Commander IF1 User Manual
For Version L 1.10

23 May 2011

Overview

The Commander is a keypad/display module for use in Impresstik Labelling Machines. It is normally part of a control system comprised of InStepIV modules and a HeadUnit with /M and /C options. Additionally, if the entire machine is controlled, rather than just a label head, an InStep Plus (InControl) is fitted. All of the adjustments are made with seven pushbuttons on the front panel. There is a two line by twenty-character LCD display for viewing the settings. There is an option to select a simple or reduced menu set. The menus that are still included when this option is selected are shown here marked 'Reduced'. As the Commander keypad is highly configurable to suit a wide variety of machine types not all of the functions/menus described here may be available on your machine.

Menu Structure

```
Commander IF1 V1.10
  By Industronics
```
then
```
Commander IF1 V1.10
  Serial No. A001234
```
then
```
InStep Ver. I5.05L
Serial No. A001234
```
then
```
InControl Ver V1.05
  Serial No. A001234
```
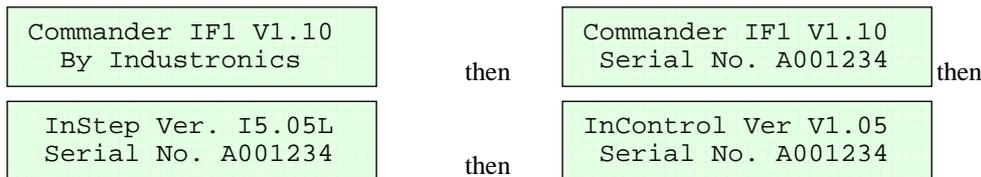
These are the opening screens. If Enter is pressed and held during the first two screens, the controller will display the initialisation menu. Refer to the end of this section for details. The fourth screen is only displayed if the keypad is configured for full machine control. Pressing the up arrow key will display each screen for as long as it remains depressed. This allows more time to read each screens details. The last two screens were added in version L1.03C

If Enter is not pressed the following menu is displayed after a short delay:

Level One Menus

```
Label Counter
             0
```
Reduced
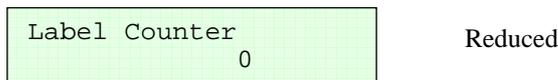
The Label Counter is displayed here. This shows the total number of labels dispensed since the last count reset. If the counter memory is installed the count will be retained through a power down otherwise it is lost. Pressing enter brings up a two additional screens to confirm the resetting of the counter. Prior to version L1.04 this menu exists but was not implemented. All L1.04x versions have this menu removed and the Label Position becomes the top of level one. From L1.05 on the Counter Menu is re-instated and fully implemented along with power off count retention. Pressing the down arrow displays the following screen:

```
Label Position
        0.0mm
```
Reduced
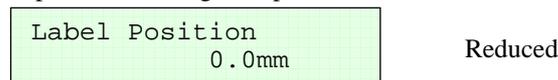
The Label Position setting is displayed here. This sets the delay in millimetres between the product sensor activation and the start of dispense effectively changing the position of the label on the product. Press Enter to enter Edit Mode, a flashing arrow is displayed to the right of the value when in edit mode. Whilst in edit mode the arrow keys can be used to adjust the value. When the correct value is displayed press Enter to leave Edit Mode. Whilst not in edit mode pressing the arrow keys moves to another menu item. Pressing the down arrow displays the following screen:

```
Label Advance (Web)
       100.0mm
```
Or
Reduced
```
Fixed Move Length
       100.0mm
```
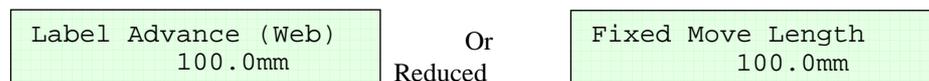
This is the second menu in level one. The Label Advance or the Fixed Move length setting is displayed here. Which is displayed is determined by bit 0 in the Option 2 menu in level three. The label advance menu sets the number of millimetres to move after the gap sensor has activated. If the deceleration is adjusted, this value must be entered again to subtract the deceleration steps from the entered advance value. The fixed move length menu sets the total length of the fixed move when that mode is selected. Both of these menus use the same memory location for value storage, so changing one changes the other.

Other menus may appear here. These can be: "Two Label Spacing" together with "2 Label 1st Advance" and/or "Jig Delay" together with "Jig Hold Delay" and/or "Spin Up Delay" and/or "Air Blast Time" in this order. They appear here in the top level menu when they are enabled and down in the second level if disabled. This allows the menus to self-customise to the application and prevents clutter of the top level menu. Refer to the appropriate menus in the second level for further details.

```
Sync Ratio
         128
```
Reduced

If the sync ratio has been set to 255 to ignore the master encoder, the Set Speed menu will be shown here otherwise the Sync Ratio setting is displayed here. This sets the sync ratio between the master encoder and the output pulse rate, 0 is 50%, 239 is 800%. A value of 255 causes the master encoder to be ignored and the set speed value to take effect. Pressing the down arrow displays the following screen:

```
Product Feed Speed
         100
```

