ScaleCore 2 Database

For Use With MSI-7300, MSI-3460, MSI-4260 and MSI-8000 and Helicopter Load Weighing Systems

Operator's Manual





162314

Contents

1.0	Introduction	1
	1.1 Overview	
2.0	Installation	2
	2.1 System Requirements	2
3.0	Database Interface	2
	3.1 JDBC Driver Installation	2
4.0	Scale Device Communications	3
	4.1 Making a connection 4.2 Operation	3 5
5.0	Application – Barcode Label Printer	5
	5.1 MySQL Server Setup 5.1.1 Installation 5.2 Database Setup	5 .5
	5.3 MySQL ODBC Connection 5.3.1 TekLynx Label Matrix Setup	6
6.0	Troubleshooting	18
7.0	Acronyms and Glossary of Terms	18



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1.0 Introduction

Welcome to the ScaleCore 2 Database (*Sc2Db*) software application by <u>Measurement Systems International (MSI</u>). This application is designed to work with ScaleCore based products designed by MSI. The ScaleCore family products include:

- MSI-7300 Dyna-Link 2
- MSI-3460 Challenger 3
- MSI-4260 Port-A-Weigh
- MSI-8000 RF Remote Display
- Helicopter Load Weighing Systems

Additional products and capabilities are regularly being developed. Please check our website for more details or contact MSI.

This manual is intended to provide complete details of the *Sc2Db* application from installation and quick start to solution implementation.

1.1 Overview

Sc2Db is a software application to write weight data to an SQL database server. With this program, a range of solutions are handled including:

- Continuous access to weigh information provided by any MSI ScaleCore family products.
- Weigh data integration to all MRP, ERP, CRM systems and solutions.

Links to advanced printing and product tracking solutions including barcode labeling systems.

The *Sc2Db* application supports interface to SQL database servers that have available Java JDBC drivers, including:

- Microsoft SQL Server^{®1}
- Oracle^{®2} MySQLTM Server (<u>http://www.mysql.com/</u>)

Database interfaces are accomplished via Java JDBC. For additional database support contact MSI.



Figure 1-1. Quick Start - Connecting to the Network

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² Oracle is a registered trademark of Oracle and/or its affiliates.

2.0 Installation

The *Sc2Db* is distributed in the default configuration for Microsoft Windows[®] operating system.

When using a single compressed (.zip) file distribution, unzip the program to a location on the local computer and run the application. The location of the executable is referenced as the *installation folder* throughout this operator's manual. There is no further installation required for the application.

2.1 System Requirements

Following are the typical system requirements to run the Sc2Db application. Specifications are subject to change without notice.

Typical

Windows XP/Vista/7[®] Operating System

Windows[®] Embedded

Disk Usage: <200MB

Display: 800x600 or greater

Other Operating Systems:

Additional operating systems may be supported with the restriction of requiring TCP/IP device communications exclusively (no RS-232 serial communications are supported). Please contact MSI for details.

3.0 Database Interface

The Sc2Db application uses Java JDBC technology to connect to a database. The application comes with support for \underline{MySQL} and Microsoft SQL. Any JDBC driver can be loaded and configured. The following procedure describes this process.

3.1 JDBC Driver Installation

Under the installation folder, is a folder called lib. Place the JDBC driver JAR (Java Archive) file in this folder.

3.2 JDBC Driver Configuration

Under the *installation folder*, is a file called **db.properties**, Open this with a text editor and complete the JDBC configuration by setting the user name, password, driver class, and connection URL. For complete details refer to the JDBC driver documentation.

4.0 Scale Device Communications

Sc2Db supports interfacing to MSI ScaleCore products from serial (RS-232) or TCP/IP sockets via Ethernet (802.3) or WiFi (802.11). The connection depends on the available interfaces of the particular ScaleCore product being used. Please refer to your specific device manual for more details on the interface capabilities.

4.1 Making a connection

The easiest way to connect to the ScaleCore device is the auto detect feature for serial interfaces.

