Instructions

Installation and Operation of the TPDL2 Prodigy Smart-Board™ Datalogger

Scotsman's Advanced Feature Smart-Board is an optional electronic device that can be applied to most Prodigy models, either Cuber, Flaker or Nugget. It can be used:

- With the standard controller
- With the standard controller and the SmartLock Out Control (KSL)
- With the standard controller and the Vari-Smart™ Ice Level Control (KVS)
- With the standard controller, and both the KSL and the KVS

Smart-Board abilities include:

- USB connection to Scotsman's Prodigy software
- Data Logging
- Data Display

Kit Contents

- Pre-mounted Smart-Board - Universal, connecting cable, USB cable, CD-ROM.

Installation: Temporary Data Logger

1. Depress and hold the Off button until the machine shuts Off (Status light will go out).

2. Disconnect electrical power from the ice machine.

Note: Connecting the TPDL2 to a controller that is powered is NOT recommended, as it might result in a reset of the controller.

---

3. Remove front panel.

4. Remove screw holding control door to control box, swing control & door open.

5. Route wire into back of control box. Locate datalogger in a secure spot in the cabinet.

6. Connect supplied wire from Smart-Board box to main controller Accessory connection.

7. Close the control box door.

Configuration: Set Up

First time use: Follow the steps to reset the TPDL2 (Push Enter).

Reuse: The TPDL2 will likely be moved from unit to unit. Changing between units will require a few set up steps. **Be SURE you have copied any data you want to keep before proceeding.**

1. Reconnect electrical power. Display will show time and date.

```
Date:   12-20-2008
Time:    03:33:10PM
```

2. If this is the first time the TPDL2 has been used or connected to this unit, you will see a Machine Changed notice.

```
Machine Changed
Enter=RST, ESC=No
```

Machine Changed: Enter=RST (reset), ESC=No. If the machine has been changed, push and release the Enter button to reset the datalogger.

If you do not want it reset, push ESC.

```
Resetting
```

After the button has been pushed, you will first see the Resetting notice, then see the log files from the prior unit being erased. There are 19 log files.

```
Erasing Log 1
```

```
Reset   successful
restarting
```

After the log files have been erased, the TPDL2 will restart.

```
Date:   12-20-2008
Time:    03:33:10PM
```

The next screen will show time and date (US Central Time). See time set section for instructions on changing the time. First time users should go to the next page.

If the TPDL2 was NOT reset, the prior data should be cleared so the datalogger only contains information on the machine it is now connected to.

Clear the datalogger fault history, operational history and data logs so data from a prior unit is not confused with another unit.

Fault History: Push the down arrow key to get to Setup, push Enter. Push the Down arrow key until Clear fault history shows, then push Sel once to select the Clear menu and again to clear the fault history.

Performance History: Push the down arrow key to get to Performance, push Enter. Push the Down arrow key to get to Clear History. Push Sel once to select the Clear History menu and again to clear it.

Log: Push the down arrow key to get to Setup, push Enter. Push the Down arrow key until Clear current log file shows, then push Sel once to select the Clear menu and again to clear the log.
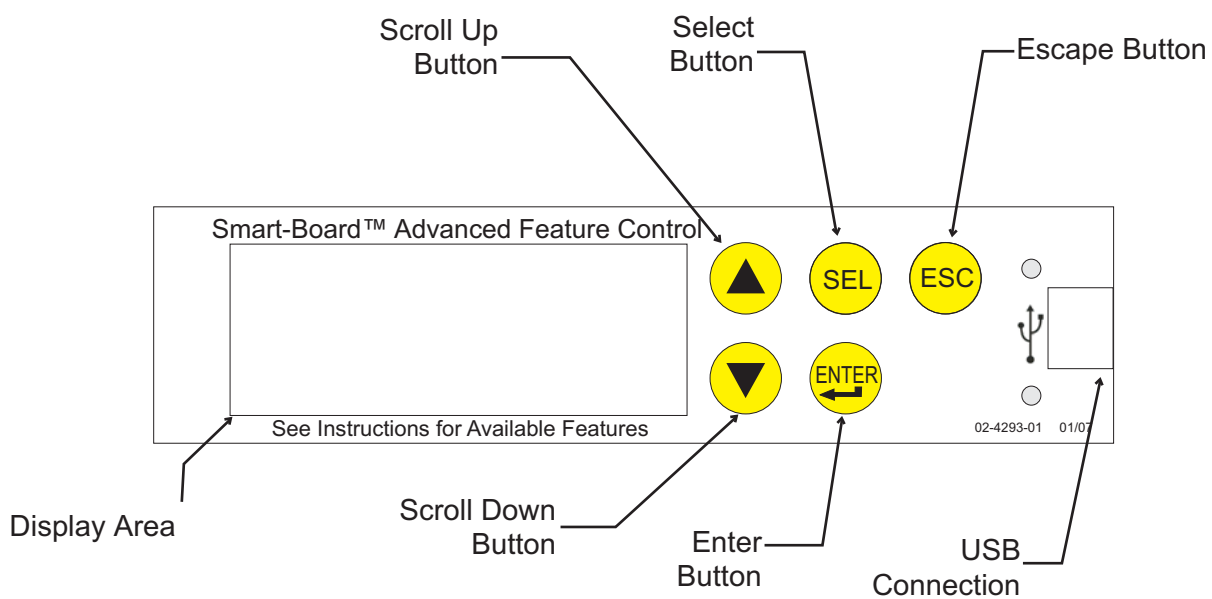
Use of Smart-Board Buttons:

Scroll Up: Changes the display to a menu item higher on the menu list or goes up one number on a setting

Scroll Down: Changes the display to a menu item lower on the menu list or goes down one number on a setting

Select Button: Use to make changes to settings.

Enter Button: Changes display to a sub menu list.

Escape Button: Changes display to the main menu.

Scroll Up Button   Select Button   Escape Button

Smart-Board™ Advanced Feature Control

SEL   ESC

ENTER

See Instructions for Available Features   02-4293-01   01/07

Display Area   Scroll Down Button   Enter Button   USB Connection

The Smart-Board can display Warnings and Data.

Data (partial list): Cuber - See lists under Status, Cleaning and Performance, page 6.