Whether or not this and the next two menus are displayed depends if they are enabled in the Machine Options menu. If it is enabled the product feed speed setting is displayed here. This sets the speed of the product control device (feedscrew/feed wheel/side belt) and determines the machine product rate. The range is 0 to 255 which corresponds to min. to max. speed. Press Enter to enter Edit Mode, a flashing arrow is displayed to the right of the value when in edit mode. Whilst in edit mode the arrow keys can be used to adjust the value. When the correct value is displayed press Enter to leave Edit Mode. Whilst not in edit mode pressing the arrow keys moves to another menu item. Pressing the down arrow displays the following screen if it is enabled:

```
Conveyor Speed
         100
```
The conveyor speed setting is displayed here. Refer to Product Feed Speed menu for usage. Pressing the down arrow displays the following screen if it is enabled:

```
Vacuum Belt Speed
         100
```
The vacuum belt speed setting is displayed here. Refer to Product Feed Speed menu for usage. Pressing the down arrow displays the following screen:

```
Level Two Menus
```
Reduced

Pressing the down arrow rolls around to the "Label Counter" menu. Pressing Enter takes you to level two menus and displays the following screen:

Level Two Menus

```
End of Reel Count
     3        3
```
Reduced

How the "end of reel count" functions is determined by a bit in the Option2 menu. With this bit on, the setting here is the number of labels that can be dispensed in between operations of the 'end of reel' sensor. The sensor detects the movement of the label reel. In this mode, the number set here is usually quite low. With the bit off, it sets the number of labels that can be dispensed while the 'end of reel' sensor is on. The sensor detects that the label reel is low in diameter. The setting is usually larger in order to allow the reel to become very close to finished before the head stops. In both modes, the setting depends on the label length. The number on the left is the actual count. It is a 'live' value and is provided to assist in establishing the correct setpoint. The live display has not been implemented and as of L1.04 has been removed, it will be implemented later. Pressing the down arrow displays the following screen:

```
Man. Dispense Speed
        9500
```
Reduced

If the sync ratio has been set to 255 to ignore the master encoder, the Sync Ratio menu will be shown here otherwise the Set Speed setting is displayed here. This is the dispense speed when no master encoder is used, i.e. Sync Ratio set to 255. Values less than 5000 give a very slow dispense speed, while values approaching 9999 give a very fast speed. Pressing the down arrow displays the following screen:

```
Missing Label Length
        16
```
(Not included when reduced menu set selected)

If the value entered here is less than 64 the missing label function works like this: If a label dispense takes more than the number of steps set here, times 256, the labeller will disable, show "Labeller error" and turn on the Bussed Fault Output. A value of 0 allows infinite length, 1 = 256, 2 = 512, 3 = 1024, 4 = 2048, 5 = 4096, 6 = 8192, 7 = 16384 and 8 = 32768 steps etc.

If the value is greater than 63 the "no gap skip" style of missing label is implemented. This allows the labeller to skip past missing labels (or blocked label gaps) as if they never happened. It works by simulating the label gaps presence at the number of counts specified here. So the number entered here should be the label length minus the label advance setting. You can enter this manually or by pressing Enter after the length is displayed in the previous menu. If the actual gap occurs after the gap is simulated, the actual gap position will override the simulated one to maintain correct registration. If you change the advance after setting this value you should redo this setting to cater for the new advance value. If the "gap skip" is done four times consecutively the labeller will disable, show "Consec. Miss Regist.".

```
Product Jig Mode
   Straightening
```

This menus is only present in version L1.04C and later. Pressing Enter cycles between Off, Straightening and Orientation. See the Jig Delay and Spin Up menus for a full description. Must be enabled in Config2 menu for it to appear here (L1.09 and on). Pressing the down arrow displays the following:

The next three menus visibility depends on settings in level three.

```
Label Head 1 Sync to
   Vacuum Belt
```

This menus visibility depends on the bit marked E in Machine Options in level 3 and only can be shown on the keypad addressed to Head 1.
Pressing Enter toggles between Conveyor and Vacuum Belt. This is used on combination machines such as an FF VAC. It changes what the label dispense speed is synchronised to. e.g. when using the overhead conveyor to stabilise the product it should be set to "Conveyor" and when the vacuum belt is used to apply the label it should be set to "Vacuum Belt"
Pressing the down arrow displays the following screen:

```
Vacuum Belt Motor
       is off
```

This menu and the one below visibility depend on the bit marked V in Config1 in level 3. Pressing Enter toggles between on and off. It would normally be on but could be turned off when the vacuum belt is not used.
Pressing the down arrow displays the following screen:

```
Vac Belt Vacuum Pump
       is on
```

Pressing Enter toggles between on and off. It would normally be set to on, but may be turned off when the vacuum belt is not used or where it is used simply to roll down a directly applied label.
Pressing the down arrow displays the following screen:

```
Printer
        is off
```

The Printer menu is shown here. Pressing Enter toggles between Disabled and Enabled. Use the "Option Menu" to select the type of printer fitted and the "Option2 Menu" to select the type of printer fault signal. Pressing the down arrow displays the following screen:

Note: the following six menus may not appear here but in the top level menu if they are enabled.

```
Two Label Spacing
            Off
```

The Two Label Spacing setting is displayed here. This setting sets the number of millimetres to pause between the first and second label of a set. This will be in addition to the gap extant on the web. A value of 0 turns this function off. Pressing the down arrow displays the following screen:

```
2 Label 1st Advance
            90.0mm
```

The advance setting for the first label of a two label set is displayed here. When two label spacing is turned on in the previous menu this setting controls the stopping position of the first label. The normal advance setting is used for the second label. Pressing the down arrow displays the following screen:

```
Jig Delay
            Off
```

The Jig Delay setting is displayed here. This setting sets the distance in millimetres between product sensor activation and the activation of the jig solenoid. A value greater than zero enables "Jig Control Mode". If you select this mode, you must select a mode in the "Spin Up Delay" as well! As of version L1.04C this menu has a minimum setting of 0.1mm as the mode selection is done via the Product Jig Mode menu. Pressing the down arrow displays the following screen:

```
Jig Hold Delay
            0.0mm
```

