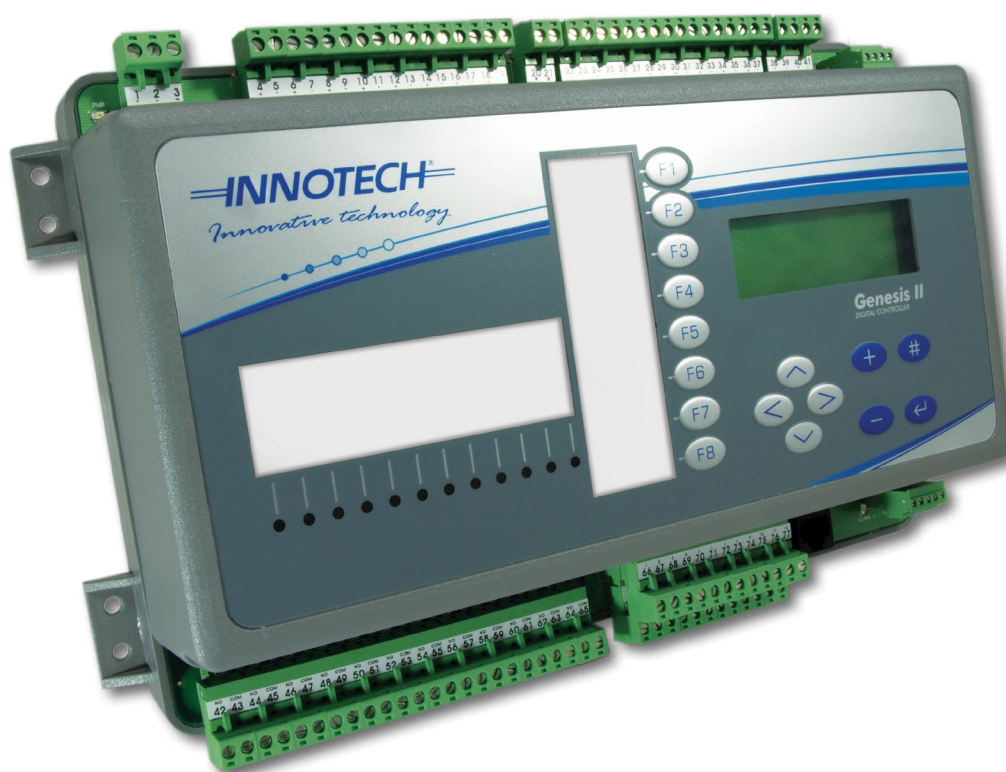# Genesis II Direct Digital Controller
USER INSTRUCTIONS

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Instructions

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Genesis II Direct Digital Controller
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Chapter 1 -
Preliminary Information

1-1 Overview

This manual is part of a series of technical manuals designed to provide the customer with complete and comprehensive documentation for the Innotech Genesis II Digital Controller system. This document contains detailed procedures for manual (front panel) operation of the Digital Controller unit.

1-1.1 About this Manual

This manual is intended to provide the user with complete and easy-to-follow instructions for manual operation of the Genesis II Digital Controller from the front panel. In preparing these instructions, Innotech assumed that the typical operator is not necessarily familiar with the operation of processor (computer) systems. For this reason, operating instructions and procedures are presented at a technically basic level and as clearly as possible.

Each Digital Controller is designed to be set-up to its own application requirements and since each customer's application is different, no two units have identical step-by-step operating procedures. However, the Digital Controller unit is user-friendly and operation is simple once the necessary operational information has been explained. The operating procedures in this manual are based on typical operating scenarios.

> **i NOTE**
> *References made throughout this manual to "Genesis" , "Controller" or "Digital Controller" refer to the Genesis II Digital Controller.*

1-1.2 Scope of this Manual
This technical manual has three sections:

Table 1-1: Manual Scope

Chapter	Description
Chapter 1 - Preliminary Information	Chapter 1 contains initialisation related information of a general nature. This chapter also contains a brief description of the Innotech Genesis II Digital Controller system along with background information useful to the operator in performing operational tasks.
Chapter 2 - Operation	Chapter 2 provides a description of the basic operation, a detailed description of how the front panel controls and indicators operate and step-by-step operating instructions.
Chapter 3 - HMI Menus	Chapter 3 contains information regarding the individual menus found within Genesis II Digital controllers.

1-1.3 Information Icons

Throughout this manual, icons are used to illustrate notes and important details. An example is shown below.

> **NOTE**
> *These notices provide extra information. It is non-critical information but **should be read**.*

> **IMPORTANT**
> *These notices contain information about the Controller that **must be done** before proceeding further to ensure success.*

1-2 Description of the Digital Controller

The Innotech Genesis II Digital Controller (Figure 1-1) is the main component of the Genesis II System. Other components of the system, such as remote expansion modules and analogue/digital input/output modules are passive units with no front panel operation associated with them. These units are not covered in this manual.
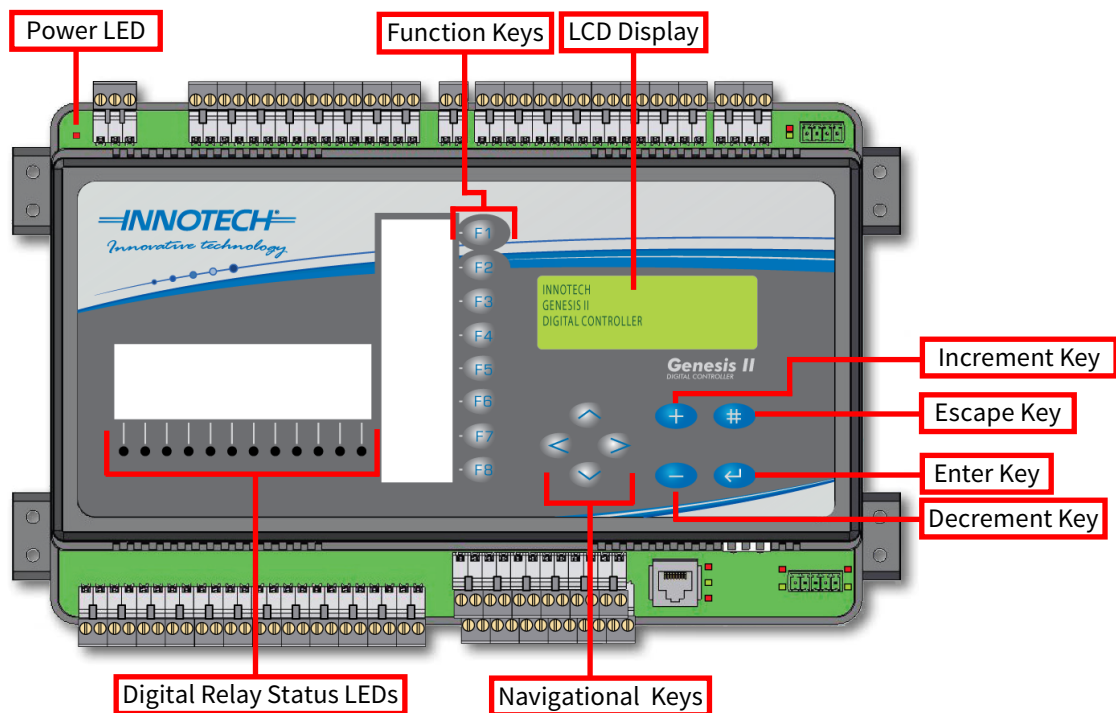

Figure 1-1: Genesis II Digital Controller Description

1-2.1 What It Is

The Digital Controller unit is a state-of-the-art microprocessor packaged in a robust enclosure designed for mounting inside a switchboard. The unit contains its own internal memory for storing data and its internal operating program.

The operating program is recorded into a non-volatile read-only memory (ROM). The stored operating program is retained when the unit is turned off. Controls and indicators at the front panel permit manual operation of the unit. The controls and indicators are described in Chapter 2.

1-2.2 What It Does

The Digital Controller is designed mainly for automatic control of large-scale heating, ventilation and air conditioning (HVAC) systems; operator action is mainly limited to monitoring tasks. The Digital Controller replaces older systems in which multiple analogue controllers were used for control of large HVAC systems.

The Genesis II Controller can operate as a standalone device, while more complex installations can use multiple controllers sharing data between controllers and a computer. Communication among the Genesis II Controllers is facilitated by a Global Points link bus system, whereas communication with a computer is through a standard RS485 network.

