Digi 42/2
Two Circuit Electronic 24 Hour or 7 Day Time Switch

GRASSLIN
TIME & ENERGY CONTROLS

Operating Instructions

APPLICATION

Time based control of lighting, ventilating, heating, cooling or other electrical loads in commercial and industrial applications. The Digi 42 time switches are programmable for 24-hour or 7-day schedules as well as a "8th day" or holiday schedule.

TECHNICAL DATA

Output–2 SPDT relays with dry contacts
Switch Rating: 16A/250VAC general purpose
                1000 watt tungsten @ 240V
                500 watt @ 120V
                1/2 hp @ 120VAC, 1 hp @ 240VAC
                720VA pilot duty
2 week battery back-up
Supply voltages: Separate Models – 24VAC/DC, 120VAC, 208/240VAC, all 50/60Hz (refer to product label)
Shortest switch time–1 minute
Ambient Temperature Range –20°F to 140°F (–28°C to 60°C)
AM/PM LCD display or 24:00 hr. military display
Input Power: 4VA
Screw terminal connections for up to #12AWG wire
Accuracy ± 4 minutes per year
Daylight time changeover: manual or automatic

NOTE: *When first applying power, it may take several minutes for the battery to take a charge. If the LCD display does not come on after a few minutes, press reset.*

Installation

To the installer:

1. Read operating instructions carefully.
2. Check the input and output ratings marked on the unit to make sure this product is suitable for your power supply and application.
3. Disconnect power supply prior to installation to prevent electrical shock.
4. Wire in accordance with National and Local electrical code requirements.

The Digi 42 time switch can be surface, flush or rail mounted and is also available with an enclosure for stand-alone applications (GMX2).

MOUNTING

Lift off front cover and loosen the two screws on opposite corners. Pull off plug-in base with a left-to-right rolling motion.

SURFACE MOUNTING (inside panel)

Place screws through holes in base and screw to back of panel or wall. Connect wires to wiring terminals.

Place terminal cover over terminal block and, by lining up the two screws with corner holes in base, push timer firmly onto plug-in base. Tighten the two screws. A base for DIN rail mounting is also available as an option. Order Part No. MB-DIN.

PANEL MOUNTING (flush mounting through panel door)

Cut a square hole 2-5/8" x 2-5/8" (66 x 66mm) in the front of the panel. Remove plug-in base and insert the time switch through the opening. Place the flush mounting bracket over rear of the unit to secure to the panel door.

For stand-alone installations, the unit may be surface mounted inside an E100 indoor or E200 outdoor enclosure which is available from Grasslin Controls Corporation or your wholesaler.

WIRING

1. Wire power to input terminals 1 and 2 (*make sure to apply correct voltage; use of incorrect voltage will void warranty*).
2. Wire power to circuit 1 and 2 common terminals. Wire NO (closed during ON times) or NC (open during ON times) to the load.
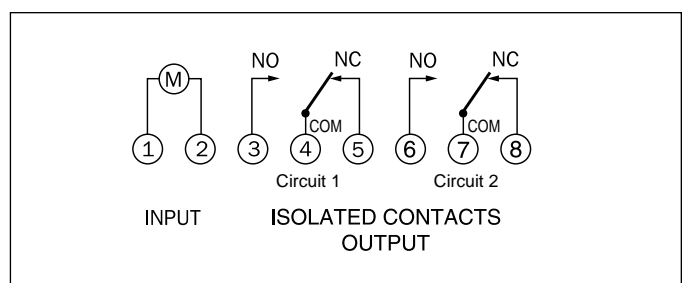
■ KEYPAD DESCRIPTION

