first input data (Contract ID or Vehicle ID) at the driver station by using typing via the keyboard or using the optional proximity reader.

The UAPC screen then prompts the driver to enter any additional data required for the transaction, such as commodity type. The driver can enter the data by using the keyboard or by scrolling through a list of options on the UAPC display. The options are displayed one at a time.

Once all data have been entered correctly, the weighing takes place automatically. The driver station will display a message telling the driver whether the transaction was accepted or refused. If unattended mode is configured to print a ticket after the first weighing the driver station will print a ticket at this point. The driver can then take the ticket and leave the unattended station.

When the vehicle returns to the scale for its second weighing, the driver must enter the first input data again. The screen will prompt the driver if any additional data must be entered. Once all data have been entered correctly, the weighing takes place automatically and the driver station prints and cuts a ticket. The driver station will display a message telling the driver whether the transaction was accepted or refused. The driver can then take the ticket and leave the unattended station.

Modes of Operation

Full-Length Scale

OverDrive Hardware Configuration

Scale Type	Full Length Scale
PAR 2 Output 1	1 – Entrance Green Traffic Signal Direction 1
PAR 2 Output 2	2 – Entrance Red Traffic Signal Direction 1
PAR 2 Output 3	3 – Exit Green Traffic Signal Direction 1
PAR 2 Output 4	4 - Exit Red Traffic Signal Direction 1
PAR 4 Output 1	5 – Entrance Barrier (Gate)
PAR 4 Output 2	6 – Exit Barrier (Gate)

Full Length Scale Operation with Barriers (Gates) or Traffic Signals, Single Direction

The UAPC is empty and waiting for a truck. The entrance barrier will be up while the exit barrier will be down. The entrance signal will be GREEN, and the exit signal will be GREEN.

NOTE: The entrance signal is optional.

When the weight on the scale exceeds a threshold value, the JAGXTREME terminal will change the entrance traffic signal to RED and the exit traffic signal to RED, and then send an “OK TO WEIGH” message to the OverDrive™ PC.

When there is no motion on the scale, the OverDrive™ PC will send a “NO MOTION” message to the JAGXTREME terminal. The terminal will lower the entrance barrier.

The OverDrive™ PC will verify that there is still no motion on the scale and then record the weight. The OverDrive™ PC will then finish processing the transaction and send a “TRANSACTION COMPLETE” message to the JAGXTREME terminal.

The JAGXTREME terminal will change the exit traffic signal to GREEN and raise the exit barrier. When the weight drops below the threshold, the JAGXTREME terminal will change the exit traffic signal back to RED and lower the exit barrier.

The JAGXTREME terminal will send a "ZERO SCALE" message to the OverDrive™ PC. The OverDrive™ PC will attempt to zero the scale if necessary. If the OverDrive™ PC is able to zero the scale, it will respond with a "SCALE AT ZERO" message to the JAGXTREME terminal. If the scale will not return to zero, the OverDrive™ PC will respond with a "SCALE ZERO ERROR" message to the JAGXTREME terminal. In that case, the JAGXTREME terminal will flash the traffic signals RED and the UAPC will not proceed with the weighing cycle. The OverDrive™ PC must send a "RESET" message to the JAGXTREME terminal to resume weighing operations.

If the scale zeroed without error, the JAGXTREME terminal will change the entrance traffic signal to GREEN, the exit traffic signal to GREEN, and raise the entrance barrier. The cycle may then begin for the next truck.

Full-length Scales with Barriers or Traffic Signals and Loops, Single Direction or Bi-directional

The UAPC is empty, waiting for a truck. All traffic signals will be RED and both gates will be down.

NOTE: Entrance and Exit are relative to the truck that is currently being processed for bi-directional operation.

The terminal detects a truck at one of the loops. (This becomes the entrance loop for this truck). The terminal will send a "ZERO SCALE" message to the OverDrive™ PC. The OverDrive™ PC will attempt to zero the scale, if necessary. If the scale zeroes properly, the OverDrive™ PC will respond with a "SCALE AT ZERO" message to the terminal.

If the scale will not return to zero, the OverDrive™ PC will respond with a "SCALE ZERO ERROR" message to the JAGXTREME. In that case, the terminal will flash the RED traffic signals, and the UAPC will not proceed with the weighing cycle. The OverDrive™ PC will have to send a "RESET" message to the terminal to resume weighing operations.

If the scale zeroes properly, the terminal will change the entrance and exit traffic signals for this truck to GREEN and monitor the loops. When the weight on the scale exceeds a threshold value, the entrance traffic signal will be changed to RED. When the truck has passed the entrance loop indicating that it is fully on the scale, the exit traffic signal will be changed to RED and the terminal will send an "OK TO WEIGH" message to the OverDrive™ PC. Both loops will be monitored to verify that the truck remains completely on the scale.

If the truck should start to leave before the OverDrive™ PC has recorded the weight, the JAGXTREME terminal will send a "SEQUENCE ERROR" message to the OverDrive™ PC, flash the RED traffic signals, and wait for the UAPC to clear to start the cycle again.

