

# 653 Installation Instructions



INSTALLATION  
INSTRUCTIONS  
NOVEMBER, 2001  
653-0-0000

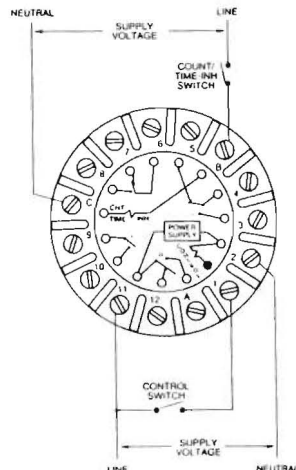
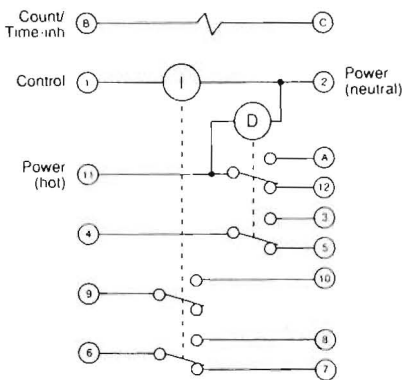
## OPERATION

The Model 653 is a microprocessor-based, 4½ digit LCD display unit that can function as a timer or a counter. There are five selectable timing ranges covering values from one millisecond to 199 hours 59 minutes. There are also 3 selectable count speeds. The unit allows selection of an operating mode from 14 different sequences and has both an instantaneous relay and a programmable relay output.

The timing range, count speed and output sequence are programmed with an internal DIP switch assembly. One of the switches also determines time inhibit or count input with the application or removal of power. The time or count value is entered using the keypad on the front face. The programmed values are retained in memory and are secured in memory by a keypad lockout command. The keypad can also be used to perform secondary functions such as reset, immediate time/count out, time/count inhibit, changing the direction of the display, displaying the number of cycles run and clearing the cycle counter.

The Model 653 is housed in a standard 15-terminal plug-in round case. Models are available for operation on either 120VAC or 240VAC. With its sealed faceplate and membrane keypad, the Model 653 is designed to operate in harsh industrial environments. But with its extensive timing and counting capability, it is also well suited for sophisticated laboratory use.

## WIRING CONNECTIONS – SCHEMATIC



Note: It is important that the metal bracket on the front of the case be connected to earth ground. Mounting the 653 in a grounded metal panel is satisfactory.

## SPECIFICATIONS

### TIMING RANGES

0.001 Sec. to 19.999 Sec.	1 Sec. to 199 Min., 59 Sec.
0.01 Sec. to 199.99 Sec.	1 Min. to 199 Hrs., 59 min.
0.1 Sec. to 1999.9 Sec.	

### COUNT RANGE

19999 scalable to 399,960,001

### COUNT SPEEDS

500/Min., 5000/Min. AC or DC, 7500/Min. DC Only

### REPEAT ACCURACY

Count 100% – Time +0.005 Sec.

### DISPLAY

Type: 4½ Digit LCD, Digit Size: 7/16"

### RESET TIME

2000/2001 – 25mS, 3000/3001 – 8mS

### INITIATE TIME

2000/2001 – 25mS, 3000/3001 – 8mS

### MEMORY

2000/2001 – EEPROM; 3000/3001 – Lithium Battery

### POWER AND CONTROL INPUT

Voltage: 120 or 240 VAC

Range: -20% to +10% of Nominal

Frequency: 50/60 Hz.

Power Consumption: 5.2VA

### TIME-INHIBIT/COUNT INPUT

Line Voltage or 12-48VDC, 24VAC

### OUTPUT

Type: Relay

Instantaneous: 2 N.O., 1 N.C. Contacts

Programmable: 2 N.O., 2 N.C. Contacts

Rating: 7 Amps Resistive Max.; 240 Volts Max., 600 VA Max

Mechanical Life: 50,000,000 Operations

### TRANSIENT VOLTAGE PROTECTION

Metal Oxide Varistor

### OPERATING TEMPERATURE

+32°F to +140°F (0°C to 60°C)

