Operating Instructions

Digi 42 Series
One Circuit Electronic
24 Hour or 7 Day Time Switches

Digi 42A
(surface mounting)

Digi 42E
(flush mounting)

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.

The Digi 42A series is intended for either surface or DIN rail mounting. The control is completely enclosed in a plastic housing and includes a terminal cover and sub-base for installation and hard wiring.

The Digi 42E is intended for flush (panel) mounting.

Both models are supplied with a clear plastic snap-on dust cover.

TECHNICAL DATA

Output – SPDT relay with dry contacts (no internal supply connections)

Switch Rating: 16A/277VAC resistive
            1000W tungsten @ 240VAC; 500W @ 120VAC
            1/2 hp @ 120VAC; 1 hp @ 240VAC

2 week minimum battery back-up

Supply voltages: Separate Models – 12VDC, 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

VA required: 120V & 240V models: 4VA
            24V model: 2VA @ 24VAC, 1VA @ 24VDC

Screw terminal connections (Digi 42A)

1/4" quick connects (Digi 42E)

Accuracy ± 4 minutes per year

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 switches are available with an enclosure for stand-alone applications (GM digi 42 and GMX digi 42 models).

SURFACE MOUNTING—Digi 42A

Remove cover, loosen two screws on opposite corners. Remove the housing that surrounds the time switch and the terminal cover away from the base. Remove timer module by pulling straight out.


Place screw through 3 mounting holes in base and screw to back panel or wall.

Wire in accordance with instructions. Replace terminal cover and push timer firmly onto base. Now replace housing and secure with screws.

NOTE: The Digi 42A is also suitable for DIN rail mounting. Break out housing part that fits over rail on each side.
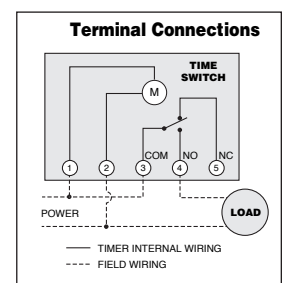
PANEL MOUNTING—Digi 42E

Cut a square hole 2-5/8" x 2-5/8" (66mm x 66mm) in the front of the panel. Insert the time switch through the opening. With a screwdriver, press down and turn outer screws (A) until flanges are in position to fasten the unit in front panel, then release. Insert plugs into holes (B).
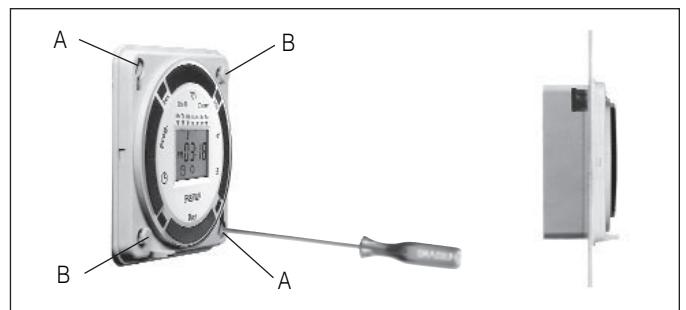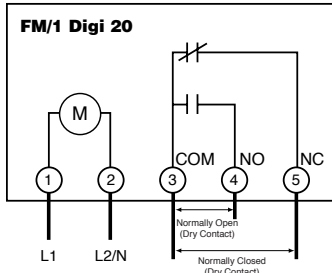

Use 1/4" quick connects and make connections in accordance with the wiring diagram shown and applicable code requirements.
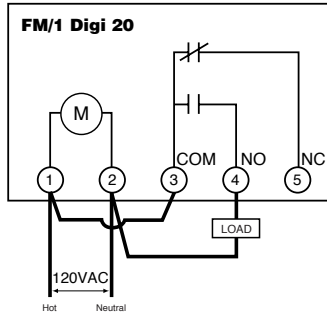
WIRING

1. Disconnect the power.
2. Wire input to timer, ⟨, according to the proper voltage marked on the unit. Wiring to incorrect voltage will void the warranty.
3. Connect wiring according to the wiring diagram. The terminals on the Digi 42A sub-base will accommodate 10 to 24 AWG wire.
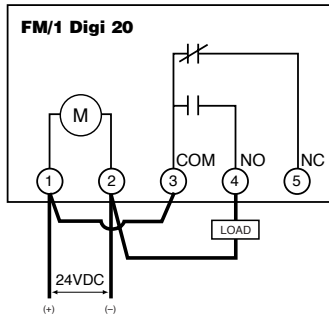

Terminal Connections

Terminal Connections

FM/1 Digi 20

M

COM NO NC

① ② ③ ④ ⑤

L1 L2/N

Normally Open
(Dry Contact)

Normally Closed
(Dry Contact)

Typical Wiring (120VAC Application)

