Marel

M1100e Scale

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STANDARD SAFETY NOTICE FOR MAREL SCALES

All persons involved in the use and/or installation of this product should be aware of the following instructions.

Failure to follow these instructions or other safety instructions in the manual voids all warranties and may result in malfunction of the product, property damage, serious personal injury, or death.

WARNING

- ***The installation and use of this product must comply with all applicable national, state, and local codes.***
- ***Turn the electrical power off when servicing the scale.***
- ***Electrical installations and repairs must be performed by a licensed electrician, in accordance with manufacturer's specifications and national and local electrical codes.***
- ***There are no serviceable parts inside the housing. Do not open the housing as there is hazardous voltage inside.***

Do Not

pull at the upper frame inside the platform casing or the load cell may bend.

Do Not

drop the scale, e.g. from a table to the floor. The scale is a high-precision weighing instrument and is sensitive to shock.

ATTENTION!

Marel scales are Class I equipment and MUST have a protective earthing connection for safe operation.

ONLY USE A EARTHED MAINS CONNECTION

Power supply cords, color coding:

	International	**North-American**
Earth	Green/Yellow	Green or Green/Yellow
Neutral	Light Blue	White
Live	Brown	Black

Both Neutral and Live are fused.

Contents

Introduction

About This Guide

The *M1100e Scale, User's Guide* contains operating instructions for the M1100e scale and describes in detail all basic functions the user should be familiar with.

The *M1100e Scale, User's Guide* is divided into four chapters:

- Chapter 1 — Introduction
  Description of the M1100e scale, its controls and indicators.
- Chapter 2 — Basic Operation
  Operating instructions and a description of the basic functions.
- Chapter 3 — Advanced Functions
  Instructions in how to use the Setup Mode for more advanced functions.
- Chapter 4 — Battery Operation
  Instructions in how to operate the scale with battery power.

The guide also includes appendices with a list of error codes, printout examples, network connections, and technical specifications, a glossary and a comprehensive index.

Note: This guide describes all available functions on the M1100e scale. Please note that the scale is supplied with an adjustment lock which, if enabled, prevents the user changing certain calibration and configuration parameters. In this case the description of some functions may not apply to your scale.

A calibration instruction guide, *M1100 Scale, Calibration Instructions*, is available upon request.

Conventions

To help you locate and interpret information easily, consistent typographical conventions are used in the *M1100e Scale User's Guide:*

Type style	Used for
SMALL CAPITALS	The names of keys on the keyboard, for example, ENTER and TARE.
Initial Capitals	Displays and indicators. For example, Weight Display and Accept indicator.
◆	Indicates a procedure with only one step.

Improvement Recommendations

You can help improve this guide. If you find errors in the procedures or if you know of a way to improve the procedures in this guide, please let us know: Marel hf., Austurhraun 9, IS-210 Gardabaer, Iceland; tel (+354)-563-8000, fax (+354)-563-8001, attn. Service Center, email service@marel.com.

Warranty Information

Marel hf. will not warrant any equipment that has not been used according to specifications.

The M1100e Scale

About the Scale

The M1100e is an easy to operate, general-purpose scale. The stainless steel enclosure is water-resistant (IP67 / IP69K) and easy to clean. The scale is available in two basic versions:

- An mains powered (110-230VAC) M1100e indicator with wall mounting kit connected to either PL3000 or PL4200 platform (30kg or 60kg).
- An battery powered (12-24VDC) M1100e indicator with wall mounting kit connected to either PL3000 or PL4200 platform (30kg or 60kg).

Marine and land based M1100e scales

Both models are available either as motion compensated marine scales designed specially for use on board fishing vessels or as land based scales. Both models can be used with weighing platforms of various sizes. See “Appendix D — Technical Specifications” on page 29 for more details on the different models.

This user’s guide applies to the marine scale (M1100e-U3) and the land based scale (M1100e-C3). Except for the marine calibration procedure (see page 14), both types are operated in exactly the same way.

Initial Inspection

Prior to use, inspect the scale for damages incurred during shipment. If the scale has been damaged, contact Marel hf. or your local Marel service center immediately.