1-2.3 How Does It Work

Figure 1-2 shown below is a simplified block diagram of a typical HVAC system under the control of a Digital Controller. Input sensing devices in the various HVAC zones throughout the controlled area measure ambient conditions, such as temperature and humidity. The Digital Controller automatically monitors and processes these inputs from the sensors and produces output signals which control various HVAC devices such as heaters, fans, vents and air conditioning systems. Operation of the Digital Controller is fully automatic and is under the control of an internal operating schedule programmed into the unit.
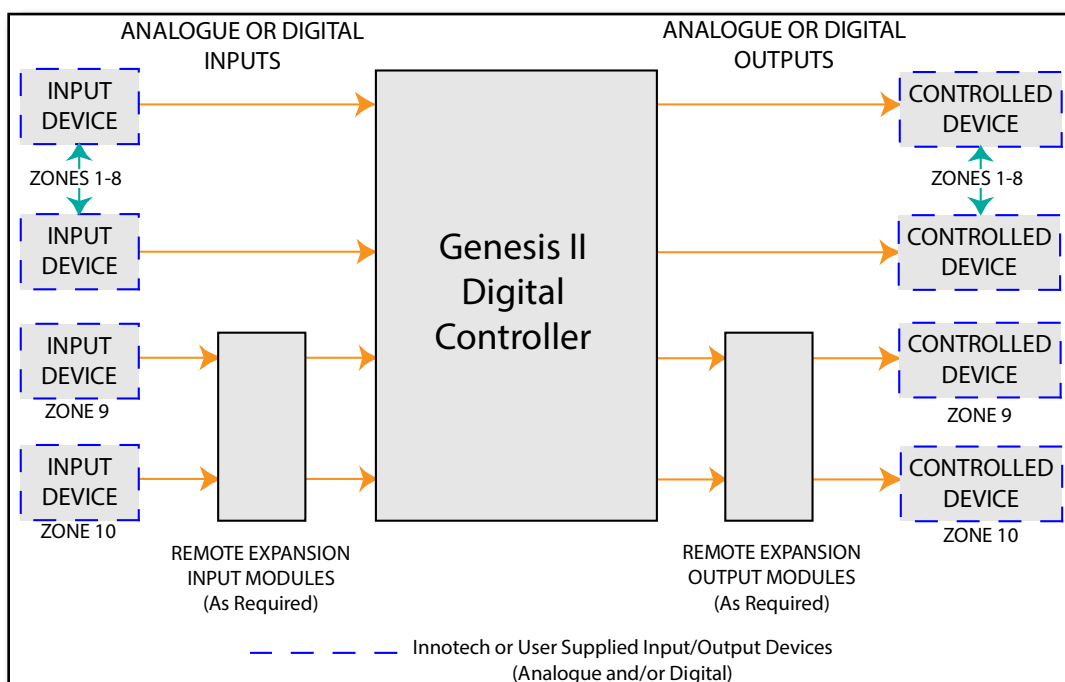

Figure 1-2: Typical Application, Simplified Block Diagram

1-2.4 Remote Expansion Modules

Remote Expansion Modules (REMs), at the input and output of the Digital Controller expand the input and output capabilities of the controller. Several different types of REMs can be used to configure the hardware to the customer's requirements. The controller unit is capable of operating with up to eight input and output channels. The REMs allow the controller's capacity to be expanded up to a maximum of 40 channels. The REMs shown in Figure 1-2 on the previous page, illustrate how the controller can be configured to accommodate ten channels. No operator action is required for the REMs.

Input and output channels can be analogue and/or digital depending on the type of equipment involved. Input and output devices can be from Innotech's extensive line of field equipment or the devices can be compatible user-provided items.

1-2.5 Genesis II Configuration Software

Before being placed in service, the Digital Controller is "tailored" to its intended application by the Genesis II Configuration Software. Through the Configuration Software, the user can actually design the Digital Controller's operating program. The designer uses the software to develop a functional block diagram, on a computer screen, of the entire HVAC system interconnected with the Digital Controller and containing all necessary operating values. When the design is completed, the software user loads the new configuration into the Digital Controller's ROM where it stays resident until such time as re-programming may be necessary.

In addition to establishing the specific operating configuration of the system, the Genesis II Configuration Software also sets up specific functions which can be monitored, used and/or changed by the Digital Controller operator:
   • System Operating Schedules, both weekly and yearly
   • Access Codes defining what functions/data are available to an operator
   • Organisation of monitoring data into logical groups (pages) for presentation to an operator
   • Organisation of System Pages containing data of interest to supervisory personnel
   • Audible or visual alarms of system and processing faults
   • Process values (setpoints) - see section 1-2.6

1-2.6 Setpoints

Setpoints are steady reference values which are compared against measured values in the control process. Figure 1-3 shown below is a simplified block diagram of how a temperature setpoint could be used for temperature control of a HVAC area.

The control logic compares the difference between the output of the temperature sensor and the setpoint value. If the temperature is higher than the setpoint value, the cooling system is activated. If the temperature is below the setpoint value, the heating system is activated and if the temperature and setpoint values are equal, the heating and cooling systems are turned off.

The Genesis II Configuration Software (Gen2Config) allows selected setpoints to be edited by an operator. Setpoints can be edited by the operation of front panel keys.
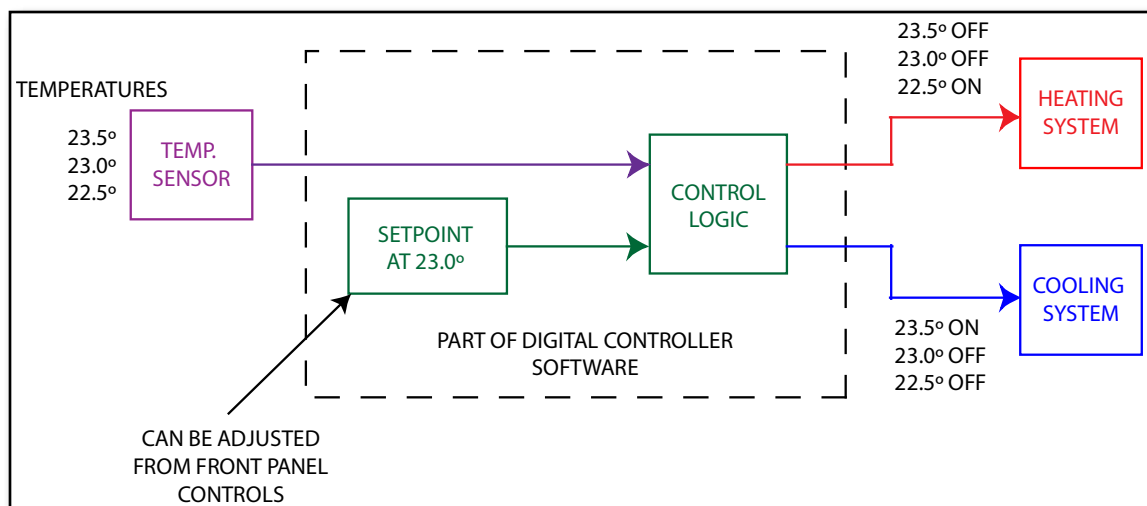

Figure 1-3: Setpoint Simplified Block Diagram

Genesis II Direct Digital Controller

USER INSTRUCTIONS

Chapter 2 -
Operation

2-1 Overview

The Genesis Series Digital Controllers feature a state of the art processor and are designed for versatility and ease of use. Using the Innotech Genesis II configuration software (Gen2Config) these controllers can easily be configured for customer specific applications. The Genesis operating procedure may vary for each controller depending on your configuration.

A user friendly interface and ease of operation is common among all Genesis Series controllers. This section of the document provides the following information to help you with the operation of Genesis II Digital Controller.

Please note the screen shots used throughout this document are taken from a typical Genesis II DDC. Any differences among the various controllers will be detailed accordingly.

Table 2-1: Operation Section Scope

Section	Title	Description
2-1	Overview	Description of the Genesis II Digital Controller.
2-2	Genesis Start-up	Description of the Genesis start-up process.
2-3	Menu Structure	Description of the Genesis System menu structure.
2-4	Controls and Indicators	Description of the parts of the Genesis.
2-5	Home Page	Description of the Genesis Home page.
2-6	Flash Watch Pages	Description of the Flash Watch pages that can be programmed on the Genesis.
2-7	Access Codes	Information about the Access Codes and different levels of access on the Genesis.