### ORDERING INFORMATION – SPARE PARTS

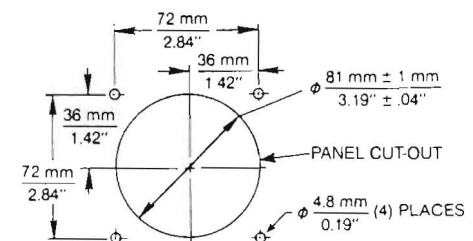
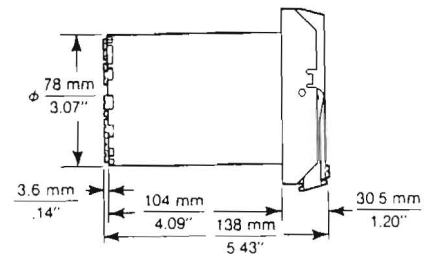
Battery (Lithium) .....652-3-0128

Mounting Gasket (1/8" Thick) .....651-3-0128

Mounting Gasket (1/4" Thick) .....651-3-0129

## DIMENSIONS

millimeters  
inches



## SETTING TIME BASE/COUNT SPEED AND OPERATING MODE

The first step to set-up the Model 653 for operation is to determine time/count setting and operating mode you require. Both of these items are accomplished by setting DIP switches located on the backside of the Model 653 front panel. Figure 1 shows the location of the DIP switch assembly.

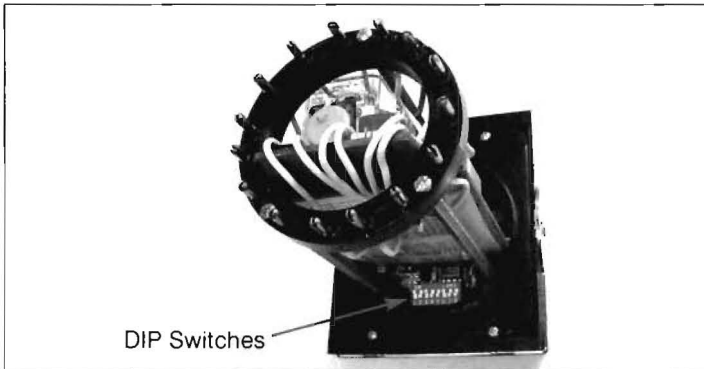


Figure 1

In the chart below, an X under a particular switch number indicates that the switch is to be ON; an O indicates the switch is to be OFF.

### TIME BASE OR COUNT SPEED SETTING

Switches 1, 2, and 3 are used to select the time/count base.

Switch Number			Time/Count - Base
1	2	3	
O	O	O	0.001 To 19.999 Sec.
O	O	X	0.01 To 199.99 Sec.
O	X	O	0.1 To 1999.9 Sec.
O	X	X	1 Sec. to 199 Min., 59 Sec.
X	O	O	1 Min. - 199 Hr., 59 Min.
X	O	X	Count - 500CPM, AC/DC
X	X	O	Count - 5000CPM, AC/DC
X	X	X	Count - 7500CPS, DC Only

### OPERATING MODE SETTING

To determine the operating mode you require, refer to the enclosed sheet titled; **Models 652 and 653 Operating Modes.**

Switches 4 through 7 select the operating mode, including the control input and relay output sequence.

Operating Mode	Switch#				Control Input	Delayed Relay Energization				
	4	5	6	7		Reset		Operating Completed		
1	O	O	O	O	Normal start	O	O	X		
2	O	O	O	X	Normal start	O	X		O	
3	O	O	X	O	Reverse start	O	O		X	
4	O	O	X	X	Reverse start	O	X		O	
5	O	X	O	O	Momentary start	O	O		X/P	
6	O	X	O	X	Accumulator	O	O		X/P	
						Reset T1 T2 T1 T2				
7	O	X	X	O	Normal start	O	O	X	O	X
8	O	X	X	X	Normal start	O	X	O	X	O
9	X	O	O	O	Reverse start	O	O	X	O	X
10	X	O	O	X	Reverse start	O	X	O	X	O
11	X	O	X	O	Normal start	O	O	P	P	P
12	X	O	X	X	Normal start	O	P	P	P	P
13	X	X	O	O	Reverse start	O	O	P	P	P
14	X	X	O	X	Reverse start	O	P	P	P	P