Installing the Scale

Before you apply power to the scale, check the following:

- Make sure that there are no foreign objects that can interfere with the platform's movements.
- The platform must be empty when you power-on the scale.
- The scale must be properly mounted on a stable, level and non-vibrating foundation (land based scales only).
- Use the built-in spirit level to level the scale platform (land based scales only).
- On scales with separate indicator and platform, make sure the cables between indicator and platform do not move during weighing. This ensures optimum performance.

Default Settings

On delivery the M1100e scale has the following default settings:[1]

- Zero tracking ON
- Automatic recording OFF

Communication

The following communication options are available for the M1100e scale:

- RS-232. The M1100e can communicate with external equipment using RS-232. Weighing results can be printed on an external label printer or the data can be transmitted to a PC for storing and further processing.

[1] See "Setup Mode Commands" on page 20 for detailed information on how to change these settings.

Cleaning

Note: A thorough daily rinse of the scale is very important to help prevent corrosion and rust problems. Use clean cold water. Never rinse with seawater.

- Clean the scale with detergents approved for use in the food industry. Follow the manufacturer's instructions for use.

- Do not use excessively strong solutions of detergent.
  Base solutions corrode aluminum parts, for example load cells.
  The use of chlorine can cause rust spots to appear on the stainless steel.
- Do not use high-pressure jets on the M1100e. Instead, use low water pressure or pour water over by hand.

Detergents

The acidity of detergents used on Marel equipment should preferably be pH 12-13.

Strong base solutions are the main ingredients in most cleaning agents, for example potassium hydroxide (KOH) or caustic soda (NaOH). Because of its corrosive effects, caustic soda is not a desirable detergent for the M1100e. If possible, use detergent solutions with KOH instead.

Always use detergents according to the detergent manufacturer's instructions.

Do not use a detergent containing sodium hypochlorite for daily cleaning. Sodium hypochlorite is a common ingredient in detergents, but as it contains chlorine it should be used with great care because of chlorine's corrosive effect on stainless steel.

Daily Cleaning

- Use high alkaline foaming detergent**,** ph 1% 12-13, for regular daily cleaning. Do not use a detergent containing sodium hypochlorite for daily cleaning. The foaming detergent must be selected carefully and should contain some corrosion inhibitors and preferably potassium hydroxide (KOH) instead of sodium hydroxide (NaOH).
- Spray the detergent on all surface areas and leave to work for approximately 20 minutes. Rinse the detergent off.
- To kill any remaining bacteria, it is necessary to finish the daily cleaning procedure by spraying a quarternary ammonium solution over the area and onto surfaces (after drying), using a 300 ppm active ingredient.

- Before you resume processing the next morning or after breaks, rinse the quarternary ammonium solution off surfaces in contact with the raw material using clean water.

Disinfectants

When choosing a disinfecting agent, please note that chlorine corrodes stainless steel. Chlorine is, however, an effective disinfectant, so occasional use of chlorine may be necessary to control the growth of microorganisms.

Marel recommends the following procedure:

- Use chlorine to disinfect once a week after performing the regular cleaning with a high alkaline foaming detergent.
- Make sure the strength of chlorine does not exceed 200 ppm.
- Spray the disinfectant on surfaces and leave to work for approximately 30 minutes.
- After disinfecting, carefully rinse the equipment.
- On days when chlorine is not used, use a disinfectant containing quarter ammonium compounds instead.
- Make sure the strength of quarter ammonium compounds does not exceed 750 ppm.

Note: Rotating different disinfectants (for example chlorine, peracid or acid-anionic) in your hygiene program may ensure more effective sanitation.

As chlorine evaporates very quickly, its disinfecting effects will fade soon after it is sprayed on the equipment. Letting chlorine stay on the equipment will not improve the disinfecting effect, but only damage the equipment. Quarter ammonium compounds are considerably more stable and are active for a much longer time. Therefore, the benefit of leaving them on the equipment for an extended period of time is much greater.

Training Staff

It is important that new cleaning personnel receive proper training and are made aware of areas on the machinery which are difficult to clean.

