METTLER TOLEDO

IND560drive
Terminal
and
Drive-560
Application Software
Technical Manual

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(09/2010) R04

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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 expense.

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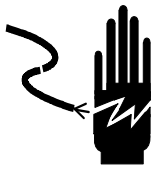

WARNING!

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

WARNING!

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WHEN THIS EQUIPMENT IS INCLUDED AS A COMPONENT PART OF A SYSTEM, THE RESULTING DESIGN MUST BE REVIEWED BY QUALIFIED PERSONNEL WHO ARE FAMILIAR WITH THE CONSTRUCTION AND OPERATION OF ALL COMPONENTS IN THE SYSTEM AND THE POTENTIAL HAZARDS INVOLVED. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN BODILY HARM AND/OR PROPERTY DAMAGE.

CAUTION

BEFORE CONNECTING/DISCONNECTING ANY INTERNAL ELECTRONIC COMPONENTS OR INTERCONNECTING WIRING BETWEEN ELECTRONIC EQUIPMENT ALWAYS REMOVE POWER AND WAIT AT LEAST THIRTY (30) SECONDS BEFORE ANY CONNECTIONS OR DISCONNECTIONS ARE MADE. FAILURE TO OBSERVE THESE PRECAUTIONS COULD RESULT IN DAMAGE TO OR DESTRUCTION OF THE EQUIPMENT AND/OR BODILY HARM.

CAUTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES.

IND560

Terminal

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2. **Contact METTLER TOLEDO for service:** The value of a measurement is proportional to its accuracy – an out of specification scale can diminish quality, reduce profits and increase liability. Timely service from METTLER TOLEDO will ensure accuracy and optimize uptime and equipment life.
    a. **Installation, Configuration, Integration and Training:** Our service representatives are factory-trained, weighing equipment experts. We make certain that your weighing equipment is ready for production in a cost effective and timely fashion and that personnel are trained for success.
    b. **Initial Calibration Documentation:** The installation environment and application requirements are unique for every industrial scale so performance must be tested and certified. Our calibration services and certificates document accuracy to ensure production quality and provide a quality system record of performance.
    c. **Periodic Calibration Maintenance:** A Calibration Service Agreement provides on-going confidence in your weighing process and documentation of compliance with requirements. We offer a variety of service plans that are scheduled to meet your needs and designed to fit your budget.

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Chapter 1.0

Introduction

Overview

Note: To access all the functionality described in this manual, version 4.01 of the IND560 firmware and v1.06 of the Drive-560 software are required.

The Drive-560 option is a specialized application solution focused on simple inbound-outbound vehicle weighing requirements. When this application is installed in the IND560 terminal, the terminal is referred to as an IND560drive terminal.

The IND560drive has two modes of operation: Temporary Tare ID Weighing and Permanent Tare ID Weighing:

- **Temporary Tare ID weighing** is a two-pass weighing process in which the vehicle tare value is captured and temporarily stored during the inbound portion of the transaction. The temporary tare ID is recalled during the outbound portion of the transaction and deleted from the IND560 memory upon completing the transaction.
- **Permanent Tare ID weighing** is a one- or two-pass weighing process in which the tare ID is created in setup prior to processing the transaction and recalled during the outbound portion of the transaction. This tare ID can be recalled multiple times, as well as store the totals for transactions processed using this tare ID.

Software Features

- Ability to store up to 100 Permanent Tare IDs
- Run-time additions of Permanent Tare IDs
- Totalization of Permanent Tare IDs
- One-Step processing of Temporary IDs
- Direct access to the Temporary ID and Permanent ID Tables from the run-time (home) screen
- Ability to reprint previous transaction ticket
- Ability to store up to 2000 transactions

Drive-560 Installation

If a standard IND560 terminal (IND560, IND560 PDX or IND560x) is being upgraded to an IND560drive using the part number 64062793, the Drive-560 application files must be loaded into the terminal. Please refer to the **Installation Guide** located in Appendix C. If an IND560drive was purchased from the factory, no installation is required because the application files were loaded into the terminal prior to shipping.

Chapter 2.0

Operational Overview

Introduction

This chapter provides information about general operation of an IND560drive terminal. It is assumed that the user of this manual has reviewed and understands the operation of the "standard" IND560 terminal (IND560, IND560 PDX or IND560x).

Operation of the terminal depends of enabled function and setup parameters. Functionality and configuration parameters are programmed in Setup mode and can be modified as necessary by users with appropriate access levels.

Passwords

Once a password is set, be sure to remember it. If the password is changed or forgotten, access to the setup menu will not be available. Also, keep the password from unauthorized personnel – it provides access to the entire setup menu, unless the metrology switch is placed in the approved position. If the switch is set to approved, access to the Scale branch and other metrologically significant areas is not permitted. Please refer to the **IND560 Technical Manual** for additional information concerning Security and the multiple classes of users available with the IND560 terminals.

Softkeys and Icons

The IND560drive builds upon the flexible softkey concept of the standard IND560 terminals, providing new choices for programming softkeys in setup at Terminal > Softkeys. These softkeys can be added to the home screen to provide access to the IND560drive functionality. Table 2-1 shows the new icons and gives an explanation of their use.

Table 2-1: Drive-560 Home Screen Softkeys

Icon	Function	Explanation
	Permanent Tare ID	Starts Permanent Tare ID transaction
	Temporary Tare ID	Starts Temporary Tare ID transaction
	Permanent ID Table	Directly accesses the Permanent ID Table from home screen

Icon	Function	Explanation
	Temporary ID Table	Directly accesses the Temporary ID Table from home screen
	Task List	Manually starts a TaskExpert application from the TaskExpert List defined by the operator in the IND560drive menu tree
	Start Task 1	Manually starts the TaskExpert application associated with Task 1 in the Task List
	Start Task 2	Manually starts the TaskExpert application associated with Task 2 in the Task List
	Start Task 3	Manually starts the TaskExpert application associated with Task 3 in the Task List
	Reprint	Reprints the most recent transaction ticket. Once a new transaction has been started, this softkey will no longer print the previous transaction

In addition to the new softkeys available at the home screen, one other softkey (shown in Table 2-2) appears while processing the transaction.

Table 2-2: Drive-560 Softkeys Shown Within Transaction

Icon	Function	Explanation
	Variable	During transactions, returns to Variable screen

Starting the Drive-560 Application

The IND560drive can begin operation by two different methods: Manual or Auto Start. By default, the IND560drive is setup for Manual Start operation.

- When the operator enters the IND560drive setup menu tree, the Drive-560 application stops. If the terminal is in Manual Start mode, the application must be restarted once the operator exits setup and returns to the Home display.

Manual Start

Manual Starting an application enables an operator to start the Drive-560 application from the Home display with a softkey press.