When there is no motion on the scale, the OverDrive™ PC will send a "NO MOTION" message to the terminal. The terminal will lower the entrance barrier and respond with a "BARRIERS CLOSED" message.

The OverDrive™ PC will verify that there is still no motion on the scale and record the weight. The OverDrive™ PC will then finish processing the transaction and send a "TRANSACTION COMPLETE" message to the terminal.

The terminal will raise the exit barrier and change the exit traffic signal to GREEN. When the weight drops below the zero tolerance, the terminal will change the exit traffic signal to RED. When the exit loop is cleared, the exit barrier will be lowered.

The cycle may then begin for the next truck.

OverDrive Hardware Configuration

Scale Type	Full Length Scale
PAR 2 Output 1	1 – Entrance Green Traffic Signal Direction 1
PAR 2 Output 2	2 – Entrance Red Traffic Signal Direction 1
PAR 2 Output 3	3 – Exit Green Traffic Signal Direction 1
PAR 2 Output 4	4 - Exit Red Traffic Signal Direction 1
PAR 4 Output 1	5 – Entrance Barrier (Gate)
PAR 4 Output 2	6 – Exit Barrier (Gate)
PAR 4 Output 5	8 – Entrance Green Traffic Signal Direction 2
PAR 4 Output 6	9 – Entrance Red Traffic Signal Direction 2
PAR 4 Output 7	10 – Exit Green Traffic Signal Direction 2
PAR 4 Output 8	11 - Exit Red Traffic Signal Direction 2
PAR 1 Input 1	51 – Entrance Loop or Photoeye
PAR 1 Input 2	52 – Exit Loop or Photoeye

Axle Scale Operation (Axle Scales with Traffic Signals Only (Single or Bi-directional)

OverDrive Hardware Configuration

Scale Type	Axle Scale
PAR 2 Output 1	1 – Entrance Green Traffic Signal Direction 1
PAR 2 Output 2	2 – Entrance Red Traffic Signal Direction 1
PAR 2 Output 3	3 – Exit Green Traffic Signal Direction 1
PAR 2 Output 4	4 - Exit Red Traffic Signal Direction 1
PAR 4 Output 5	8 – Entrance Green Traffic Signal Direction 2
PAR 4 Output 6	9 – Entrance Red Traffic Signal Direction 2
PAR 4 Output 7	10 – Exit Green Traffic Signal Direction 2
PAR 4 Output 8	11 - Exit Red Traffic Signal Direction 2

Initially, the entrance traffic signal will be GREEN and the exit traffic signal will be GREEN (entrance traffic signal is optional).

A truck will pull its steering axle on the scale. The weight will go above the threshold, and the entrance and exit traffic signals will both change to red. When a stable weight is seen, the weight value will be recorded, and the exit traffic signal will change to green.

At that point the JAGXTREME terminal will keep the exit signal GREEN for at least the excursion time and will monitor the weight, looking for a change of at least the excursion weight value (either positive or negative). Once both those conditions are satisfied, the exit signal will be changed back to red. If the weight then stays below threshold for the end cycle time, the weighing process will be completed. Otherwise, the JAGXTREME terminal will wait for no motion and record the next weight. The exit signal will be changed to green, and the cycle will repeat for each axle or axle group until the truck is completely weighed.

When a truck has been completely weighed, the exit traffic signal will be changed to red. The JAGXTREME terminal will load the weight data into the appropriate variables and send a “Weighment Complete” message to the OverDrive™ PC. When the OverDrive™ PC is done with this truck, it will send a “Transaction Complete” message to the JAGXTREME terminal. The JAGXTREME terminal will change the entrance and exit traffic signals to green. The UAPC is ready to process the next truck.

Axle Scales with Traffic Signals and Loops (Single or Bi-directional)

OverDrive Hardware Configuration

Scale Type	Axle Scale
PAR 2 Output 1	1 – Entrance Green Traffic Signal Direction 1
PAR 2 Output 2	2 – Entrance Red Traffic Signal Direction 1
PAR 2 Output 3	3 – Exit Green Traffic Signal Direction 1
PAR 2 Output 4	4 - Exit Red Traffic Signal Direction 1
PAR 4 Output 5	8 – Entrance Green Traffic Signal Direction 2
PAR 4 Output 6	9 – Entrance Red Traffic Signal Direction 2
PAR 4 Output 7	10 – Exit Green Traffic Signal Direction 2
PAR 4 Output 8	11 - Exit Red Traffic Signal Direction 2
PAR 1 Input 1	51 – Entrance Loop or Photoeye
PAR 1 Input 2	52 – Exit Loop or Photoeye

Initially, the entrance traffic signal will be RED and the exit traffic signal will be RED (entrance traffic signal is optional).

The JAGXTREME terminal detects a truck at one of the loops. The JAGXTREME terminal will zero the scale. If the scale will not return to zero, the JAGXTREME terminal will send a “Scale Zero Error” message to the OverDrive™ PC, and flash the traffic signals RED. The UAPC will not proceed with the weighing cycle until the OverDrive™ PC sends a “RESET” message to the JAGXTREME terminal.