Indicators and Controls

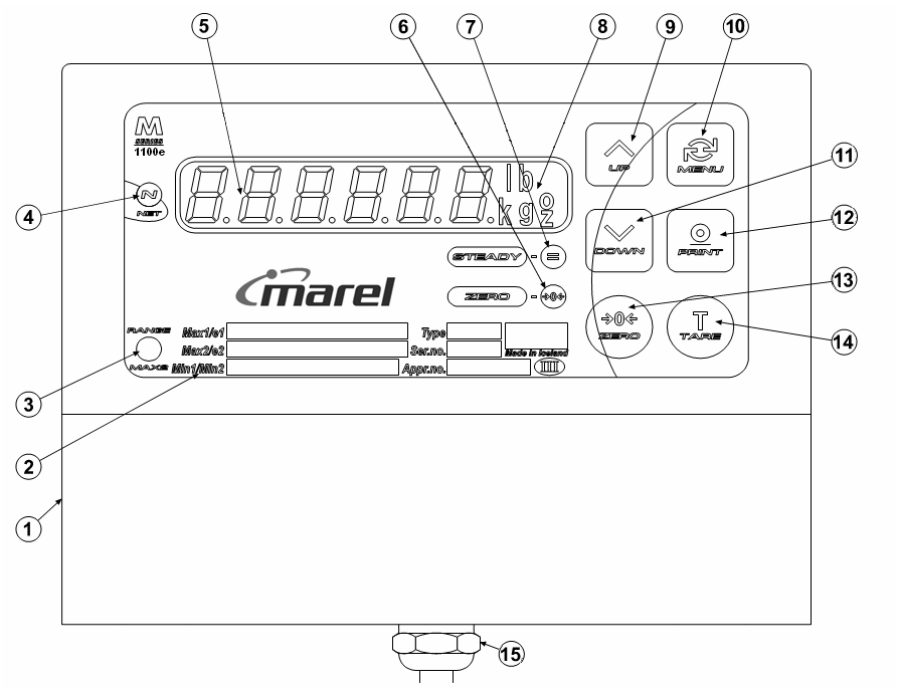


Figure 1 M1100e Indicator, front view.

1.	Top cover	9.	Keyboard, UP arrow
2.	Rating plate	10.	Keyboard, MENU key
3.	Max2/Power down indicator	11.	Keyboard, DOWN arrow
4.	Net indicator	12.	Keyboard, PRINT key
5.	Weight Display	13.	Keyboard, ZERO key
6.	Zero indicator	14.	Keyboard, TARE key
7.	Steady indicator	15.	Cable entry (one or more)
8.	Unit of weight indicator		RS232 & Mains or battery power

Weight Display

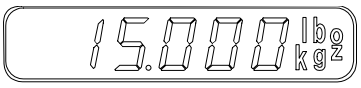


Figure 2 The Weight Display

The Weight Display shows the weight on the platform. If tare is in use, the net weight is shown. To the right on the display a lighted indicator shows the current unit of weight.[2]

Some messages may also appear on this display.

Zero and Steady Indicators

Figure 3 Indicators.

Below the Weight Display there are two indicators, Zero and Steady.

- The *Zero indicator* (green) lights up when the scale is at the zero point.
- The *Steady indicator* (green) lights up when the load indication is steady.

Net Indicator

Figure 4 Net indicator.

The Net indicator lights up whenever tare is in use.

Max2 Indicator

Figure 5 Max2 indicator.

The Max2 indicator lights up

- on multiple range scales to show that the scale is in the higher weighing range
- on battery operated scales to show that the scale is in power down mode.

Arrow Keys

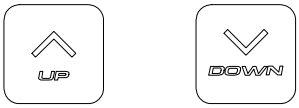


Figure 6 UP Arrow, DOWN Arrow.

The arrow keys are used to enter numerical values and to select menu items when the scale is in Setup Mode.

Menu Key

Figure 7 MENU key.

The MENU key is used to enter the application menu where you can access special functions that might be available.

In Setup Mode the MENU key is used to return from submitting commands.

[2] *Note!* Due to local restrictions in some market areas and limitations caused by scale capacity, all units may not be available.

Print Key

Figure 8 PRINT key.