- Time, Date
- Average freeze time
- Minimum freeze time
- Maximum freeze time
- Average harvest time
- Minimum harvest time
- Maximum harvest time
- Diagnostic code with timestamp
- Compressor run time

- Freeze cycles
- Flush level used
- Water quality
- Operational mode
- Water temperature
- Discharge temperature
- Voltage from the transformer
- Bin stat input status

Data (partial list): Nugget or Flaker - See lists under Status, Cleaning and Performance, page 7.

- Warning
- Power Interrupts
- Time to Clean
- Button Lock
- Time to Clean Interval
- Time Since Last Cleaning
- Compressor Runtime
- Pwr Up Time
- Bin Level

- Bin Level Setting
- Freeze Timer (in 00:00 format)
- Relay Voltage
- Board Voltage
- Auger Motor Current
- Falling Ice Count
- Bin Stat

Warnings - will appear in display after ice machine malfunction.

This list is for Cubers.

- Self Test Fail
- Long Freeze Pend
- Long Freeze Err
- Long Harvest Err
- Check Water

- High Temp Error
- Sump Temp Sensor
- Disch Temp Sensor
- Min Freeze Pend
- Min Freeze Error

- Check Water Warn
- Long Freeze Warn
- Long Harv Warn
- High Temp Warn

Nugget or Flaker

- Self-Test Failure
- No Ice Pending
- No Ice Strikeout
- Auger High Load Pending

- Auger High Load Strikeout
- No Water
- Refrigeration Pressure Too High/Low

- No Ice Warning
- Auger Load Warning

Communication Features:

The datalogger can communicate information in two ways:

- Display: The two line display is controlled by the buttons on the front of the datalogger.
- USB: There is a USB connection on the front of the SmartBoard. It can be used by a laptop or other PC type computer to read, download or log data. Scotsman software is required.

Other Features:

Although use with the datalogger version of the Smart-Board is unlikely, 7 Day Programmable Ice Level Control is available when the optional Vari-Smart adjustable ice level control is installed on the Prodigy controller. Instructions for programing are included in these instructions. **Some features are not available when installed on a cuber that has Rev 1 software.** Rev 2 use began approximately March 2007.

Suggestions for use:

The datalogger will be most useful when connected to a machine that needs further diagnostics. It can record information that otherwise would be difficult to get. Of particular use will be freeze cycle time, harvest cycle time, power interruptions and any diagnostic shut downs. The Status and Performance sections contain that type of information.

Before use

Clear the datalogger fault history, operational history and data logs so data from a prior unit is not used on another unit.

Fault History: Push the down arrow key to get to Setup, push Enter. Push the Down arrow key until Clear fault history shows, then push Sel once to select the Clear menu and again to clear the fault history.

Performance History: Push the down arrow key to get to Performance, push Enter. Push the Down arrow key to get to Clear History. Push Sel once to select the Clear History menu and again to clear it.

Log: Push the down arrow key to get to Setup, push Enter. Push the Down arrow key until Clear current log file shows, then push Sel once to select the Clear menu and again to clear the log.

Menu Tree - Cubers

Date - preset
Time - preset to Central Time
Warnings
    No warnings
    See prior page for warning list
Base Faults
    Fault code 1:
    Fault code 2:
    Fault code 3:
    Fault code 4 :
    Fault code 5 :
    Fault code 6 :
    Fault code 7 :
    Fault code 8 :
    Fault code 9 :
    Fault code 10 :
Adv (advanced) Faults, descriptions of
faults with time and date of occurrence
    Self test failure
    Long Freeze Pend
    Long Freeze Strikeout
    Long Harv Pend
    Long Harvest Strikeout
    Check Water
    High Temp Error
    Disch Temp Error
    Sump Temp Sensor
    Discharge Temp Sensor
    Min Freeze Pend
    Minimum Freeze Strikeout
Status
    Discharge Temp
    Sump Temp
    Board Voltage
    Bin Level
    Bin Setpoint
    Freeze Timer
    Harvest Timer
    Freeze Counter
    Water Quality
    Flush Used
    Long Frz Strike
    Long Hrv Strike
    Min Frz Strike
    Pwr Interrupts
    Bin Stat
    Disch Frz Set
Cleaning
    Clean interval
    Next Clean Due
    Last Clean
    Flush level
        Set Flush Level
Performance
    Percent run time:
    Min Freeze Time
    Max Freeze Time
    Avg Freeze Time
    Min Harvest Time
    Max Harvest Time
    Avg Harvest Time
    Clear History

Test
    Water Test
        Water fill time
        Esc to cancel test
Timers
    Compressor run time
    Comp resettable
        Press enter to reset
    Pwr up time
    Pwr resettable
        Press enter to reset
Revision
    AFB SW Revision
    Controller SW
    US Bin Level SW
    AFB Hardware Rev
    Controller HW
Setup
    Date
        Set date
    Time
        Set time
    Model Number
        Set model number
    Serial Number
        Set serial number
    Manufacturer
    Equipment Name
    Manufacture date
        Set Manufacture Date
    Install Date
        Set Install Date
    Contact Name
        Set Contact Name
    Contact Phone Number
        Set contact phone
    Audible alert
        Set audible alert on / off
    Clear current log file
        Press Select to clear log
    Clear fault history
        Press Select to clear fault code
    Logging rate
        Set logging rate
    Fill time warning xxx seconds
        Set fill time warning
    Freeze time warning xx minutes and seconds
        Set freeze time warning
    Harvest time warning minutes and seconds
        Set harvest time warning
    Discharge temp warning in degrees F
        Set discharge temp warning
PGM Bin Level*
    Bin Level Ctrl
        Set Bin Level Ctrl On Off
    Monday time 1
    Monday level 1
    Monday time 2
    Monday level 2
    Monday time 3
    Monday level 3
    Monday time 4
    Monday level 4
    Tuesday time 1

Tuesday level 1
Tuesday time 2
Tuesday level 2
Tuesday time 3
Tuesday level 3
Tuesday time 4
Tuesday level 4
Wednesday time 1
Wednesday level 1
Wednesday time 2
Wednesday level 2
Wednesday time 3
Wednesday level 3
Wednesday time 4
Wednesday level 4
Thursday time 1
Thursday level 1
Thursday time 2
Thursday level 2
Thursday time 3
Thursday level 3
Thursday time 4
Thursday level 4
Friday time 1
Friday level 1
Friday time 2
Friday level 2
Friday time 3
Friday level 3
Friday time 4
Friday level 4
Saturday time 1
Saturday level 1
Saturday time 2
Saturday level 2
Saturday time 3
Saturday level 3
Saturday time 4
Saturday level 4
Sunday time 1
Sunday level 1
Sunday time 2
Sunday level 2
Sunday time 3
Sunday level 3
Sunday time 4
Sunday level 4
Network Configuration*
IP Address
Subnet mask
Default gateway
DHCP Enable
Update IP Address
Update Subnet mask
Update default Gateway
Update DNS
Update DHCP
* Included but does not apply
to this version Smart-Board.