If the scale zeroed properly, the JAGXTREME terminal will change the traffic signals to green. The truck will pull forward and the weight will go above the threshold. The entrance and exit traffic signals will both change to red. When a stable weight is seen, the weight value will be recorded, and the exit traffic signal will change to GREEN.

At that point, the JAGXTREME terminal will keep the exit signal GREEN for at least the excursion time and will monitor the weight, looking for a change of at least the excursion weight value (either positive or negative). Once both those conditions are satisfied, the exit signal will be changed back to RED. If the weight then stays below threshold for the end cycle time, the weighing process will be completed. Otherwise, the JAGXTREME terminal will wait for no motion and record the next weight. The exit signal will be changed to GREEN, and the cycle will repeat for each axle or axle group until the truck is completely weighed.

When a truck has been completely weighed, the exit traffic signal will be changed to red. The JAGXTREME terminal will load the weight data into the appropriate variables and send a “Weighment Complete” message to the OverDrive™ PC. When the OverDrive™ PC is done with this truck, it will send a “Transaction Complete” message to the JAGXTREME terminal. The JAGXTREME terminal will change the exit traffic signal to green for 5 seconds, after which it will change back to RED. The UAPC is ready to process the next truck.

Split-Weigh Scale Operation (Two-position weighing only)

OverDrive Hardware Configuration

Scale Type	Split Weigh Scale
PAR 2 Output 1	1 – Entrance Green Traffic Signal Direction 1
PAR 2 Output 2	2 – Entrance Red Traffic Signal Direction 1
PAR 2 Output 3	3 – Exit Green Traffic Signal Direction 1
PAR 2 Output 4	4 - Exit Red Traffic Signal Direction 1
PAR 4 Output 5	8 – Entrance Green Traffic Signal Direction 2
PAR 4 Output 6	9 – Entrance Red Traffic Signal Direction 2
PAR 4 Output 7	10 – Exit Green Traffic Signal Direction 2
PAR 4 Output 8	11 - Exit Red Traffic Signal Direction 2

Scale Type	Split Weigh Scale
PAR 2 Output 1	1 – Entrance Green Traffic Signal Direction 1
PAR 2 Output 2	2 – Entrance Red Traffic Signal Direction 1
PAR 2 Output 3	3 – Exit Green Traffic Signal Direction 1
PAR 2 Output 4	4 - Exit Red Traffic Signal Direction 1
PAR 4 Output 5	8 – Entrance Green Traffic Signal Direction 2
PAR 4 Output 6	9 – Entrance Red Traffic Signal Direction 2
PAR 4 Output 7	10 – Exit Green Traffic Signal Direction 2
PAR 4 Output 8	11 - Exit Red Traffic Signal Direction 2
PAR 1 Input 1	51 – Entrance Loop or Photoeye
PAR 1 Input 2	52 – Exit Loop or Photoeye

Split-weigh Scales with Traffic Signals Only (Single or Bi-directional)

Initially, the entrance traffic signal will be GREEN and the exit traffic signal will be GREEN (entrance traffic signal is optional).

The JAGXTREME terminal detects a truck entering the scale. The weight goes above threshold. The entrance and exit traffic signals will both change to RED. If the UAPC does not include a START WEIGHING CYCLE push button, the first weight will be stored as soon as no motion is detected. If the UAPC includes a START WEIGHING CYCLE push button, the JAGXTREME terminal will wait for that button to be pressed. The weight will then be stored as soon as no-motion is detected.

At that point, the JAGXTREME terminal will change the exit traffic signal to GREEN for the excursion time and will monitor the weight, looking for a change of at least the excursion weight value (either positive or negative). Once both those conditions are satisfied, the exit traffic signal will be changed back to RED. If the weight then stays below threshold for the end cycle time, the weighing process will be completed.

If there is a second weighment, the JAGXTREME terminal will send an "OK TO WEIGH" message to the OverDrive™ PC as soon as the traffic signal changes to RED and no motion is detected. The OverDrive™ PC should respond with a "NO MOTION" message to the JAGXTREME terminal. The terminal will verify that there is still no motion, and record the second weight. It will load the weight data into the appropriate variables and send a "WEIGHMENT COMPLETE" message to the OverDrive™ PC. When the OverDrive™ PC is done with this truck, it will send a "TRANSACTION COMPLETE" message to the JAGXTREME terminal. The terminal will change the exit traffic signal to GREEN. When the weight drops below threshold, the exit traffic signal will be changed to RED.

The JAGXTREME terminal will send a "ZERO SCALE" message to the OverDrive™ PC. The OverDrive™ PC will attempt to zero the scale if necessary. If the OverDrive™ PC is able to zero the scale, it will respond with a "SCALE AT ZERO" message to the terminal. If the scale will not return to zero, the OverDrive™ PC will respond with a "SCALE ZERO ERROR" message to the terminal. In that case, the terminal will flash the traffic signals RED, and the UAPC will not proceed with the weighing cycle. The OverDrive™ PC must send a "RESET" message to the terminal to resume weighing operations.

If the scale zeroed without error, the terminal will change the entrance traffic signal to GREEN and the exit traffic signal to GREEN. The cycle may then begin for the next truck.