The PRINT key is used for recording and printing weight results. It is also used for entering commands and for confirming new settings.

Tare Key

Figure 9 TARE key.

The TARE key is used to set the tare. When you press this key with a weight on the platform, that weight is used as a tare, and the Weight Display will show a zero. The NET indicator lights up. The TARE key is also used to remove tare.

Zero Key

Figure 10 ZERO key

The ZERO key is used to take a new operational zero point, provided the operating zero stays within ±2% of max weight from the initial zero point.[3]

The operating zero is the reference point for all weighings, and therefore a correct operating zero is necessary to ensure accurate weighing results.

[3] If automatic zero tracking is set (by activating a software switch, see p. 20), the scale will automatically track small variations in the zero point. The maximum tracking rate is 0.5 divisions per second.

Basic Operation

Applying Power to the Scale

The scale does not have an On/Off switch because it is preferable to keep power on the scale at all times. Constant power generates heat that will prevent moisture from condensing in the scale.

- Therefore, for initial start of the scale, simply plug the electrical cord into the nearest suitable power outlet. For a battery operated scale, attach the battery to the M1100e Indicator.

After power has been applied, the software version and the status of the Cal/Con event counters appear briefly on the Weight Display and a light test of the display is run. If the adjustment seal that prohibits modification of calibration and configuration parameters has been applied, the message LOC appears briefly on the Display.

The scale then sets the initial zero (the message -0- appears on the Display), returns to Operating Mode, and is ready for use.

Note: The event counters change whenever the configuration is modified and when the scale is calibrated. The counters can therefore be used to check if an unauthorized calibration has taken place.

Operation

Initial start of the scale

1. Plug in the scale.
2. The scale is now ready for simple weighing.

Marine Calibration

The motion compensation of the M1100e marine scale must be calibrated every once in a while to ensure the weighing results are accurate and stable.

IMPORTANT! For optimum marine calibration results, always calibrate the scale in the physical environment where it will be used for weighing, i.e. at sea and not on land or in the shelter of harbor.

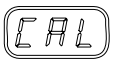


Figure 11 Calibration message

The scale must be calibrated at initial start-up.

The scale must also be calibrated

- when the scale is unstable without the weighing platform being touched.
- when the displayed weight is inaccurate, even when the scale has a correct zero.
- when the scale is unable to assume the initial zero point, even with an empty platform.

Tip

- It is a good maintenance rule to check the calibration routinely by placing a weight on the weighing platform to verify that the Weight Display shows a steady and accurate weight.

To calibrate the scale

1. Make sure the platform is empty.
2. Press the MENU and ZERO keys simultaneously to put the scale in Cal Mode.
   The Weight Display shows: CAL for a short time and then the Weight Display shows: - - -
3. Wait until the scale asks for a reference weight.
   The Weight Display shows for example: Put 2kg [4]
4. Place the reference weight on the platform.
5. Press the PRINT key to start the calibration.
   The Weight Display shows = = = while the scale performs the calibration.
6. When the calibration is completed, the message FIt nn (where nn is a number between 0 and 99) appears on the Weight Display.
   Values above 25 indicate a poor calibration. In that case you must repeat steps 1 to 4 above.

[4] The unit and weight displayed in this message varies with the size of the scale's weighing platform.

Note: The message F1 tL nn appears when a marine scale has been calibrated without the platform being in motion.

7 Remove the reference weight from the platform.

8 The Weight Display returns to zero and the scale is now ready for use.

Functions

The following sections are an overview of the basic M1100e functions the user should be familiar with:

- the Tare function
- the Zero function
- recording a weight, manually and automatically

Tare

To enter Tare

1 Place a tray (the tare weight) on the platform, and press the TARE key (T).

2 The NET indicator lights up to show that a tare is in use, and the Weight Display shows zero.

3 Subsequently, the NET weight on the platform is shown on the Weight Display.

If tare is used, check the tare from time to time:

♦ Place a tray on the platform, and notice if the Weight Display returns to zero. If not, tare the scale again by pressing the TARE key (T).

To remove Tare

1 Empty the platform.

2 Press the TARE key (T).

The Net indicator is turned off.