## COUNT/TIME-INHIBIT SETTING

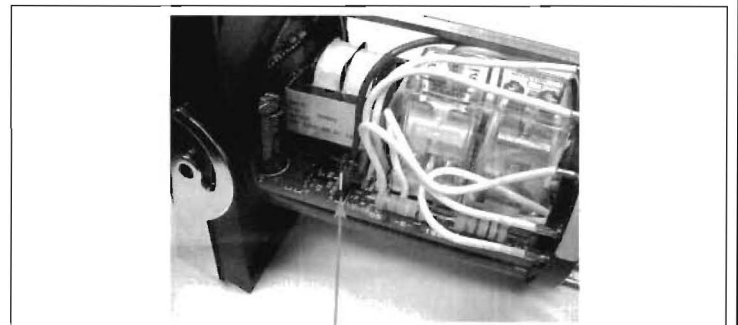
DIP Switch 8 allows count/time inhibit either on application or removal of voltage.

Switch	Inhibit Input Operation
8	
O	Counts Rising Edge - Time Inhibit when ON
X	Counts Falling Edge - Time Inhibit when OFF

## COUNT/TIME-INHIBIT VOLTAGE SELECTION

Figure 2 shows a jumper labeled J2 which allows the user to select the operating voltage of the count/time-inhibit input. In the position labeled "line voltage" the input will work on the same voltage as the control input (120VAC or 240VAC depending on the model). In the other position the input will accept voltages in the range 12-48VDC/24VAC.

**CAUTION:** Do not apply line voltage to the count/time-inhibit input if the jumper is set in the low-voltage position.



Jumper Connector - J2

Place connector on front two pins for low voltage operation.  
Place connector on rear two pins for line voltage operation.

Figure 2

## PROGRAMMING

The second step to set-up the time is to program the **Setpoint(s) Time/count Cycle counter** and **Count Input Scale Factor**.

Whenever the 653 is in an unprogrammed condition, the display will show four dashes. This will occur when the unit is powered up for the first time, when the battery is replaced, or when any of the DIP switches are changed.

**NOTE:** Changing any of the DIP switches will erase all programmed values, it is important that all DIP switches be set to the correct position before programming begins.

Depending upon the operating mode, the 653 will accept from one to three programmed values and will sequence through them in the following order; **Setpoint 1, Setpoint 2, Cycle Count** and **Count Input Scale Factor**. Any parameter not applicable to the selected operating mode will not be displayed.

To enter, display, or change any of the programmed values, press the **SET** key to begin program mode. While in program mode, the **ENT** key may be used to step through the parameters. After the last parameter has been displayed, the **ENT** key will exit program mode.

Upon entering program mode, the value of setpoint 1 is displayed along with the "SET" annunciator. If the operating mode calls for more than one setpoint, "SET 1" will be illuminated. Setpoint 2 is displayed with the "SET 2" annunciators and cycle count is displayed as "SET CNT" and the scaling factor is displayed in 2 steps with the word "SCAL" followed by the numeric value.

In program mode, a displayed value may be changed with the four increment keys before pressing **ENT**. The three rightmost increments keys increment the three rightmost digits on the display (they roll over from 9 to 0 with no carry to the next digit). The left increment key is used to set the leftmost 1 and ½ digits on the display (they increment to 19 before returning to 0). Depressing an increment key for longer than 1 second causes continuous incrementing until released. With a time base of min:sec or Hr:min, the digit to the right of the colon rolls over from 5 to 0.

Should the user wish to erase changes that have been made to the displayed number, pressing the **SET** key again will return the value stored in memory to the display.

With the desired number on the display, the **ENT** key may be used to store it in memory and sequence to the next value.

Program mode may be entered while timing is in progress without affecting the current operation. As new parameters are entered, they are held in temporary memory locations until the last one is entered. Then, upon exit from program mode, the new values will be used at the beginning of the next cycle (or possibly half cycle in the case of repeat-cycle operation).