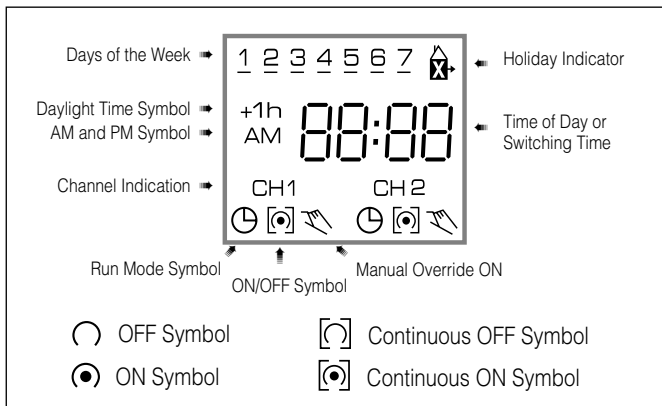|	
⏱	Setting the Time/Automatic Run Mode
Prog.	Program Mode
Res.*	Reset: Clears all programs and time
🖑¹ 🖑²	Select ON or OFF in Prog. Mode, Manual Override in Run Mode
±1h*	Manual Daylight Time Change
h	Setting the Hour (12:– – AM)
m	Setting the Minute (12:01 AM)
Day	Set Current Day and Select Days to be Omitted
Sel.	Omit Day Selected w/Day key
⌂	Holiday Program

*Recessed keys; use a pen point to press

■ LCD DISPLAY ELEMENTS

Days of the Week ➡ 1 2 3 4 5 6 7 ⌂ ⬅ Holiday Indicator

Daylight Time Symbol ➡ +1h
AM and PM Symbol ➡ AM **88:88** ⬅ Time of Day or Switching Time

Channel Indication ➡ CH1   CH2
⏱ ◉ 🖑   ⏱ ◉ 🖑

Run Mode Symbol ⬋ ⬆ ⬊ Manual Override ON
ON/OFF Symbol

⌒ OFF Symbol   [⌒] Continuous OFF Symbol
⊙ ON Symbol   [⊙] Continuous ON Symbol

■ PROGRAMS

The Digi 42/2 will accept up to 42 programs

A program consists of:

1. An ON or OFF command
2. Time of day (Hour **and** Minute)
3. Single day or multiple days

A program is required for each ON event, and a program is required for each OFF event.

NOTE: MULTIPLE ON OR OFF EVENTS MAY BE PROGRAMMED. For example, Program 1 may turn the office air conditioning ON at 8AM Mon.-Fri. Program 2 may turn the air conditioning OFF at 5PM Mon.-Fri.

If someone is working late, they may press the override key to turn on the air conditioning. If they forget to press the override key again when they leave, the air conditioning will stay on all night (or all weekend).

To prevent this from occurring, **additional OFF times may be programmed.**

• Program 3 can turn the air conditioning OFF at 6PM.
• Program 4 can turn the air conditioning OFF at 7PM.
• Program 5 can turn the air conditioning OFF at 8PM., etc.

▌**IMPORTANT:** BEFORE PROCEEDING WITH SETTING THE TIME AND PROGRAMMING THE UNIT, PRESS THE RESET ■ KEY TO CLEAR ALL DATA FROM THE MEMORY.

■ SELECTING AM/PM OR MILITARY TIME

After pressing reset, the display may show AM (right). The numbered day symbols will be flashing on and off.

If the display does not show AM, it is in military time mode (24:00 hr.) To change to AM/PM mode, press and hold the **h** key and press the **±1h** key once. AM will appear in display.

If display is in AM mode and military mode is desired, press and hold the **h** key, press the **±1h** key once.

1 2 3 4 5 6 7

AM **12:00**

CH1   CH2
⏱ ⌒   ⏱ ⌒
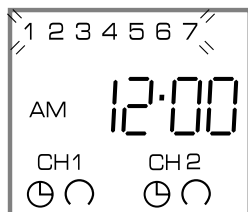
■ SETTING THE TIME

NOTE: If the **h** and **m** keys are held down longer than 2 seconds, the numbers will advance rapidly.

Press and hold the ⏱ key during the following:
*(If Daylight Savings Time is in effect, press **±1h** first)*

1. Press **h** to advance to the current hour (while holding down the ⏱ key)

2. Press **m** to advance to the current minute (while holding down the ⏱ key)

3. Press **Day** repeatedly to advance to current day (while holding down the ⏱ key)

NOTE: If the days are flashing, it indicates the day of the week was not set when setting the time. The timer cannot be programmed unless the day of the week is entered.