Direct sale to the public

Note: In some market areas the scale's tare function may be protected with a software switch.[5] This changes the way you work with tare:

- you must remove tare (see above) before you can set a new tare value that is lower than the current tare value.

[5] According to standard regulations on conditions for direct sale to the public.

Zero

To take a new operational zero point

1. Remove any weight from the platform.
2. Press the ZERO key .

   The Zero indicator lights up.

Tip

- If the ZERO key does not function, you may have to take a new initial zero by turning the power off and then on again, or by pressing the arrow, the MENU and ZERO keys simultaneously. (See “Zero Key” on page 11 for more details on the Zero function.)

Recording Weights

You may want to record a weight that is positive and stable (Steady). The recording is not stored in the scale itself, but is sent via the scale’s communication port to a remote PC or a label printer.

There are two ways of recording the weight on the platform, manual or automatic.

To record a weight manually

1. Watch the Steady indicator.
2. When the indicator light up, press the PRINT key to record.
3. The message rEC (Recording in progress) appears on the Display as long as the recording is in progress.
4. If you try to record the same weight again (double recording), a flashing no appears on the display. Press the MENU key to remove the message.

This message (no - Invalid recording attempt) also appears, if you try to record an unstable or out-of-range weight.

To record a weight automatically

1. Enable this option by turning on the AUT application switch (see page 20).
2. The scale will automatically record the last stable weight on the platform when you remove the weight from the platform.

Unit of Weight

The unit of weight in the M1100e is fixed at the time of the scale's calibration setup.

The unit of weight is displayed to the right on the Weight Display.

IMPORTANT! Watch the Zero indicator when the scale is in use. The Zero indicator should light up when the platform is empty.

If not, you must re-zero the scale by pressing the ZERO key. In case of an unsuccessful re-zeroing with the ZERO key, you must take a new initial zero by turning the power off and then on again, or by pressing the arrow, the MENU and ZERO keys simultaneously.

Advanced Functions

Setup Mode

The Setup Mode gives access to the more advanced functions of the M1100e scale, for example various service commands.

To enter the Setup Mode

- Press the ZERO key and the TARE key simultaneously.

A message, CodE, prompting for a password (see "Password" on page 20) appears on the Weight Display. When you have entered the password, the first available command, APP, appears on the Display.

While in Setup Mode, the keys function as described in the table below:

Table 1 Function of Keys in Setup Mode.

Key:	Function:
DOWN arrow	Move to the next item on the current level.
UP arrow	Return to previous item on the current level.
PRINT key	Confirm an entry, run a command, enter a sub-menu, or record and print weighing results.
MENU key	Return to a previous menu or exit the Setup Mode.

Password

Entering the Setup Mode requires a password. Until the correct password has been entered, the message CodE is shown on the Weight Display. The Setup Mode password is fixed and is entered as described below:

To enter the password

1. Press the PRINT key once.
2. Press the DOWN arrow four times.
3. Press the UP arrow once.

The keys must be pressed in this order. If you enter an incorrect password, start again by pressing the PRINT key.

Setup Mode Commands

The Setup Mode commands are listed in the following table.

Table 2 Setup Mode commands.

Command:	Description:
APP	*Application switches* To change the status of the application switches.
Ad1	*A/D converter1* To show the direct reading of A/D converter 1.
Ad2	*A/D converter2* To show the direct reading of A/D converter 2. Only on marine scales.
Out	*Output* To print information on the calibration.

The following sections provide detailed descriptions of the Setup Mode commands.

The APP Command (App**lication switches**)

Use this command to turn the application switches "On" or "no". There are eight application switches available:

- A01 Zero tracking (see "Zero Key" on page 11)
- A02 Reserved for special functions
- A03 Automatic recording
- A04 Special record format
- A05 Response A

- A06 Response B
- A07 Reserved for special functions
  A08 Reserved for special functions
- A09 Special functions
- A10 Transmission A
- A11 Transmission B
- A12 Disable power-down mode, battery operated scales only
- A13-A16 Special functions
- A17 Enable LED display on high power
- A18 Special functions[6]

1. When you have selected the command with the arrow keys, press PRINT to display the switches.
2. Switch A01 appears to the left on the Weight Display and the current status ("On" or "No") is displayed to the right on the display.
3. Press PRINT again. The status indicator starts to flash and can now be changed with the arrow keys.
4. Press PRINT to confirm the change.
5. Press the MENU key to return to the top of the Setup Menu.
6. Press the MENU key a second time to return to Operating Mode.