Split-weigh Scales with Traffic Signals and Loops (Single or Bi-directional)

Initially, the entrance and exit traffic signals will be RED (the entrance traffic signals are optional).

When a truck is detected at one of the loops, the JAGXTREME terminal will send a "ZERO SCALE" message to the OverDrive™ PC. The OverDrive™ PC will attempt to zero the scale if necessary. If the OverDrive™ PC is able to zero the scale, it will respond with a "SCALE AT ZERO" message to the terminal. If the scale will not return to zero, the OverDrive™ PC will respond with a "SCALE ZERO ERROR" message to the terminal. In that case, the terminal will flash the traffic signals RED and the UAPC will not proceed with the weighing cycle. The OverDrive™ PC must send a "RESET" message to the terminal to resume weighing operations.

If the scale zeroed without error, the JAGXTREME terminal will change the appropriate entrance and exit traffic signals to GREEN. When the truck starts on the scale (weight goes above threshold), the entrance and exit traffic signals will be changed to RED. If the UAPC does not include a START WEIGHING CYCLE push button, the first weight will be stored as soon as no-motion is detected. If the UAPC includes a START WEIGHING CYCLE push button, the terminal will wait for that pushbutton to be pressed. The weight will then be stored as soon as no-motion is detected.

At that point, the JAGXTREME terminal will change the exit traffic signal to GREEN for at least the excursion time and will monitor the weight, looking for a change of at least the excursion weight value (either positive or negative). Once both those conditions are satisfied, the exit traffic signal will be changed back to RED. If the weight then stays below threshold for the end cycle time, the weighing process will be completed.

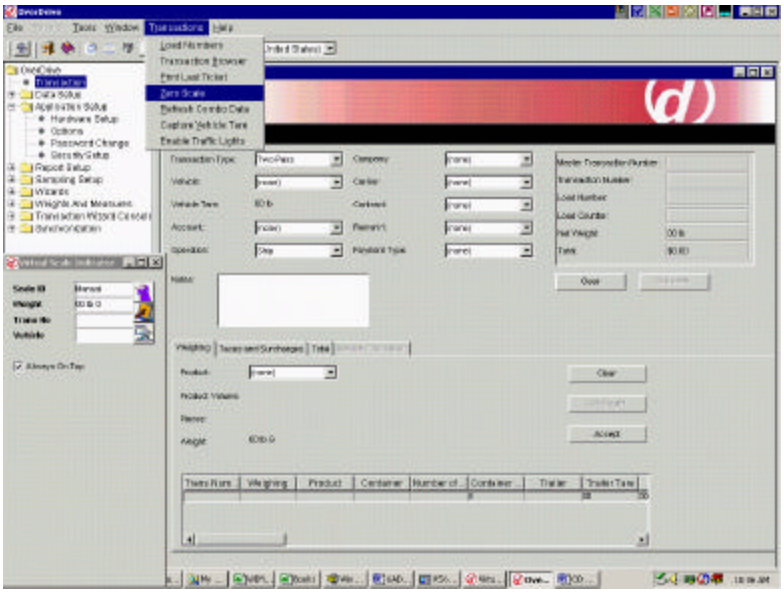
If there is a second weighment, the JAGXTREME terminal will send an “OK TO WEIGH” message to the OverDrive™ PC as soon as the traffic signal is changed to RED and no-motion is detected. The OverDrive™ PC should respond with a “NO MOTION” message to the terminal. The terminal will verify that there is still no motion, and record the second weight. The terminal will load the weight data into the appropriate variables and send a “WEIGHMENT COMPLETE” message to the OverDrive™ PC. When the OverDrive™ PC is done with this truck, it will send a “TRANSACTION COMPLETE” message to the terminal. The terminal will change the exit traffic signal to GREEN. When the weight drops below threshold, the exit traffic signal will be changed to RED.

The cycle may then begin for the next truck.

Zeroing the Scale

Zeroing via the OverDrive™ Software

The scale can be manually operated and zero can be captured from the OverDrive™ Transaction screen. The “zero scale” function is within Transactions drop down menu.



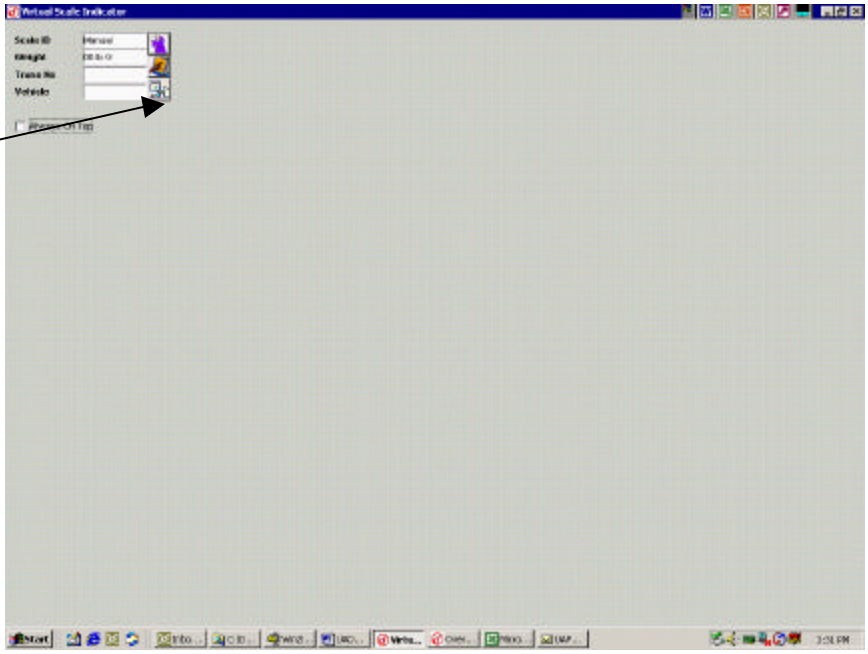
Note: If the UAPC system includes a loop option then the scale is automatically zeroed when the vehicle crosses the loop.