Because the **SET** key has a special "wake up" feature, set-points may be viewed or changed without AC power applied to the unit. To conserve the battery, the display will blank and return to "sleep" mode when no key has been pressed for 15 seconds. When this happens, the unit leaves program mode and discards changes not entered (**ENT**). Therefore, when making changes on battery power, do not hesitate too long between key strokes.

Generally, a setpoint of 0 is invalid and will not be accepted (**ENT** key will not function). The only time that a setpoint of 0 will be accepted is to define continuous repeat operation (0 may be entered for **SET CNT**).

A keypad lock-out feature may be invoked by pressing the leftmost and rightmost increment keys simultaneously when not in program mode. This allows the parameters to be viewed but not changed. To indicate that the keypad is locked while a programmed value is being viewed, the display alternates the numerical value with the word "LOC". The keypad lock-out may be turned off by pressing the same two keys when not in program mode.



Figure 3

## KEYPAD SECONDARY FUNCTIONS

When not in program mode, the four increment keys perform the secondary functions indicated on the keypad above and below the keys.

## COUNT INPUT SCALE FACTOR

When operated as a counter, a scale factor may be entered which allows for unit conversion or count range extension. The count input scale factor is simply the number of counts that must be received on the count input before one count is registered. Valid scale factors are numbers in the range 1 to 19,999 with the default being 1. A scale factor of 0 is invalid and will not be allowed by the 653. Note that control is performed on the scaled count (setpoint is compared with the displayed count). In all operating modes which do not reset when power is removed, both the scaled count and the partial count (count pulses not yet resulting in a full count) are retained during power outage. In program mode, the scale factor is displayed in two steps. First, the word "SCAL" is displayed indicating that the next number displayed will be the scaling factor. Pressing the **ENT** key will then bring the numerical value of the scaling factor to the display.

## Reset of Current Timing Operation

Pressing the two leftmost increment keys simultaneously initiates a reset of the current timing/counting operation. To guard against an accidental reset, the user is prompted with "rst?" on the display and is then required to press the **ENT** key to actually perform the reset. The command may be cancelled by pressing any key other than **ENT**, or by not pressing any key for 15 seconds. For repeat-cycle operation, the reset command takes the unit back to the beginning of the current phase (setpoint 1 or setpoint 2). The keypad reset command will have no effect on a unit that is either reset or timed out. Changing a setpoint and following it with a keypad reset allows the new setpoint to become effective immediately.

## Keypad Time/Count Out

The two center increment keys may be pressed simultaneously to initiate a forced time out of the current timing operation. To guard against an accidental time out, the user is prompted with "to?" and is then required to press the **ENT** key to actually end the current cycle (or half cycle in the case of a repeat-cycle mode). The command may be cancelled by pressing any key for 15 seconds. For the repeat-pulse modes, where two times can be running at the same time, the keypad time out will affect only what is currently being displayed. That is, if an output pulse is in progress, the pulse will be terminated without affecting the cycle time. If any output pulse is not in progress, the cycle will be ended. The keypad time-out command will have no effect on a unit that is reset or timed out.

## Keypad Inhibit

The two rightmost increment keys may be pressed simultaneously to inhibit the current timing/counting cycle. To guard against accidentally inhibiting the operation, the user is prompted with "inh?" on the display and is then required to press the **ENT** key to actually inhibit the operation. The command may be cancelled by pressing any key other than **ENT**, or by not pressing any key for 15 seconds. While timing is inhibited from the front panel, the unit alternates the normal display with the word "inhP". Keypad inhibit may be entered for a unit that is not running (stopped or reset) and will then prevent the unit from running when instructed to start via the control input. The keypad inhibit may be turned off by pressing the same two keys that were used to invoke it. In this case the user will be prompted with "run?" on the display and will be required to press the **ENT** key to resume operation.