■ MANUAL DAYLIGHT TIME CHANGEOVER

Each year, in the Spring, press **±1h** to advance the time an hour. In the Fall, press **±1h** to set back an hour.

■ SETTING AUTOMATIC DAYLIGHT TIME CHANGEOVER (OPTIONAL)

NOTE: It is only necessary to program the changeover dates once. The timer will then automatically change the time at 2:00AM on the first Sunday in April and the last Sunday in October until the year 2079.

1. Press and hold the **±1h** key and press the **Day** key once. If in AM/PM mode, "12:31" (Dec. 31) will be flashing. If in military time mode, "31:12" will be flashing.

1
+1h
AM **12:31**
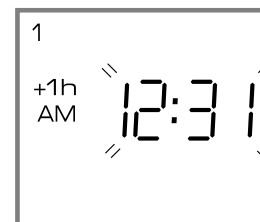
2. Enter the current (today's) date. **Example: June 15, 1997.** Press **m** key (for date) to **15** first and then press **h** key (for month) to **06** (If in military time, h is date and m is month)

3. Press **±1h** once, a **2** under Tu and **1995** appears in display

4. Enter the current year. **Example: 1997.** Press **m** key twice to **1997** (If you overshoot, hold down the m key – the years will scroll to 2079 and back to 1995)

5. Press **±1h** once, a **3** under We and **AU** appears in display, which indicates preset European dates.

6. Press **m** key once so display shows **cHA** (If m key is inadvertently pressed twice and **HA** shows in display, press m key two more times until **cHA** shows)

7. Press **±1h** once, a **4** under Fr and **03:30** (for 1997) appears in display, which indicates March 30 (30:03 in military)

8. Enter the date for spring time change. **Example: April 6, 1997**. Press **h** key (for month) to **04**. Press **m** key (for date) to **06** (If in military time, h is date and m is month)

9. Press **±1h** once, a **5** under Sa and the fall time change date appears in display. **Example: 10:26 for 1997**

10. Press ⏱ key to enter Run Mode

Daylight Time Changeover Dates

1997 April 6 - October 26	2002 April 7 - October 27
1998 April 5 - October 25	2003 April 6 - October 26
1999 April 4 - October 31	2004 April 4 - October 31
2000 April 2 - October 29	2005 April 3 - October 30
2001 April 1 - October 28	2006 April 2 - October 29

■ PROGRAMMING 24 HOUR OR 7 DAY SCHEDULES

It is helpful to write out the program schedules *before* beginning. See last page.

! IMPORTANT: THE CURRENT TIME OF DAY AND DAY OF WEEK MUST BE SET PRIOR TO PROGRAMMING. SEE "SETTING THE TIME"

NOTE: The **Day** and **Sel.** keys are used to *omit* days of the week for which the OFF or ON time is not to be implemented. For 24 hour schedules (same program every day fo the week), ignore **Day** and **Sel.** keys.

If an ON or OFF symbol is not entered, the ON symbol will flash, and program will not be accepted.
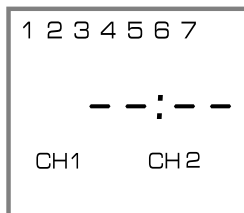
Example

Program 1: CH1 ON at 7:00AM Monday thru Friday
Program 2: CH1 OFF at 6:00PM Monday and Friday only
Program 3: CH1 OFF at 5:00PM Tuesday, Wednesday and Thursday
Three programs need to be entered.