The Jig Hold Delay setting is displayed here. This setting sets the distance the vacuum belt continues to rotate the product (and roll down the label) after the completion of the dispense before the deactivation of the jig solenoid. It is up to the operator to ensure correct product spacing. You must ensure the product is released before the following product is detected by the product sensor or that product will be ignored. This setting is only used when in Jig Control Mode which is enabled by the menu above, so you can leave the value in here when it is disabled. Pressing the down arrow displays the following screen:

```
Spin Up Delay
            50.0mm
```

The Spin Up Delay setting is displayed here. This setting can enable one of two modes. In both modes the sequence is started by the "Jig In" input. A value of 0.1 puts the InStep into "Jig Only Mode" (indicated on the LCD by "JigOnly"). In this mode, the Jig In sensor simply triggers the normal cycle instead of the product sensor. When a larger value is entered, the "Orient Jig Mode" is turned on. This command sets the number of millimetres to allow the product to turn before the registration scanner is enabled. This is to ensure the product is spinning in the jig smoothly and at the correct speed. In orient jig mode the cycle is initiated by a sensor connected to the "Jig In" input. This initiates the spin up delay. When this is complete, the sensor connected to the "Colour Sensor" input is enabled. When the colour sensor sees a leading edge the normal dispense sequence is started. A value of 0 turns both jig modes off. As of version L1.04C this menu has a minimum setting of 0.5mm as the mode selection is done via the Product Jig Mode menu. Pressing the down arrow displays the following screen:

```
Air Blast Time
            0
```
Reduced (but still conditional within reduced mode)

The Air Blast Time is displayed here; this sets the air blast time in milliseconds. The air blast is for machines with an air box attachment. The air blast time occurs after the product delay and before the label starts to move. Pressing the down arrow displays the following screen:

```
 Length Measure
```
Reduced

Whilst this menu is displayed the actual dispensed label length in steps is displayed at the completion of every cycle. Pressing Enter when there is a length displayed will calculate the missing label length and load it into the next menu. Pressing the down arrow displays the following screen:

```
 Library Functions
```
Reduced

Pressing the down arrow displays the "Level Three Menus" selection screen further below. Pressing Enter takes you into the Library sub-menu and displays the following screen:

```
 Save to Library No.
           0
```
Reduced

This is the first menu in the library sub-menu. Pressing Enter allows you to select the library number to save to with the arrow keys. After selecting, pressing Enter saves all of the data from the current data memory and displays the "Library Functions" menu. (There is no library number zero, it is provided to allow a way to "escape" without saving.) Pressing the down arrow displays the following screen:

```
 Read from Lib No.
           0
```
Reduced

This is the second menu in the library sub-menu. Pressing Enter allows you to select the library number to read from. After selecting, pressing Enter reads the library and saves it to the current data memory. If after pressing Enter, the "Library Functions" menu is not displayed, the data in the selected menu was invalid. Select another library number or select 0 to escape from this menu. Pressing the down arrow displays the "Library Functions" menu.

```
 Level Three Menus
```

Pressing Enter takes you to level three menus and displays the "Acceleration" menu. Pressing the down arrow displays the following screen:

```
 Level One Menus
```
Reduced

Pressing Enter takes you to the level one menus and displays the "Label Counter" menu. Pressing the down arrow displays the Printer menu.

Level Three Menus

```
 Acceleration
             4
```

The Acceleration setting is displayed here. This menu selects one of fourteen acceleration ramp profiles. A value of 13 is the softest, 4 is normal. Was only 6 ramps with three as default prior to L1.10. Pressing the down arrow displays the following screen:

```
 Deceleration
           107
```

This is the second menu in level three. The Deceleration setting is displayed here. This menu adjusts the number of steps to decelerate for. This setting is read-only prior to V L1.03C and L1.10 and later. Pressing the down arrow displays the following screen:

```
 Inputs:   GPDSPEJC
           00000000
```

This is the third menu in level three. The input status of the addressed InStep module is displayed here. A value of 1 indicates the input is on, 0 is off. The letters above the value indicate what the input is used for.

G – Gap Sensor
P – Product Sensor
D – Disable Input (Fault In)
S – Servo OK
P – Printer OK
E – End of Reel Input
J – Jig In / Product Gate Input
C – Colour Sensor

This display is not live, pressing Enter updates the display.
Pressing the down arrow displays the following screen:

```
 Outputs: XFABJSEC
           00000000
```

The output status of the addressed InStep module is displayed here. A value of 1 indicates the output is on, 0 is off. The letters above the value indicate what the output is used for.

X – Spare
F – Fault Output
A – Air Assist Output
B – Air Blast Output
J – Jig Solenoid Output
S – Feedscrew Enable Output
E – Servo Enable / Stepper Boost Output
C – Coder (Printer) Output

This display is not live, pressing Enter updates the display. You can also turn on and off the various outputs. First you press Enter to take you into edit mode (flashing cursor) then the arrow keys move the cursor up and down through the different bit positions. When the Enter key is pressed it toggles (set/resets) the highlighted bit. To exit edit mode you must move the cursor back to the arrow at the right of the value and press Enter.

Pressing the down arrow displays the following screen:

```
 IC Ins:FBAT9O7IPEM2S
        0000000000000
```
Only present in Version L1.08 or later

The status of the InControl inputs are displayed here. A value of 1 indicates the input is on, 0 is off. Not shown if InControl not selected in Machine Options. The letters above the value indicate what the input is used for.