FM/1 Digi 20

M

COM NO NC

① ② ③ ④ ⑤

LOAD

120VAC

Hot   Neutral

Typical Wiring (24VDC Application)

FM/1 Digi 20

M

COM NO NC

① ② ③ ④ ⑤

LOAD

24VDC

(+)   (−)

■ KEYPAD DESCRIPTION

🕘   Setting the Time/Automatic Run Mode

Prog.   Program Mode

Res.*   Reset: Clears all programs and time

✎   Select ON or OFF in Prog. Mode, Manual Override Run Mode

±1h*   Manual Daylight Change Key

h   Setting the Hour (12:– – AM)

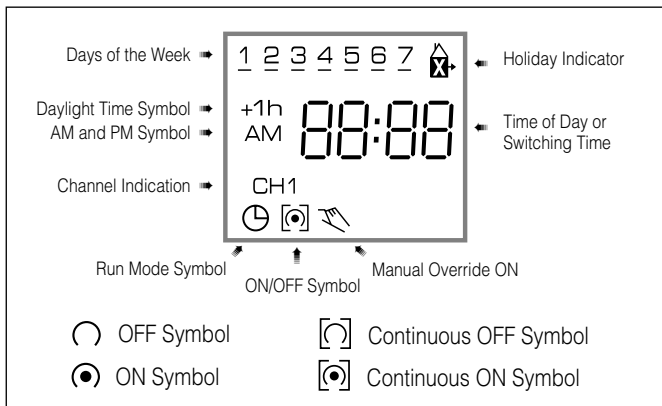**m**   Setting the Minute (12:01 AM)

Day   Set Day and Select Days to be Omitted

Sel.   Omit Day Selected w/Day key

⊞   Holiday Key

*Recessed keys; use a pen point to press

■ LCD DISPLAY ELEMENTS

Days of the Week ➡
Daylight Time Symbol ➡
AM and PM Symbol ➡
Channel Indication ➡
Holiday Indicator
Time of Day or Switching Time
Run Mode Symbol
ON/OFF Symbol
Manual Override ON

◠   OFF Symbol   [◠]   Continuous OFF Symbol

◉   ON Symbol   [◉]   Continuous ON Symbol

■ PROGRAMS

The Digi 42 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.

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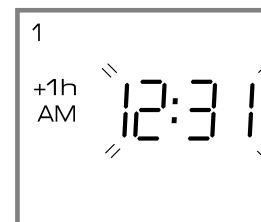
    2. Enter the current (today's) date. **Example: June 15, 1997.** Press **m** key (for date) to **15** first and then press **h** key (for month) to **06** (If in military time, h is date and m is month)

    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.
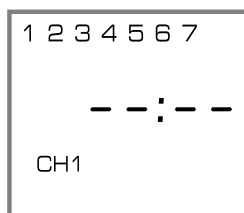
Example

Program 1: ON at 7:00AM Monday thru Friday
Program 2: OFF at 6:00PM Monday and Friday only
Program 3: 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
```

<u>**Program 1**</u> (ON at 7:00AM Monday thru Friday)

Press ✍ key once	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	

<u>**Program 2**</u> (OFF at 6:00PM Monday and Friday)

Press ✍ key twice	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	

<u>**Program 3**</u> (OFF at 5:00PM Tuesday, Wednesday and Thursday)

Press ✍ key twice	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 ✍ ONCE TO TURN THE TIMER "ON". (IT DOES NOT "LOOK BACK" TO DETERMINE IF IT SHOULD BE ON OR OFF AFTER PROGRAMMING)

■ MANUAL OVERRIDE

TEMPORARY: While in the Run Mode, pressing the ✍ key once will reverse the output; ON to OFF or OFF to ON. The ✍ 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 ✍ key twice will turn the output to ON permanently. ⊙ symbol appears in display.

• Pressing the ✍ key three times will turn the output OFF permanently. ◠ symbol appears in display.

• To terminate a continuous override, press the ✍ 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

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 🗓 key once