Menu Tree - Nugget or Flaker
Date and Time Preset
Warnings
  Self-Test Failure
  No Ice Pending
  No Ice Strikeout
  Auger High Load Pending
  Auger High Load Strikeout
  No Water
  Refrigeration Pressure Too High/Low
  No Ice Warning
  Auger Load Warning
Base Faults
  Fault code 1:
  Fault code 2:
  Fault code 3:
  Fault code 4 :
  Fault code 5 :
  Fault code 6 :
  Fault code 7 :
  Fault code 8 :
  Fault code 9 :
  Fault code 10 :
Adv Faults descriptions of faults with time and date of occurrence
  Self-Test Failure
  No Ice Pending
  No Ice Strikeout
  Auger High Load Pending
  Auger High Load Strikeout
  No Water
  Refrigeration Pressure Too High/Low
Status
  Relay Voltage
  Board Voltage
  Auger Motor Current
  Auger Motor Trip Current
  Auger Motor Strikes
  Ice Making Sensed
  Ice Making Strikes
  Freeze Timer
  Ultrasonic Bin Level
  Ultrasonic Bin Level Setpoint
  Power Interrupt Counter
  Bin Stat Input
Cleaning
  Cleaning Interval (hrs of power time)
  Next Cleaning Due
  Last Cleaning Performed
Performance
  % Runtime Calculation
Timers
  Compressor Run Time
  Compressor Run Time Resettable
  Power Up Time
  Power Up Time Resettable

Revision
  Smart Board SW
  Controller SW
  KVS SW
  Smart Board HW
  Controller HW
  Ethernet SW
Setup
  Current Date
  Current Time (12:00:00 am format)
  Machine Model Number
  Machine Serial Number
  Machine Manufacturer
  Equipment Name
  Date of Manufacture
  Install Date
  Contact Name
  Contact Phone Number
  Audible Alert
  Clear current log file
  Clear fault history
  Logging Rate
  Auger Current Warning Value
  Ice Detect Warning Value
PGM Bin Level*
  Bin Level Ctrl
        Set Bin Level Ctrl On Off
  Monday time 1
  Monday level 1
  Monday time 2
  Monday level 2
  Monday time 3
  Monday level 3
  Monday time 4
  Monday level 4
  Tuesday time 1
  Tuesday level 1
  Tuesday time 2
  Tuesday level 2
  Tuesday time 3
  Tuesday level 3
  Tuesday time 4
  Tuesday level 4
  Wednesday time 1
  Wednesday level 1
  Wednesday time 2
  Wednesday level 2
  Wednesday time 3
  Wednesday level 3
  Wednesday time 4
  Wednesday level 4
  Thursday time 1
  Thursday level 1
  Thursday time 2
  Thursday level 2
  Thursday time 3
  Thursday level 3
  Thursday time 4
  Thursday level 4
  Friday time 1
  Friday level 1
  Friday time 2
  Friday level 2

  Friday time 3
  Friday level 3
  Friday time 4
  Friday level 4
  Saturday time 1
  Saturday level 1
  Saturday time 2
  Saturday level 2
  Saturday time 3
  Saturday level 3
  Saturday time 4
  Saturday level 4
  Sunday time 1
  Sunday level 1
  Sunday time 2
  Sunday level 2
  Sunday time 3
  Sunday level 3
  Sunday time 4
  Sunday level 4
Network Configuration
  IP Address   Read
  Subnet Mask Read
  Default Gateway
  DNSRead
  DHCP Enable
  Update IP Address
  Update Subnet Mask
  Update Default Gateway
  Update DNS
  Update DHCP
  Update Network On Next Power Cycle

Advanced Fault Definitions - Cubers

Self test failure

The controller checks for proper operation at power up. If the check shows a problem, this warning or fault will be displayed.

Long Freeze Pend

If the ice machine fails to make ice within the maximum time limit, the controller will note that and display this warning or fault while it is attempting another freeze cycle.

Long Freeze Strikeout

If the ice machine fails to make ice within the maximum time limit for a third consecutive time, this warning or fault will be displayed and the machine will be shut down.

Long Harv Pend

If the ice machine fails to release ice within the maximum time limit, the controller will note that and display this warning or fault while it is attempting another freeze cycle

Long Harvest Strikeout

If the ice machine fails to release ice within the maximum time limit for a third consecutive time, this warning or fault will be displayed and the machine will be shut down.

Check Water

If the water level sensor does not sense a full reservoir during the maximum time limit, this warning or fault will be displayed. The machine will automatically attempt to fill with water.

High Temp Error

If the discharge temperature exceeds 250 degrees at any time, the controller will shut the machine down and display this warning or fault.

Sump Temp Sensor

The water temperature sensor's resistance varies with the water temperature. If the resistance is beyond what the sensor's capability is, this warning or fault is displayed.

Discharge Temp Sensor

The discharge temperature sensor's resistance varies with the refrigerant temperature. If the resistance is beyond what the sensor's capability is, this warning or fault is displayed.

Min Freeze Pend

If the controller senses finished ice thickness before the minimum freeze time has elapsed, this warning or fault will be displayed.

Minimum Freeze Strikeout

If the controller senses finished ice thickness before the minimum freeze time has elapsed three cycles in a row, this warning or fault will be displayed if the machine and the machine will be shut down.

Advance Fault Definitions - Flaker or Nugget

Self-Test Failure

The controller checks for proper operation at power up. If the check shows a problem, this warning or fault will be displayed.

No Ice Pending

The controller monitors ice making using the photo eyes. If falling ice is not sensed by the photo-eyes, and if it is NOT the third consecutive time it has occurred, this warning or fault will be displayed.

No Ice Strikeout

If the controller fails to sense ice for a third consecutive time, this warning or fault will be displayed and the machine will be shut down.