F – Feedscrew Sensor (switches on once per turn)
B – Bussed fault input from InStep modules
A – Orientation Attachment fitted
T – Top Conveyor Servo OK
9 – Spare input number 9
O – High Outfeed level sensor (Off = run)
7 – Spare input number 7
I – Infeed Low level sensor (On = run)
P – Printer Fault
E – External Fault
M – MCC open (Contactor off)
2 – Spare input number 2
S – Safety Relay not OK

This display is not live, pressing Enter updates the display.
Pressing the down arrow displays the following screen:

```
 IC Outs: 9E765TSVR
          010000000
```
Only present in Version L1.08 or later

The output status of the InControl module is displayed here. Not shown if InControl not selected in Machine Options. A value of 1 indicates the output is on, 0 is off. The letters above the value indicate what the output is used for.

9 – Spare output number 9

E – <u>E</u>EPROM Chip select, used internally to the module. Normally shows as 1.

7 – Spare output number 7

R – Ready for Product. Can be linked to upstream machine to control product flow.

F – Feed On. Can be used to control a feed control device such as a clamp.

4 – Spare output number 4

S – Sync to Conveyor. 0 = synchronise to Vacuum Belt. Usually wired to HeadUnits.

V – <u>V</u>acuum Pump Output.

R – Reset Relay Output. Usually wired to a relay that pulls in the MCC (Contactor).

This display is not live, pressing Enter updates the display.

Pressing the down arrow displays the following screen:

```
 Master Speed
           9000
```

The speed of the master encoder is displayed here. It is used to check the operation of the master encoder. If the master encoder rate is too fast "fast" will be shown. Extremely slow encoder rates cause "Slow" to be displayed. If a dispense has been attempted when the master encoder is stopped it will display "Stopped!" The display is not live; you need to press Enter to update display. Pressing the down arrow displays the following screen:

```
 Options: GSGEC421
          00000000
```

The option status is displayed here. A value of 1 indicates the option is on, 0 is off. The letters above the value indicate what the input is used for.

G – Gate Signal Required

S – Servo Mode (Not Stepper). On for speed compensation and servo enable. Off for stepper drives.

G – SIG drive compensation. Must select servo mode above as well!

E – Enable at Power On

C – Moving Type Coder e.g. inkjet (0 = Stationary Type e.g. stamping hot foil)

421 – Serial Address Select (Set bits to total to desired address, all off = 8)

This menu is not editable as it is simply a display of the options selected by the jumpers within the connected InStep module.

Pressing the down arrow displays the following screen:

```
Option2: DECABSOF
         00000000
```

The second option status menu is displayed here. A value of 1 indicates the option is on, 0 is off. The letters above the value indicate what the input is used for.

D – Output pulse <u>D</u>ouble frequency. When 1 output frequency is double input frequency, otherwise it is output = input when sync ratio is set to 128.

E – <u>E</u>nd of Reel Mode. When 1 selects reel turning detection type and when 0 selects reel diameter low or no web type detection. Set to 0 if no end of reel sensor is fitted. Refer to EOR menu.

C – <u>C</u>hecksum enable. This is normally on. Sets InStep mode. Only used for testing.

A – <u>A</u>cknowledge mode. This is normally on. Sets InStep mode. Only used for testing.

B – Stepper <u>B</u>oost. When on changes the servo enable output function to a stepper drive boost.

S – <u>S</u>ervo OK input polarity. When 1 here the Servo OK input is on = OK. Can be set to 0 when no servo OK signal is available.

O – <u>O</u>rientation Error Enable. See <u>Fault Screens</u> for a full description. Implemented in V1.02. Requires InStep module to have V5.04H or later to function. Prior to this it was P – Printer fault polarity but it did not work properly. This is now implemented in Config1 as of V1.03.

F – <u>F</u>ixed Pull Mode. The Label Advance menu changes to read Fixed Move Length. Now the servodrive simply moves the distance set here and ignores the gap sensor etc.

Pressing Enter takes you into bit edit mode. Refer to the output menu for details on 'bit edit mode'.

Pressing the down arrow displays the following screen:

```
Config1: ENCAMRVP
         00000000
```

The keypad configuration menu is displayed here. A value of 1 indicates the option is on, 0 is off. The letters above the value indicate what the input is used for.

E – Encoder selection enable. Adds encoder selection menu into level two menus. L1.08 and later.

N – InControl module used. When cleared disables "Drives" and "Feed" Buttons (For label head only machines). This bit was in Machine Options prior to version L1.08

C – Checksum enable. This is normally on. Sets keypad mode. Only used for testing.

A – Acknowledge mode. This is normally on. Only used for testing.

M – Counter Memory. If the counter memory option is installed it should be enabled here.

R – Reduced (Simple) Menu Mode. Prevents many of the less often used menus from appearing and stops the automatic re-arranging of them depending whether they are enabled.

V – Vacuum Belt Menus. This bit controls whether the vacuum belt specific menus are displayed or not

P – Printer Fault polarity. When the printer is enabled in level 2 the Printer Fault input becomes active. The level that causes labelling to be stopped is entered here. 0 = on, 1 = off. Note that this is for the printer fault input on the InStep module. Please see Machine Options below for the Printer Fault input on the InControl module.

Pressing the down arrow displays the following screen:

```
Config2: -------J
         00000000
```
Only in L1.09 and later

The second keypad configuration menu is displayed here. A value of 1 indicates the option is on, 0 is off. The letters above the value indicate what the input is used for.