2-2 Genesis Start-up

The Genesis II System is normally turned on at installation and then left on indefinitely; therefore the operator would not normally perform Start-Up procedures. However, maintenance actions or a power failure could require the unit to be re-started. Following are the procedures for Start-Up of the Digital Controller:

1. Apply power to the Digital Controller. The red PWR LED in the upper left corner of the unit lights and the LCD briefly displays a message (approximately one Operation second) showing the version of the unit's read-only memory (ROM). The Digital Controller then begins a five-second countdown during which the unit's circuitry is automatically checked and set-up for operation. During the countdown, the beeper sounds a tone once per second and the following message is displayed at the LCD.
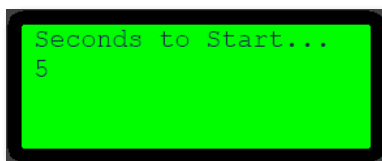
Figure 2-1: Pre-Start Screen

2. At the completion of the countdown, the unit is ready for operation and a Home Page similar to the following example is displayed. The first line shows the unique Digital Controller name assigned when the unit was configured by the Genesis II Configuration Software. The second line displays the current time and date. The third line displays a Flash Watch, if the unit is so configured. The fourth line is for the user code entry.
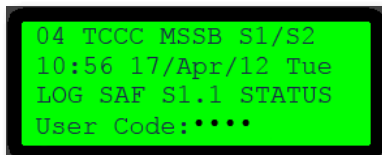
Figure 2-2: Typical Home Page Screen

2-3 Menu Structure

2-3.1 Menu Overview

This section of the document provides information about the basic structure of the menu screens for the Genesis Series Digital Controllers. Information on general navigation through the various menu screens is also provided in this section.

2-3.2 Structure of Menus

The LCD screen is the primary method by which the user interacts with the Human Machine Interface (HMI) on the Genesis II Direct Digital Controllers. Alternatively the HMI can also be accessed with a PC using the Innotech SoftPort software or using HMI devices such as ViewPort.

This paragraph describes how the information presented on the LCD is organised into menus and sub-menus. A representation of the structure of menus within a Genesis Series controller is shown in Figure 2-3. More detailed information on the menu structure and LED indicators is contained elsewhere in this section. A detailed description of the menus for the different models of Genesis Series controllers follows in subsequent sections.

NOTE
The menu structure within the Mid Points Controller (MPC II) will be identical to the standard Genesis II DDC menu structure. It is accessible through HMIs such as ViewPort and software programs such as SoftPort.
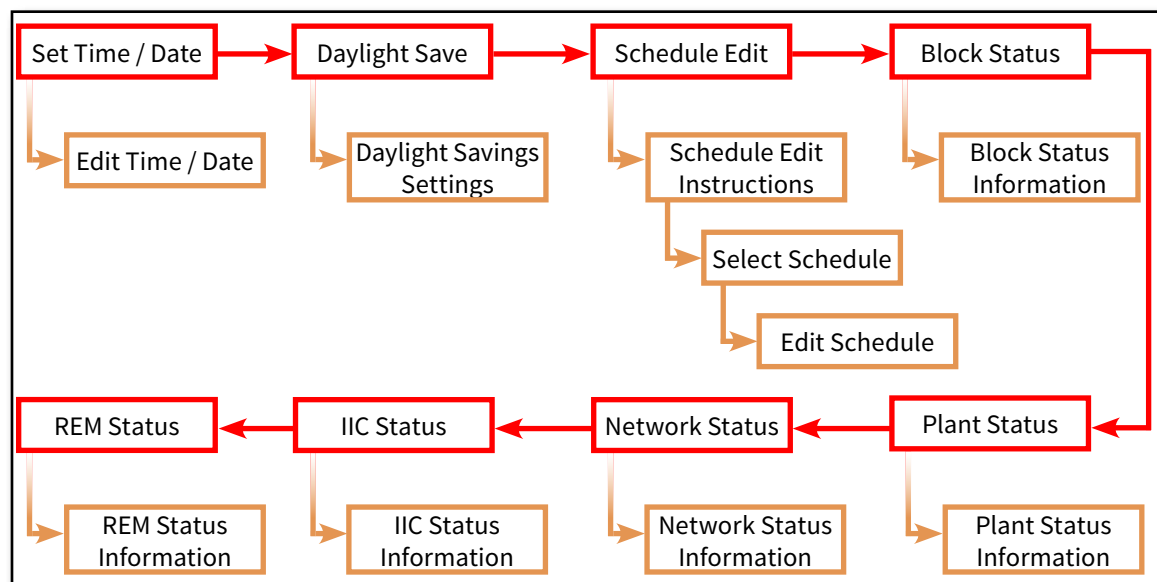
Figure 2-3: Genesis II DDC Menu Structure

2-4 Controls and Indicators

2-4.1 Liquid Crystal Display (LCD)


```
04 TCCC MSSB S1/S2
10:56 17/Apr/12 Tue
LOG SAF S1.1 STATUS
User Code:••••
```
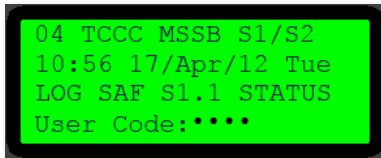
Figure 2-4: Genesis II DDC LCD

The LCD is the main indicator component of the Digital Controller; it consists of a four line, 20 character per line, dot matrix type display screen.

The LCD contains an automatic backlight feature that enhances the visibility of the LCD presentation by increasing contrast. The backlight turns on automatically whenever any front panel key is pressed.

The backlight turns off automatically after approximately two minutes if no key is pressed. This automatic backlight-off feature only operates when the controller is in the Home Page. In a Watch Page or a System Page, the backlight remains on indefinitely.

2-4.2 Arrow Keys

The four Arrow Keys (Figure 2-5) are functional, in their normal role, only when an Access Code has been entered. Pressing any Arrow Key when it is not functional causes the beeper to sound a cautionary tone and no other action takes place.
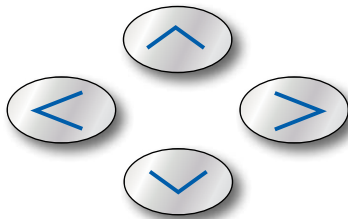
Figure 2-5: Genesis II Arrow Keys

In addition to their normal role, the Arrow Keys perform the following ancillary tasks:
- Pressing any Arrow Key, or any other front panel key, when the LCD screen backlight is off causes the backlight to automatically turn on. The backlight feature enhances legibility of LCD messages by increasing the display contrast. The backlight automatically turns itself off if the controller is displaying the Home page and no front panel keys are pressed for approximately two minutes.
- When the Home Page is displayed (no Access Code entered), pressing any Arrow Key or the ⊕ ⊖ ⌗ or ↵ Keys causes the User Code prompt to appear on lines three and four of the display for approximately five seconds.

The ⌃ and ⌄ Keys are used for scrolling the cursor up and down through the various entries of the Watch Page or System Page displayed on the LCD screen. Except for the two ancillary roles noted above, the ⟨ and ⟩ Keys are only functional when the cursor is at a page entry that can be edited. Further information regarding editable watch pages will be described in Section 2-6.

2-4.3 The Increment and Decrement Keys

The ⊕ (increment) and ⊖ (decrement) Keys are used for changing values in the Edit Mode. Each time either the ⊕ or ⊖ Key is pressed, the item under the Edit Cursor increases or decreases by a value of one unit. If a large change is required, holding the key down accelerates the rate of change.

2-4.4 The Escape Key

The # (Escape) Key is used to exit from any display to the previous display. Each time the # Key is pressed, the LCD screen shows the display just before the current one. Repeatedly pressing the # key ultimately returns the LCD screen to the Home Page.

2-4.5 The Enter Key

The ↵ (Enter) Key is used to save changes to each edited value. Whenever a change is made to an editable value, press the ↵ Key to save that change. Saving the new value causes it to be automatically stored in the Digital Controller's non-volatile memory.

The new value remains permanently in memory until such time as it is re-edited. Shutting down the Digital Controller does not delete the data stored in memory. The user exits the edit mode by pressing the # Key, as described in the previous paragraph.

2-4.6 Function Keys

The eight Function Keys, F1 through F8 serve multiple purposes:

• The Function Keys are used to enter the four-digit Access Code.
• The Function Keys are used to select specific Watch Pages for display.

When the Home Page is displayed, the Access Code is entered by pressing the appropriate numeric value Function Keys. For example, to enter Access Code 2 4 6 8, the user presses keys - F2 , F4 , F6 , and F8 in that order. Likewise, to enter Access Code 8 8 8 8, the user presses the F8 key four times.

NOTE

It is important to note that user access levels may restrict user access to the available function pages. Refer to section 2-7 Access Codes and Access Levels for further information.