Auger High Load Pending

The controller monitors the current used by the auger drive motor. If the current exceeds the limit, and if it is NOT the third consecutive time it has, this warning or fault will be displayed.

Auger High Load Strikeout

If the auger motor draws too much current for a third consecutive time, this warning or fault will be displayed and the unit will be shut down.

No Water

If the water level sensor is dry or the water is too pure, this warning or fault will be displayed, and the unit will be shut off.

Refrigeration Pressure Too High/Low

There are two pressure switches on the machine, if either one opens due to an over or under pressure condition, the controller will display this fault or warning.

Smart-Board Button Use:

Menu Groups: Push and release the down arrow key to scroll down to the next group.

  Date - preset

  Time - preset to Central Time

  Warnings

  Base Faults

  Adv (advanced) Faults

  Status

  Cleaning

  Performance

  Test - *Cuber only*

  Timers

  Revision

  Setup

  PGM Bin Level

Within each group are several screens of information or settings, like times, that can be changed.

  Date and Time Groups: No submenus are available.

  Warnings: Press and release the Enter button to see information on current Warnings.

  Press and release ESC to return to the prior menu.

  Base Faults: Press and release the Down arrow to underline the B in Base Faults, then the Enter button to see in the display:

  Most recent failure (labeled 0) and how long ago it occurred (in hours), then press and release the down arrow to see:

  Second to most recent failure (labeled 1) and how long ago it occurred (in hours), then press and release the down arrow to see:

  Third, fourth, fifth, and so on up to ninth where the list ends.

  If there are no errors, the screen will display End of Errors.

  Press and release the escape button to return to the main menu tree.

Display
Date: 12-20-2006
Time: 03:33:10PM

▼

| Warnings |
| Base Faults |

▼
▼

| Adv Faults |
| Status |

▼
▼

| Cleaning |
| Performance |

▼
▼

| Test |
| Timers |

▼
▼

| Revision |
| Setup |

▼
▼

| Setup |
| PGM Bin Level |

▼

ENTER

| Warnings |
| Base Faults |

ESC

| No Warnings |

▼

| Warnings |
| Base Faults |

ENTER

| Warnings |
| Base Faults |

| End of Errors |

ESC

Press and release the down arrow key to underline the A in Advanced Faults. ▼

```
Base Faults
Adv Faults
```

Advanced Faults: Press and release the Enter button to see in the display: ⏎ ENTER

Most recent failure and the exact time it occurred. Pressing and releasing the down arrow cycles through the other failures back to the oldest.

```
Long Harv Pend
04-15-07:08:15AM
```

Several examples are listed to the right.

▼

```
No Ice Pend
08-01-08:07:11AM
```

▼

▼

```
up arrow = back
esc = main menu
```

At the end of the list the display will show directions to go back to the main menu.

Press and release the escape button to return to the main menu tree. ESC

Status List for Cubers:

Press and release the down arrow to underline the S in Status.

Press and release the Enter button to see:

Discharge Temp in degrees F., Press and release the Down arrow key to see:

Sump Temp in degrees F. Press and release the Down arrow key to see:

Board Voltage - from the transformer. Press and release the Down arrow key to see:

Bin Level number. Use with Vari-Smart control. Displays level currently sensed. Will display 255 when no Vari-Smart present. press and release the Down arrow key to see:

Bin set point: Used with Ultrasonic control. Press and release the Down arrow key to see:

Freeze Timer: Freeze time. Press and release the Down arrow key to see:

Harvest Timer: Harvest time. Press and release the Down arrow key to see:

Freeze Counter: Press and release the Down arrow key to see:

Water Quality.: Measurement of the conductivity of the reservoir water. Typically between 20 and 60, lower numbers mean higher mineral content. Press and release the Down arrow key to see:

Flush Used: The WaterSense system has selected this purge setting. Will read 255 if no water in sump. Press and release the Down arrow key to see:

Long Freeze Strike: Long Freeze Strike number. Number of long freeze errors in memory. Press and release the Down arrow key to see:

Long Harvest Strike: Long Harvest Strike number: Number of long harvest errors in memory. Press and release the Down arrow key to see:

Min Frz Strike: Minimum freeze strike number Press and release the Down arrow key to see:

Pwr Interrupts: Number and time of power interruptions. Press and release the Down arrow key to see:

Bin Stat: Open or Closed. Open is normal when no bin thermostat is attached or there is no ice on a thermostat. Press and release the Down arrow key to see:

Disch Frz Set: In degrees F. Shows the discharge temperature recorded as a set up number. The set up number is used for determining how long the fan is off at the end of the freeze cycle. When done with Status, press and release the ESC button.

▼ Adv Faults
Status

ENTER Discharge Temp:
157

▼ Sump Temp:
38

▼ Board Voltage:
14

▼ Bin Level:
13

▼ Bin Setpoint:
9

▼ Freeze Timer:
00:00

▼ Harvest Timer:
00:00

▼ Freeze Counter:
0

▼ Water Quality:
0

▼ Flush Used:
0

▼ Long Frz Strike:
0

▼ Long Hrv Strike:
0

▼ Min Frz Strike:
0

▼ Pwr Interrupts:
0

▼ Bin Stat:
Open

▼ Disch Frz Set:
0

ESC

Status List for Flakers or Nugget:

Press and release the down arrow to underline the S in Status.

Status Press and release the Enter button to see:

Relay Voltage: Voltage supplied to the relays. Press and release the Down arrow key to see:

Board Voltage: Voltage supplied to operate the controller. Press and release the Down arrow key to see:

Auger Motor Current: Current draw of the auger drive motor. Press and release the Down arrow key to see:

Auger Motor Trip Current: Maximum allowed amp draw. Press and release the Down arrow key to see:

Auger Motor Strikes: Number of times auger motor has currently exceeded the amp draw setpoint. Press and release the Down arrow key to see:

Ice Making Sensed: Has the controller sensed ice making? Press and release the Down arrow key to see:

Ice Making Strikes: Number of times the controller has not sensed ice falling in the chute. Press and release the Down arrow key to see:

Freeze Timer: Current compressor on time in minutes. Press and release the Down arrow key to see:

KVS Level: Distance in inches the optional Vari-Smart system has measured from the sensor to the top of the ice. Press and release the Down arrow key to see:

KVS Level Setpoint: Distance in inches the optional Vari-Smart system will maintain as a maximum ice level. Press and release the Down arrow key to see:

Power Interrupt Counter: Number of times power has been interrupted to the machine. Press and release the Down arrow key to see:

Bin Stat Input: Shows Closed if no bin thermostat is attached or if one is attached and is closed. Shows open only if there is a bin thermostat attached and it is open, which stops ice making. When done with Status, press and release the ESC button.