J – Jig Mode menu enable. Adds Jig Mode selection menu into level two menus. L1.09 and later.

```
Machine: -PIO-VCF
Options: 00000000
```

The machine option status is displayed here. A value of 1 indicates the option is on, 0 is off. The letters above the value indicate what the input is used for.

- – Encoder selection enable was here prior to version L1.08. Now in Config1

P – Printer Fault input polarity. The level that causes labelling to be stopped is entered here. 0 = on, 1 = off. Note that this is for the printer fault input on the InControl module. Please see Config1 above for the Printer Fault input on the InStep module. Note that prior to V1.03 this was G for the Guarding Input enable but this was never implemented.

I – Infeed Low Sensor monitored. Clear if no Low Infeed sensor is fitted.

O – Outfeed High Sensor monitored. Clear if no High Outfeed sensor is fitted.

- – InControl module used was here prior to version L1.08. Now in Config1

V – Vacuum Belt Speed Adjustment enabled.

C – Conveyor Speed Adjustment enabled.

F – Feed Speed Adjustment enabled.

When the speed adjustments are disabled the motor is disabled and the speed adjustment menu screens removed from level one.

Pressing Enter takes you into bit edit mode. Refer to the output menu for details on 'bit edit mode'.

Pressing the down arrow displays the following screen:

```
InStep Address
             1
```

The address of the InStep module that this keypad is to control is set here.

Pressing the down arrow displays the following screen:

```
Scaling (pulses/mm)
           33
```

This setting is to scale the servomotor pulses into millimetres. The value entered here is multiplied by the millimetre value entered in the position, advance etc screens to produce the number of steps that the servomotor will move.

Pressing the down arrow displays the following screen:

```
Vac Belt Sync Offset
           0
```

This setting offsets the Sync Ratio menu in level one. You adjust the offset here until the label speed matches the vacuum belt speed when the Sync ratio menu has a setting of 100 (100%).

Pressing the down arrow displays the following screen:

```
Conveyor Sync Offset
           0
```

This setting offsets the Sync Ratio menu in level one. The setting here is used in lieu of the one above when the "Label Head 1 Sync to" menu in level two is set to "Conveyor". Not all machines have this facility. Machines that do not have this facility will not have the "Sync to" menu disabled and will always use the "Vac Belt Sync Offset" value above. You adjust the offset here until the label speed matches the conveyor speed (product speed) when the Sync ratio menu has a setting of 100 (100%).

Pressing the down arrow displays the following screen:

```
Level Two Menus
```

Pressing Enter takes you to level two menus and displays the "End of Reel Count" menu. Pressing the down arrow displays the following screen:

```
Level One Menus
```

Pressing Enter takes you to the level one menus and displays the "Label Counter" menu. Pressing the down arrow rolls around and displays the Acceleration menu.

Fault Screens

The following screens appear when the fault occurs. If multiple faults occur only the first one is displayed. If subsequent faults are still present when earlier ones are reset they will then be displayed. If the fault is rectified the screen can be cleared and the labeller re-enabled by presssing Enter. If you would like to review your settings without resetting, the first press of either arrow key will bring back the menu that was present before the fault occurred. You can then move around the menus as usual. Afterwards, you can re-enable the labelling by using the "Drives" and "Head" buttons.

```
Labeller Error!
Press Enter to Reset
```

This screen indicates that the servomotor has moved further than that set by the missing label length. It is usually caused by a wrongly setup gap sensor, slipping or open drive rollers. It can always be reset immediately. Refer to the "Missing Label Length" menu in level two for adjustment.

```
Consec. Miss Regist.
Press Enter to Reset
```

This screen indicates that the labeller has had to simulate the gap sensor more than three times in a row. It is usually caused by a wrongly setup gap sensor or slipping drive rollers. It can always be reset immediately. Refer to the "Missing Label Length" menu in level two for adjustment.

```
Printer Error!
Press Enter to Reset
```

Whenever the printer is enabled and the printer fault signal is also enabled. The sense of the input is controlled by a bit in option port 2 or by the 'D' command. If no printer fault signal is available it should be set to off = OK (default). The fault signal must be removed before it can be reset.

```
External Fault!
Press Enter to Reset
```

This screen appears when the Fault In input is activated (the 1000M bit in the Config1 menu must be off). This input is usually tied together with all of the other Fault In/Fault Outs on the machine so that a fault on one label head will disable all heads.

```
Servodrive Error!
Press Enter to Reset
```

This screen appears when the connected servo drive has indicated a fault. You usually must power down the servodrive to reset the fault. If the fault occurs often it will be necessary to open the enclosure to check the fault code indicated on the front of the servodrive. Refer to the servodrive manual for the fault codes meaning and its remedy. It is usually caused by a web jam up.

```
End of Label Reel!
Press Enter to Reset
```

This screen appears when the "End of Reel" has been detected. It can be reset straight away. Refer to Option2 menu and End of Reel Count menu for correct type setup and count setting.

```
Orientation Error!
Press Enter to Reset
```

When in Jig Control and Orient Mode, the product sensor is monitored while the jig is closed and should it be activated again the jig opens and this fault is displayed. At the time of jig closure the product sensor input is checked. If it is on, (usually caused by large products in the jig) then this failure checking is disabled, as there is no way to check for subsequent products coming. Whether this checking is disabled or not you can always release a jig stuck in due to failure of the colour sensor to detect the mark by pushing any button!

```
  Labelling Disabled
  By External Input
```

When the "1000M" bit is set the 'Fault In' input becomes the External Disable Input. This message is displayed when the input is on and automatically returns to the previous menu when turned off. In this mode, this input can also be used to reset other faults!