System Shutdown

In the event that the OverDrive™ software has been shut down, the message “Unattended Closed”, will be displayed on the LCD on the front of the UAPC.

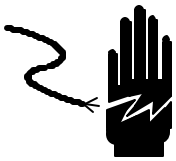
This only occurs if the UAPC icon has been closed (border around button) in the OverDrive™ virtual scale indicator.

Note: If the Overdrive software has been shut down AND the UAPC icon has been closed as shown here, the message “Unattended Closed” will be displayed on the LCD on the UAPC.



6 Service and Maintenance

Cleaning and Regular Maintenance



WARNING

DISCONNECT ALL POWER TO THIS UNIT BEFORE INSTALLING, SERVICING, CLEANING, OR REMOVING THE FUSE. FAILURE TO DO SO COULD RESULT IN BODILY HARM AND/OR PROPERTY DAMAGE.

Clean the UAPC unattended driver station by wiping it with a soft cloth that has been dampened with a mild detergent. Do not use chemicals such as cellosolve or benzene. Always switch off power to the driver station when cleaning it.

Printer Operation

Refer to the printer manual located on the UAPC documentation CD for details on the printer operation and maintenance.

WARNING

- Do not touch heat elements of the print head, the driver IC, or the IC terminals with a screwdriver or tweezers, or directly with your fingers.
- Avoid applying mechanical stress or shocks, including friction generated from micro particles, to the print head surface.
- Do not touch the print head area and the motor surface, because they become very hot during and just after printing.
- Avoid leaving the printer unused for a long period without paper, because the platen and the print head may stick together temporarily.
- Do not force the thermal head excessively.

Installing Printer Paper

Notes on Handling Thermal Paper

- Do not allow chemicals or oil to contact thermal paper because they may cause discoloration or print fading. Strongly rubbing thermal paper with a piece of metal or with fingernails may also cause discoloration.
- Avoid storing thermal paper in high temperatures and humidity. Avoid exposing thermal paper to direct sunlight, because it will gradually become discolored at about 7°C (15°F).

Loading Paper for the Paper Roll Supply Module

- Remove the large knurled nut that holds the paper roll onto the threaded spindle
- Position the paper roll so that the paper unspools from the top of the roll toward the print head.
- Lower the green paper release handle.
- Feed the paper through the print head and dispenser.
- Raise the green paper release handle.

Printer Maintenance

Cleaning the Thermal Head and the Platen

Paper dust, paper chips, and thermal chemicals attached to the heat elements of the print head and the platen may reduce print quality. If this occurs, clean the print head and the platen as follows:

- Lower the green paper release lever.
- Using compressed air, blow out the paper cut-and-feed unit.
- Lightly wipe the heat elements of the print head and the platen with a cotton swab soaked in alcohol solvent (ethanol, methanol, or IPA). Note: Using other solvents may damage the print head.
- After the alcohol evaporates completely, return the unit to its original position.

NOTE: Do not touch the print head or the motor surface just after printing, as these areas are very hot.

Removing Jammed Paper

- Lower the green paper release lever.
- Remove any jammed paper in the printer module.
- Return the unit and paper release lever to their original positions.

For your notes

7 Parts

Ordering Information

Refer to the following table when ordering UAPC data terminal parts.

Part Number	Description
90885800A	Printer Thermal Paper, 8” diameter x 60 mm
90871900A	Thermal Printer
90910500A	Print Head for TK-41-60 Fenix Printer
90778700A	81-Character QWERTY NEMA 4 Keyboard
90892000A	4-Line LCD Display
90835100A	4-Line Display Lens
15006800A	LCD Display Power Supply, 5V dc
90406200A	200W Panel Heater, 115V
90823800A	Intercom, #LE-DA
90787000A	Proximity Reader
15265700A	Proximity Reader Power Supply, 12V dc
Inquire	JAGXTREME Terminal

For your notes

8 Appendix – Loop Installation

Loops and Detectors

The purpose of the loop is to detect the presence and the absence of vehicles. The UAPC computer monitors the loop detector continually. When a vehicle enters the loop, the UAPC computer starts the weigh task running. Shortly after a vehicle leaves the loop and the loop becomes vacant, the UAPC computer stops the weight task.