Press **Prog.** key only once. Display shows:

```
  1 2 3 4 5 6 7


      – – : – –


   CH1      CH2
```

Program 1 (CH1 ON at 7:00AM Monday thru Friday)

Press 🖑¹ key once	CH1 ON symbol ⊙ appears
Press **h** key	to 07AM
Press **m** key once	to 00
Press **Day** key 6 times	flashing line appears under 6
Press **Sel.** key once to omit	6 in display flashes
Press **Day** key once	flashing line appears under 7
Press **Sel.** key once to omit	7 in display flashes
Press **Prog.** key to enter	

Program 2 (CH1 OFF at 6:00PM Monday and Friday)

Press 🖑¹ key twice	CH1 OFF symbol ⌒ appears
Press **h** key	to 06PM
Press **m** key once	to 00
Press **Day** key twice	flashing line appears under 2
Press **Sel.** key once to omit	2 in display flashes
Press **Day** key once	flashing line appears under 3
Press **Sel.** key once to omit	3 in display flashes
Repeat **Day** and **Sel.** keys for days 4, 6, and 7	
Press **Prog.** key to enter	

Program 3 (CH1 OFF at 5:00PM Tuesday, Wednesday and Thursday)

Press 🖑¹ key twice	CH1 OFF symbol ⌒ appears
Press **h** key	to 05PM
Press **m** key once	to 00
Press **Day** key once	flashing line appears under 1
Press **Sel.** key once to omit	1 in display flashes
Press **Day** key 4 times	flashing line appears under 5
Press **Sel.** key once to omit	5 in display flashes
Repeat **Day** and **Sel.** keys for days 6 and 7	
Press **Prog.** key to enter	
Press 🕘 key to enter Run Mode	

! IMPORTANT: IF AN "ON" TIME WAS PROGRAMMED THAT IS EARLIER IN THE DAY THAN THE CURRENT TIME, PRESS 🖑¹ AND/OR 🖑² ONCE TO TURN THE TIMER "ON". (IT DOES NOT "LOOK BACK" TO DETERMINE IF IT SHOULD BE ON OR OFF AFTER PROGRAMMING)

■ CHANNELS

In each program, CH1 and/or CH2 can be a OFF or ON event. Also, one channel can be an OFF event and the other an ON event in the same program. With both channels programmed to the same ON/OFF schedule, the timer becomes a DPDT time switch.

Example: CH1 ON, CH2 OFF at 8AM Every Day.

Press **Prog.** key once	
Press 🖑¹ key once	CH1 ON symbol ⊙ appears
Press 🖑² key twice	CH2 OFF symbol ⌒ appears
Press **h** key	to 08AM
Press **m** key	to 00
Press **Prog.** key	to enter additional programs

■ MANUAL OVERRIDE

TEMPORARY: While in the Run Mode, pressing the 🖑¹ or 🖑² key once will reverse the output; ON to OFF or OFF to ON. The 🖑¹ or 🖑² symbol appears in the display to indicate a temporary override. At the next scheduled switching time, automatic control resumes, eliminating the override.

CONTINUOUS: While in the Run Mode...

• Pressing the 🖑¹ or 🖑² key twice will turn the output to ON permanently. ⊙ symbol appears in display.

• Pressing the 🖑¹ or 🖑² key three times will turn the output OFF permanently. ⌒ symbol appears in display.

• To terminate a continuous override, press the 🖑¹ or 🖑² key until 🕘 appears in the display.

■ REVIEWING PROGRAMS

To review the programs at any time, press **Prog.** key. Programs will appear in the order they were entered with repeated presses of the **Prog.** key. After all programs have been reviewed, the blank display will appear to allow entering another program. Another press of the **Prog.** key will display the number of free programs available, such as **Fr 38** if 4 programs have been entered.

■ CHANGING A PROGRAM

Select the program to be changed with the **Prog.** key. New days may be omitted or omitted days may be returned by using the **Day** and **Sel.** keys just as in initial programming. Hour and minute can be changed with the **h** and **m** keys.

Press **Prog.** or 🕘 key to store the new program.

■ DELETING A PROGRAM

To delete only one or a few programs:
Press **Prog.** key until the desired program is displayed.
Press **m** key to **:59** and press once more to blank out.
Press **h** key to **11PM** and press once more to blank out.

Press 🕘 key, display will flash for several seconds and then enter the Run Mode.

Using the reset key will delete ALL programs, the time of day, and daylight change dates.

■ HOLIDAY PROGRAM

An "8th day", or Holiday program schedule may be entered for use on holidays or vacation periods. More than one ON or OFF time may be entered for the Holiday program.

A typical Holiday schedule may be to turn OFF at 12:01AM during the holiday period.