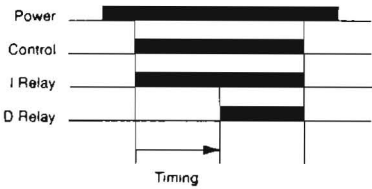
# MODELS 652 AND 653 OPERATING MODES

## Single Cycle Modes

### 1, 2, 3, 4, 5, 6

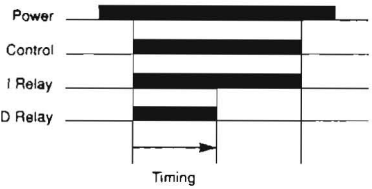
#### MODE 1: ON-DELAY

The supply voltage is applied at all times. When voltage is applied to the control terminal, the instantaneous contacts change state and timing begins. Upon completion of timing, the delayed contacts change state. Reset takes place upon removal of the control voltage.



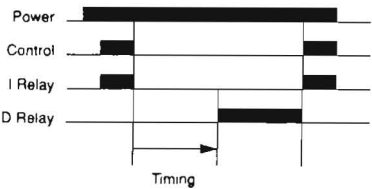
#### MODE 2: INTERVAL

The supply voltage is applied at all times. When voltage is applied to the control terminal, both the instantaneous and delayed contacts change state and timing begins. Upon completion of timing, the delayed contacts return to their original state. Reset takes place upon removal of the control voltage.



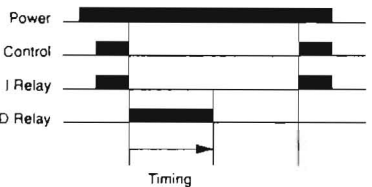
#### MODE 3: REVERSE START, DELAY

The supply voltage is applied at all times. Applying voltage to the control terminal holds the unit in reset with the instantaneous relay energized. When the voltage is removed from the control terminal, the instantaneous relay returns to its rest state and timing begins. Upon completion of timing, the delayed contacts change state. Reset takes place when voltage is once again applied to the control terminal.



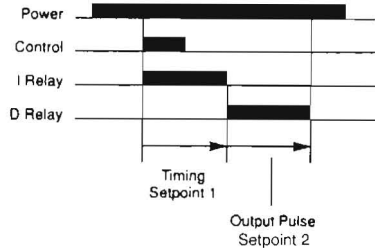
#### MODE 4: REVERSE START, INTERVAL

The supply voltage is applied at all times. Applying voltage to the control terminal holds the unit in reset with the instantaneous relay energized. When the voltage is removed from the control terminal, the instantaneous relay returns to its rest state, the delayed contacts become energized, and timing begins. Upon completion of timing, the delayed contacts return back to their original state. Reset takes place when voltage is once again applied to the control terminal.



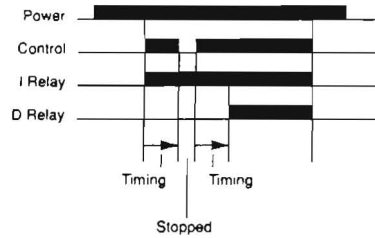
#### MODE 5: MOMENTARY START

The supply voltage is applied at all times. When voltage is applied to the control terminal, the instantaneous contacts change state and timing begins. The control voltage can now be removed. Upon completion of timing, the instantaneous contacts change back to their original state and the delayed contacts change state for a programmable amount of time. The timing interval is controlled by setpoint 1, and the output pulse width is controlled by setpoint 2 (with a time base of .01 sec). If the control is still on at the end of timing, both the instantaneous and delayed contacts remain in their transferred state until reset by removal of the control voltage.



#### MODE 6: ACCUMULATOR

The supply voltage is applied at all times. When voltage is applied to the control terminal, the instantaneous contacts change state and timing begins. If the control voltage is removed while timing, the current state is held. Reapplying control voltage causes timing to continue from the point of interruption. Upon completion of timing, the delayed contacts change state. Reset takes place upon removal of the control voltage. A keypad time-out while the unit is stopped will cause a pulse output which is controlled by setpoint 2 (with a time base of .01 sec).