The Ad1 and Ad2 Commands (A/D Converters)

These commands display the direct value of the A/D converter readings shown on the Weight Display.

1. Select the command with the arrow keys, and press PRINT to submit.
2. Return to the Setup Menu by pressing the MENU key.

[6] More information on the application switches is available in *M1100 Scale, Calibration Instructions*.

The Out Command (Out**put**)

This command is used to print information on the calibration:

1. Select the command with the arrow keys, and press PRINT.
   The output is sent to an attached printer or PC.
2. Press the MENU key to return to the Setup Mode.
3. Press the MENU key a second time to return to Operating Mode.

The following is an example of a printout from the Out command:

M1100e:	U3-3.10 / CAL=2 / CON=2
App:	1000 0000 0000 0000
Cap:	15.000 kg
Res:	Single
CS:	5 kg
C0:	601495
C2:	840888
Gain:	2.088615e-05 kg/cnt
g-adj:	1.00000
Set:	0000 0000 0000 1000
aP:	10.0
aZ:	5.0
aY:	0
aX:	0
bP:	10.0
bZ:	5.0
bY:	0
bX:	0

Battery Operation

About the Battery

The M1100e scale can be used with a 12 to 24V battery.

When the battery power gets low, a blinking warning,  , appears on the Display. The scale is still functional, until the power reaches its lowest operational point, which is when the scale will shut down.

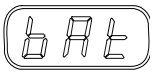


Figure 12 Warning: battery power low.

WARNING! Batteries may contain toxic chemicals. Therefore, they should be disposed of in an environmentally safe way at the appropriate locations.

Saving Battery Power

Battery operated M1100e scales are equipped with two slightly different power saving features, “power save mode” and “power down mode”.

*“Power **save** mode”*

When the scale has been inactive for 5 minutes, it automatically enters “power save mode”. In this mode, the display shuts down, but the scale itself is running, still using some battery power. The scale stays in this mode for the next 25 minutes until the “power down mode” becomes active.

All the while, the decimal dots on the Weight Display illuminate sequentially to indicate that the scale is in power save mode.

To bring the scale back from power save mode

- Touch the platform lightly or press the MENU key  and the scale will immediately start working again without going through the start-up procedure.

*“Power **down** mode”*

After being in power save mode for 25 minutes, the scale enters “power down mode”. In this mode, the scale shuts down completely and must go through the start-up procedure when you bring it back.

To bring the scale back from power down mode

- Press any key on the keyboard.

Figure 13 The Power save/down mode indicator

The Max2 indicator in the bottom left corner of the M1100e Indicator blinks as long as the scale is in power save or power down mode.

Note: You can put the scale manually in power down mode directly by pressing the MENU key and the DOWN arrow simultaneously.

Note: These features help preserve the batteries, but you should nevertheless remove the batteries if the scale is not to be used for an extended period of time (more than a couple of months).

Note: Set switch A 12 to ON, if you do not wish to use the power down feature.

Appendices

Appendix A — Error codes

Error code:	Description:	Action:
E-03	ADC overrange	Reduce the weight on the platform
E-04	ADC underrange	Increase the weight on the platform
E-05	Unstable weight (initial zero)	Stabilize the scale
E-06	Weight outside range (initial zero)	Make sure the platform is empty
E-08	Operation in progress (initial zero)	Wait until completed
E-11	Invalid initial zero	Remove or reduce the weight on the platform
E-13	Program failure (checksum)	Contact your Marel agent
E-14	ADC not responding	Contact your Marel agent
E-15	W&M setup checksum failure	Contact your Marel agent
E-23	24 V power voltage too high	Provide correct voltage
E-25	Low voltage to load cells	Check load cell
E-81	Invalid static marine calibration. Fit value too high	Repeat calibration
E-82	Invalid static marine calibration. Calibration weight not detected	Repeat calibration
E-84	Marine static calibration not allowed	Scale requires motion
E-91	Invalid marine calibration. Fit value too high	Repeat calibration
E-92	Invalid marine calibration. Calibration weight not detected	Repeat calibration
E-93	Invalid initial zero	Make sure the platform is empty

Note: If the error persists contact Marel hf. or your local Marel agent for assistance.