- 1. Select File.
- 2. Select *Auto Detect Serial. Sc2Db* will automatically scan all available serial ports for any attached ScaleCore devices. When the scan is complete, *Sc2Db* will display the detected devices (see Figure 4-1).

		e from the results t his dialog, check the		
Port	Baud	Product	Device ID	Message
COM1	9600	Dyna-Link 2	00	
COM2	38400	DSC	00	
COM3	9600	Challenger 3	00	
COM4				No response
COM5				No response
COM6	-			No response
COM7				No response

Figure 4-1. Auto Detect Serial Results Dialog

- 3. From the results, select the device required.
- 4. Press *Open* to begin communicating with the device.

If your device is not found, close the dialog, check the device power and data connection to the computer, then run the scan again.

To manually connect to a ScaleCore product:

- 1. Select File.
- 2. Select **Open Communications**. *Sc2Db* will display the connection parameters dialog. This dialog allows you to manually enter either serial (RS-232) or IP host address and port for the device connection.

Typical serial connection parameters are shown in Figure 4-2.

Name	mp2_comm_default
Туре	RS232 👻
Autor	natically connect on startup 🦳
	Port Name COM1 -
	Baud Rate 9600 👻
	Parity None 👻
	Data Bits 8 💌
	Stop Bits 1 👻
FI	ow Control None 👻

Figure 4-2. Communications Dialog (RS-232)

- 1. Select the serial port name of the local computer port that the ScaleCore device is connected to.
- 2. Press OK to open the connection.
- 3. Ethernet and Wi-Fi (802.11) communications require the IP address and port number of the ScaleCore device. The address is specific to the device installation. The port is typically 2101.

Type TCPIP - Automatically connect on startup -	Name	:mp2_comm_de	fault	
Host	Туре	TCPIP -		
	Autor	natically connec	t on startup 🦳	
			1	
Port		1		
	Port			
			- 10	
		OK	Cancel	

Figure 4-3. Communications Dialog (TCP/IP)

Note The last used connection parameters will be automatically filled in for convenience.

4.2 **Operation**

After the application connects to the MSI scale device, it will show a table with all sensors similar to Figure 4-4.

SENSOR	WEIGHT	WGTSTRING	MODE	UNITS	CAPTURED
0	2,158	2158	Gross	LB	2014-03-12 16:53:56
1	0		Error		2014-03-12 16:53:56
2	0		Error		2014-03-12 16:53:56
3	0		Error		2014-03-12 16:53:56
4	0		Error		2014-03-12 16:53:56

Figure 4-4. Sc2Db Main Display

From this point, the application will maintain the connection to the device. If the device power cycles, the program will automatically re-establish connection.

During normal operation, the application must be left running, but it can be minimized to reduce screen clutter.

5.0 Application – Barcode Label Printer

For this application, the information saved via the *Sc2Db* application is used as a source for <u>TekLynx Label Matrix</u> <u>PowerPro</u> Edition to print barcode labels.

Required Equipment:

- Computer Running Windows 7 Pro
- Zebra_GK420d Printer
- <u>MySQL</u> Database Server version 5.6 (or compatible)
- Label Matrix 2012 PowerPro Edition from TekLynx
- ScaleCore 2 Database Application Software
- MSI_ScaleCore Family Device connected to computer via RS-232 or TCP/IP

5.1 MySQL Server Setup

This section describes the setup and configuration of a MySQL database server for a label printing application.

5.1.1 Installation

This application requires a MySQL server installation with 32-bit ODBC driver. A complete setup of a MySQL server installation is beyond the scope of this document. For details about setting up the database, refer to the MySQL documentation.

5.2 Database Setup

The *Sc2Db* application requires a single schema named *scalecoreprinter* with a single table. The "create statement" for the table is shown below:

```
CREATE TABLE `scprint` (
`id` int(10) unsigned NOT NULL,
`weight` double(12,6) NOT NULL,
`weightstring` varchar(12) NOT NULL,
`weightstring` varchar(8) NOT NULL,
`units` varchar(8) NOT NULL,
`captureTimeStamp` timestamp NOT NULL DEFAULT CURRENT_TIMESTAMP ON UPDATE
CURRENT_TIMESTAMP,
PRIMARY KEY (`id`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8;
```

Figure 5-1 shows the database as viewed from MySQL Workbench 6.0 CE.