2-4.7 Power LED

The Power (PWR) LED in the upper left corner of the motherboard indicates that primary operating power is applied to the Digital Controller when lit. Since most Digital Controllers operate continuously, this LED is usually ignored except in cases of loss of power and at equipment start-up.

2-4.8 Speaker

A small internal speaker provides audible indications to the operator. The speaker has three functions:

- It sounds a tone for each count during the countdown performed at Start-Up of the Digital Controller.
- It sounds a cautionary beep when any of the Arrow Keys is pressed at a time when they are not enabled, such as before entry of an Access Code or before selection of a Watch Page for viewing.
- It signals alarm conditions when the Alarm Block is programmed into the Digital Controller configuration. If the controller is configured for the Alarm Block function and the speaker is enabled by the configuration software, the speaker sounds whenever an alarm condition exists.

During alarms, the speaker emits a sound pulse for a half-second each second.

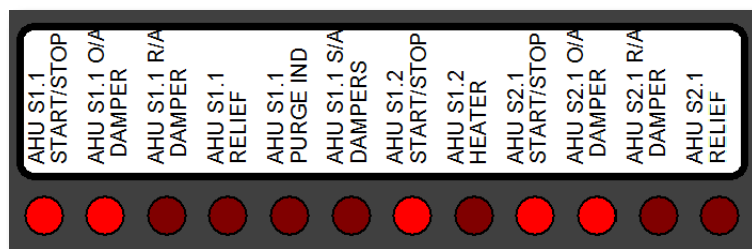### 2-4.9 Digital Relay Status LEDs

Figure 2-6:   Genesis II Relay Status LEDs

Any Digital Controller application can use up to twelve relay outputs on the Genesis II DDC and up to eight relay outputs on the MPCII. The relay status indicators are found on the Genesis II DDC.

The relay outputs are used to control a wide range of external devices:
- Alarm Lamps,
- Buzzers,
- Fans,
- Heaters,
- Pumps,
- Compressors.

The Relay Status LEDs show the energised/de-energised status of each of the output relays.

When an LED is lit, it indicates that the associated relay is energised. The functions of the individual LEDs, which are unique to each Digital Controller application, are defined by the Genesis II Configuration Software during system set-up. Relay names are assigned during setup and the configuration software can be used to print-out the Relay Status LED Label.

2-4.10 Alarms

Alarms on Genesis Series Digital Controllers can be programmed to notify the operator when a certain event occurs. These can be utilised to notify you of any critical events that are being monitored. Alarms can be configured in the Innotech Gen2Config software.

Alarms can either appear constantly on the controller LCD or scroll between alarms every 5 seconds if more than one alarm is triggered. How these are displayed will depend on how the alarms have been configured.

An alarm event is indicated on the default display by the alarm message appearing in the third line of the display. The description of the alarm is only displayed on the LCD if the display option has been checked when configuring alarms using MAXCon. The alarm message will be displayed on Line 3 and Line 4 of the LCD.

```
Default Config
11:14 17/Apr/12 Tue
Alarm 1 Triggered
User Code:••••
```
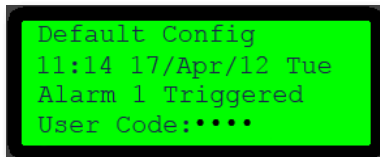
Figure 2-7: Typical Alarm Display

2-5 Home Page

2-5.1 Overview

This section of the document provides information about the default Home Page for the Genesis II Series Digital Controllers. It also identifies the elements within the standard Genesis home page and the controls of the standard Genesis Digital Controller or Mid Points when used via tools such as Softport and ViewPort.

2-5.2 Home Page

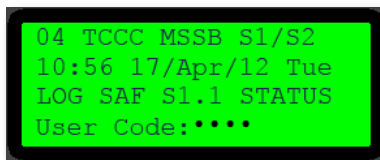The Home Page is the initial screen you are presented with for the Genesis Series Digital Controllers.


```
04 TCCC MSSB S1/S2
10:56 17/Apr/12 Tue
LOG SAF S1.1 STATUS
User Code:••••
```

Figure 2-8:   Genesis II DDC User Interface

There are 4 lines of information on the LCD that are presented on the Home Page:

Table 2-2:   LCD Line Description

Line Number	Description
Line 1 `04 TCCC MSSB S1/S2`	Shows the name of the Genesis Series Digital Controller and is defined in the application program downloaded to the controller. This can also represent a site location.
Line 2 `10:56 17/Apr/12 Tue`	Shows the current time and date.
Line 3 `LOG SAF S1.1 STATUS`	Displays any Flash Watches that have been programmed into the controller. Flash Watches are simple messages triggered by an action or operation within the controller. This line is blank if no Flash Watches have been programmed.
Line 4 `User Code:••••`	Used to enter the user access codes which enable the access to the configured function pages on the Genesis controller.

The keypad to the right of the LCD allows you to access all the menus of the controller for complete operation.

2-6 Watches, Watch Pages and Flash Page

2-6.1 Overview

This section of the document provides information about the use of Flash and Watch pages within the Genesis Series Digital controllers. It also identifies the differences and restrictions on Flash Watch pages within the Genesis II DDC and MPC digital controllers.

Each page typically contains data to be monitored by the user (hence the term Watch Page) and process values, such as controller setpoints, which may be viewed and edited.

The content of each page is normally arranged in a logical manner; for example, all the data on Watch Page 6 might represent parameters for Heating and Cooling Zone 6. The arrangement and content of each Watch Page and level of access for individual users is programmed by the Genesis II Configuration Software.

2-6.2 Watches & Watch Pages

When the unit is first configured by the Genesis Configuration (Gen2Config) software, it is possible to place the current value of an output node of any block within the configuration on a Watch page. These Watch pages allow users to quickly view important I/O and block values on specified watch pages. Configured Watch pages may be accessed using the function page buttons $F1$ to $F8$.

2-6.2.1 Editable Watches

Watch pages may also be configured with watches that are editable by the user. These may refer to temperature setpoints or other adjustable user variables. An adjustable watch parameter can be edited directly on the controller. Any parameter or process value that can be edited will be indicated by a ⌷ symbol (Figure 2-9).

```
AHU S1.1 TEMP
VALUE        •    18.5DgC
AHU S1.1 TEMP S/P
ADJUSTABLE⌷   25.0DgC
```
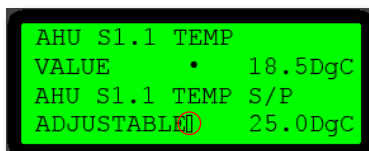
Figure 2-9: Adjustable Watch Parameter

In order to modify the parameter press the $>$ key to begin modifying the parameter. Once in this state the display will change to a ">" character as shown in Figure 2-10.

```
AHU S1.1 TEMP
VALUE        •    18.5DgC
AHU S1.1 TEMP S/P
ADJUSTABLE>   25.0DgC
```
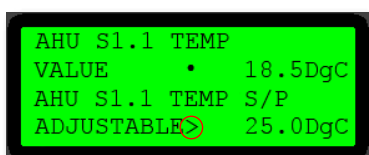
Figure 2-10: Modifying an Adjustable Watch Parameter

Use the ⬸ and ⬿ keys to select each digit of the parameter value and the ➕ and ➖ keys to set each value. The ↵ key is used to save the changed parameter value while the # key may be used to undo any changes. Pressing the # key also returns the user to the list of watches in the current watch page.

2-6.3 Flash Pages

Genesis controllers also contain a specific page known as a Flash page. Watches assigned to this page are displayed on the third and fourth lines of the Home Page at five second intervals. After start-up the first Flash Watch is displayed for five seconds, followed by the next Flash Watch for five seconds, and so on until the cycle is repeated.

Alarms that have the Display option marked in the block are sent to the display as a flash. Alarm annunciation has priority and overrides the flash page until all alarms are cleared.

The Figure 2-11 below is an example of how Flash Watches are cycled on a typical Home Page.

The Flash Watch feature is especially useful for applications containing many watches; it allows you to easily monitor a range of specified watches without having to access a Watch Page and manually scroll through it.

```
04 TWCC MSSB S1/S2
14:47 17/Apr/12 Tue
LOG MSB SURGE S1
User Code:••••
```
```
04 TWCC MSSB S1/S2
14:47 17/Apr/12 Tue
LOG SAF S2.1 STATUS
User Code:••••
```
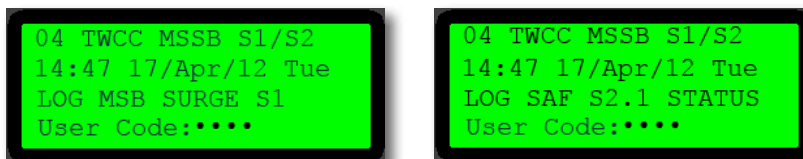
Figure 2-11: Typical Flash Watches on Home Page

Depending on how the Flash and Watch Pages are configured, you can have a watch displayed both on the Flash Page and the Watch Page.