- This method requires the operator to add the Task List or Start Task softkey to the softkey setup of the IND560drive. Once added, pressing this softkey from the Home display starts the Drive-560 application.

Using the Task Softkeys

The Task softkeys are assigned in the IND560drive Setup Menu at Terminal > Softkeys. The Start Task softkeys (Task 1, Task 2, Task 3) are used as a "quick start" for individual application tasks. These individual tasks are assigned in the IND560drive Setup Menu at Application > TaskExpert > Start. The file name associated with Task 1 in this list will start upon pressing the Task 1 softkey from

the Home display (assuming that the .cpt is loaded into the IND560). The same association exists for Tasks 2 and 3.

When pressed from the Home display, the Task List softkey allows the operator to view the entire Task List. From this list, the operator can place the focus on a specific application task and start, stop, or pause the task. Once the task has been started, the operator is automatically taken back to the Home display.

Auto Start

Setting the application for Auto Start automatically starts the Drive-560 application when the user exits the IND560drive setup menu tree back to the Home display.

Basic Operation

Each of the following types of basic operation is accessed using a softkey. The location of the softkey in the home screen is determined during setup. If an operational mode is not applicable for a particular installation, the softkey does not need to be assigned.

Temporary Tare ID

- Detailed Temporary Tare ID weighing procedures may be found in Chapter 4.

Temporary Tare ID functionality is used when vehicle tare weights are not stored for repeated use. The inbound weight is assigned a temporary ID and memory location. Storing the inbound weight, together with any additional data, is known as the Inbound Process. When the vehicle exits the facility, the original weight is recalled from memory and used to compute the net weight of the material being shipped or received. Again, additional data may be gathered during this Outbound Process. Once the outbound ticket is printed, the temporary memory location used to store the inbound weight is cleared.

In the simplest sequence of operation, the Temporary Tare ID is automatically assigned by the IND560drive. After the inbound weight is stored, a ticket is automatically printed, in a format based on a specially configured inbound template. Using the inbound ticket can simplify recalling the stored weight and processing the vehicle during the Outbound Process.

Permanent Tare ID

- Detailed Permanent Tare ID weighing procedures may be found in chapter 5.

The IND560drive can use permanently stored tare values. When the full vehicle is on the weighing platform, this stored information is recalled from memory. During this Outbound Process, additional data can also be gathered. The Permanent Tare ID mode of operation is useful in applications where many of the trucks are part of a fleet that is often associated with the installation. Common examples of such installations include refuse or aggregate operations. When the Permanent Tare ID

table is used, record totalization may be enabled. With this capability turned on, total weights for each permanent ID will be maintained.

In order to make the overall installation of the IND560drive more effective, the Drive-560 application will allow the initial database weight values to be entered as zero. During the first transaction involving a particular permanent ID, the truck is weighed twice – once empty and once full.

Advanced Capabilities

Net Sign Correction for Shipping and Receiving

Net Sign Correction is configured in setup at Scale > Tare > Types. It may be either disabled (the default) or enabled. When enabled, it allows the IND560 to be used for both shipping (inbound empty) and receiving (inbound loaded) operations.

If net sign correction is disabled in setup, any stored weight value in the tare register is assumed to be a tare regardless of the gross weight present on the scale at the time of the final transaction. In this case, net values can be negative.

With net sign correction enabled, the terminal will swap the gross weight and tare weight fields on the printed label, if necessary, so that the larger weight is the gross weight, the smaller weight is the tare weight, and the difference is always a positive net weight.

An example of weight values with and without net sign correction is shown in Table 2-3.

Table 2-3: Effect of Net Sign Correction on Weight Values

	Net Sign Correction	
Printed and Displayed	**Disabled**	**Enabled**
Gross	24,500 kg	38,520 kg
Tare	38,520 kg	24,500 kg
Net	-14,020 kg	14,020 kg

Figure 2-1 shows an example of tickets prepared by a receiving operation, with Net Sign Correction enabled.

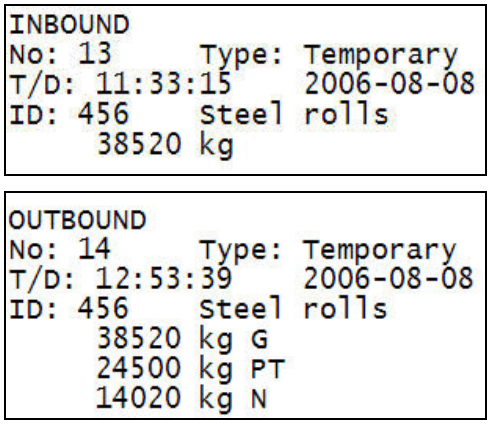


Figure 2-1: Net Sign Correction in Temporary Tare Transaction

Using Quick Print

Quick Printing is used to capture the gross weight on the scale without running an actual transaction. When a Quick Print is issued, the weight value is **not** stored in the terminal, in either Alibi Memory or the Transaction Table. Also, it does not increment the transaction counter.

To use Quick Print functionality in the IND560drive, a new connection and softkey must be added when the terminal is first set up. To set up the connection, navigate to Setup > Communication > Connections. Select the New softkey and specify the following:

- Port – select desired port
- Assignment = Demand Output
- Trigger = Trigger 1, Trigger 2, or Trigger 3.
- Template – select defined template.

Once the connection has been added, navigate to Setup > Terminal > Softkeys. Add a new softkey that is associated with the trigger selected for the connection (i.e., Trigger 1, Trigger 2, or Trigger 3).

With the connection and softkey added, the print can be issued by pressing the Trigger softkey on the home screen.

Using Alibi Memory

When using the IND560 Alibi Memory in conjunction with the Drive-560 application software, a new connection needs to be created. This can be created in the Setup > Communication > Connections branch. This connection is required in order to avoid receiving an error in the System Line during runtime.

Configure the connection as follows:

- Port – select available port

- Assignment = Demand Output
- Trigger = Scale
- Template – select an empty template. The template must be empty, or two tickets will be printed for every transaction.

Direct Access to Memory Tables from the Home Screen

Two new softkeys may be assigned to the home screen of an IND560drive (see Figure 2-2), to allow the user direct access to the Permanent ID Table and Temporary ID Table.

- In order to use the Permanent ID and Temporary ID Table softkeys, the IND560drive must be running v4.01 firmware and v1.06 of the Drive-560 software.