The hardware of the loop system consists of wire, which is installed in the pavement in a specific configuration to make an inductive coil. The loop is attached to a loop detector via the loop wire or a special lead-in cable. The loop detector requires a weather-protected environment. The loop detector requires 120 VAC. Adjustment and calibration of the loop system is done in the loop detector. Operation of the loop system is fully automatic and requires no operator action.

Loop Theory

When electric current flows through a wire, a magnetic field is produced around the wire. When the wire is shaped in a loop and additional turns of wire are added, the field strength increase. A loop has measurable inductance.

Inductance is the resistance to change in current flow within the wire. When current flow is initiated in the inductor (the looped wire), the indicator will try to maintain the current until the magnetic field is dissipated. The basic unit of measurement of inductance is the Henry. The loop configurations used with UAPC system create inductors in the 75 to 150 micro Henries range.

A resonant circuit is made when the inductor (the loop) is connected in parallel with a capacitor (the loop detector). With the loop installed and wired to a loop detector, the loop will create a magnetic field around itself that oscillates at the resonant frequency determined by the loop inductance and loop detector capacitance. As a metallic mass (the vehicle) moves into the magnetic field, it changes the inductance of the loop, which in turn alters the resonant frequency so that the detector senses the vehicle's presence.

The area of detection is determined primarily by the length of the short side of the loop, up to a length of approximately six feet. Therefore, METTLER TOLEDO generally recommends loops with a short dimension of six feet.

Loop geometry is critical to the performance of the loop system. Contact METTLER TOLEDO for information on typical loop configurations.

Considerations and Notes

Where the loop wire passes through construction joints, saw the slot deeper by an inch or so or drill a core hole at that point. Leave some slack in the wire at the joint to prevent undue strain on the wire if the pavement should move at the joint.

Identify and tag all loop wires in the enclosure for future reference. No splices are allowed in the loop wire. When the loop wire must be spliced METTLER TOLED has had success using SCOTCH® MH14BCX heat shrink butt splices. NOTE: This is a compromise in the system and is not recommended for new installations.

When marking the pavement before saw cutting, you may substitute spray paint for chalk lines. Spray paint will not be as cosmetically acceptable because the chalk line will be entirely eradicated during sawing. Traces of paint lines may remain.

If the wire passes through a curb, be sure to core drill a hole at the curb or pavement joint. Keep the wire flexible enough at the joint to prevent it from being stressed by movement of the curb or pavement joint. If wire lugs are used any where in the loop wire system, be sure to solder the connection. The common size caulking gun will not accommodate the 29 oz cartridges used for sealing the slots.

Loop Installation

Materials Required

- Wire - Belden #9438 or equal roadway loop cable, 14-gauge stranded with polyethylene jacket (METTLER TOLEDO part # KN771077 020).
- Lead in cable – Belden #8720 shielded twisted pair 14 gauge - not suitable for ground burial but may be used in conduit. (METTLER TOLEDO part number KN771079 020).
- 3 / 8 " diameter closed cell plastic foam backer rod (METTLER TOLEDO part # MZ0602000103).
- 1 / 2 " diameter closed cell plastic foam backer rod (METTLER TOLEDO part # 90548000A).
- DOW 890-SL silicone joint sealant for asphalt or concrete in 29 oz cartridges (METTLER TOLEDO part # KN771750 020).

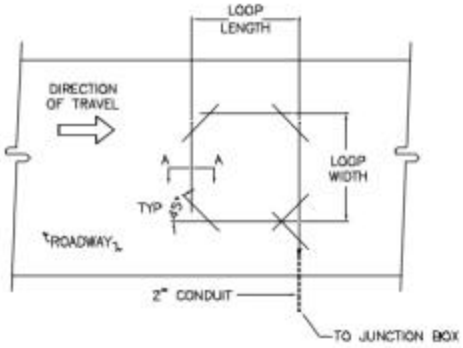
Tools Required:

- Pavement saw
- Water to clean slots
- Air compressor and hose for cleaning and drying out slots
- Blunt tool with an approximate diameter of 1 / 4 " for use in placing wire and backer rod l slot (such as a wooden paint stirrer).
- Variable speed drill motor for twisting wire
- Electrical power and extension cord for drill motor
- Tape measure
- Marking pen or crayon
- Chalk line
- Clear acrylic spray lacquer
- Caulking gun for 29 oz caulk cartridges
- Hand tools that are generally used during construction

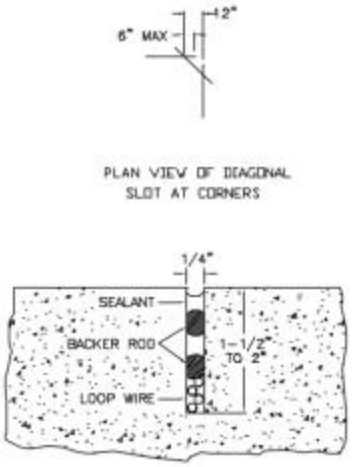
Layout the Loop

Consult the appropriate reference drawings for your UAPC system to determine the size, shape and location of the loop to be installed.