-		_		an an la constant	
			could stop		
				2014-03-12 16:07:46	
	HIRE	222.33	HILLS	[223]	
	e weight 0.00000 0.000000 0.000000 0.000000 0.000000	weight weightstring 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000	weight weightstring mode 0.000000 Error 0.000000 Error 0.000000 Error 0.000000 Error 0.000000 Error	r bit weightstring mode unts 0.000000 Error 0.000000 Error 0.000000 Error 0.000000 Error 0.000000 Error	€ € fait: (22) Export/Import. weight weightstring mode unts capture TimeStamp 0.000000 Error - 2014-03-12 16:07.45 0.000000 Error - 2014-03-12 16:07.45

Figure 5-1. MySQL Workbench 6.0 CE

5.3 MySQL ODBC Connection

The Label Matrix 2012 PowerPro software requires an ODBC database connection. The following steps should help in configuring MySQL ODBC connection. For complete details and additional support, please see the MySQL documentation.

- 1. Start the ODBC Data Source Administrator.
 - Access Control Panel
 - Select System and Security followed by Administrative Tools
 - Select the shortcut for Data Sources (ODBC)
 - For 64-bit systems, you may have to access: C:\Windows\SysWOW64\odbcad32.exe
 - A dialog similar to Figure 5-2 should display.

ser DSN	System DSN	File DSN	Drivers	Tracing	Connection F	ooling About
Jser Data	Sources:					-
Name		Driver				Add
dBASE Excel Fil		Microsoft Access dBASE Driver (*.dbf, *.ndx Microsoft Excel Driver (*.ds, *.xdsx, *.xdsm, *.x				Remove
•		m			. F	
		data provid	er. A Use	er data sou	n about how to irce is only visi	

Figure 5-2. ODBC Data Screen

- 2. Select the *System DSN* tab.
- 3. Click the Add... button.

reate New Data Source	Select a driver for which you want to set up a	data source.
	Name	1 ~
	Microsoft Text-Treiber (*.txt; *.csv)	E
011 0	Microsoft Visual FoxPro Driver	1
	Microsoft Visual FoxPro-Treiber	1
	MySQL ODBC 5.2 ANSI Driver	£
	MySQL ODBC 5.2 Unicode Driver	٤
	SQL Server	E
	SQL Server Native Client 10.0	4 +
	<	۱.
	< Back Finish	Cancel

Figure 5-3. Create New data Source

4. In the *Create New Data Source* dialog, scroll down to select *MySQL ODBC 5.2 ANSI Driver* (or equivalent). See Figure 5-3.

nnector/ODB	с		-
Connection Parameter	s		
Data Source Name:	MSI Scale Data Sour	ce	
Description:	Database Link to Sca	ale Weight Dai	ta
TCP/IP Server:	127.0.0.1	Port:	3306
Named Pipe:			
User:	username		
Password:	••••		
Database:	scalecoreprinter	•	Test

Figure 5-4. MySQL Connector/ODBC

- 5. Enter the connection parameters in the next dialog for the MySQL database server (see Figure 5-4).
- 6. Click the Test button and confirm the test result shows *Connection Successful*.
- 7. Click OK on the ODBC Data Source Administrator to close this dialog.

5.3.1 TekLynx Label Matrix Setup

1. Start Label Matrix 2012 PowerPro Edition.



Figure 5-5. Label Matrix 2012 PowerPro

2. Start the New Label Wizard (automatically).

3. In the New Label Wizard, select the User information obtained from databases checkbox.



Figure 5-6. New Label Wizard

4. Press the Add... button.

LABEL MATRIX 2012 PowerPro File Tools Window Trial Help			
	3 2 5 8 8 9		
(W) - ZDesigner GK420d on USB001			
ſ	New Label Wizard		
		Tom which databases will you use information? Dick the Add battom to add a database. You may continue to add database files that will be used with the label design. If you make a mistake click the Remove buttom. If two databases are related, be sure to add the 'tookup' database added before the database that has the outcomer address should be added before the database that has the customer address should be added before the database that has the customer address should be added before the database that has the customer address should be added before the database that has the customer address should be added before the database that has the customer address should be added before the database that has the customer address should be added before the database that has the customer address should be added before the database that has the customer address should be added before the database that has the customer address should be added before the database that has the customer address should be added before the database that has the customer address should be added before the database that has the customer address should be address address should be address should be address should be address address should be address shout be address should be address should be add	