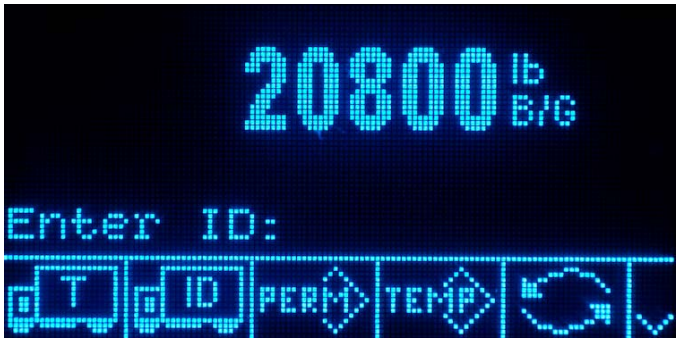


Figure 2-2: Home Screen, Displaying Permanent ID Table and Temporary ID Table Softkeys

Additional information on the functions available after selection of either softkey can be found in **Chapter 4, Temporary Tare ID Weighing**, and **Chapter 5,**

Chapter 3.0

Configuration

Overview

This chapter provides information about how to configure an IND560 terminal's operating system with the Drive-560 functionality. It describes access to the setup mode, where functions can be enabled, disabled, or defined by entering parameter values in specific setup screens. These steps apply to the IND560, IND560 PDX and IND560x.

Entering and Exiting Setup Mode

Entering Setup Mode

The configuration of the IND560drive terminal is accessed through the SETUP softkey . If security has not been enabled, pressing the SETUP softkey will provide direct access to the setup menu tree. If password security has been enabled, a login screen displays and the user must enter the correct password in order to advance into setup. (See the Security section in Chapter 2.0 of the IND560 Technical Manual for further information about password setup and security.) When the login screen is shown, it is possible to exit back to the home screen without entering any login information by pressing the ESCAPE softkey .

Exiting Setup Mode

To exit the setup mode, select Home from the setup menu tree and press ENTER. The default weighing operation runtime screen displays.

- As an alternative, press the first (left-most) softkey any time the menu tree is displayed to exit the menu tree.

Drive-560 Setup Menu Tree

The setup menu of the Drive-560 version of the IND560 includes all the elements and functionality of the default configuration (detailed in Chapter 3 of the IND560 Technical Manual, Configuration), together with some additional or modified screens. Figure 3-1 shows the tree with new or modified leaf nodes (in the Application, Terminal and Communication branches of the tree) expanded and shaded. Unchanged branches are shown unexpanded. The functions and parameters of each of the affected screens are detailed in the Configuration Options section, immediately below.

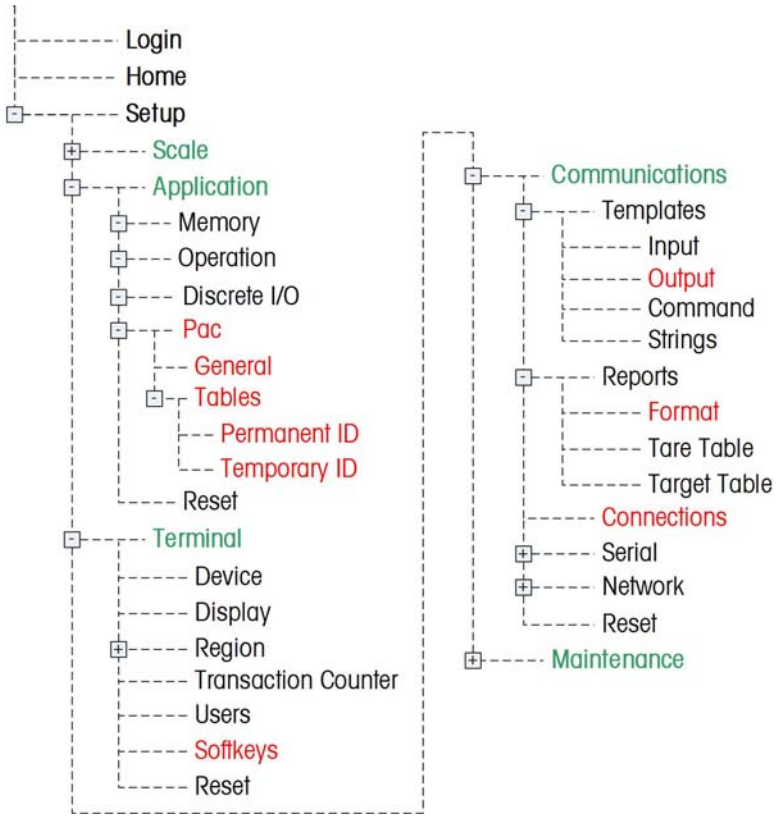


Figure 3-1: IND560 Menu Tree: Branches Specific to Drive-560

Configuration Options

In the following sections, default values are indicated with an asterisk (*).

Application > PAC

General

Settings available in this screen are:

Variable Prompt	Disabled*, Inbound, Outbound, Both
Variable Name	Var1*, 16-character alphanumeric string
Threshold Wt.	6 digits (including decimal), 1000*
Transaction Table	Disabled*, Enabled

Variable Prompt sets the transaction process in which the variable prompt appears on the display.

Variable Name sets the variable name that appears on screen during the variable entry phase of a transaction.

Threshold Wt. determines the point at which a value from the scale is interpreted as signaling the presence of a vehicle. The transaction will not start unless the scale has exceeded this value.

When enabled, the **Transaction Table** parameter causes the application to store all the outbound transactions in a table. When the parameter is disabled, no transactions are stored.

- The Transaction Table stores up to 2,000 records. Once the table is full, however, the table must be exported via FTP to maintain those records. Otherwise, all the records will be deleted. Please refer to Chapter 6.0, Advanced Applications, for more details on exporting and maintaining the Transaction Table.

Permanent ID Table

Settings and functions available in this screen are:

Totalization		Disabled*, Enabled
Runtime Additions		Disabled*, Enabled
	TABLE SEARCH	Opens the **Permanent ID Table Search** screen
C	CLEAR	Opens the **Permanent ID Table Clear** screen

If enabled, **Totalization** stores a total of all weights recorded for each Permanent ID. This value appears in the Total column of the Permanent ID Table.

Runtime Additions adds flexibility to the functionality of the IND560drive. If enabled, new Permanent ID records may be added to the Permanent ID Table during runtime operation. When **Runtime Additions** is enabled, a NEW softkey appears on the ID entry screen. If no ID or an invalid ID is entered and ENTER

pressed, the softkey is accessible. If Runtime Additions is disabled and no ID or an invalid ID is entered, the operator ca press ESC to clear the scale, or search for a valid ID using the VIEW TABLE softkey to view the Permanent ID Table.

Permanent ID Table Search

This screen may be used to limit the Permanent ID Table search to show only those records of interest. Using the default settings displays the complete contents of the table.