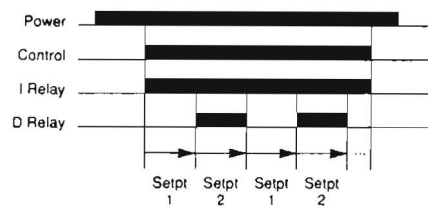


## Repeat Cycles Modes

### 7, 8, 9, 10

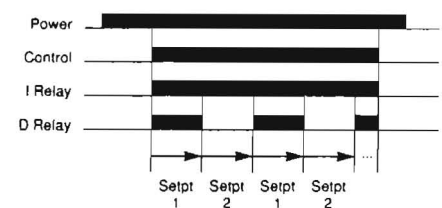
#### MODE 7: REPEAT CYCLE, OFF FIRST

The supply voltage is applied at all times. When voltage is applied to the control terminal, the instantaneous contacts change state and timing begins using setpoint 1. When the time has satisfied setpoint 1, the delayed contacts change state and timing continues using setpoint 2. When timing has reached setpoint 2, the delayed contacts return to their original state and operation begins over again with setpoint 1. The third setpoint (SET CNT) controls the number of cycles (continuous operation if setpoint 3 is programmed for 0). Reset takes place upon removal of control voltage.



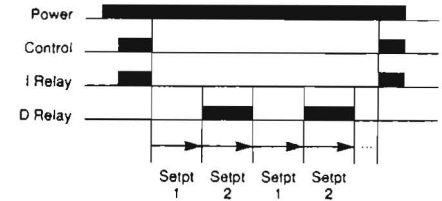
#### MODE 8: REPEAT CYCLE, ON FIRST

The supply voltage is applied at all times. When voltage is applied to the control terminal, both the instantaneous and delayed contacts change state and timing begins using setpoint 1. When the time has satisfied setpoint 1, the delayed contacts return to their original state and timing continues using setpoint 2. When timing has reached setpoint 2, the delayed contacts are once again energized and operation begins over with setpoint 1. The third setpoint (SET CNT) controls the number of cycles (continuous operation if setpoint 3 is programmed for 0). Reset takes place upon removal of control voltage.



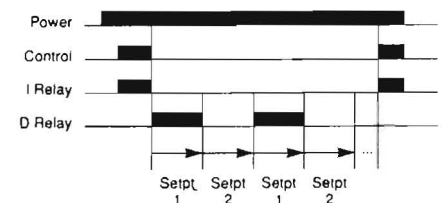
#### MODE 9: REPEAT CYCLE, REVERSE START, OFF FIRST

The supply voltage is applied at all times. Applying voltage to the control terminal holds the unit in reset with the instantaneous relay energized. When voltage is removed from the control terminal, the instantaneous relay returns to its rest state and timing begins using setpoint 1. When the time has satisfied setpoint 1, the delayed contacts change state and timing continues using setpoint 2. When timing has reached setpoint 2, the delayed contacts return to their original state and operation begins over again with setpoint 1. The third setpoint (SET CNT) controls the number of cycles (continuous operation if setpoint 3 is programmed for 0). Reset takes place when voltage is once again applied to the control terminal.



#### MODE 10: REPEAT CYCLE, REVERSE START, ON FIRST

The supply voltage is applied at all times. Applying voltage to the control terminal holds the unit in reset with the instantaneous relay energized. When voltage is removed from the control terminal, the instantaneous relay returns to its rest state, the delayed contacts change state, and timing begins using setpoint 1. When the time has satisfied setpoint 1, the delayed contacts return to their original state and timing continues using setpoint 2. When setpoint 2 has been satisfied the delayed contacts are once again energized and operation begins over with setpoint 1. The third setpoint (SET CNT) controls the number of cycles (continuous if 0). Reset takes place when voltage is once again applied to the control terminal.

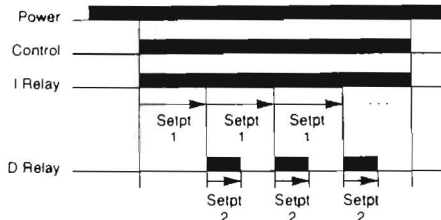


## Repeat Pulse Modes

### 11, 12, 13, 14

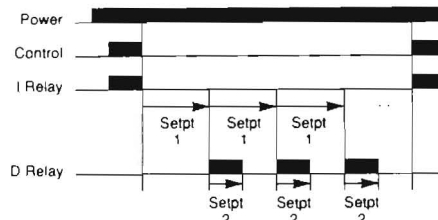
#### MODE 11: Repeat Pulse

The supply voltage is applied at all times. When voltage is applied to the control terminal, the instantaneous contacts change state and timing begins using setpoint 1. When the time has satisfied setpoint 1, the delayed contacts are energized for a period of time which is controlled by setpoint 2. At the same time that the output pulse begins, a new cycle time (setpoint 1) begins. During an output pulse, the display shows the pulse. The third setpoint (SET CNT) controls the number of cycles (continuous operation if setpoint 3 is programmed for 0). Reset takes place upon removal of control voltage.