Appendix B — Response Times, Transmission Rates and Printouts

Printouts

Reports are printed via the RS-232 interface, at 4800 Baud, using 8 data bits and no parity. The scale transmits XON and XOFF characters. Reception of XON and XOFF is not supported.

- Default Manual/Automatic/Continuous Printout:

```
1.278 kg P0 yyyyy
 160. g  P0 yyyyy
2.045 lb P0 yyyyy
  5.6 oz P0 yyyyy
 2.76 kg P0 yyyyy
```

If application switch A04 is ON (not the default setting), you can define the layout of the printout and customize it to meet special label printing needs. It is easy to set up the scale to use nearly any label printer.

Example:

- ♦ You can send an up to 127 character long format string to the scale, preceding it with a “PFORM=” header (without the quotation marks “ ”).

Thus, if you send the string

“PFORM=\2My Weight is: %s\rand serial is: %s\n\3” and <CR>

to the scale, it will use this format to create a string containing the weight (first %s position) and the registration (32 bit number) serial number (next %s position).

The string will then be printed as:

<STX>My Weight is: 10.00<CR>and serial is: 102192<CR><LF><ETX>

If, however, application switch A04 is set to ON, but you do not specify the “PFORM=” setup, the format will be:

<STX> 10.00<CR>102192<CR><LF><ETX>

Available Formats in Special Printouts:

The following string formats are available in the M1100e scale:

Format:	Description:
\xxx	1, 2 or 3 digits decimal value of character to print (\2, \02 or \002 all will translate to <STX>)
\a	<BEL>, character 7
\b	<BS>, backspace, character 8
\f	<FF>, form feed, character 12
\n	<CR><LF>, new line, characters 13 and 10
\r	<CR>, carriage return, character 13
\t	<HT>, horizontal tab, character 9
\v	<VT>, vertical tab, character 11
\\	Backslash "\" in printout, character 92
\"	Double quote, " in printout, character 34
\'	Single quote, ' in printout, character 39
%s	Print string "as is" in scale, first occurrence prints weight while the second prints the record serial number.

You can limit the string by using the same format specialties as in the C printf specification.

Response Times and Transmission Rates:

The tables below show the available response times for M1100e scales.

#A5 [7] Response A	#A6 Response B	Response mode	Response time	Fixed rate printout
OFF	OFF	Variable fast response	~ 0.5 seconds variable	4.9 Hz
ON	OFF	Fast response	~ 0.5 seconds	4.9 Hz
OFF	ON	Medium response	~ 0.9 seconds	2.4 Hz
ON	ON	Slow response	~ 1.2 seconds	1.2 Hz

#A10 Transmission A	#A11 Transmission B	Output mode
OFF	OFF	No continuous printout
ON	OFF	Event-driven printout
OFF	ON	Fixed-rate printout
ON	ON	No continuous printout

Note: Event driven printout in A10/A11 setup is not used in the M1100e.

- Printout from the *Out* command; example:

```
M1100e:  U3-3.10 / CAL=2 / CON=2
App:     1000 0000 0000 0000
Cap:     15.000 kg
Res:     Single
CS:      5 kg
C0:      601495
C2:      840888
Gain:    2.088615e-05 kg/cnt
g-adj:   1.00000
Set:     0000 0000 0000 1000
aP:      10.0
aZ:      5.0
aY:      0
aX:      0
bP:      10.0
bZ:      5.0
bY:      0
bX:      0
```

[7] In some market areas switches #A5 and A6 may not be available. In such cases their function is selected during installation.