Figure 5-7. New Label Wizard Add Button

5. Select Advanced Setup.

LABEL MATRIX 2012 PowerPro File Tools Window Trial Helo			
0 - 0 <u>0 8 0</u> X %	1		
Ø (W) - ZDesigner GK420d on USB001			
	New Label Wizard	8	
	Add Database Wizard		
		The database wixed allows you to set up you table! design to it reads information from a database file at print time. LABEL MATRIX 2012 PowerPo needs to know the name of the file to retrieve the information from the you can be additioned to the properties of each field. The more advanced database user, you can be additioned to the set of the se	

Figure 5-8. New Label Wizard Advanced Setup

- 6. Select the following checkboxes:
 - Select an OLE DB Provider
 - Provide a User Name and Password
 - Customize SQL Select Statement



Figure 5-9. New Label Wizard Customize SQL Select Statement

7. Select Microsoft OLE DB Provider for ODBC Drivers.

CLABEL MATRIX 2012 PowerPro File Tools Window Trial Help File Sols & Color State		
(W) - 2Designer GK420d on USB001		
	New Label Wizard	
	Add Database Wizard	
	Select an OLE DB provide: Microsoft Jef 4.0 QLE DB Provide: Microsoft Jef 2.0 Provide:	

Figure 5-10. New Label Wizard OLE DB Provider for ODBC Drivers

8. Select the configured ODBC Driver.

LASEL MATRIX 2012 PowerPro File Tools Window Trial Help	New Label Wizard	
	Add Database Wixard Image: Control of the select button to use Click the select Database the Select Database to use Click the select button to use Click the select button to use Click the select button to use Click the select Database the Select Database the Select Database the Select to use Click the select button to use Click the select button to use Click the select button to use Click the select Database the Select Database the Select to use Click the select button to use	

Figure 5-11. New Label Wizard ODBC Driver

9. Enter an empty (existing) text or csv file.

11

10. Enter the Username and Password in the dialog.

LABEL MATRIX 2012 PowerPro File Tools Window Trial Help			08
	2 2 4 8 8 2 4 8	a [[[]]]	
(W) - ZD esigner GK420d on USB001			
	New Label Wizard	13	
	Add Database Wizard		
		The first step in adding a database is to decide which database to load. You can either type in the database mane with drive, path and extension, or press the File: bullon and elect the database lines the open data. Image: C-Vdummy.czv Some database files have accurity bullen in the database files. Some database files have accurity bullen in the database files. User Nome: user nome and password have. User Nome: user nome and password have. Help << Back Newt >>> Help << Back Cancel	

Figure 5-12. New Label Wizard Username and Password Dialog

11. Select SQL Builder and use the dialog to configure your database selection. By default, it will select all rows.

(w) · 2Designer GK420d Teld	X h 🖄 २ ५ 🗃 naar ynx SQL Query Builder - SELECT	r SQL Query		a
SE FR IN IN SO SO	Vaic LECT (cookammo) MERE (research conditions) DER BY (cookammo) C (DESC) L statement preview L statement preview Lt teter * FROM soprint ORDER 'id	SELECT	tid weight weightstamp weightstamp weightstamp weightstamp weightstamp weightstamp weightstamp weightstamp weightstamp OK Cancel	
			Help Concel	

Figure 5-13. New Label Wizard SQL Builder

12. Verify the select statement.

LABEL MATRIX 2012 PowerPro File Tools Window Trial Help			88
	000 8 8 4 4 8		
(W) - ZD esigner GK 420d on USB001			
	New Label Wizard	23	
	Add Database Wizard		
	Contractor in the second	re in your SQL statement here. Use CTRL Enter to start a new line.	
	R		
		SQL Builder Hep << Back Next >> Cancel	
	L		

Figure 5-14. New Wizard Label Select Statement

- 13. Configure the fields for the label setup.
 - Enter the min/max length for each field (see Figure 5-15 for recommended values).