Settings available in this screen are:

Search Field	ID*, Description, Tare, Unit, Type, Count, Total, Variable
Data	Specifies the operation to be performed on the data entered in the adjacent alphanumeric field: < (less than), <= (less than or equal to), =* (equal to), <> (not equal to), >= (greater than or equal to), > (greater than)
VIEW TABLE	Performs search and opens Permanent ID Table

Columns in this table are:

ID	A 16-character alphanumeric string associated with a specific vehicle, typically a license number of other unique identifier, that appears in the "ID" field during the generate of a transaction, and in the transaction record
Description	A 20 character maximum alphanumeric string from the Description field displayed during the transaction
Tare	The tare value recalled or generated for the transaction
Unit	Unit of the Tare and Total values
Count	The number of transactions performed using this Permanent ID
Total **[If enabled]**	Total weight value associated with all transactions performed using this Permanent ID
Variable	Value entered for the Variable entry screen during the transaction

Options for entries in this table include EDIT, NEW and DELETE. The table records may ablso be printed using the PRINT softkey.

- The IND560drive stores a maximum of 100 Permanent IDs.

Settings and information available in the New and Edit screens include:

ID [New screen only]	A 16-character alphanumeric string associated with a specific vehicle, typically a license number or other unique identifier, that appears in the "ID" field during the generation of a transaction, and in the transaction record.
Description	A 20-character alphanumeric string that appears in the "Description" field during the generation of a transaction, and in the transaction record
Tare	Tare value for the vehicle – may be entered directly, or captured using the TARE softkey →T← and the current reading from the scale in focus as the Tare Weight value
Unit	Units used for the Tare Weight value

Count [Edit screen only]	The number of transactions performed using this Permanent ID. In the Edit screen, it is possible to enter or modify the number of transactions that have used this record.
Total [Edit screen only]	Total weight value associated with all transactions performed using this Permanent ID.
Variable	A 16-character alphanumeric string that appears in the "Variable" field during the generation of a transaction, and in the transaction record.
Esc ESC	Return to Permanent ID table without saving changes.
→T← TARE	Capture the scale's current reading as the tare value for the Permanent ID.
OK OK	Save record and return to the Permanent ID table

Temporary ID Table

Settings and functions available in this screen are:

One Step ID	Disabled, Enabled*
Description	Disabled*, Enabled
One Step ID Reset On	1 – 999, 999*
TABLE SEARCH	Opens the **Temporary ID Table Search** screen
C CLEAR	Opens the **Temporary ID Table Clear** screen **Note**: Pressing the CLEAR softkey on the Temporary ID screen clears the Temporary ID Table and resets the One Step ID value back to 1. Also, the CLEAR softkey can be used to reset the One Step ID value back to 1 even if there are no records in the table.

If enabled, **One Step ID** transactions are automatically assigned a numerical ID, which is incremented by one for each transaction. The transaction moves straight to the confirmation screen, and the ID cannot be edited. For Outbound transactions, the assigned ID must be entered directly **before** the Temporary ID softkey is pressed. If **One Step ID** is disabled, an ID number may be entered by the user, or an ID can also be automatically generated by using the NEW softkey.

If enabled, **Description** sets the description textbox to appear in the confirmation screen at the end of a transaction. The operator can enter a 20 alphanumeric character description to associate with the ID.

One Step ID Reset On sets the maximum ID number in which the application will automatically assign a One Step ID number for a vehicle. Once the One Step ID value has been incrementally assigned up to this max value, the application will reset it back to 1 or attempt to assign the next lowest available number between 1 and the **One Step ID Reset On** value (Note: Temporary IDs are deleted when an Outbound transaction is performed and IDs can be reused). If all the One Step ID values are in process and none are available, a "Please Provide ID" message will appear, and the application will display the ID prompt for the operator to key in a new ID.

- Pressing the CLEAR softkey on the Temporary ID screen clears the Temporary ID Table and resets the One Step ID value back to 1.

Temporary ID Table Search

This screen may be used to limit the Temporary ID Table search to show only those records of interest. Using the default settings displays the complete contents of the table.

Settings and functions available in this screen are:

Search Field	ID*, Description, Saved, Unit, Type, Date, Time, Variable
Data	Specifies the operation to be performed on the data entered in the adjacent alphanumeric field: < (less than), <= (less than or equal to), =* (equal to), <> (not equal to), >= (greater than or equal to), > (greater than)
VIEW TABLE	Performs search and opens Permanent ID Table

Columns in this table are:

ID	A numeric string associated with a specific vehicle for One Step ID or, when One Step ID is disabled, a 16 character alphanumeric string, typically a license number or other unique identifier that appears in the "ID" field during the generation of a transaction, and in the transaction record
Description	A 20 character maximum alphanumeric string from the Description field displayed during the transaction
Saved	The tare value saved for the temporary entry
Unit	Unit of the Tare value
Count	The number of transactions performed using this Permanent ID
Date	Date on which the Tare value was entered
Time	Time at which the Tare value was entered
Variable	Value entered for the Variable entry screen during the transaction

As Temporary ID records should only be created during live vehicle transactions, there are no editing keys that allow manual entries into the table or editing of records captured during live transaction. The only option for editing entries in this table is DELETE. The table records may be printed using the PRINT softkey.

- The elimination of the EDIT and NEW softkeys from the Temporary ID Table is a change that was implemented in v4.01 firmware for the IND560drive terminals. Versions of the firmware prior to v4.01 did allow for manual entry of records and editing of existing records.

The IND560drive stores a maximum of 100 Temporary IDs.

Settings and information available in the New and Edit screens include:

ID [New screen only]	A 16-character alphanumeric string associated with a specific vehicle, typically a license number or other unique identifier, that appears in the "ID" field during the generation of a transaction, and in the transaction record.

Description	A 20-character alphanumeric string that appears in the "Description" field during the generation of a transaction, and in the transaction record.
Saved	Tare value for the vehicle – may be entered directly, or the current reading from the scale can be captured using the TARE softkey →T←
Unit	Weight unit used for the Tare Weight value
Variable	A 16-character alphanumeric string that appears in the "Variable" field during the generation of a transaction, and in the transaction record.
Esc ESC	Return to Temporary ID table without saving changes.
→T← TARE	Capture the scale's current reading as the tare value for the Temporary ID.
OK OK	Save record and return to the Temporary ID table

Terminal

Softkeys

The softkeys on the terminal's main menu on the softkeys setup screen can be changed or rearranged from the softkeys setup screen (**Terminal > Softkeys**). When the setup screen opens, focus is on the softkey position numbers located above the icons.

Two softkeys, INFORMATION RECALL and SETUP, are automatically placed in the softkey setup. The default setting for the placement of these softkeys is in positions 9 and 10.

The following softkeys are available for assignment to the home page of an IND560drive:

- Permanent ID
- Temporary ID
- Permanent ID Table
- Temporary ID Table

Press the UP, DOWN, LEFT and RIGHT navigation keys to navigate among the softkey position numbers. Softkeys can be added, removed, and positioned using the softkeys:

Edit	Changes the softkey in the selected position to another softkey or to none, which leaves the softkey position blank. Editing a blank position does not move the position of following softkeys.
Insert	Inserts a softkey into a selected position. All other softkeys located at or after that position increase position number by one.
Delete	Deletes a softkey in a selected position. All other softkeys located at or after that position decrease position number by one.
Clear	Clears all softkey assignments except INFORMATION RECALL and SETUP softkeys. These will be shown in positions 1 and 2 respectively.