Note: All of the faults shown above are generated by the InStep controller or by devices connected to it. As such they can occur on all types of Commander controlled machines. The fault screens below are generated by the InControl module and so will only occur on machines where the Commander controls the entire machine and is fitted with an InControl module.

```
Feed Inverter Fault      Conv. Inverter Fault     Vac Belt Inv. Fault
Press Enter to Reset     Press Enter to Reset     Press Enter to Reset
```

The above three fault screens indicate that the respective inverter drives have developed a fault condition. At the moment it is necessary to check the fault code on the front of the actual inverter to determine the exact cause of the fault. In future versions the fault will be shown directly on the Commander display. Pressing reset will attempt to reset the fault on the inverter and restore operation of the labeller.

```
Feedscrew Tripped!
Press Enter to Reset
```

This fault screen indicates that the machine was stopped by activation of a switch which monitors the spring loaded feedscrew product control device. Some machines will not show this error as the switch is wired directly into the safety circuit and so will simply show the Safety Relay Open fault.

```
Safety Circuit Open!          or        Safety Circuit Open!
Press Enter to Reset                    Reset ES, Feedscrew
```

This fault screen indicates that the safety circuit has been tripped. This may be caused by activating an Emergency Stop button or by opening a guard door or other safety device such as one fitted to the feedscrew mechanism. As of version L1.04C the menu on the right indicates whether or not the Safety Relay is ready to be reset. Once the Emergency Stops and all safety devices have been reset and the menu on the left is shown, pressing the reset button on the Commander will attempt to reset the main relay to re-apply power to the machine.

```
Other Head Faulty!
Press Enter to Reset
```

On machines with more than one label head this fault indicates that a label head other than the one addressed by this Commander keypad has a fault. Check the other Commander keypads for the exact nature of the fault.

```
Unknown Fault!
Press Enter to Reset
```

If this fault is seen it should be reported to the machine manufacturer or agent. The Commander keypad has detected a fault but was unable to resolve the exact nature of the fault. This can be caused by keypad communication issues.

```
Communications Fault
Press Enter to Reset
```

This fault screen is displayed when there has been a communications error between the keypad and the other modules in the machine. Pressing Enter will make another attempt at the communication. This fault screen was added in version L1.04. As of L1.05B pressing the up arrow key while this fault is displayed will replace the bottom line of the display with the communications string that is causing the problem. While this may not mean much to an operator, but if the error is coming up regularly you should report this to Impresstik and quote the characters shown here.

Note: the next two screens are not actually faults but line flow indicators. Nothing needs to be done on this machine to rectify these usually the problem is with the upstream/downstream machines.

```
  High Outfeed Level
 Check downstream m/c
```

A sensor on the outfeed side of the machine is seeing product that is banking back from the downstream side. The machine will pause the product control device until this situation is rectified.

```
   Low Infeed Level
 Waiting for Product
```

A sensor on the infeed side of the machine has detected that there is insufficient product queued at the product control device for correct operation. The product control device will pause until more products arrive. If you wish to run out the remaining product simply block the infeed sensor with your hand until all of the products have passed through the machine. If either of these pauses is in effect the "feed" button LED will flash. It will continue to flash even if you move to another menu on the display. This reminds you of why the feed control device is stopped.

Initialisation Menu

This menu can only be entered during power up. It will automatically appear if the controller detects invalid data in the current data memory or it can be forced to appear if Enter is pressed and held during the initial screen that displays the version number information. It will appear as either of the two following screens:

```
   Enter Pressed
 Use ^ to make choice
```
or
```
 EEPROM Data Invalid!
 Use ^ to make choice
```

If the up arrow is pressed, the following screen will appear:

```
   Enter Pressed
   Erase Libraries
```

This is the first choice in the initialisation menus. Pressing Enter causes all of the Library data to be erased then the first initialisation menu is shown again. Pressing the up arrow causes the next menu to be displayed as follows:

```
   Enter Pressed
   Reinitialise?
```

This is the second choice in the initialisation menus. Pressing enter drops into the type selection sub-menu. The first menu is as follows:

```
    Select Type
 Use ^ to make choice
```

If the up arrow is pressed, the following screen will appear:

```
    Select Type
   Label Head Only
```

Pressing Enter causes all of the current data to be reset to default values and then display the first menu in level one. Because of this, if you want to erase libraries and reinitialise you must erase libraries first. Pressing the up arrow will cycle through the following selections: "Label Head Only", "Full Machine Control", "Spare, do not use", etc, "Do Nothing" and back to "Label Head Only". Note that when re-initialising all settings are set to a typical configuration for the type of machine selected. This may not exactly suit your exact machine or the product type you are running. You should always check all of the settings, especially those in level three, with the setup sheets supplied with the machine. Note also that using the "Full Machine Control" setting here will not alter the InStep address setting if it already contains a valid value (1, 2 or 3). If you want to force the InStep address to 1, use the "Label Head Only" setting first the cycle power and select "Full Machine Control".

Pressing the up arrow causes the next menu to be displayed as follows:

```
    Enter Pressed
       Do Nothing
```

This is the third choice in the initialisation menus. Pressing Enter simply displays the first menu in level one and as the menu suggests, does nothing. If the entry into the initialisation menus was caused by invalid data you can't use this option, but must select reinitialise. Pressing the up arrow causes the first initialisation menu to be redisplayed.

