

# Baldor Motion Controllers

## Overview

When configured with **STEPware-100**, Maple Systems' OIT Family Operator Interface Terminals (Maple OITs) can communicate with Baldor Mint Drive, Smart Move, and Next Move BX Motion Controllers. The **Maple OIT is the slave** in a point-to-point single master, single slave or single master, multiple slave format. This document describes the various STEPware-100 settings and provides some simple Mint examples.

Compatible Controllers	
Family	Model
Baldor	Mint Drive, Smart Move, Next Move BX

## Communications Cable

The Maple OIT should be connected to the RS232 or RS485 communication port.

Refer to Technical Note 1061 for information on communication cable part numbers and cable assembly instructions. If you will be assembling your own communications cable, cable assembly instructions are also available on our web site at [www.maple-systems.com](http://www.maple-systems.com).

**WARNING:** If your communications cable is not wired exactly as shown in our cable assembly instructions, damage to the Maple OIT or loss of communications can result.



# STEPware-100 Settings

The following table lists the communications settings that must be configured in STEPware-100.

Please note:

- the Settings column lists STEPware-100's settings; for the Baldor Controllers
- the Options column lists STEPware-100's options; your Controller may not support every option

Name	Settings	Options	Important Notes
Baud Rate	9600 (All Models)	19200, 9600, 4800, 2400, 1200, 600, 300	Must match the controller port settings. Use the fastest baud rate supported by both.
Parity	None	Even, Odd, None, Mark, Space	
Data Bits	8	7, 8	
Stop Bits	1	1, 2	
Operating Mode	Block	Interactive, Block, Network Modes	Attached sample code requires Block Mode.
Line Terminator	CR	CR, LF, CR/LF, ETX	Attached sample code requires CR.
Turn-around Delay	No Delay	50, 100, 250, No Delay	
Handshaking	None	None, Xon/Xoff, RTS/CTS, both	
Password	00000	Any 5-digit value	Application specific
Local Echo	Enabled	Enabled/Disabled	
Local Setup Enabled	Enabled	Enabled/Disabled	
Local Keyboard Enabled	Enabled	Enabled/Disabled	
Key Click Enabled	Enabled	Enabled/Disabled	
Block Echo Enabled	Enabled	Enabled/Disabled	
Delayed Line Feed Enabled	Disabled	Enabled/Disabled	
Append Line Feed	Disabled	Enabled/Disabled	
Use 3-Wire RS485	Disabled	Enabled/Disabled	Available only in Network Mode.

**NOTE:** STEPware provides a full range of display and control functions. See STEPware Help, under *ESCAPE Control Commands*, for a complete list.

# Sample Programs

Below are fragments of Mint code for performing common tasks.

In each of the following examples, the OIT should be set for **Block** mode. The Line Terminator should be set as **CR**.

## Setting/Showing Drive Speed

```
PRINT "New Speed: "           :REM text is sent to the OIT
INPUT NewSpd                  :REM text is returned into NewSpd
JOG = 10                      :REM Start motion
GO
PRINT "Speed is "NewSpd      :REM speed is shown on OIT
WAIT = 2000                   :REM pause for 2 seconds
STOP                          :REM Stop motor
```

## Setting/Showing Drive Position

```
HOME = 1                     :REM home drive
PRINT "New Position: "       :REM text is sent to the OIT
INPUT NewPos                 :REM text is returned into NewPos
SPEED = 250                  :REM set speed
MOVEA = NewPos               :REM set new position
GO
PRINT"Position is "NewPos    :REM position is shown on OIT
```

## Starting/Stopping the Motor from the OIT

Using Function Key ASCII Strings, the OIT can send messages to Start, Stop, and adjust the motor speed.

The OIT's Function Keys should be programmed as follows:

- **F1:** 1{CR}
- **F2:** 2{CR}
- **F3:** 3{CR}
- **F4:** 4{CR}

Each key should have the **Send Immediately** option checked.

## Starting/Stopping the Motor from the OIT (continued)

Use the following Mint code:

```
REM F1 is Start, F2 is Stop, F3 is Increase Speed, F4 is Decrease Speed
InitSpeed = 100 :REM Initial Speed
SpdChange = 25 :REM Speed Increment/Decrement Amount
MaxSpeed = 500 :REM Max Speed
SPEED = InitSpeed
LOOP
KEY = 0 :REM Wait for key to be pressed
WHILE KEY = 0
KEY = INKEY :REM Read keyboard
IF KEY = '1' THEN GOSUB START_MOTOR
IF KEY = '2' THEN GOSUB STOP_MOTOR
IF KEY = '3' THEN GOSUB INCR_SPD
IF KEY = '4' THEN GOSUB DECR_SPD
ENDW
ENDL
END :REM all done

#START_MOTOR
REM Start Motor Subroutine
SPEED = InitSpeed
JOG = 10
GO
RETURN

#STOP_MOTOR
REM Stop Motor Subroutine
SPEED = 0
STOP
RETURN

#INCR_SPD
REM Increase Motor Speed
InitSpeed = InitSpeed + SpdChange :REM get new speed
IF InitSpeed <= MaxSpeed THEN :REM don't exceed max speed
SPEED = InitSpeed :REM set new speed
ENDIF
RETURN

#DECR_SPD
REM Decrease Motor Speed
InitSpeed = InitSpeed - SpdChange :REM get new speed
IF InitSpeed >= 0 THEN :REM don't allow 0 or negative speed
SPEED = InitSpeed :REM set new speed
ENDIF
RETURN
```

## Displaying a Pre-Programmed Message

The Motion Controller can instruct the OIT to display a pre-programmed message. This can be useful for showing alarm or status messages, without having to place code in the Motion Controller for a lot of Text messages.

The following Mint code will display message numbers 1-25.

```
FOR MSG = 1 TO 25
REM format a message to the OIT: ESC m [msg num] STX
PRINT BINARY '27';"m";MSG;BINARY '2';
WAIT 300
NEXT MSG
```

## Sounding the OIT's Built-In Buzzer

The Motion Controller can instruct the OIT to sound its buzzer for a specified number of seconds.

The following Mint code will sound the OIT's buzzer for 2 seconds.

```
` format a message to the OIT: ESC g [seconds] STX
PRINT BINARY '27';"g2";BINARY '2';
```

**NOTE:** STEPware provides a full range of display and control functions. See STEPware Help, under *ESCAPE Control Commands*, for a complete list.