Communication

Output Templates

Output Template 1 is configured as for the basic functionality version of the IND560. Output Templates 2 and 3 are set up for Drive-560 functions. These templates are described in the following sections.

- For more detailed information on creating and modifying Output Templates, please refer to Appendix D (Communications) of the **IND560 Technical Manual**.

Output Template 2

Output Template 2 is set up to produce a record for Inbound Transaction. Table 3-1 details the elements present in the Output Template 2.

Table 3-1: Output Template 2 Definition

Element	Explanation
INBOUND	String
CR/LF	
No:	String
xp0101	
Type:	String
ak0108	Transaction type (Permanent or Temporary)
CR/LF	
T/D:	String
ak0106	Transaction time
ak0107	Transaction date
CR/LF	
ID:	String
ak0101	Vehicle ID
ak0102	Vehicle description
CR/LF	
ak0103	Gross Weight
<sp>	Space
wt0103	Weight units
CR/LF	
CR/LF	

Output Template 3

Output Template 3 is set up to produce a record for Outbound Transaction. Table 3-2 details the elements present in the Output Template 3.

Table 3-2: Output Template 3 Definition

Element	Explanation
OUTBOUND	String
CR/LF	
No:	String
xp0101	Transaction counter
Type:	String
ak0108	Transaction type (Permanent or Temporary)
CR/LF	
T/D:	String
ak0106	Transaction time
ak0107	Transaction date
CR/LF	
ID:	String
ak0101	Vehicle ID
ak0102	Vehicle description
CR/LF	
aka0103	Gross weight
<sp>	Space
wt0103	Weight units
<sp>	Space
G	String
CR/LF	
ak0104	Tare weight
<sp>	Space
wt0103	Weight units
<sp>	Space
ak0110	Tare type (T or PT)
CR/LF	
ak0105	Net weight
<sp>	Space
wt0103	Weight units
<sp>	Space
N	String
CR/LF	
CR/LF	

Shared Data Variables

Table 3-3 lists Shared Data variables that may be used in custom output templates for use with the Drive-560 application.

Table 3-3: Shared Data Variables for Use in Custom Templates

Data Field	SDName	Max. Length	Values
Vehicle ID	AK0101	16	
Vehicle Description	AK0102	20	
Gross Weight	AK0103	13	
Tare Weight	AK0104	13	
Net Weight	AK0105	13	
Transaction Time	AK0106	8	
Transaction Date	AK0107	10	
Transaction Type	AK0108	9	Permanent or Temporary
Variable	AK0109	16	
Tare Type	AK0110	2	T or PT
Weight Unit	AK0111	3	lb, kg, ton, t
Aux Gross	AK0112	13	
Aux Tare	AK0113	13	
Aux Net	AK0114	13	
Aux Unit	AK0115	3	
Transaction Number	XP0101	7	

IMPORTANT: Do not use the shared data variables in Table 3-3 when creating a template for use in the "Quick Print" feature (see Chapter 2 for information on Quick Print). The variables in Table 3-3 are only populated with data when running an inbound or outbound transaction. The Quick Print feature is used to capture the gross weight on the scale without running an actual transaction. Quick Print templates should be created using fields from the WT and WS shared data blocks.

Connections

The Connections screen is used to assign available ports to functions, to triggers that cause the output to occur, and to templates that format the output.

The default Connections setup is COM1, Demand Output, Scale, Template 1. To use the Drive-560 Output Templates, new connections must be created.

Softkeys can be used to edit, add or delete connections, and to clear the entire table.

The IND560drive contains two new triggers, Inbound and Outbound, to assign to an output. When creating new connections and using the provided IND560drive Output Templates, the Inbound trigger should be assigned together with Template 2 and Outbound trigger assigned together with Template 3.

Chapter 4.0

Temporary Tare ID Weighing

This chapter provides information about the Temporary Tare ID Weighing process. It includes:

- An overview of the sequence
- An explanation of the softkeys used
- Details about associated configuration options.

Temporary Tare ID Weighing Overview

- To use this function, the IND560drive must be configured so that the TEMPORARY ID softkey  is visible on the home screen. Refer to **Chapter 3, Terminal > Softkeys** for softkey configuration information.

Temporary Tare ID Weighing is a 2-pass mode that uses the Temporary ID Table to record tare weights for Inbound transactions. This Inbound tare weight is then recalled when the Outbound transaction is performed. (Refer to the **Chapter 3, Temporary ID Table** for detailed information about this table).

Once the Outbound phase is complete, the ID is removed from the Temporary ID table.

- The Drive-560 stores a maximum of 100 Temporary IDs.

Performing a Basic Temporary Tare ID Transaction

One Step ID Enabled

If the objective is the fastest possible processing of each incoming truck; One Step ID should be enabled at Setup > Application > Pac > Tables > Temporary ID.

In this example, trucks are arriving at the facility full and leaving empty. Tare values for the trucks are not known ahead of time, and it is not necessary to record additional data with the transaction.

- Additional information can be captured with each inbound transaction by utilizing the Description and Variable fields. Enabling Description and/or Variable 1 will add significant keystrokes to the process.

Inbound Process

1. Once the vehicle is on the scale, press the TEMPORARY ID softkey T.
2. A "Working" message displays briefly, and then a confirmation screen appears, with a number in the ID field. The ID number is assigned automatically by the Drive-560 and cannot be edited.

   - If the Description feature is enabled, press the ENTER key to select the DESCRIPTION field and type a description of up to 20 alphanumeric characters. Press ENTER again to save this information.
   - If Variable Prompt is enabled, it can be accessed by pressing the VAR softkey VAR from the confirmation page when One Step ID is enabled. The Variable can be used to store an additional 16 alphanumeric characters of information to be associated with the ID.

3. Press OK to complete the transaction. "Saving Transaction" and "Printing" messages will appear, and the inbound ticket will be printed. The application will then return the operator back to the home screen.

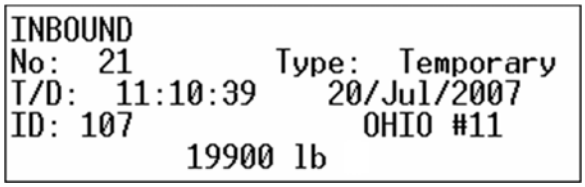


Figure 4-1: Inbound Process Transaction Ticket

Outbound Process

1. Enter the numeric Temporary ID using the IND560's keypad.
2. Press the Temporary ID softkey T. The inbound weight is retrieved from the Temporary ID memory table. If a previously stored inbound ID was recalled, the terminal will go into net mode.