> **NOTE**
> *Watch data cannot be edited from the Flash Watch. The Genesis and MPC2 Digital controllers may display up to 32 watches per Flash page.*

2-7 Access Codes and Access Levels

2-7.1 Overview

This section of the document provides information about the setup and use of Access Codes within the Genesis Series Digital Controllers.

Please note that the Genesis Series Digital Controllers allow two primary levels of user access: User level and System level.

2-7.2 Access Codes

Configuring Access Codes makes it possible to prevent unauthorised access to any of the function pages. These can only be configured within the Gen2Config software and is downloaded to the controller during commissioning. Two levels of access is setup by default allowing users to access System wide configurations and all function pages.

By default the two access levels are as follows:

- System Access Code – This access level provides users with the ability to configure and view System wide properties such as Date/Time, Schedules and Plant status within the controller.
- User Level Access - This access level is designed to allow users access to the function pages within the controller. The default user access code will allow users access to all function pages within the controller. A greater amount of control in order to restrict users access to certain function pages may be implemented by creating multiple (up to 15) user access codes using Gen2Config software.

When a new configuration is created, the Gen2Config software creates default access codes for both the User level and the System level. The default codes are:

- 1111 – Default User code (Entered as F1, F1, F1, F1)
- 8888 – System access code (Entered as F8, F8, F8, F8)

Gen2Config software may be used to setup up to 15 user access codes allowing for the customised access to the various Watch pages configured within the Genesis Controller.
If you have lost or misplaced the access codes, it is possible to retrieve them by uploading the configuration file from the controller into the Gen2Config software. Once the configuration file has been uploaded, the access codes can be retrieved from the Config Access Codes menu option in the Gen2Config software.

To enter an Access Code, press any key on the Home Page and the Access Code screen is then displayed.

```
FACTORY TESTED
12:13 17/Apr/12 Tue
Enter user code via
the function keys
```
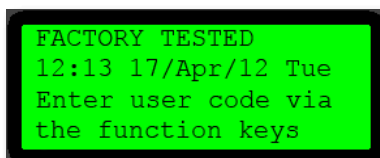
Figure 2-12: Enter Access Code Screen

Users may enter the access codes by using the function page buttons (F1) to (F8) in order to enter a four digit access code and pressing ⏎ to submit the code. At any time the access code may be cleared using the # key.

If a valid access code is entered, the display changes to reveal the function pages accessible for that particular user. In Figure 2-13, the display indicates that the user may access all of the Watch Pages (1 through 8).

```
Default Config
13:01 17/Apr/12 Tue

Access Key: 12345678
```
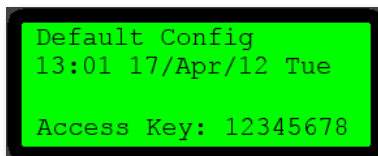
Figure 2-13: Access Code and Accessibility

If an invalid access code is entered the display shows zero accessible function pages as in Figure 2-14.

```
Default Config
11:56 17/Apr/12 Tue

Access Key:--------
```
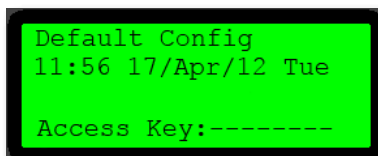
Figure 2-14: Restricted Access Code

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Genesis II Direct Digital Controller
USER INSTRUCTIONS

Chapter 3 -
HMI Menus

3-1 Overview

This section of the document provides detailed information about the structure and functionality of the System menu and sub-menus for the Genesis II Series Digital Controllers. A brief description of each menu and information on configuring various parameters is also provided in this section.

> **NOTE**
>
> *Please note the screenshots used throughout this document are taken from a typical Genesis II Direct Digital Controller. Any differences among the various controllers will be detailed accordingly.*

3-1.1 Access Modes

Genesis Devices offer the ability to configure up to 15 user access profiles allowing operators to customise the accessibility of the various watch pages within a particular controller. Genesis devices also provide system access codes which provides users with the ability to configure specific features within a controller such as Schedules, Time/Date clock and Check Block Status amongst others.

3-1.2 User Access Mode

User Access Mode is the standard mode of operation within Genesis devices. This mode allows the restriction of specific watch pages to specific users.

3-1.3 System Access Mode

This mode provides the user a higher level of access, allowing a user to configure specific settings within the controller such as:

- The setting of the System Date / Time Clock
- The Adding, Editing and Deletion of Schedules
- The setting of Daylight Saving Time changes
- Checking Block status, Network status, Plant status, IIC status and REM status

3-2 System Menu

3-2.1 Overview

This section of the document provides information on accessing and navigating through the System Menu on the Genesis Series Digital Controllers. The System Menu can be accessed from the Home page by entering the System Access code as configured using Gen2Config Software.

On the next screen you will see Status flashing. Press the ⏎ key again to enter the Status menu. Once you are at the Status Menu you will have access to all sub-menus that are described in more detail in the subsequent paragraphs.

3-2.2 System Menu - Set Time Date

This menu allows the user to set the Time and Date within the controller system clock. To adjust the System Time and Date, press the ⏎ key and the display will change to a sub menu as in Figure 3-2.

```
FACTORY TESTED
12:14 17/Apr/12 Tue


System: Set Time/Date
```
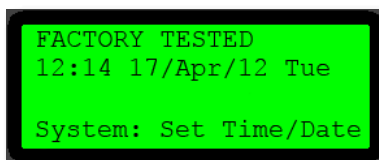
Figure 3-1: Set Time / Date System Menu

Use the ＋ and − keys to adjust the value for the hours. Once the hours have been adjusted, you can scroll through the different dd/mm/yy parameters by using the ＜ and ＞ keys. Use the ＋ and − keys to edit the parameters as desired. Once the System Time and Date have been configured correctly, press the ⏎ key to save your configuration. All changes may be aborted at any time by pressing the ＃ key. This action will also return you to the previous menu.

```
Edit Time/Date:

12:52 12/Apr/12
```
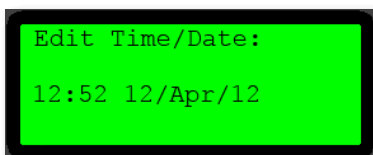
Figure 3-2: Editing the System Clock

3-2.3 System Menu - Daylight Saving

This menu allows the user to set the Daylight Saving adjustment to the controller system clock. To adjust the Daylight saving parameters scroll to the Daylight Save option within the System menu and press the ⏎ key.


```
15:48 17/Apr/12 Tue

System:DayLight Save
```
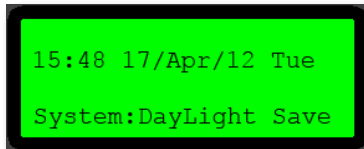
Figure 3-3: Daylight Save System Menu

Daylight Saving Parameters are set in the config downloaded to the controller using Gen2Config. By default the Daylight Saving parameters are switched off within the controller (Figure 3-4). The Start and Stop dates for daylight saving may be edited by navigating to each parameter using the <, >, ∧ and ∨ keys and using the + and − to set each value.


```
DayLight Saving: OFF
Start:  1st Sun Oct
Stop:   1st Sun Apr
01/Jan/70  01/Jan/70
```
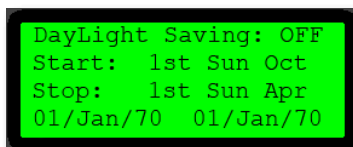
Figure 3-4: Daylight Saving OFF

The format for the start and stop date for daylight saving is as follows:

"The First Sunday in October to the First Sunday in April"

Once the Start and Stop dates have been entered and Daylight Saving is turned ON, the controller will automatically set the correct dates for each in Line 4 (Figure 3-5).


```
DayLight Saving: ON
Start:  1st Sun Oct
Stop:   1st Sun Apr
07/Oct/12  01/Apr/13
```
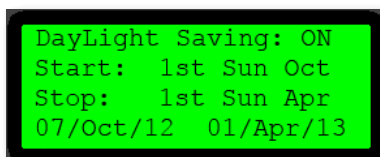
Figure 3-5: Daylight Saving ON

3-2.4 System Menu - Schedule Edit

The procedures in the following paragraphs describe how to access and edit the various operating schedule blocks pre-programmed into the Digital Controller. The Genesis II Configuration Software provides three basic types of schedule blocks:

- Daily Schedule block
- Weekly Schedule block
- Exception Schedule block (also referred to as Yearly Schedules)

> **IMPORTANT**
> *Please note that only schedules within existing schedules blocks can be edited or modified; schedule blocks cannot be added to the configuration, nor can they be deleted from the configuration using the HMI on the controller.*

> **NOTE**
> *The Yearly Schedule block is also referred to as the Exception Schedule in the Innotech Gen2Config software.*
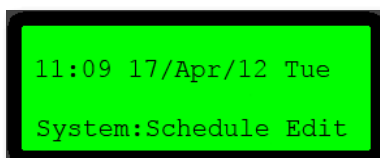
Figure 3-6: Schedule Edit System Menu
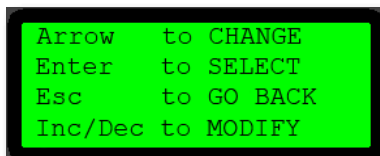
Figure 3-7: Schedule Edit Instructions

To add / edit or delete the configured schedules within the Genesis controller you have to press the ↵ key in order to enter the schedule edit menu. The controller then presents the instructions required to operate within the Schedule Edit menu (Figure 3-7). Pressing ↵ at this point displays the various schedules configured within the controller using Gen2Config software. You may use the ⌃ and ⌄ keys to scroll through configured schedules and the ↵ key to select a particular schedule.

The Schedule Edit menu item allows the operator to either edit (change), delete or add a schedule item. The + and − Keys allow the operator to toggle between the Edit, Add and Delete Functions after the schedule event is selected for edit. The Edit function is the default function when the editing screen is first selected. Instructions for editing, adding and deleting schedule functions are provided in the following sub sections.

3-2.4.1 Daily Schedules

The Daily Schedule block in a Genesis Series Controller configuration performs functions similar to a daily time clock. You can specify up to 32 Start/Stop combinations per day with an accuracy of one minute. Once you have configured the Daily Schedule block, it is repeated on a daily basis.
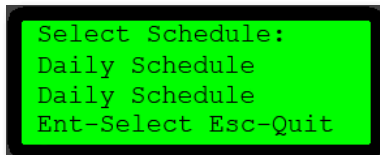
```
Select Schedule:
Daily Schedule
Daily Schedule
Ent-Select Esc-Quit
```

Figure 3-8: Selecting Daily Schedules

3-2.4.2 Editing Daily Schedules

Use the ⏎ key to select Daily Schedule from the Select Schedule menu screen. Use the ⌃ and ⌄ keys to select a particular configured schedule for editing (Figure 3-9). Once the specific daily schedule has been found use the ⏎ to begin the editing process. After selecting Edit, the display changes to show ** Editing **, as in Figure 3-10.

```
Daily Schedule
01.  On : 08:30
     Off: 17:00
Function:Edit
```
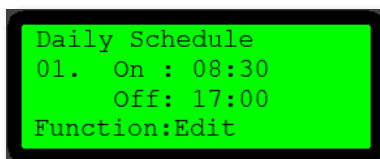
Figure 3-9: Daily Schedules Edit Menu

```
Daily Schedule
01.  On : 08:30
     Off: 17:00
** Editing **
```
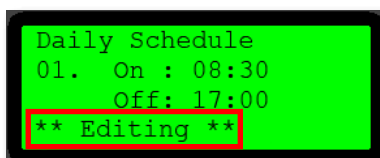
Figure 3-10: Editing Daily Schedules

The ON and OFF times for the schedule may be edited by navigating to each parameter using the ⟨ , ⟩ , ⌃ and ⌄ keys and using the + and − to set each value. Use the ⏎ key to save the changed schedule configuration. All changes may be aborted at any time by pressing the # key. This action will also return you to the previous Daily schedule section menu screen.

3-2.4.3 Adding Daily Schedules

You may add up to 32 Start/Stop combinations to the Daily schedule list provided at least one daily schedule has been programmed into the controller through the Gen2Config software. The addition process involves selecting the Add function using the ➕ and ➖ keys when in the Daily Schedule list (Figure 3-11).
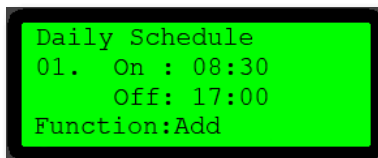
```
Daily Schedule
01.  On : 08:30
     Off: 17:00
Function:Add
```

Figure 3-11: Daily Schedules Add Menu

Use the ↵ key to select Add function from the Select Schedule menu screen. After selecting Add, the display changes to show ** Adding **, as shown in Figure 3-12. The ON and OFF times for the new schedule may be set by navigating to each parameter using the ⟨, ⟩, ⋀ and ⋁ keys and using the ➕ and ➖ to set each value. Use the ↵ key to save the new schedule configuration. All changes may be aborted at any time by pressing the # key. This action will also return you to the previous Daily schedule section menu screen.

```
Daily Schedule
01.  On : 08:30
     Off: 17:00
** Adding **
```
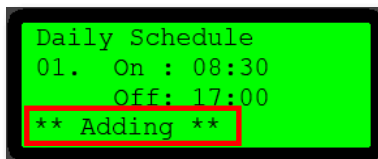
Figure 3-12: Adding Daily Schedules

3-2.4.4 Deleting Daily Schedules

Similar to the Editing and Adding process, schedules may also be deleted and removed from the schedule list. This process is carried out by selecting the Delete function using the ➕ or ➖ key when navigating through the Daily Schedules list. Use the ⋀ and ⋁ keys to select a particular configured schedule for deletion.
Pressing the ↵ key when in Delete function will remove the selected schedule from the list permanently. There is NO way to undo this operation. If deleted by mistake, the schedule will have to be recreated using the ADD function.
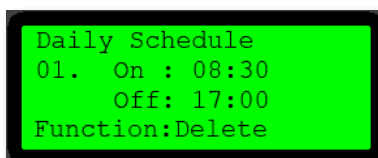
```
Daily Schedule
01.  On : 08:30
     Off: 17:00
Function:Delete
```

Figure 3-13: Daily Schedule Delete Menu

3-2.4.5 Weekly Schedules

The Weekly Schedule block performs the function of a seven-day time clock. Over a seven-day period, the software can specify up to 32 start/stop weekly schedule events with an accuracy of one minute. System start/stop operation is normally controlled by the weekly schedule on a week-after-week basis, unless a schedule event is over-ridden by the Exception Schedule (see section 3-2.5).
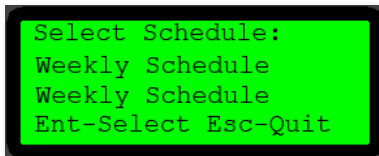
```
Select Schedule:
Weekly Schedule
Weekly Schedule
Ent-Select Esc-Quit
```

Figure 3-14: Selecting Weekly Schedules

3-2.4.6 Editing Weekly Schedules

Use the ⏎ key to select Weekly Schedule from the Select Schedule menu screen. Use the ⌃ and ⌄ keys to select a particular configured schedule for editing. Once the specific daily schedule has been found use the ⏎ to begin the editing process. After selecting Edit, the display changes to show ** Editing ** as shown in Figure 3-16.
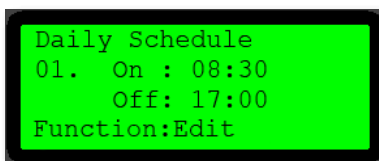
```
Daily Schedule
01.  On : 08:30
     Off: 17:00
Function:Edit
```
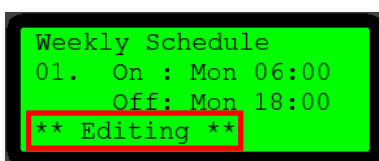
Figure 3-15: Edit Weekly Schedule Menu

```
Weekly Schedule
01.  On : Mon 06:00
     Off: Mon 18:00
** Editing **
```

Figure 3-16: Editing Weekly Schedules

The ON and OFF Day and Time for the schedule may be edited by navigating to each parameter using the ⌃, ⌄, ⌃ and ⌄ keys and using the ➕ and ➖ to set each value. Use the ⏎ key to save the changed schedule configuration. All changes may be aborted at any time by pressing the ⌗ key. This action will also return you to the previous Weekly schedule section menu screen.