▼ | Adv Faults
Status

ENTER

▼ | Relay Voltage:
240 VAC

▼ | Board Voltage:
14 VAC

▼ | Auger Mot Current
1.8 Amps AC

▼ | Aug Mot Trip Curr
3.0 Amps AC

▼ | Auger Mot Strikes
0

▼ | Ice Making Sensed
Yes

▼ | Ice Making Strikes
0

▼ | Freeze Timer:
00:00

▼ | KVS Level
00:00

▼ | KVS Level Setpoint
0

▼ | Pwr Interrupts
0

▼ | Bin Stat
Closed

ESC

Push and release the Down arrow to put the line under the C in Cleaning. Then push and release the Enter button to see.

▼ | `Status:`
`Cleaning`

Cleaning. Press and release the Enter button to see:

ENTER | `Clean Interval:`
`6 Months`

The <u>Clean Interval</u>. Then press and release the Down arrow to see:

The <u>Next Clean Due in x HRS</u>. Then press and release the Down arrow to see:

▼ | `Next Clean Due`
`in  HRS`

<u>Last Clean: x HR Ago</u>.

▼ | `Last Clean:`
`9 Months Ago`

Then press and release the Down arrow to see:

Cubers Only

SEL | `Flush Level:`
`1`

Flush Level: Set to Auto or 1, 2, 3, 4 or 5.

Push and release the SEL arrow key to enter flush level set mode.

▼

Push and release the Up or Down arrow keys to change flush level.

 | `Set Flush Level:`
`3`

Push and release the Enter key to set the new flush level.

ESC

Then press and release the ESC button.

▼

Push and release the Down arrow to put the line under the P in Performance.

 | `Cleaning`
`Performance`

ENTER

Then push and release the Enter button to see:

Performance

ENTER | `Percent run time`
`0.00%`

<u>Percent run time</u>. Then press and release the Down arrow to see:

▼

Cubers Only:

 | `Min Freeze Time`
`00:00`

Min Freeze Time. Then press and release the Down arrow to see:

▼

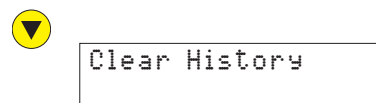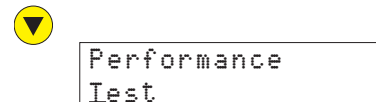<u>Max Freeze Time.</u> Then press and release the Down arrow to see:

 | `Max Freeze Time`
`00:00`

▼

<u>AVG Freeze Time</u>. Then press and release the Down arrow to see:

 | `AVG Freeze Time`
`00:00`

<u>Min Harvest Time</u>. Then press and release the Down arrow to see:

▼ | `Min Harvest Time`
`00:00`

<u>Max Harvest Time</u>. Then press and release the Down arrow to see:

▼ | `Max Harvest Time`
`00:00`

<u>AVG Harvest Time</u>.

▼ | `AVG Harvest Time`
`00:00`

Press and release the Down arrow open last time to enter the <u>Clear History</u> screen. Press and release the SEL button to clear the performance history.
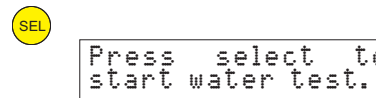
▼

```
Clear History
```

SEL
ESC

When done with Performance, press and release the ESC button.

▼

Push and release the Down arrow to put the line under the T in Test. Then press and release the Enter button to see:

```
Performance
Test
```

Test. Press and release the SEL button to   begin a water test. The time to fill the reservoir will be displayed.

SEL

```
Press  select  to
start water test.
```
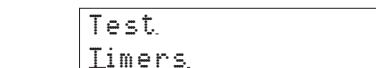
When done with Test, or to cancel it, press and release the ESC button.
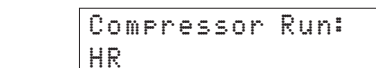
ESC

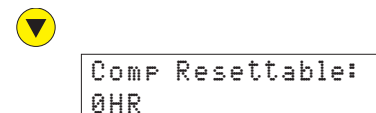Push and release the Down arrow to put the line under the T in Timers. Then press and release the Enter button to see:
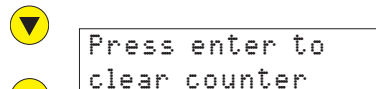
▼
ENTER

Timers. Push and release the Enter button to see

```
Test
Timers
```

ENTER

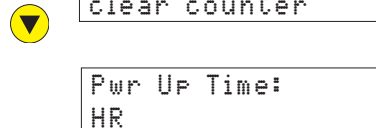<u>Compressor run time</u>. Then press and release the Down arrow to see:

```
Compressor Run:
HR
```

▼

<u>Compressor run resettable.</u> Press the Down arrow to go to the next line or *Optional* Press SEL to enter reset mode.

```
Comp Resettable:
0HR
```

Press Enter to reset compressor run time to 0

▼

Press the Down arrow to go to <u>Power up time</u>. Then press and release the Down arrow to see:

```
Press enter to
clear counter
```

▼

<u>Power on resettable</u>. Press the Down arrow to go to the next line or *Optional* Press SEL to enter reset mode.

```
Pwr Up Time:
HR
```

ENTER

Press Enter to reset Power on time to 0

```
Pwr Resettable:
HR
```
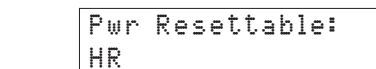
When done with Timers, press and release the ESC button.

▼

ESC

Push and release the Down arrow to put the line under the R in Revision. Then push and release the Enter button to see:

▼

```
Timers
Revision
```

Revision. AFB SW Rev number.

ENTER

Then press and release the Down arrow to see:

```
Smart-Board SW R
```

Controller SW (software rev number) Then press and release the Down arrow to see:

▼

```
Controller SW
```

US Bin Level (Vari-Smart) software revision. Then press and release the Down arrow to see:

▼

```
KVS SW
140
```

AFB Hardware Rev (Smart-Board revision)

▼

Then press and release the Down arrow to see:

```
Smart-Board HW R
1
```

Controller HW (hardware rev number).