```
1 2 3 4 5 6 7  🗓


AM  12:01


CH1
   ◠
```
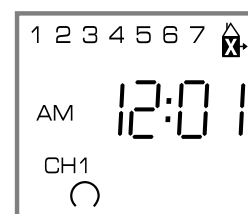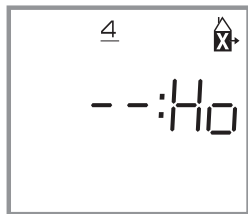
Enter additional ON or OFF schedules as above, followed by the 🗓 key.
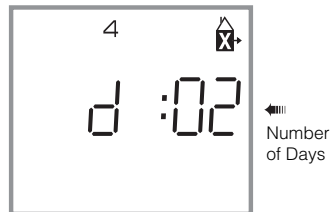
■IMPLEMENTING HOLIDAY PROGRAM

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 🔲 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 🔲 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 🔲 key once. Display shows day of implementation and number of days holiday program will be active. Press 🕒 key.

To delete the implementation scheduled, press 🔲 key twice. 🔲 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 🔲 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.

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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"

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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.

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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 Program Schedules

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

# GRASSLIN - digi 20, digi 42 SERIES (24-Hour, 7-Day)

Digi 42/2 Series 24-Hour and/or 7-Day
Application:
This unit can be used to control 240VAC two-phase loads such as pumps, compressors, etc. It can also be used to provide time based control of two circuit lighting, ventilating, heating, cooling or other electrical loads in commercial and industrial applications. The Digi 42/2 time switches are programmable for 24-hour or 7-day schedules as well as an "8th day" or holiday schedule. Each channel can operate independently or combined.

Features:
- 24 hour or 7 day programming with resolution to the minute and accuracy to the second
- Large keys ease programming
- Unique circular programming pattern and minimal steps simplify programming
- Automatic Daylight Saving Time changeover in Spring and Fall eliminates need to manually change the time
- Holiday, or "8th day" program may be scheduled a week in advance for one or more days
- Each channel may be programmed separately, or both together
- Automatically recharged NiCad battery maintains program and display for two weeks or more
- Manual override for each channel provides for either temporary or continuous ON or OFF state, with status displayed in large LCD

- Automatic Daylight Time changeover with Digi 42
- Holiday program with Digi 42.
- Rechargeable battery backup with 1 week or more carryover.
- 16 amp, SPDT switching.

Digi 42A   P4183   Digi 20E   P4184
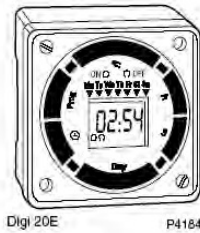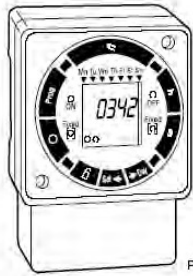
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**C.E.C. CERTIFIED
TITLE 24, PART 6**

ON ALL MODELS MARKED WITH "†"

PART NO	TIMER VOLTAGE	MOUNTING*	SETPOINT PROGRAMS	MAXIMUM WEEKLY ON/OFF EVENTS	RELAY OUTPUT GENERAL PURPOSE RATING
Digi 20A — 120	120 V, 50/60 Hz	Surface or DIN Rail	20	140	SPDT, 16 A, 250 V
Digi 20A — 240	208/240 V, 50/60 Hz	Surface or DIN Rail	20	140	SPDT, 15 A, 250 V
Digi 20A — 24	24 V, 50/60 Hz	Surface or DIN Rail	20	140	SPDT, 16 A, 250 V
Digi 20A — 277	277 V, 50/60 Hz	Surface or DIn Rail	20	140	SPDT, 16 A, 250 V
Digi 42A — 120†	120 V, 50/60 Hz	Surface or DIN Rail	42	294	SPDT, 16 A, 250 V
Digi 42A — 240†	208/240 V, 50/60 Hz	Surface or DIN Rail	42	294	SPDT, 16 A, 250 V
Digi 42A — 24†	24 V, 50/60 Hz	Surface or DIn Rail	42	294	SPDT, 16 A, 250 V
Digi 20E — 120	120 V, 50/60 Hz	Flush Panel	20	140	SPDT, 16 A, 250 V
Digi 20E — 240	208/240 V, 50/60 Hz	Flush Panel	20	140	SDPT, 16 A, 250 V
Digi 20E — 24	24 V, 50/60 Hz	Flush Panel	20	140	SPDT, 16 A, 250 V
Digi 20E — 277	277 V, 50/60 Hz	Flush Panel	20	140	SPDT, 16 A, 250 V
Digi 42E — 120†	120 V, 50/60 Hz	Flush Panel	42	294	SDPT, 15 A, 250 V
Digi 42E — 240†	208/240 V, 50/60 Hz	Flush Panel	42	294	SDPT, 16 A, 250 V
Digi 42E — 24†	24 V, 50/60 Hz	Flush Panel	42	294	SPDT, 16 A, 250 V

PART NO	TIMER VOLTAGE	MOUNTING*	SETPOINT PROGRAMS	MAXIMUM WEEKLY ON/OFF EVENTS	RELAY OUTPUT GENERAL PURPOSE RATING
Digi 42/2-120††	120 V, 50/60 Hz	Flush or Surface	42	294	(2) SPDT, 16 A, 240 VAC
Digi 42/2-240†	240 V, 50/60 Hz	Flush or Surface	42	294	(2) SPDT, 16 A, 250 VAC
Digi 42/2-24†	24 V, 50/60 Hz	Flush or Surface	42	294	(2) SPDT, 16 A, 250 VAC