3-2.4.7 Adding Weekly Schedules

You may add up to 32 Start/Stop combinations to the Daily schedule list provided at least one weekly schedule has been programmed into the controller through the Gen2Config software. The addition process involves selecting the Add function using the ⊕ and ⊖ keys when in the Weekly Schedule list (Figure 3-17).

```
Weekly Schedule
01.  On : Mon 06:00
     Off: Mon 18:00
Function:Add
```
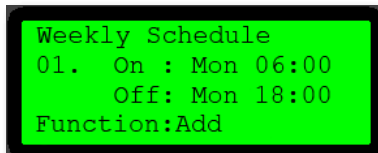
Figure 3-17:   Add Weekly Schedules Menu

Use the ⏎ key to select Add function from the Select Schedule menu screen. After selecting Add, the display changes to show ** Adding **, as shown in Figure 3-18. The ON and OFF Day and Time for the new schedule may be set by navigating to each parameter using the ⟨, ⟩, ⌃ and ⌄ keys and using the ⊕ and ⊖ to set each value. Use the ⏎ key to save the new schedule configuration. All changes may be aborted at any time by pressing the # key. This action will also return you to the previous weekly schedule section menu screen.
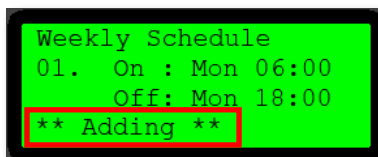
```
Weekly Schedule
01.  On : Mon 06:00
     Off: Mon 18:00
** Adding **
```

Figure 3-18:   Adding Weekly Schedules

3-2.4.8 Deleting Weekly Schedules

Similar to the Editing and Adding process, schedules may also be deleted and removed from the schedule list. This process is carried out by selecting the Delete function using the ⊕ or ⊖ key when navigating through the Daily Schedules list. Use the ⌃ and ⌄ keys to select a particular configured schedule for deletion.

Pressing the ⏎ key when in Delete function will remove the selected schedule from the list permanently. There is NO way to undo this operation. If deleted by mistake, the schedule will have to be recreated using the ADD function.
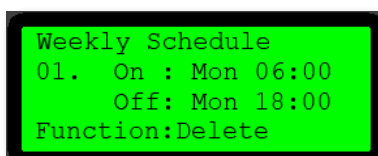
```
Weekly Schedule
01.  On : Mon 06:00
     Off: Mon 18:00
Function:Delete
```

Figure 3-19:   Delete Weekly Schedules Menu

3-2.5 Yearly/Exception Schedules

The Exception Schedule block provides an over-ride function for system control. This schedule block can accommodate up to 32 individual time periods setting a function to On or Off over a 365-day period. The Exception Schedule functions as a yearly schedule in that it enables or over-rides portions of the Weekly Schedules Operation for an entire calendar year.

Exception Schedule Example
The Weekly Schedule is set-up to turn the plant on at 0600 and off at 1800 on Mondays through Fridays. Normally, the plant will operate on that schedule throughout the year unless over-ridden by the Exception Schedule. Now, assume that the plant operation schedule is to be modified for a special time period, such as a holiday season, and the plant is to operate only between the hours of 1200 and 1800 during that period. In this instance, the Exception Schedule would be programmed to override the Weekly Schedule during the hours of 0600 and 1200 during the holiday period and the plant would not be allowed to operate during those hours. Likewise, the Exception Schedule can be programmed to operate the plant at specific times when it is normally shut-down by the Weekly Schedule. For example, it may be desirable to operate the plant for a few hours on a weekend for planned maintenance purposes; the Exception Schedule is used for this purpose.
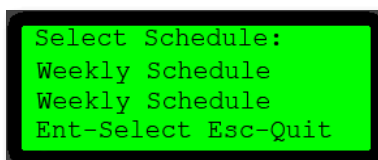

Figure 3-20: Selecting Yearly Schedules

3-2.5.1 Editing Yearly/Exception Schedules

Use the ⏎ key to select Yearly/Exception Schedule from the Select Schedule menu screen. Use the ⌃ and ⌄ keys to select a particular configured schedule for editing. Once the specific daily schedule has been found use the ⏎ to begin the editing process. After selecting Edit, the display changes to show ** Editing **, as shown in Figure 3-22.
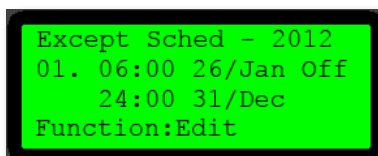

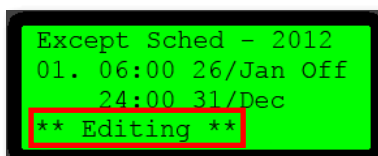***Figure 3-21:*** Edit Yearly/Exception Schedules Menu

Figure 3-22: Editing Yearly/Exception Schedules

The ON & OFF Time and Day & Month for the schedule may be edited by navigating to each parameter using the ⓒ, ⓒ, ⓒ and ⓒ keys and using the ⊕ and ⊖ to set each value. Use the ↵ key to save the changed schedule configuration. All changes may be aborted at any time by pressing the # key. This action will also return you to the previous Yearly/Exception schedule section menu screen.

3-2.5.2 Adding Yearly/Exception Schedules

You may add up to 32 Start/Stop combinations to the Yearly/Exception schedule list provided at least one yearly schedule has been programmed into the controller through the Gen2Config software. The addition process involves selecting the Add function using the ⊕ and ⊖ keys when in the Yearly/Exception Schedule list (Figure 3-23).
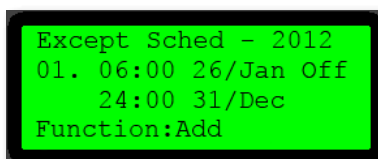
```
Except Sched - 2012
01. 06:00 26/Jan Off
    24:00 31/Dec
Function:Add
```

Figure 3-23: Add Yearly/Exception Schedules Menu

Use the ↵ key to select Add function from the Select Schedule menu screen. After selecting Add, the display changes to show ** Adding **, as shown in Figure 3-24. The ON and OFF Day and Time for the new schedule may be set by navigating to each parameter using the ⓒ, ⓒ, ⓒ and ⓒ keys and using the ⊕ and ⊖ to set each value. Use the ↵ key to save the new schedule configuration. All changes may be undone and aborted at any time by pressing the # key. This action will also return you to the previous Daily schedule section menu screen.

```
Except Sched - 2012
01. 06:00 26/Jan Off
    24:00 31/Dec
** Adding **
```
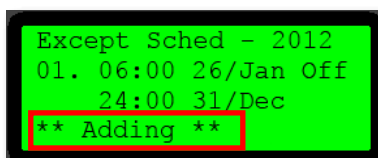
Figure 3-24: Adding Yearly/Exception Schedules

3-2.6.1 Deleting Yearly/Exception Schedules

Similar to the Editing and Adding process, Yearly/Exception schedules may also be deleted and removed from the schedule list. This process is carried out by selecting the Delete function using the ⊕ or ⊖ key when navigating through the Yearly/Exception Schedules list. Use the ⌄ and ⌃ keys to select a particular configured schedule for deletion.

Pressing the ↵ key when in Delete function will remove the selected schedule from the list permanently. There is NO way to undo this operation. If deleted by mistake, the schedule will have to be recreated using the ADD function.

```
Except Sched - 2012
01. 06:00 26/Jan Off
    24:00 31/Dec
Function:Delete
```
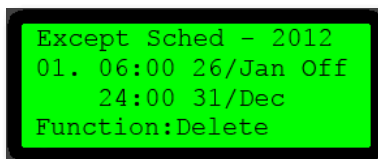
Figure 3-25: Deleting Yearly Schedules

3-2.7 System Menu - Status Information

The following sub sections, describe the options within the System Menu that would be used by technicians to setup and perform diagnostics on a Genesis II series controller.

3-2.7.1 System Menu - Block Status Information

This menu option allows a technician to examine the status of all block outputs within the programmed controller configuration. Each block is identified by a sequence number, name and type (Figure 3-26). Available blocks within the configuration may be navigated using the ⌃ and ⌄ keys.