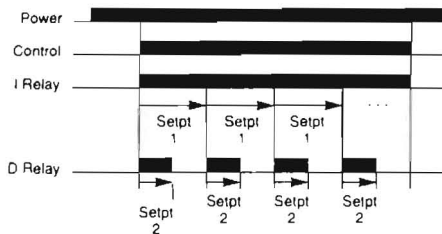
#### MODE 13: REPEAT PULSE, REVERSE START

The supply voltage is applied at all times. Applying voltage to the control terminal holds the unit in reset with the instantaneous relay energized. When the voltage is removed from the control terminal, the instantaneous relay returns to its rest state and timing begins using setpoint 1. When the time has satisfied setpoint 1, the delayed contacts are energized for a period of time which is controlled by setpoint 2. At the same time that the output pulse begins, a new cycle time (setpoint 1) begins. During an output pulse, the display shows the pulse. The third setpoint (SET CNT) controls the number of cycles (continuous operation if 0). Reset takes place when voltage is once again applied to the control terminal.



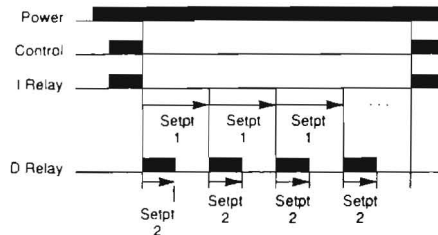
#### MODE 12: REPEAT PULSE, 1st PULSE IMMEDIATE

The supply voltage is applied at all times. When voltage is applied to the control terminal, the instantaneous contacts change state, timing begins using setpoint 1, and the delayed contacts are energized for a period of time which is controlled by setpoint 2. When the time has satisfied setpoint 1, another output pulse begins and the cycle time (setpoint 1) restarts. During an output pulse, the display shows the pulse. The third setpoint (SET CNT) controls the number of cycles (continuous operation if setpoint 3 is programmed for 0). Reset takes place upon removal of control voltage.



#### MODE 14: REPEAT PULSE, 1st PULSE IMMEDIATE, REVERSE START

The supply voltage is applied at all times. Applying voltage to the control terminal holds the unit in reset with the instantaneous relay energized. When the voltage is removed from the control terminal, the instantaneous relay returns to its rest state, timing begins using setpoint 1, and the delayed contacts are energized for a period of time which is controlled by setpoint 2. When the time has satisfied setpoint 1, another output pulse begins, a new cycle time (setpoint 1) restarts. During an output pulse, the display shows the pulse. The third setpoint (SET CNT) controls the number of cycles (continuous if 0). Reset takes place when voltage is once again applied to the control terminal.





### Display Up/Down Selection

The factory set default operation of the display is to count down from the setpoint to 0 (show time remaining) and for counting. For the cycle counter, the default counts up from 0 (show accumulated count). The up or down arrow will be illuminated to indicate the display direction. The defaults may be overridden any-time the unit is not in program mode by pressing the leftmost increment key. No confirmation is required for this command since only the display is affected. The display direction may be set for three individual functions; Timer/Counter 1 (used when running setpoint 1; Timer/Counter 2 (used when running setpoint 2); and the Cycle Counter. The up/down selection will affect whichever one of these is currently being displayed. When the time base switches are set for hr:min or counting, the arrow on the display flashes to indicate that the unit is operating.

### Display Time/Count

Pressing the key labeled TIME/CNT causes the display to show the current time value setting. Confirmation is not required since only the display is affected. This key may be used to return the time value to the display after displaying the cycle counter. When displaying a repeat-cycle or repeat-pulse time value, the "1" and "2" annunciators identify which portion of the cycle is being displayed.