   - If the vehicle's inbound weight has been stored, but the ID is not known, the Temporary ID Table can be accessed from the home screen by pressing the Temporary ID Table softkey TEMP. Here, you can search the table for the appropriate ID value (Figure 4-2). Exit the Temporary ID Table search screen and enter the found ID and press the Temporary ID softkey T. Note that Temporary IDs cannot be selected and activated from the Temporary ID Table.

Figure 4-2: Search of Temporary ID Table from Home Screen

- Alternatively, if you do not want to enable access to the Temporary ID Table from the home screen, you can enter the setup menu tree and search the Temporary ID table at Setup > Application > Pac > Tables > Temporary ID. Here, you can search the table for the appropriate ID value. After exiting setup, enter in this found ID and press the Temporary ID softkey .
- The DESCRIPTION field (if enabled) may be edited at this stage by pressing the ENTER key to select and ENTER again to save the edit.
- If Variable Prompt is enabled, it can be accessed by pressing the VAR softkey from the confirmation page.

3. Press OK to complete the transaction and print the outbound ticket.

```
OUTBOUND
No:  23          Type:  Temporary
T/D:  11:14:18     20/Jul/2007
ID: 107                 OHIO #11
              73840 lb  G
              19900 lb  T
              53940 lb  N
```

Figure 4-3: Outbound Process Transaction Ticket

One Step ID Disabled

In this case, the ID must be assigned during the Inbound process. Options can be enabled that allow additional information to be entered into Description and Variable fields at this time.

Later, when the Temporary ID softkey is pressed during the Outbound process, the ID field appears and the originally assigned ID is entered by the user. Alternatively, if the ID is fully numeric, it can be entered directly on the terminal's numeric keypad, and then the Temporary ID softkey pressed to perform a "quick recall" of the record. This would save a keypress in the process.

Inbound Process

1. With the vehicle on the scale, press the TEMPORARY ID softkey and enter an unused temporary ID (e.g. truck's license plate number) of up to 16 alphanumeric characters.
2. The terminal displays a "Working" message as it searches for the ID in the Temporary ID table, and then a confirmation screen appears, with the entered truck ID now showing in the ID field.
   - The DESCRIPTION field will appear (if enabled), permitting entry of a description of up to 20 alphanumeric characters. Press ENTER once a description has been entered. If no description is desired, press OK to move on to the next screen.
   - The VARIABLE field will appear (if enabled), permitting entry of a variable of up to 16 alphanumeric characters. Press ENTER once a variable has been entered. If no variable is desired, press OK to move on to the confirmation screen.
3. Press OK to save the entered ID, inbound weight and print the inbound ticket.

Outbound Process

1. With the truck on the scale, press the Temporary ID softkey and enter the ID stored during the inbound process. Press the ENTER key.
   - NOTE: If the vehicle's inbound weight has been stored but the ID is not known, leave the ID entry field blank in step 1 and press the ENTER key. Two new softkeys will appear that allow you to either search the Temporary ID table or create a new record. Press the Table Search softkey to search the Temporary ID table for the appropriate ID value. Use the navigation keys to highlight the correct ID record and press the ENTER key. This inbound weight in this record will be recalled and applied.
   - The DESCRIPTION field (if enabled) may be edited at this stage by pressing the ENTER key to select and ENTER again to save the edit.
   - If Variable Prompt is enabled, it can be accessed by pressing the VAR softkey from the confirmation page.
2. Press OK to complete the transaction and print the outbound ticket.

Chapter 5.0

Permanent Tare ID Weighing

This chapter provides information about the Permanent Tare ID Weighing process. It includes:

- An overview of the sequence
- An explanation of the softkeys used
- Details about associated configuration options.

Permanent Tare ID Weighing Overview

- The Permanent Tare ID function is used when most vehicle IDs and weights are known in advance and used repeatedly.
- To use this function, the IND560drive must be configured so that the Permanent ID softkey is visible on the home screen. Refer to **Chapter 3, Terminal > Softkeys** for softkey configuration information.

The Permanent Tare ID function utilizes the Permanent ID Table. The Permanent ID Table stores vehicle IDs, descriptions, and tare values. The Permanent ID Table also has a Totalization field that will accumulate vehicle weights as transactions are processed. To activate the Totalization feature within the Permanent ID table, go to Application > Pac > Tables > Permanent ID and 'enable' Totalization.

The Drive-560 stores a maximum of 100 Permanent IDs. Information can be entered into the Permanent ID table prior to operation or entered at the time of truck transaction (run-time). To enable entry of Permanent IDs during run-time, go to Application > Pac > Tables > Permanent ID and set Runtime Additions to 'enabled'.

Additional information can be collected at the time of transaction by utilizing a Variable field. The Variable Prompt function is enabled at Application > Pac > General.

Performing a Permanent Tare ID Transaction

Using a Known Permanent ID

1. With a vehicle on the scale, press the Permanent ID softkey  and enter a known vehicle ID. Press the ENTER key.

- If the Permanent ID is fully numeric, you can first enter the numeric ID from the terminal's keypad and then press the press the Permanent ID softkey ID. This will save a keystroke, but this method is only valid for fully numeric IDs.

2. If the ID is valid, the tare weight will be displayed.

- If enabled, the VARIABLE field will appear, allowing the operator to enter a 16-character descriptive string. Press ENTER once the variable is entered. If no variable is desired, press OK to continue to the confirmation screen.

3. Press OK to complete the transaction and print the outbound ticket.

- **WARNING**: If the live scale weight is less than the stored, permanent tare weight of the vehicle (Figure 5-1), an error message will appear indicating that an invalid transaction has been attempted.

Figure 5-1: Invalid Tare Error Message.

Adding a Runtime Permanent ID

1. With a vehicle on the scale, press the Permanent ID softkey ID and enter a vehicle ID. Press the ENTER key.
2. If the ID is valid, the tare weight will be displayed. If the ID is not found in the Permanent ID table, an "ID not found" prompt will display. At this point, the operator can choose to:
   - Search for the correct ID in the Permanent ID table by pressing the TABLE SEARCH softkey
   - Create and save a new Permanent ID record to the table by pressing the NEW softkey (truck tare value must be known).

- Note – the NEW softkey is only available if Runtime Additions is enabled at Application > Pac > Tables > Permanent ID

   - Abort the transaction by pressing the ESC softkey, or

- If enabled, the VARIABLE field will appear, allowing the operator to enter a 16-character descriptive string. Press ENTER once the variable is entered. If no variable is desired, press OK to continue to the confirmation screen.

3. Press OK to complete the transaction and print the outbound ticket.

Chapter 6.0

Advanced Applications

Transient Vehicle Weighing

Setup

Transient Vehicle Weighing is a one-pass (Outbound-only) process used for vehicles that are not to be included in totals or the Transaction Table. Therefore, this process is not handled through the Drive-560 software. It can be carried out using the standard IND560 ID prompt operation.