1. Using a tape measure and marking crayon, mark on the pavement where the four corners of the loop are to be
2. Run a chalk line between two adjacent corners, tighten the line then snap it to leave a straight line of chalk dust on the pavement. Repeat this three more times until the perimeter of the rectangle for the loop is marked.
3. Mark the corners of the rectangle with a chalk line at a 45-degree angle approximately 12” from the corners.
4. Note: In lieu of the 45-degree angles, a hole may be drilled at each corner. The hold must be approximately 1: in diameter to provide ample room for the loop wire to make a gentle bend at the corners. This is to help prevent damage to the wire caused by the concrete cutting the insulation.
5. Make a chalk line from the conduit for the loop cable the nearest corner of the rectangle.
6. Spray the chalk lines with clear acrylic lacquer. This will protect them while sawing.
7. See the figure below for a sketch of what your layout should look like. The dimensions are not shown because these must come from your UAPC system reference drawings, which are not part of this manual. See the below figure for a cross section view of the loop.



LOOP CONFIGURATION



SECTION A-A

Saw the Pavement

After you have finished marketing the pavement you are ready to saw. This activity should be done at the same time you saw the channels and slots for the axle sensors.

WARNING

ONLY PERMIT PERSONNEL TRAINED IN THE SAFE OPERATION OF SAWING EQUIPMENT TO OPERATE THIS EQUIPMENT.

1. Saw the slots. All slots associated with the rectangle are to be 1 / 4 " wide and between 1 1 / 2" and 2" deep.
2. The slot for the lead in should be 3 / 8" wide and between 1 and 3 inches deep. Up to three lead in cables may share the same slot. Add 3 /8" to the depth of the slot for each additional lead in. Do not exceed three inches total depth.
3. Check the slots for the correct depth by running a depth gauge (screwdriver blade or a piece of flat stock steel) to ensure that the entire perimeter of the rectangle and lead in do not exceed three inches total depth.
4. Clean the slots with water to remove all dust and/or sludge. Blow out the slots with air and allow them to thoroughly dry. The slots must be free of debris and dust before installing the wire and sealing with caulk.

Install the Loop Wire

1. Placement of the loop wire in the slots is best accomplished when two people are working together. Do not use the twisted pair lead in cable unless it cannot be avoided. The best loop can be made by using the loop wire only and twisting it yourself. Use only the specified loop wire.
2. Measure from the rectangle to the termination point of the loop wire (probably in the UAPC cabinet.) Make sure you allow for all bends, etc. in the conduit so that your measurement will not be short. Add 5% to this measurement because the wire length will reduce when you twist it.
3. Unspool the wire to the length you determined would be required to make into the twisted lead in.
4. Starting at the corner of the rectangle, unspool the wire and lay in the 1 / 4" slot perimeter. It does not matter if you go clockwise or counterclockwise.
5. Make sure the wire lays flat in the bottom of the slot and does not bunch up. Do not use any type of tool that could puncture the wire insulation.
6. Use care, especially at the corners, so as not to damage the wire insulation. NOTE: You can pierce the insulation by sliding the wire against the concrete corners, thus ruining the loop.
7. For a standard 6 x 6 loop, make four turns of wire around the rectangle. If you have any other loop size, consult your reference drawings for the number of turns required.
8. After completing the turns, unspool sufficient wire to equal the length previously unspooled for the lead in.
9. You should now have the loop wire placed in the slot and both ends of the wire unspooled to a length sufficient for each the termination point after twisting of the wire into a twisted pair.
10. Secure the wire in the loop slot with a single row of the 3 / 8" backer rod.
11. Push the rod firmly to secure the wire at the bottom of the slot. It is important that the wire not be allowed to move or vibrate during operation of the UAPC system because it will trip the loop detector.

12. Now install a second row of the 3 / 8" backer rod in the slot. Place this second row to a depth that provides a one-half inch clearance form the top of the backer rod to the pavement surface. You will probably have a gap between the two rows of backer rod. This is okay. The first rod is to hold the wire secure and the second rod is to support the sealant while it cures.

Note: The second layer of backer rod is to maintain the proper sealant thickness. The sealer will not cure or perform properly unless the correct thickness is achieved.

13. Make the twisted lead in cable for the loop.
14. Have one person hold the wires where they exit the rectangle while you lay out both wires to their entire length.
15. Cut the longer of the wires to be the same length as the other.
16. Chuck the wires into a variable speed drill motor.
17. The person holding the wire(s) at the rectangle must not allow the wire to rub the concrete saw cuts curing the twisting.
18. Twist the wire by operating the drill motor at slow speed until you have between five and ten turns per foot.
19. Tape the twisted pair with electrical tape at approximately every foot.
20. Being careful not to let the wire untwist or tangle, take it out of the drill motor. Place it in the lead in cable slot and run it through the conduit to the UAPC cabinet. Secure the cable in the cabinet to prevent it from untwisting.
21. Secure the wire in the lead in slot with the 1 / 2" backer rod in the same fashion you did for the loop rectangle. Do not seal the loop yet. You must test the loop before sealing.

Loops and Loop Detectors

Tools Required

- A wire insulation tester (commonly referred to as a Megger® that tests with 500 VDC). There are three criteria of interest.