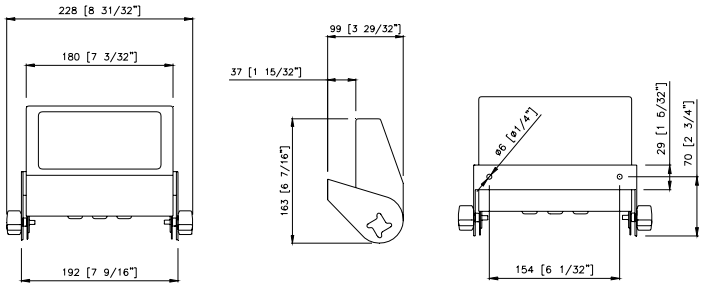
Appendix D — Technical Specifications

Manufacturer:	Marel hf.
Indicator Type:	M1100e-U3, marine scale; 3 defines the software application. M1100e-C3, land based scale; 3 defines the software application.
Enclosure:	Designed for washdown; AISI 316 stainless steel; degree of protection exceeds IP67.
Accuracy Class:	(III)
Maximum number of verification scale intervals:	7500, according to Directive 90/384 EEC and EN45501 (depends on environment and the composition of load cell/platform modules).
Maximum tare effect:	-Max
Load Cell Excitation:	
Voltage:	4.7 Vdc ±5%
Characteristics:	Direct Current
4 or 6 wire systems:	6 wire system using excitation voltage sensing (3 Ω max). Optional 4 wire system (0.2 Ω max).
Rated minimum input impedance of Load Cells:	Min 85 Ω, or four 350 Ω load cells.
Maximum input range:	70 mV
Minimum signal voltage for dead load:	–70 mV
Maximum signal voltage for dead load in case of “added dead load”:	60 mV
Minimum input voltage per scale interval (v.s.i):	0.6 μV/e
Maximum influence of temperature on the span drift:	4 ppm/°C

Specification of interfaces:	RS-232 bi-directional interface, 4800 Baud, 8 data bits and no parity. XON/XOFF.
Operating temperature range:	Min –10° C, Max +40° C
Display and indicators:	
Weight Display:	Six red digits, seven segment LED, 14 mm high (0.6 inch).
Unit of Weight Indication:	Four red, back-lit indicators, kg, g, lb and oz.
Status Indicators:	Green ZERO light Red NET light Green STEADY light
Power Requirements:	1. 110-230 VAC 0.16-0.1 A internal power supply 2. 12-24 VDC 0.1 Amax from car battery
Capacity and Resolution:	Ask for availability.

Dimensions:

Model xxxWx



Glossary of Terms

Calibration
For marine calibration see *Motion compensation.*

Commands
See *Edit* and *Setup Mode commands*.

Edit commands
Used to revise the settings for the *packing or grading memories.*

Indicator
See *M1100e Indicator*.

M1100e
The Marel M1100e Scale, the marine or land based type.

M1100e Indicator
The display unit for the M1100e scale.

Max
The maximum value of a single range scale.

Max1
The maximum value of the lower range in a dual range scale.

Max2
The maximum value of the higher range in a dual range scale.

Motion compensation
A procedure for correcting the marine scale's weighing stability and accuracy while the platform is in motion.

Multiple range
On scales with two or more weighing ranges with different maximum capacities and different scale intervals for the same weighing platform, each range extending from zero to its maximum capacity.

Password
Used to limit unauthorized access to the Setup Mode where settings for the scale's setup can be changed.

Power down mode
Battery power saving feature. The scale shuts down completely and must be restarted. Power down mode is indicated by a blinking Max2 indicator.

Power save mode
Battery power saving feature. The display shuts down but the scale is still active. Starts up without going through the start-up procedure. Indicated by sequentially illuminating decimal dots on the Weight Display and a blinking Max2 indicator.

Range
See *Weighing range.*

Resolution
The number of divisions in the total weighing interval.
Example: If the weighing interval is 15 kg and the division (e) is 5 g, the resolution is 1:3000.

Setup Mode commands
Used to change the setup settings for the M1100e scale.

Steady indicator
On the *M1100e Indicator*. Lights up with a green light, when the weight on the platform is stable.

Tare
The weight of the container on the platform and the allowance made for the container when weighing.

Weighing range
The range from zero to maximum capacity.

Weight Display
An M1100e display that shows the weight on the platform.

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