Basic setup for ID prompting for Transient Vehicle Weighing is as follows:

1. Enter IND560 Setup Menu.
2. Navigate to Application > Operation > ID.
3. Set ID Mode to Softkey.
4. Select the ID Table/View icon to add a new ID.
5. Enter desired ID Prompt (e.g. Description, Truck Plate #, etc.), character type and length.
6. Press OK and return to Setup Menu.
7. Navigate to Terminal > Softkeys.
8. Add ID softkey.
9. Press OK.
10. Navigate to Communication > Templates > Output.
11. Select an unused template and create desired format.
    - Prompts 1-20 shared data (pr0131-pr0150)
    - Prompt Responses shared data (pa0101-pa0120)
12. Press OK and return to Setup Menu.
13. Navigate to Communication > Connections.
14. Add a new connection:
    - Port (select desired port)
    - Assignment = Demand Output
    - Trigger = Trigger 1, Trigger 2, or Trigger 3

- Template (select template that was just created)

15. Add a new softkey. Select the softkey associated with the trigger defined in step 14.

For more information on ID prompting and Template formatting, please refer to the IND560 Technical Manual.

Performing a Transient Vehicle Transaction

1. With a vehicle on the scale, press the ID softkey ID.
2. The prompt created in setup will appear. Enter the desired data and press ENTER.
   - If no more prompts exist, the screen will return to its default state. If more prompts were created in setup, the next prompt will appear. This process will continue until the entire prompt list has been cycled through.
3. To complete the transaction, press the PRINT TRIGGER softkey. (A print connection must already be set up.)

Transaction Table

A transaction is defined as a complete inbound and outbound process. Since the Permanent Tare ID Weighing process is only an outbound process, each transaction is recorded upon completion of that process.

Contents of the Transaction Table

Transaction	Sequential number identifying the transaction
Description	An alphanumeric string of 20 characters or fewer, from the Description field displayed during the transaction
ID	A numeric string associated with a specific vehicle for One Step ID or, when One Step ID is disabled, a 16 character alphanumeric string, typically a license number or other unique identifier that appears in the "ID" field during the generation of a transaction, and in the transaction record
Date	Date on which the transaction was performed
Time	Time at which the transaction was performed
Mode	The type of weighing operation used for the transaction – Permanent ID or Temporary ID
Gross	The weight measured at the scale
Tare	The tare value recalled or generated for the transaction
Net	The gross weight less the tare weight
Unit	The weight unit used for the transaction

Access to the Transaction Table

The IND560drive Transaction Table cannot be viewed from the terminal itself. Because the IND560 has a limit of 500 records per table, in the IND560drive

transactions are stored in 4 separate tables, for a total of 2,000 transaction records. In order to view the tables they must be exported via FTP and viewed in a PC application (MS Excel, MS Access, Notepad, etc.).

CAUTION

ONCE THE IND560DRIVE TRANSACTION TABLES ARE FULL, THEIR CONTENTS MUST BE EXPORTED. ONCE THE TABLES HAVE BEEN ARE EXPORTED, ALL TRANSACTIONS WILL BE CLEARED FROM THE TERMINAL'S MEMORY AND FURTHER TRANSACTIONS PERFORMED AND RECORDED.

When transaction #1975 has been recorded, the operator will receive the popup message "WARNING! Transaction Table almost full!" (Figure 6-1). At this point, only 25 more transactions can be performed before the tables must be exported.

Figure 6-1: Transaction Table Almost Full Message

Press ENTER to acknowledge this warning.

Once the last transaction (#2000) has been recorded, another popup message appears displaying "WARNING! Transaction Table is full!" (Figure 6-2)

Figure 6-2: Transaction Table Full Message

Once this message is acknowledged by pressing ENTER, a warning and an OK softkey appear on the IND560drive display (Figure 6-3). Here, the Drive-560 application forces the user to export the tables and all tables are **cleared** from the IND560drive memory. Tables **must** be exported **before** OK is pressed to acknowledge this warning, or **all** stored transaction records will be **lost**. Refer to the next section for information on exporting tables.

Figure 6-3: Transaction Table Clear Warning Message

- **IMPORTANT**: Tables must be exported **before** pressing OK. Once OK is pressed, all four tables are cleared from the IND560drive memory.

Exporting the Transaction Table

Use the following procedure to export the Transaction Table.

1. Connect to the IND560drive via FTP (either using an FTP utility or Windows cmd prompt)
2. If using an FTP utility, copy the following files over to the PC
   - A5.CSV (transactions 1-500)
   - A6.CSV (transactions 501-1000)
   - A7.CSV (transactions 1001-1500)
   - A8.CSV (transactions 1501-2000)

- The files appear empty (0 bytes). However, these are phantom files for viewing purposes. During the FTP export process, the files are read from memory and copied into the file sent to the PC.

3. If using the Windows cmd prompt, perform a "get a5.csv" command. Use the same command to export the other three tables (i.e. "get a6.csv", a7, a8).
4. Once the tables have been exported, they can be opened and viewed in a PC application (i.e. MS Excel, MS Access, Notepad, etc.).

Appendix A

Default Settings

Table A-1 lists default values for all IND560 settings that are specific to the Drive-560. Default settings for IND560 basic functionality are listed in Appendix B of the IND560 Technical Manual, Default Settings.

Table A-1: IND560 Drive-560 Default Settings

Setup Feature	Default Value	Security Access
Application – Pac – General		
Variable Prompt	Disabled	
Variable Name	Var1	
Threshold Wt.	1000	
Transaction Table	Disabled	
Application – Pac – Tables – Permanent ID		
Totalization	Disabled	
Application – Pac – Tables – Temporary ID		
One Step ID	Enabled	
Description	Disabled	

Appendix B

Table Structures

Permanent Tare Table – A3

DB Field	dd----	Name	Type	Len	Description
shortID	dd0502	ID	String	16	Vehicle ID
description	dd0503	Description	String	40	Vehicle Description
data1	dd0504	Tare	Double	6	Permanently stored tare value.
data2	dd0505	Tare Type	String	2	"T" for weighed tare or "PT" for preset tare
data3	dd0506	Unit	String	3	Unit for Tare Value (lb,kg,t,ton)
data4	dd0507	Count	Integer	6	Number of transaction performed using this ID
data5	dd0508	Total	Double	12	Sum of net weights in primary units of outbound transactions using this Vehicle ID record
data6	dd0509	Var	String	16	Value entered for Var
data7	dd0510	Saved	Double	6	Saved Weight from 1st pass in 2-pass mode