Block Sequence Number

Block Name

Block Type

Block Value

```
SequNo:0001      [1]
AHU S1.1 AFS
Digital Input
O1: 1
```

```
SequNo:0008      [1]
AHU S1.1 TEMP S/P
User Variable
O1: 25
```

Figure 3-26: Block Status Information

3-2.7.2 System Menu - Plant Status Information

This menu option allows a technician to examine the operational information of the Digital Controller. These include:
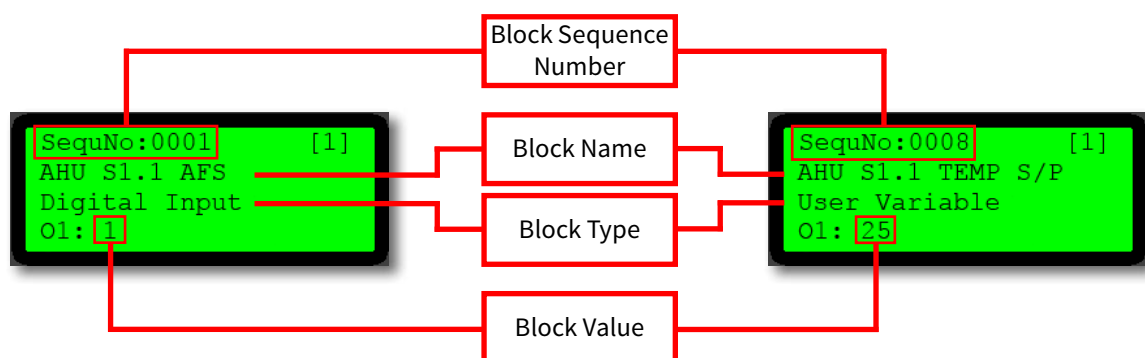
- The Cycle Time of the controller
- Times at which the controller was last switched ON and OFF
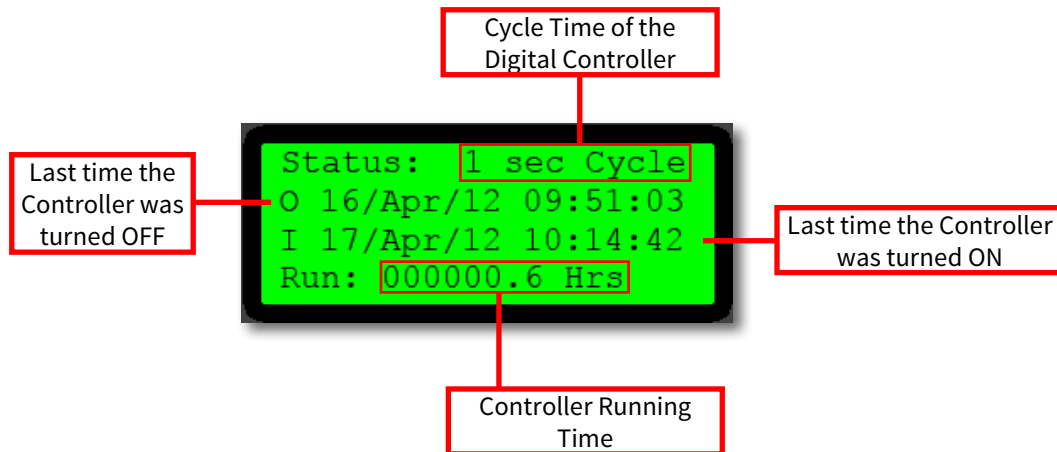- Current runtime of the controller

Cycle Time of the Digital Controller

Last time the Controller was turned OFF

```
Status:   1 sec Cycle
O 16/Apr/12 09:51:03
I 17/Apr/12 10:14:42
Run: 000000.6 Hrs
```

Last time the Controller was turned ON

Controller Running Time

Figure 3-27: Plant Status Information

3-2.7.3 System Menu - Network Status

The Network Status information display is primarily utilised by technicians when testing the communication links to the controller. The technician may use the Gen2Config software to perform a 'Comms Test' in order to check the comms connection between the device and PC. In a functional network with sound communication links between a Device & PC and the message count indicators will be identical. Non-identical counts may indicate a communication problem between the PC and controller.
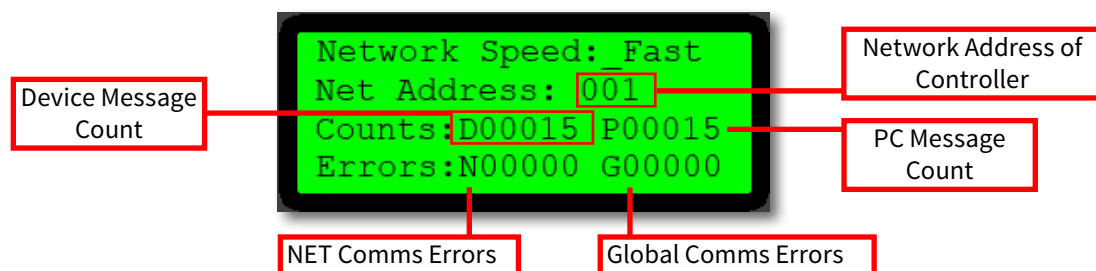

Device Message Count

```
Network Speed: Fast
Net Address: 001
Counts:D00015 P00015
Errors:N00000 G00000
```

Network Address of Controller

PC Message Count

NET Comms Errors

Global Comms Errors

Figure 3-28: Network Status Information

> **NOTE**
> *The Net and Global error count indicators will reset to zero each time a device is restarted.*

3-2.7.4 System Menu - IIC Status

This menu option is utilised by Technicians when testing communication links in older Genesis DDC controllers which use the external I^{2}C communication bus.

```
IIC Status:
Last Error: 00 (W)
Error Count: 000000
Speaker Source: 39
```
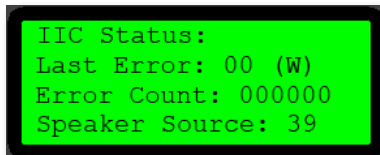
Figure 3-29: PC Communication Status

The Speaker Source indicates the error code for the last indicated error. Each code identifies the source of the error.

3-2.7.5 System Menu - REM Status

The REM Status information display is primarily utilised by technicians when testing the configuration of the controllers and connected Remote Expansion Modules. It is used to ensure correct REMs are connected to the correct address on the MPCII or Genesis Digital Controller.
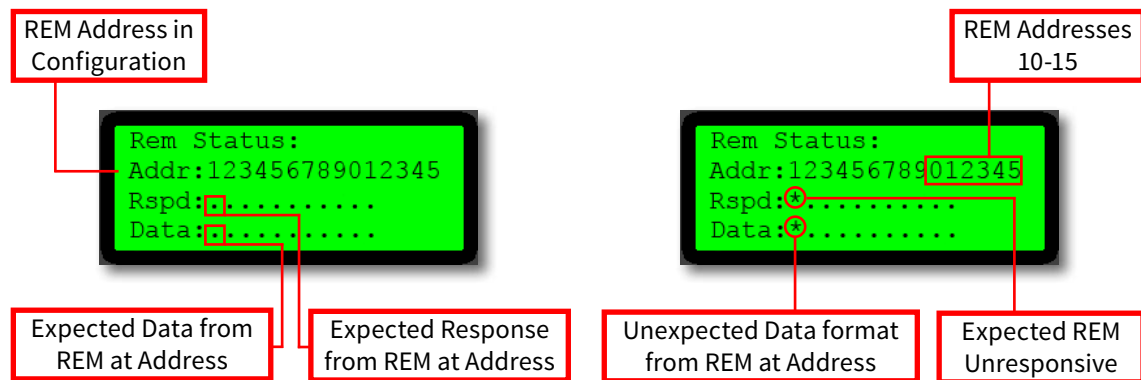
REM Address in Configuration

REM Addresses 10-15

```
Rem Status:
Addr:123456789012345
Rspd:..........
Data:.......
```

```
Rem Status:
Addr:123456789012345
Rspd:⊛..........
Data:⊛.........
```

Expected Data from REM at Address

Expected Response from REM at Address

Unexpected Data format from REM at Address

Expected REM Unresponsive

Figure 3-30: REM Status Information

The REM status indication checks the communication packets between the controller and REM in order to ensure:

- There is a REM connected at a specific address as expected
- The data transmitted between the REM and controller is of the expected format

Errors in any of the above considerations are indicated by a '★' while correct REM and correct data formats are indicated by a ' ● ' symbol. Genesis controllers are capable of having up to 15 Remote Expansion Modules connected at any one time. Unconnected REM addresses are indicated as blank spaces in the figure below.
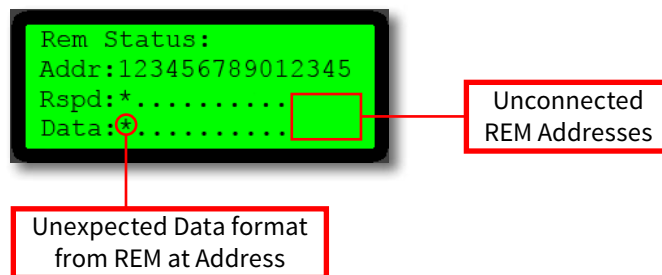

Figure 3-31:   REM Status with Data Format Error