Buttons

The leftmost three buttons all have a toggle action (on/off) and have a LED to indicate their state. The four buttons on the right are all momentary action. Their individual functions are explained here:

Drives

Stops and starts all connected inverter drives. The drives status is indicated by the green LED inside the button. This button has no function if the 'N' bit of "Machine Options" is set to 1.

Feed

Stops and starts the feed control inverter drive. This may be a feedscrew, feed wheel or side belts depending on the machine type. The drives status is indicated by the green LED inside the button. This button has no function if the 'N' bit of "Machine Options" is set to 1.

Head

Enables and disables the label feed servodrive. It may also enable and disable the unwind/rewind inverter drives if the machine is fitted with them. The drives status is indicated by the green LED inside the button.

Label

Pressing this buttons causes one label to be manually dispensed. The Head button above must be on or enabled otherwise it is ignored. If the master drive is stopped the label will dispense at the speed set in the "Man. Dispense Speed" menu, other wise it will dispense at a speed synchronous with the masters speed.

Arrows

These buttons serve a different purpose depending on the current menu mode. Normally they will move you up and down through the menu structure. If in edit mode they will increase/decrease the current value of the menu item.

Enter

This button either selects the current menu choice or toggles between off and on of the current menu or if in edit mode it will select the current value displayed as the value for the current menu.

Connectors

P4 - RJ-45 – Serial RS-485

Pin Number	Signal	Description
1	485A	Communications signal A side.
2	485B	Communications signal B side.
3	485A	Connected to Pin 1.
4	+24V	+24VDC power connects here, usually from a HeadUnit module with
5	+24V	option /C
6	485B	Connected to Pin 2.
7	0V	0V provided by HeadUnit comes in here.
8	0V	

A normal Ethernet patch cable is suitable for connecting this connector to the connector on the top of a HeadUnit module fitted with option /C.

LCD Contrast

On the right side of the PCB there is a small adjustment potentiometer (VR1) to adjust the liquid crystal displays contrast. The display contrast is directly affected by the ambient temperature and as such may require adjustment in extreme temperature environments. The optimum viewing angle is also affected by this adjustment.

Commander Version Update Summary

Version L 1.01 - 18/04/2008 Initial Release

This is the version fitted to the Multifill machine. First implementation.
Requires InStep minimum version I5.04F, InControl C1.01 and 25020 EEPROM.

Version L 1.01A - 2/10/2008

Version L 1.02 - 16/12/2008

This version introduces a much bigger library. There are now 84 libraries to select from. This requires a larger EEPROM chip in the keypad. All keypads with versions earlier than this have the old size EEPROM and as such need to be upgraded before the firmware can be updated. The old EEPROM was 25020, the new one is 25320. Also a bit in the Option2 menu was added to enable Orientation Error detection in the connected InStep.
Requires InStep minimum version V5.04H and 25320 EEPROM.

Version L 1.03 - 20/01/2009

This version fixes a problem with the printer fault polarity selection for this input on the InStep module. As well as fixing it, the selection of the polarity was moved from Option2 to Machine Options as it clashed with the Orientation Error Enable added in V1.02. As the Printer Fault input is currently unable to be routed to a terminal on the current InSteps, provision was made to bring the printer fault into the InControl module. Also adds a bit to the Machine Options menu to control the polarity of this new input. This bit in Machine Options was formerly for the Guarding input but this was never implemented. This is only a temporary fix until the InStep hardware is modified to allow screw terminal access to the signal within the InStep module.
Requires InControl minimum version C1.02B.

Version L 1.03A - 05/02/2009

This version fixes a problem with the recalled library data not being saved to the current memory correctly. Also changes the way the H register is handled internally.

Version L 1.03B - 05/02/2009

This version changes Vac Pump Enable to disable. This makes the default state 'Enable'. Prior to this after a "reinitialise" the Vac menus had to be enabled simply to turn the vac pump on. Now it reinitialises to Enabled. Requires the InControl module to be minimum version C1.02C to display vacuum pump enabled status correctly. Also fixes a problem where the printer on/off status was not always retained through a power down.
Requires InControl minimum version C1.02C.

Version L 1.03C - 13/03/2009

This version allows the editing of the Deceleration menu. Also changed are the "Feedscrew Speed" menu, now reads "Product Feed Speed" and the "Screw Inverter Fault" now reads "Feed Inverter Fault". This is to make the commander more universal where the product control device may be other than a feedscrew. Also fixes an error where on start up the offset applied to the set speed is different to that applied when the set speed is edited.
18/03/2009 – Added InStep and InControl version and serial number screens at start-up.

Version L 1.04 – 23/03/09 (Based on L1.03C)

This version removes the Counter menu from the level one menus and the live display from the End of Reel menu on level two. This is because they are not implemented yet.
Proper communications retrying and faulting implemented

Version L 1.04A – 08/04/09 (Based on L1.04)

This is a special branch for Reckitt Benchiser machines. The feed speed is multiplied by 3 before sending to InControl. This is to allow for the fact that they have side belts with higher ratio gearboxes. There are three machines, two of these have two heads with two keypads and the third has one head. Another special feature is different timing for the level sensors to compensate for there placement close to the belts. Also there are changes to allow a silent communications failure for the Go command.
Special InControl version C1.02D matches with this version.

Version L 1.04B – 08/04/09 (Based on L1.04A but not including special features)

This version is basically the above version without the two special features mentioned above.