Temporary Tare Table – A4

DB Field	dd----	Name	Type	Len	Description
shortID	dd0602	ID	String	16	Temporary ID
description	dd0603	Description	String	40	Temporary Description
data1	dd0604	Saved	Double	6	Saved weight from 1st pass in 2 pass mode
data2	dd0605	Unit	String	3	Unit for Saved Weight (lb,kg,t.ton)
data3	dd0606	Tare Type	String	1	"T" for weighed tare or "PT" for preset tare
data4	dd0607	Date	String	10	Date of last update to Saved Weight YYYY-MM-DD
data5	dd0608	Time	String	8	Time of last update to Saved Weight HH:MM:SS using 24 hour time
data6	dd0609	Var	String	16	Value entered for Var

Transaction Tables – A5, A6, A7, A8

DB Field	dd----	Name	Type	Len	Description
shortID	dd--02	Transaction Number	N	16	Transaction Consecutive Number
description	dd--03	Description	A/N	40	Vehicle Description
data1	dd--04	ID	A/N	16	Vehicle ID
data2	dd--05	Date	A/N	16	Date of outbound transaction
data3	dd--06	Time	A/N	16	Time of outbound transaction
data4	dd--07	Mode	A/N		Transaction type (Permanent, Temporary)
data5	dd--08	Gross	N		Gross weight
data6	dd--09	Tare	N		Tare weight
data7	dd--10	Net	N		Net weight
data8	dd--11	Unit	A/N	3	Unit for Weights (lb,kg,t,ton)

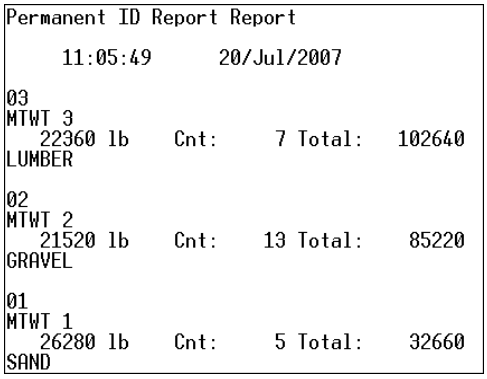
- NOTE: The transaction tables are A5, A6, A7, A8. Populating the tables is a circular process. After all the tables are filled (2,000 records), the A5 table is cleared and the cycle begins again.

Appendix C

Drive-560 Reports

The Drive-560 Permanent ID and Temporary ID tables can be viewed by an operator by pressing the REPORTS softkey. Results of table searches can also be printed. The table report structure is based on the fields defined in the table and report configuration. Sample report prints are shown in **Error! Reference source not found.** and **Error! Reference source not found.**, below.

In order to access the report function, the REPORTS softkey must be added to the selection of softkeys on one of the home pages – refer to Appendix E, **Softkey Mapping**, in the **IND560 Technical Manual**.



```
Permanent ID Report Report

     11:05:49      20/Jul/2007

03
MTWT 3
   22360 lb    Cnt:     7 Total:   102640
LUMBER

02
MTWT 2
   21520 lb    Cnt:    13 Total:    85220
GRAVEL

01
MTWT 1
   26280 lb    Cnt:     5 Total:    32660
SAND
```

Figure C-1: Sample 40-Column Report

```
Permanent ID Report Report

     11:08:05      20/Jul/2007

            ID          Description  Tare      Count  Total     Variable
            03             MTWT 3   22360 lb     7  102640         LUMBER

            02             MTWT 2   21520 lb    13   85220         GRAVEL

            01             MTWT 1   26280 lb     5   32660           SAND
```

Figure C-2: Sample 80-Column Report

Appendix D

Installation Guide

Installation Notes

Required Firmware Version

The Drive-560 application was created using TaskExpert™. To run a TaskExpert application, the IND560 **must** have version 3.xx firmware or higher installed.

Required Mainboard Version

In addition to the software, the IND560 **must** have a main board version (V0.8) installed. V0.8 main boards include 8MB of Flash Memory. The version can be checked by pressing the Recall Info softkey then the System Information softkey **i**, and looking at the details for the analog or IDNet board under Hardware. If (V0.8) appears after the Analog L/C or IDNet text, the main board contains the 8MB Flash Memory and will support a TaskExpert application. If the version is (V0.2) or there is no version shown, the main board includes only 4 MB of Flash Memory, and the board must be replaced with a V0.8 version before running a TaskExpert application.

Main boards with the smaller, 4MB, Flash Memory **will** support v3.00 firmware. However, they **will not** support Task Expert based applications such as the Drive-560 and Dyn-560.

Installation Method

The following procedure outlines installing version 3.xx firmware, the TaskExpert file(s), and bitmap images.

1. Load version 3.xx firmware into the IND560 (refer to the **IND560 Technical Manual**).
2. The TaskExpert file(s) and .bmp file(s) can be loaded using either and FTP or a Serial connection:

Loading via FTP:

1. Connect to IND560 using any FTP utility (user **admin**, password **admin**).

2. Place desired files into the root directory (default FTP location).

Loading via Serial:

1. Place the IND560 into Test Mode, with SW2-1 set to ON.
2. Connect to the IND560 using HyperTerminal, set to 115200 bps, 8 bits, No parity, 1 Stop bit, No flow control.
3. Log in to the IND560 shared data server – type: user admin, the press ENTER, as shown in Figure D-1.

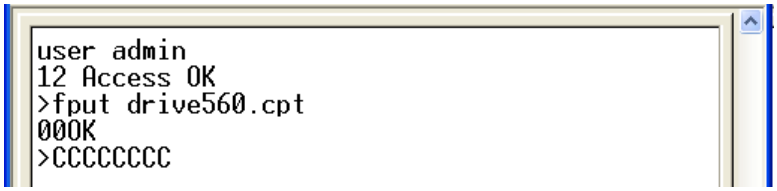


Figure D-1: Logging In to Shared Data Server

4. Use the fput command to notify IND560 of the incoming file

   Note: Do not enclose the filename in quotes (" ").

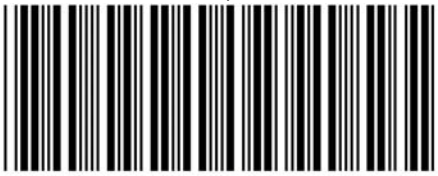
5. Once the "CCCC…" displays (Figure D-1), access the Transfer > Send File menu in Hyperterminal.
6. Select the file to send – for example, Drive560.cpt.
7. Select the 1K Xmodem protocol.
8. Press Send. Once the file has been completely sent, the IND560 will return an <OK> back to HyperTerminal.
9. Perform the same process for each required file (e.g. fput tempid.bmp).
10. Once all the files are loaded, the application can be set either to Manual Start or to Auto Start, in the IND560 setup menu at Application > TaskExpert > Start

Note: If an attempt is made to load the Drive-560 Application onto a V0.2 main board, starting the Application will generate the on-screen error message shown in Figure C-2, and the application will not start.

Figure D-2: Failed Application Open Error

METTLER TOLEDO

1900 Polaris Parkway
Columbus, Ohio 43240



64062160