LABEL MATRIX 2012 PowerPro								
File Tools Window Trial Help	3. 2 5 6 8 9 9	0 0						
(W) - 2D esigner GK 420d on USB001	2 +							
	New Label Wizard			_	_	[33]		
	Add Database Wizard							
		Records Analyzed: Below are a list of the can change the sam selecting the field and	5 fields that have been to ble value or the max lend pressing the Properties Sample	ound in gth of a button	ny of	the fields by		
		id weight weightstning mode units captureTimeStamp	0 0 Error 03/11/2014 15:37:54	N P UL P NP	1 1 1 1 19	2 12 8 6 6 19		
					[Properties		
l		Help	<ce back="" n<="" th=""><th>est >></th><th></th><th>Cancel</th><th></th><th></th></ce>	est >>		Cancel		
							-	

Figure 5-15. New Label Wizard Length

14. Select Keyed Access, Primary Key to always take data from the desired scale sensor.



Figure 5-16. New Wizard Label Keyed Access

15. Select Constant.

LABEL MATRIX 2012 PowerPro File Tools Window Trial Help		
(W) - ZD esigner GK420d on USB001		
	New Label Wizard	22
	Add Database Wizard	
	Finany Key Even which origin do you with to receive the loc © contrart - The key will always be the same © contrart - The key will always be the same © system with the same strength © stabase - The key will be related to be to the loc © tabase - The key will be the date of printing. © tabase - The key will be the date of printing. © tabase - The key will be the date of printing. The - The key will be the time of printing. Help Ket X	e. pe in the souther attached

Figure 5-17. New Label Wizard Constant Primary Key

16. In the Value text box, enter the scale sensor id (typically 0 for single load cell scales, refer to your scale device

operator's manual for more information).

(W) · 2Designer GK420d on USB001					
	New Label Wizard			83	
	Add Database Wizard			at 3m	
		Listed below is a list of all the must select one of these field			
	A DESCRIPTION OF A DESC	Name Sample	Туре	Min	
		weight 0 weightstring	N	1	
		mode Error	UL	1	
		captureTimeStamp 03/11/		19	
				-	
		• [m		•	
		Enter the constant key below			
		Value: 0			
		Help Keek	Next>>	Cancel	

Figure 5-18. New Label Wizard Sensor ID

17. Enter a name and a description (optional) for this database for reference.



Figure 5-19. New Label Wizard Name and Description

18. Select the newly entered database in the list.

New Label Wizard		
	From which databases will you use information? Dick the Add battom to add a database. You may continue to add database films that will be used with the label design. If you make a mistake click the Remove buttom. If two databases are related, be sure to add the 'tookup' database last. For example, a database that records puschases includ be added battom the database that the customer adders information.	
	Add	
	Help (KBack Next >>> Cancel	

Figure 5-20. New Label Wizard Database List

19. Enter a description for this label.

(W) - 2Designer GK420d on USB001	Vew Label Wizard		
		You may provide a description for your label here. The description may be used when browning labels in the future, or may be used for instructional or documentation purpose. It has no effect on how the label focks or prints.	
		Sample MSI Scale Label Print	
		You have now entered in all the information that is required by the New Label Woard. Click Frinith to begin working with the label or Cancel to exit the wizard without creating the label life.	
		Help << Back Finish Cancel	

Figure 5-21. New Label Wizard Description

20. Configure the label size.

21. Add text data to the label.

	🛍 २ ६ 🗃 🗃 🖉 🦛	* #		
W) · ZDesigner GK420d on USB001				
New Label 1	Text Properties			
+	Color	1	Position	
	General	Data	Font	
	Origin: Database	•		
	File			
	scprint		Y Add	
	Field:			
	Name Sample	Type Min M		
	id 0 weight 0	N 1 2 N 1 1		
	mode Error	P 1 9 UL 1 6		
	units	P 1 6 4 NP 19 1 Sample		
		Sample		
t	* [m			
a de la companya de la compa	Verification Keyboard Verification			
	Verncation	n uit		