1. Press **Prog.** key to first free program

2. Press ✍ key twice; OFF symbol ⌒ appears

3. Press **h** key once to 12AM

4. Press **m** key twice to 01

5. Press 𝕩 key once

```
  1 2 3 4 5 6 7   ⊠

  AM   12:01

  CH1        CH2
        ⌒
```
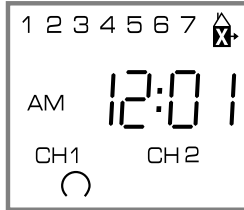
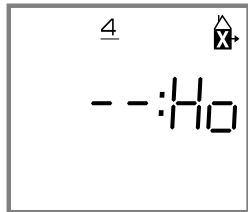Enter additional ON or OFF schedules as above, followed by the 𝕩 key.

6. Press 🕒 key to enter Run Mode
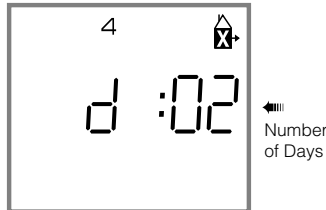
■ IMPLEMENTING HOLIDAY PROGRAM

Up to 6 days in advance of the Holiday, the "8th day" or Holiday schedule may be selected to begin on a certain day of the week, and continue from 1 to 99 days.

Example: Thursday and Friday will be Holidays

1. Press 𝕩 key once

2. Press **Day** key to 4 (Th)

```
       4         ⊠


     --:Ho

```

3. Press **Sel.** key twice to 02

```
       4         ⊠


     d :02      ◄|||
                Number
                of Days
```

4. Press 🕒 key to enter Run Mode

Display will show 𝕩 symbol above current time

8th day schedule will be implemented on Thursday and run for 2 days and then timer will revert back to normal programs.

NOTE: If **Sel.** key is held down, it will scroll rapidly to 99 and back to 01

To review the implementation scheduled, press 𝕩 key once. Display shows day of implementation and number of days holiday program will be active. Press 🕒 key.

To delete the implementation scheduled, press 𝕩 key twice. 𝕩 symbol disappears from display.

On the day the Holiday Program is selected to begin, the 8th day program will be implemented. The display will show the Holiday symbol and number of days remaining in the holiday period. To cancel at this point, press 𝕩 once.

■ TROUBLESHOOTING

PROBLEM: Days are flashing, pressing any key does nothing except ✍ key turns output ON and OFF.

SOLUTION: **Time of Day** and **Day of Week** have not been set. See "SETTING THE TIME"

NOTE: This is the condition after a reset. If the timer is found in this condition after it has been installed, programmed and operating for a while, it may indicate that electrical noise or voltage transients have disrupted the microprocessor causing a loss of program information. Call 1-800-272-1115 and request that a no-charge "Snubber Filter" be sent to you to place across the input to the timer, which may solve the problem.

A second, but very unlikely cause of loss of program is a power failure with the backup battery low or dead. Check by disconnecting power and monitoring how long the battery keeps the time of day in the display.

PROBLEM: Time of day was set while holding the 🕒 key down, but days are still flashing.

SOLUTION: Current day of week was not set **while holding down the 🕒 key.** See "SETTING THE TIME"

PROBLEM: It is 10AM and a ON program for 8AM was entered, but the output is not ON. Display shows the 🕒 and ⌒ symbols.

SOLUTION: After programming, the timer does not "look back" to determine if it should be ON. Press the ✍ key (temporary override) to turn the output ON; ✍ ⦿ appears in display. The timer will assume automatic operation at the next programmed event.

PROBLEM: A program for 8AM Monday thru Friday was entered, but it will not accept it and CH1 ⦿ is flashing.

SOLUTION: The ON ⦿ or OFF ⌒ was not entered as part of the program. ON or OFF **must be selected.**

Digi 42/2 Program Schedules

Prog	CH1 ON/OFF	CH2 ON/OFF	h	m	Day(s)	𝕩 Holiday Program
1	On		7 am	30	Mon., Tue., Wed., Thurs, Fri.	No