▼

When done with Revisions, press and release the ESC button.

```
Controller HW
1
```

ESC

Push and release the Down arrow to put the line under the S in Setup.

▼

```
Revision
Setup
```

Then push and release the Enter button to see:

ENTER

Setup:

View the Date or change it.

To Set Day, Month and Year

```
Date:
Select to change
```

Press SEL key to get to Setup screen

SEL

Push and release the SEL key to move to another underlined number.

```
Set Date:
Date: 12-21-2007
```

Push and release the Up or Down arrow key to change the marked character.

SEL

Push and release the Select key to move to the next character, repeat prior step to change the character.

▲

When done, push and release the Enter key.

▼

Then press and release the Down arrow to view the time or change it.:

SEL

ENTER

To Set Time

▼

```
Time:
Select to change
```

Press SEL key to get to Setup screen

SEL

Push and release the SEL key to move the underline to another number.

SEL

Push and release the Up or Down arrow key to change the marked character.

▲

```
Set Time:
Date: 02:07:51PM
```

▼

Push and release the Select key to move to the next character, repeat prior step to change the character.

SEL

When done, push and release the Enter key.

⏎ ENTER

Then press and release the Down arrow to view the

▼

`Model Number`

Model number.

Then press and release the Down arrow to view the

▼

`Serial Number`

Serial number

Then press and release the Down arrow to view the

▼

`Manufacturer`
`Scotsman Ice`

Manufacturer

Then press and release the Down arrow to view the

▼

`Equipment Name`
`Ice Machine`

Equipment Name

Then press and release the Down arrow to view the

▼

`Manufacture Date`

Manufacture date

Then press and release the Down arrow to view the

▼

`Install Date`

Install date *Optional - change date*

Then press and release the Down arrow to view the

▼

`Contact Name`

Contact name *Optional - change contact*

Then press and release the Down arrow to view the

▼

`Contact Phone Nu`

Contact phone number. *Optional - change contact phone number*

Then press and release the Down arrow to view the

▼

`Audible Alert`
`Off`

Audible Alert.

*Optional: Press SEL to switch the audible alert on or off.*

▼

`Clear current`
`log file`

Then press and release the Down arrow to view the. Then press and release the Down arrow to view the screen to clear the current log file.

▼

SEL `Press  Select  to`
`clear log`

Optional: Press SEL to clear the log file.

▼

`Clear        Fault`
`History`

Then press and release the Down arrow to view the Clear Fault History file. Then press and release the Down arrow to view the

SEL `Press  Select  to`
`clear fault code`

Optional: Press SEL to clear the fault history.

Logging rate. Then press and release the Down arrow to view the logging rate.

▼

`Logging rate`

▼
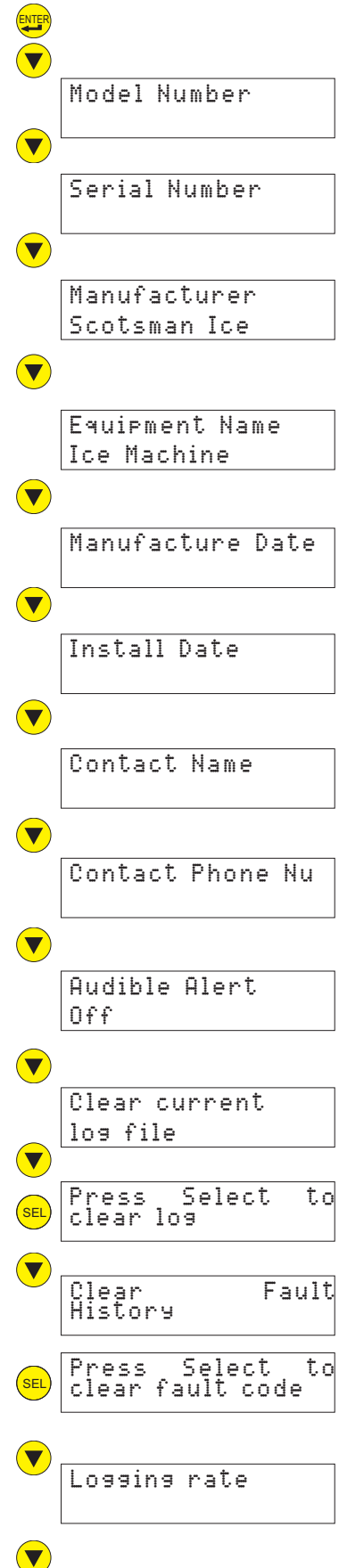
Auger Warning - Flake and Nugget only. Press and release the Down arrow to view the

`Auger      warning`
`setpoint`

▼

Ice Detect Warning - Flake and Nugget only. Press and release the Down arrow to view the

`Ice Detect warning`
`setpoint`

▼

Fill time warning. Cuber only. Press and release the Down arrow to view the

`Fill  time  warning`
`setpoint`

▼

Freeze time warning. Cuber only. Press and release the Down arrow to view the

`Freeze      time`
`warning setpoint`

▼

Harvest time warning. Cuber only. Press and release the Down arrow to view the

`Harvest      time`
`warning setpoint`

▼

Discharge temp warning. Cuber only.

`Discharge    temp`
`warning setpoint`

Any of the above can be modified by changing the settings as noted below. The warning set points can be adjusted to match local conditions, so that when they change the Smart-Board provides a notice of the change.

SEL

To Change Setup Settings:

SEL

From a specific Setup Menu Item, press SEL key to get to Setup screen. Push and release the SEL key to move the underline to another number.

▼

Push and release the Up or Down arrow key to change the marked character.

▲

Push and release the Select key to move to the next character, repeat prior step to change the character.

SEL

When done, push and release the Enter key.

ENTER

Example 1: Set Install Date

▼ `Revision`
`Setup`

Push the Down arrow key until Setup is visible and the S is underlined. Press Enter.

ENTER

Repeatedly push and release the Down key until the Install Date screen appears. Press SEL key to get to Setup screen

▼

`Set install date`
`00-00-0000`

Push and release the SEL key to move the underline to another number. Push and release the Up or Down arrow key to change the marked character.

SEL

Push and release the Select key to move to the next character, repeat prior step to change the character.

SEL

▲

When done, push and release the Enter key.

▼

SEL

ENTER

Prodigy Software

Installation and Use

Description:

The Scotsman Prodigy Tech Tool is a software program designed to access the datalogger tool.