  Continuity: The loop must have a resistance of less than 10 ohms

  Insulation resistance: Resistance of the loop wire to ground must be greater than 100 mega-ohms.

  Loop inductance: Loop inductance should be acceptable if the loop dimensions and number of turns are correct. Typically, you will not have to check the inductance. Contact METTLER TOLEDO for information.

⚠ WARNING
Read, understand and follow all safety procedures for your test equipment.

1. Check the continuity of the loop wire form one end to the other.
2. Strip a short section of insulation from each end of the loop wire. Attach your test leads and measure the resistance of the wire. Resistance of 14 gauge-stranded wire is approximately 2.5 ohms per 1000 linear feet.
3. If the loop measures less than 10 ohms the continuity is fine.

4. If the loop measures more than 10 ohms inspect it for a partial or complete break. Replace the loop if necessary to correct the continuity problem.
5. The insulation resistance check uses the 500 VDC feature of the tester. Make sure to follow all safety procedures for your meter and proceed with testing.
6. Never touch live circuits during the test, including the exposed portions of the meter leads.
7. Make sure that both ends of the loop being tested are disconnected from all circuitry.
8. Connect together both end so the loop wire, strip insulation back, as needed.
9. Make sure the tester circuit is off.
10. Connect one lead of the tester to the loop wire.

NOTE: Insulation resistance is most likely to fail after rainfall when the soil and pavement are damp. Also, insulation resistance failure is the number one cause of loop failures.

11. Connect the other lead of tester to true earth ground, such as to the conduit or to a ground rod.
12. Energize the tester and measure the insulation resistance to ground for at least ten seconds.
13. De-energize the tester but leave it connected to the loop wire for a minimum of one minute. Disconnect the tester from the loop wire. Dissipate any remaining energy in the circuits by:
14. Short the loop wire to ground for five seconds.
15. Short the tester leads to ground for five seconds.
16. If resistance is greater than 100 mega-ohms, the insulation resistance check is fine. If resistance is less than 100 mega-ohms, then the loop is shorted to ground and must be replaced.

Loop Sealing

Materials and Tools Required

- Dow Corning® sealant
- Caulking gun for 29 oz caulking tubes
- Hand tools generally used during construction

1. Make sure that the slot is clean, dry and frost-free before applying the sealant. The ambient temperature must be between -35°F to 140°F for application of Dow 890 SL.
2. Apply the sealant to the loop and the loop lead in slots in a continuous operation to cover the backer rod in the slot and to properly seal the slot. Do not overfill the slot. The sealer should be recessed one-fourth inch in the slot after sealing. This will protect the sealer from traffic wear and allow you to open the lane to traffic before the sealant cures. Follow the sealant manufacturer's warnings, cautions and directions.

Loop Detector Type

A two-channel loop detector, Never Fail Model LD200 (METTLER TOLEDO part number 90738300A) can also be used with UAPC systems.

The loop detector is mounted in the UAPC cabinet by METTLER TOLEDO at the manufacturing plant. It is pre-wired to a terminal strip. The field wiring consists of terminating the loop wires to the terminal strip in the UAPC cabinet for some systems, or terminating loop wires at the dual loop detector socket in the UAPC enclosure. Refer to the external wiring diagram for further information.

Operation of the loop detector is fully automatic. The detector has two lamps, one for each channel, to indicate when vehicles are present at the loops.

Loop Detector Adjustment

Never Fail LD200

The loop detector has two channels and can accommodate two loops, one loop per channel. Each channel has separate adjustments for sensitivity, mode and frequency. Eight sensitivity settings are available. Internal jumpers can be configured for normally open or normally closed operation. An LED shows the status of power and loop condition. Refer to the wiring diagram on the side of the loop detector.

Loop Detector Troubleshooting

Symptom	Action
Detector lamp never lights	Check that the loop detector has 120 VAC supplied. Replace the loop detector.
Detector lamp blinks continuously.	A continuously repeated series of 3 blinks indicates that the detector has detected a faulty loop. (Refer to the section on loop testing.) After correcting the problem, reset the detector by momentarily changing the mode or sensitivity switch.
Detector lamp stays lit	Make sure that the loop is vacant (no vehicle or other metallic mass is near the loop). Check the loop for shorts and continuity, especially if the pavement and/or soil is/are damp.
Loop detector sticks on intermittently.	Check and adjust the sensitivity of the loop detector.

Note: The four channels of the loop detector are independent of one another. To determine whether it is the loop or the detector that is causing the problem, try moving the suspected loop to another channel and then retest.

The purpose of the axle sensors in the UAPC system is to measure the speed of the vehicle axles. The hardware of the axle sensor consists only of the sensor and its integral coaxial cable. There are two speed-sensing axle sensors in the UAPC system. Off-scale axle sensors may be supplied as an option.

Installation of the axle sensors should be done at the same time you install the loop since both require the same tools for pavement sawing and sealing. Adjustment of the axle sensor is made on the signal conditioner PCB in the UAPC cabinet. Adjustment is not part of the axle sensor installation procedure. Operation of the axle sensor is fully automatic.

For your notes

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