Figure 5-22. New Label Wizard Data

22. Start the *Sc2Db* application.

	🔒 📴 🥬	.8 III	* #			
(W) · 2Designer Print DNE sample label						
ScaleCore Prototype						
Weight						
Timestamp 03/11/2014 15:37:54						
	Sc2DB					
	the second second	11.00				
]	Elle View	and the second	WOTOTODALO	HODE	LAUTO	0100.000
	SENSOR	WEIGHT	WGTSTRING	MODE	UNITS	CAPTURED 2014-03-12 15:58:08
	SENSOR	WEIGHT 3,116 0 0	WGTSTRING 3116	MODE Gross Error	UNITS LB	2014-03-12 15:58:08 2014-03-12 15:58:08
	SENSOR	WEIGHT 0 3,116 0 0 2 0	3116	Gross Error Error	LB	2014-03-12 15:58:08 2014-03-12 15:58:08 2014-03-12 15:58:08
	SENSOR	WEIGHT 0 3,116 1 0 2 0 3 0	3116	Gross Error Error Error	LB 	2014-03-12 15:58:08 2014-03-12 15:58:08 2014-03-12 15:58:08 2014-03-12 15:58:08
	SENSOR	WEIGHT 0 3,116 1 0 2 0 3 0	3116	Gross Error Error	LB	2014-03-12 15:58:08 2014-03-12 15:58:08 2014-03-12 15:58:08
	SENSOR	WEIGHT 0 3,116 1 0 2 0 3 0	3116	Gross Error Error Error	LB 	2014-03-12 15:58:08 2014-03-12 15:58:08 2014-03-12 15:58:08 2014-03-12 15:58:08
1	SENSOR	WEIGHT 0 3,116 1 0 2 0 3 0	3116	Gross Error Error Error	LB 	2014-03-12 15:58:08 2014-03-12 15:58:08 2014-03-12 15:58:08 2014-03-12 15:58:08
	SENSOR	WEIGHT 0 3,116 1 0 2 0 3 0	3116	Gross Error Error Error	LB 	2014-03-12 15:58:08 2014-03-12 15:58:08 2014-03-12 15:58:08 2014-03-12 15:58:08
	SENSOR	WEIGHT 0 3,116 1 0 2 0 3 0	3116	Gross Error Error Error	LB 	2014-03-12 15:58:08 2014-03-12 15:58:08 2014-03-12 15:58:08 2014-03-12 15:58:08
	SENSOR	WEIGHT 0 3,116 1 0 2 0 3 0	3116	Gross Error Error Error	LB 	2014-03-12 15:58:08 2014-03-12 15:58:08 2014-03-12 15:58:08 2014-03-12 15:58:08
	SENSOR	WEIGHT 0 3,116 1 0 2 0 3 0	3116	Gross Error Error Error	LB 	2014-03-12 15:58:08 2014-03-12 15:58:08 2014-03-12 15:58:08 2014-03-12 15:58:08

Figure 5-23. Sc2Db Application

- 23. Print a label and observe the scale data formatted as desired on the label.
- 24. Continue with desired configuration of the Label Matrix software for your desired solution.

For additional details about configuring Label Matrix, Please contact <u>TekLynx</u> for support.

17

6.0 Troubleshooting

The following troubleshooting reference is intended to help with common problems related to the Sc2Db application. It is not a comprehensive solution for every problem.

Problem	Solutions
The application does not start.	 Verify the application has been installed correctly Confirm installation requirements Verify an instance of the application is not already running
There are no serial ports listed when I try to make a serial connection.	 Confirm you are running the application on a compatible version of Windows. Confirm there are serial ports available on the installed platform. If using USB to serial converters, verify the device driver was correctly installed for the converter in Windows.
The application is not connecting to my RS-232 device.	 Verify the device is turned on. Verify serial communications settings in both the application, and the device. Some ScaleCore devices require the radio be turned off for the serial port to operate.
The application is not connecting to my Ethernet/802.11 device.	Verify the device is turned on.Try using a ping tool to attempt to verify access to the device.Check firewall and router configuration.

Table 6-1. Troubleshooting Guide

7.0 Acronyms and Glossary of Terms

Following is a list of acronyms and terms used throughout this document.

Term	Definition
802.3	The IEEE standard for wired Ethernet.
802.11	The IEEE standard for wireless Ethernet.
ADC	Analog to Digital Converter.
AZM	Auto Zero Maintenance.
COZ	Center of Zero.
DAC	Digital to Analog Converter.
LC	See Load Cell.
LED	Light Emitting Diode.
Load Cell	A transducer that is used to convert a force into electrical signal.
Math (Sensor)	A sensor type that uses math functions to combine multiple load sensors into one value.
RS-232	Serial Communications Protocol.
SC	ScaleCore is a family of products by Measurement Systems International.
SC Device	A term referring to a physical ScaleCore family weighing product.
SCCMP	ScaleCore Configuration Management Program.
ScaleCore	A family of weighing products by Measurement Systems International.
Setpoint	A standard function in ScaleCore products to monitor load thresholds.
TCP/IP	Transmission Control Protocol / Internet Protocol.



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