Requirements:

- Windows XP or Vista
- 40 MB disk space minimum. More will be needed if data logging is used.
- Desktop or Laptop PC with a USB port.
- Live ice machine with datalogger connected (to install USB driver)

Software Installation:

Pre-installation: The datalogger must be UNPLUGGED from the the PC.

1. Insert the CD into the computer's CD-ROM drive.

2. Follow the program installation instructions. At the finish, do NOT start the application.

- The installation will place 2 icons on the desktop, Prodigy Charting and Scotsman Prodigy.
- The installation will also set up a Scotsman Prodigy section under Programs (Start > All Programs > Scotsman Prodigy).

3. After the installation is complete, remove the CD-ROM from the drive.

4. Power up the datalogger and plug the USB connector into the PC and the datalogger.

5. The PC will automatically find the Smart-Board and begin the process to install the driver.

6. Select all default settings for installing the device driver.

7. Installation is now complete.

Use:
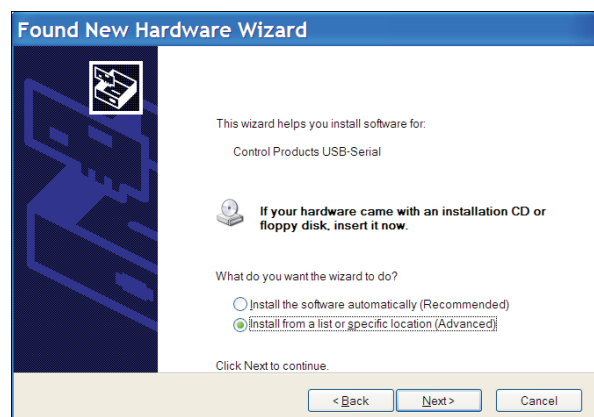
With the datalogger powered and connected to the computer's USB port, Open Scotsman Prodigy:

Start, All Programs, Scotsman Prodigy, Prodigy

Click on **Get**. The software will automatically begin to download the information from the Smart-Board. Once that is complete either click on **Chart** or select a new log file to review.

When you click on **Chart**, the Column Selection dialog box will appear. You can select any chart you want to review. The default is all of them. Click on **OK** to go to the next step.

The software will display the Charting information box. You may have to expand it to see the Chart Type selection area on the right.

Use the Chart Type box to display the list of available charts.

Which one of these to use depends upon what the machine situation is. For example, if the machine is down, displaying code 2, indicating a maximum length harvest cycle, it would be good to know the freeze cycle time before the long harvest cycle. If the freeze cycle time is long, it may be that no ice is being made, so none is available to open the curtain during harvest, causing a maximum harvest time code. Checking the Base Faults or Advanced Faults is another way to understand what occurred and when.

Another example is a complaint of low capacity. The chart on Power up time should show if the machine is on all the time. Then a look at the freeze timer chart will show how often it is cycling. The two will provide a good idea of the machine's ability to produce ice.

At any time clicking on the **Render PDF** button will generate all the charts in PDF format so they can be saved. Once saved they can be printed or emailed.
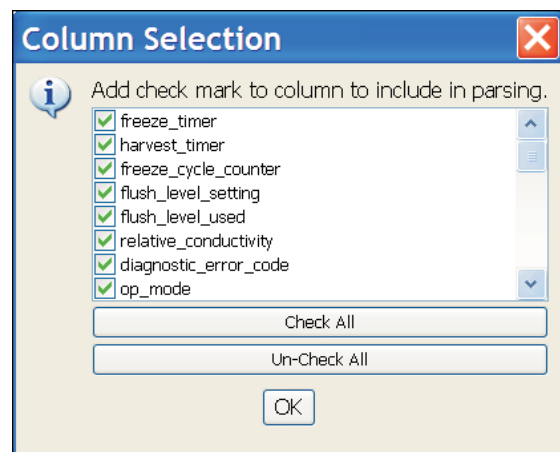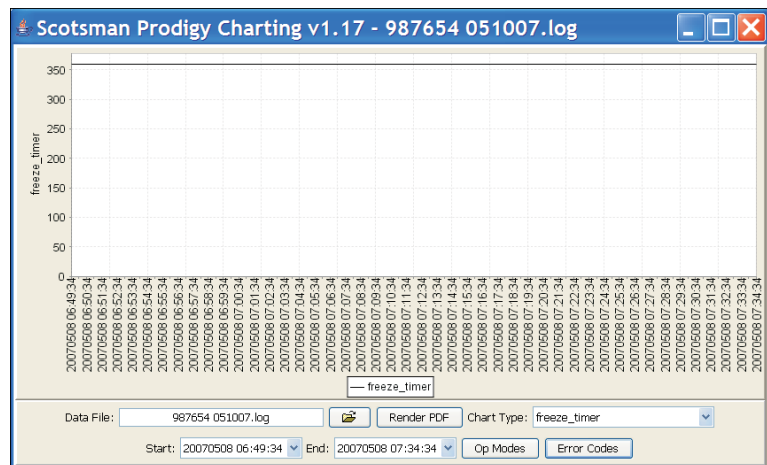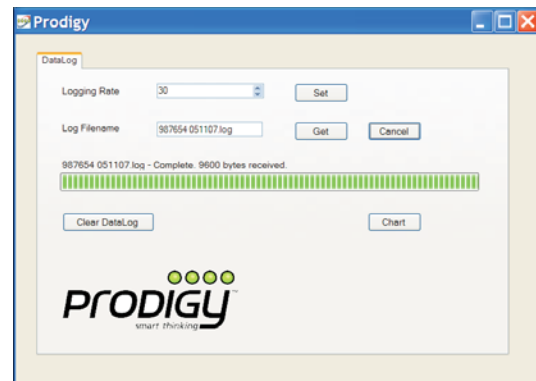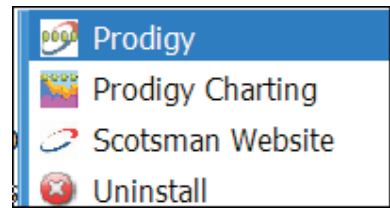
Chart Definitions - Cuber:

- Freeze timer = Freeze time in seconds.
- Harvest timer = Harvest time in seconds.
- Freeze Counter = Continuous freeze cycles (starts over after bin full, power interruption, or ice melt state)
- Flush level set point = Flush level setting 0-5.
- Flush used = 1-5. Flush level used in autoflush (0) mode.
- Water quality = An indication of water quality where 0-24 Extremely Mineral Laden; 25-30 Somewhat Mineral Laden; 31-65 Normal; 66-120 Very Clean; >120 Extremely Clean
- Error code - Diagnostic Error Code. Codes listed in software and on next page
- Op mode = the current mode of the controller. Modes listed in software and on next page
- Sump temperature = Reservoir water temperature in degrees F
- Discharge temperature = Discharge temperature in degrees F
- Supply voltage = approximation of AC voltage to the control board from the transformer.
- Bin stat = Bin thermostat, when used. 0 open, 1 closed
- RLO = SmartLock option. 0 not locked, 1 locked
- Ready to Harvest = Ice thickness sensor. 0 no ice, 1 ice
- Sump Full = Water level sensor. 0 no water, 1 water
- Sump Empty = Water level sensor. 0 no water, 1 water
- Remote = 0 not remote, 1 remote
- Curtain SW1 = 0 closed, 1 open
- Curtain SW2 = 0 closed, 1 open
- Water Solenoid = 0 off, 1 on
- Water Pump = 0 off, 1 on
- Hot Gas = 0 off, 1 on
- Condenser Fan/Aux = 0 off, 1 on
- Compressor = 0 off, 1 on
- Purge Valve = 0 off, 1 on
- Power up time= Time power connected to machine.
- Compressor run = Time compressor has been operating
- Power interrupts = Number of electrical power interruptions to the machine
- Bin setpoint = Set point of the Vari-Smart control
- Bin level (inches) = Ice level measured by the Vari-Smart control
- HGV counter = Number of times the hot gas valve has cycled. Equals harvest cycles.
- Auto flush level min = minimum flush used when set to automatic

Chart Definitions - Flaked or Nugget Machine

- Op Mode = The mode the controller was in at the time shown
- Error Code = The codes, if any, of any diagnostic codes.
- Warning = The codes, if any, of any warnings. Same codes as diagnostic
- Pwr Interrupts = Number of electrical power interruptions to the machine
- Time to Clean = 0 = ?, 1=?
- Button Lock = 0 = ?, 1 = ?
- Time to Clean Interval = Time set between Cleaning light activations, in hours.
- Compressor Run = Time compressor has been operating
- Pwr Up Time = Time power connected to machine.
- Bin Level = Ice level measured by the Vari-Smart control
- Bin Setpoint = Set point of the Vari-Smart control
- Freeze Timer = time in seconds that the compressor operated before bin full
- Board Voltage = approximation of AC voltage to the control board from the transformer
- Relay Voltage = AC load voltage determined by controller. 115 or 230.
- Auger Motor Current = amp draw of the auger motor
- Ice Making Sensed = 0 = not sensed, 1 = sensed
- Bin Stat = Bin thermostat, when used. 0 open, 1 closed.
- RLO = SmartLock option. 0 not locked, 1 locked
- Ice Dispensed - not used
- Water Dispensed - not used
- Compressor = 0 off, 1 on
- Auger = auger motor. 0 off, 1 on
- Bin Eyes Blocked = 0=?, 1=?

Reference
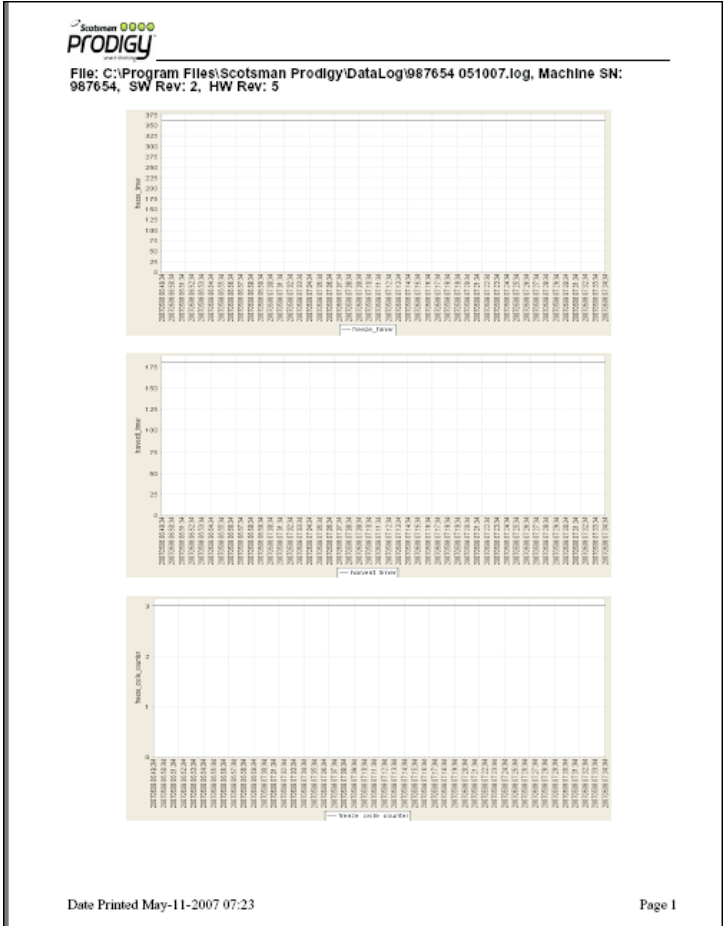
Example of generated PDF file

Error Code Display

Error Codes

1 = Sump water max fill time error
2 = Max freeze time pending error
3 = Max freeze time error
4 = Max harvest time error
5 = Max harvest time pending error
6 = Min freeze time pending error
7 = Min freeze time error
10 = High discharge temperature error
11 = Discharge temperature sensor error
12 = Sump temperature sensor error

OK

Op Mode Display

Op Modes

0 = Power restart stat
1 = Flush level adjustment state
2 = Immediate off state
3 = Off state
4 = Freeze state
5 = Harvest State
6 = Restart refrigeration state
7 = Bin full state
8 = Clean state
9 = Error shutdown state
10 = Error restart state
11 = Scotsman test state
12 = fault code view state
13 = Ice melt down state
14 = Remote lock out state
15 = Water fill test state
16 = Voltage shutdown state
17 = Time to clean adjustment state
26 = EEPROM check sum error state

OK