Version L 1.05 – 20/04/09 (Based on L1.04)

This version also includes the silent communication failure from L1.04A. This version was never released and is a partial implementation of the Label Counter. Fix applied to the Re-initialisation writing to EEPROM that caused a reset of the keypad. Fixed problem where fault polls directed at head InStep where always addressed to 1 and not to selected address.
Requires InStep minimum version I5.04L and Ramtron FRAM FM25CL64 instead of EEPROM.

Version L 1.04C – 27/04/09 (Based on L1.05)

Firstly, visible signs of Counter implementation were removed. Product Jig Mode menu introduced into level two. Now Spin Up has a minimum of 0.5mm and Jig Delay has a minimum of 0.1mm (never show "Off"). The Spin Up menu does not attempt to display "JigOnly", this was broken anyway. In addition the Spin Up Delay menu now does not shift between the first and second levels, it remains in level two always. Also added is "Safety Relay OK" support. When the MCC contactor is open the display changes between "Push Enter to Reset" and "Reset ES, Feedscrew". Also reset is only allowed to be attempted when safety relay is OK. The "Feed" button now is disabled if the feed inverter is disabled in "Machine Options".
Requires InControl minimum version C1.02E for safety relay indication to work and 25320 EEPROM.

Version L 1.05A – 28/04/09 (Based on L1.04C)

Adds Counter menu back into L1.04C and completes the counter implementation. This works but cannot be used in conjunction with orientation jig mode. Two machines at Harvey Fresh WA have this version.
Requires InStep minimum version I5.04L and Ramtron FRAM FM25CL64.

Version L 1.05B – 30/04/09 (Based on L1.05A)

This version fixes the problem in L1.05A and adds more thorough error checking of responses to fault and counter polls. Fixes a problem with the counter reset where if the last two digits were greater than 50 then the counter would reset to 100 instead of 0. Also adds a display of the string that causes the Communications error when the up arrow key is pressed during the display of the communications error .
Requires InStep minimum version I5.04N if using orientation jig mode.

Version L 1.04D – 13/05/09 (Based on L1.04C/L104A)

This version is for the Reckitts machines only, however if further improvements are made to the non-counter version, this should be used as the base with the Reckitts specials removed. Adds the Reckitts special changes into L1.04C and then adds the comms failure string display from L1.05B. Also there is a fix for a problem where the InStep is re-enabled while the MCC is still open instead of 5 seconds after it is re-closed. This problem was introduced in L1.04C with the Safety relay OK display. Additionally the drives button is disabled after a MCC close until the InStep is first re-enabled. The InStep re-enable delay is slightly reduced and the diagnostic "r" command was added.
Requires InControl minimum version C1.02E.

Version L 1.05C – 13/05/09 (Based on L1.05B)

This version adds the fixes and features mentioned above at L1.04D to the L1.05B version

Version L 1.06 – 6/07/09 (Based on L1.05C)

This version adds support for the senders address in the communications protocol. The senders address must be sent when checksums are enabled in Config1. Also stops the machine options menu from being displayed when there is no InControl selected in Machine Options. Fixed a problem in head only mode (no InControl) where you could not move away from the fault screens.
Requires InControl minimum version C1.03. From now on InStep minimum version is I5.04P

Version L 1.07 – 9/07/09 (Based on L1.06)

This fixes problems with the libraries when used in a multi-keypad configuration. The settings of the InControl are saved within itself. This means that the re-initialisation does not send the InControl settings. Library commands are sent out to the InControl in order to maintain synchronisation. The version screens and delays are removed from the Library reads. Stops a problem where a head that was not enabled becomes enabled when a fault is reset. Now only heads that where enabled when the fault occurs are re-enabled. The Fault input for the Top Conveyor Servo is now supported.
Requires InControl minimum version C1.03 Works best with C1.04.
Note!!! Upgrading InControl pre V1.04 to V1.04 or above requires hardware changes!

Version L 1.08 – 30/09/09 (Based on L1.07)

This version adds a feature where if multiple keypads are showing the same menu and it is an InControl based setting, the other keypad will update its display when one is altered. Fixed a problem where sometimes InControl based menus would fail to show their value and this would not produce an error. Add InControl Input and Output display menus to level three. Added both encoder offset menus to level three. The offset is changed along with the master encoder selection. Moved the N & E bits from the Machine Options menu to the Config1 menu. Re-initialise now initialises the InControl settings as well, when a library is recalled the InControl retrieves its settings locally. The Feed button LED now flashes when the feed control device is paused by the product levels. Using "Full Machine Control" in the re-initialisation menus will no longer force the InStep Address to 1, unless it was not either 1, 2 or 3.
Requires InControl minimum version C1.05.

Version L 1.09 – 09/04/10 (Based on L1.08)

This version changes the conditions to display the "Sync to" menu. Previously the keypad had to be address 1 AND the menu had to be enabled in Config1. Now it is displayed purely based on the 'E' bit of Config1 irrespective of the keypad address. Also Config2 menu was added to level three with one bit utilised. This is J and determines the visibility of the Jig Mode menu in level two. This was done to avoid confusion where there is no jig fitted and on machines with two heads but only one controls the jig. This bit should only be enabled on the keypad that controls the head with the orientation jig.

Version L 1.10 – 13/03/11 (Based on L1.09)

This version makes changes to match newer features in the InStep controller. Deceleration is no longer adjustable and fixed at 107. Acceleration defaults to 4 and allows selection of all 14 ramps. The new Config2 menu introduced in L1.09 is initialised to all off. It was a random value in L1.09.

Requires InStepIV minimum version I5.05L.