### Cycle Counter Operation

The cycle counter can be used to either count the number of timing/counting cycles (available in any mode of operation) of as a preset cycle control in operation modes 7 through 14. Pressing the increment key labeled CYCLES causes the display to show the current cycle count. Confirmation is not required since only the display is affected.

### Cycle Counter

For any of the **single-cycle modes**, or for a continuously running repeat mode, the cycle counter functions as follows:

- It keeps a running total of timing/counting cycles (including cycles cut short with the keypad time-out.)
- Can only be displayed; it has no control ability.
- Can only be reset from the keypad.
- Displays cycle counts up to 19,999.
- Can only be displayed as accumulated cycle count or accumulated count remaining.

In all cases, the cycle count is indicated on the display by alternating the numerical count with "CYCL CNT".

### Preset Time Cycle Control

For any **controlled-cycle repeat-mode operation** (3rd setpoint non-zero), the internal cycle counter is used to terminate operation when the programmed cycle count has been satisfied. In this case the cycle counter has the following properties:

- Counts the timing cycles within the current controlled series (including cycles cut short with the keypad time-out).
- Has control ability (stops operation when the cycle count is satisfied).
- Can be reset by either control input or keypad.
- Displays cycle counts up to 19,999.
- Can be displayed as accumulated cycle count or cycle count remaining.

When not operating in the cycle control mode, the cycle counter can exceed the 19,999 limit of the display. Display operation is normal until the count reaches 20,000 at which time the display alternated between three high order digits (shown with an H) and three low order digits (with an L). At a count of 1,000,000 the "1" annunciator is added and at 2,000,000 the "2" annunciator is used. The cycle counter stops and flashes the word "End" when the maximum value of 2,999,999 is reached.

### Clear Cycle Counter

The cycle counter may be reset from the keypad by pressing the rightmost increment key. To guard against accidentally clearing the cycle count, the user is prompted with "Clr?" it. The command may be cancelled by pressing any key other than ENT, or by not pressing any key for 15 seconds after which the command is automatically cancelled.

### Keypad Lock-Out

Although not indicated on the front panel, the 653 has a keypad lock-out function which may be turned on by pressing the leftmost and rightmost increment keys simultaneously. In program mode, the keypad lock-out prevents any programmed values from being changed, but allows them to be viewed. When not in program mode, the following functions are inhibited:

- Keypad reset
- Keypad time-out
- Keypad inhibit
- Keypad clearing of the cycle counter

The keypad lock-out may be turned off by pressing the same two keys that were used to turn it on. Turning the keypad lock-out on or off may only be done when the unit is not in program mode. Also, the keypad lock-out may not be turned on if the unit has not been programmed (four dashes on the display).

### Display Firmware Identification

Another function which is not identified on the front panel is the ability to display the part number and version of the internal firmware. This information may be of importance when contacting ATC application engineering for assistance. Pressing the three rightmost increment keys simultaneously when not in program mode will begin the scrolling of the information across the display. The scrolling may be terminated by pressing another key function or by waiting one minute for it to stop automatically.

### Diagnostics

When the 653 is powered up after all power having been removed (no AC power and no battery), or whenever a DIP switch is changed, the unit runs through a diagnostic check of its internal registers and memory. While this testing is in progress, all segments of the LCD display are illuminated for 3.5 seconds allowing the operator to visually check the display.

If the diagnostic tests are all good, the display changes to four dashes, indicating the unprogrammed state. If the diagnostic check fails, all operation is inhibited and an error number flashes on the display.

Other diagnostic checks are performed continuously while the 653 is operating. These checks include testing the validity of the programmed data in memory, and monitoring an internal watchdog timing function. If a fault is detected, the 653 turns off both relays and flashes an error number.

An error condition can be cleared by pressing any key on the front panel. When this is done, the unit is reinitialized (erasing all program data) just as if a DIP switch was changed. If the error continues, the unit must be returned to the ATC Company for repairs. When contacting the ATC Company, please report the error number that was displayed.

## ISE, Inc.

10100 Royalton Rd.  
Cleveland, OH 44133  
Tel: (440) 237-3200  
Fax: (440) 237-1744  
<http://iseinc.com>

