www.technosource.in

INSTRUCTION MANUAL
For

Programming the timer in

ELECTRAGEL 100 (CAT. NO. 24-T0100)
ELECTRAPAGE 200 (CAT. NO. 25-T0200)
ELECTRACOMET (CAT. NO. 26-T0500)
ELECTRAEDGE (CAT. NO. 28-T0550)
ELECTRAPRIME (CAT. NO. 29-T0300)

TechResource 188, Nagdevi Street, 2nd Floor, Mumbai 400003.
Tel: +91 9819095429 | +91 7798384170 Email: sales@techresource.in

Dear Customer,

Congratulations on procuring the TechnoSource power supply with timer.

The timer is a versatile, unit which can perform under various requirements with minor programming.

Some points about the power supply to keep in mind

- The timer is indigenously manufactured from high quality parts and is specifically designed to suit Indian laboratory conditions.
- You can carry on your electrophoresis as per your requirements while using the timer or you can bypass it if required.
- The dual displays helps to monitor the countdown time and the time set.
- In the event of a power interruption and subsequent restoration the power supply and timer will come on and continue operations with the settings remaining unchanged.
- The timer is versatile and allows different ranges of countdown from 1 milliseconds to 999 hrs.

This timer will give you many years of trouble free use. In any event that there is a problem our long warranty of 3 years covers all manufacturing defects.

We sincerely hope you that you gain as much satisfaction in using this power supply with the timer as we achieved in designing and manufacturing it.

Regards,

The Production Team of TechResource

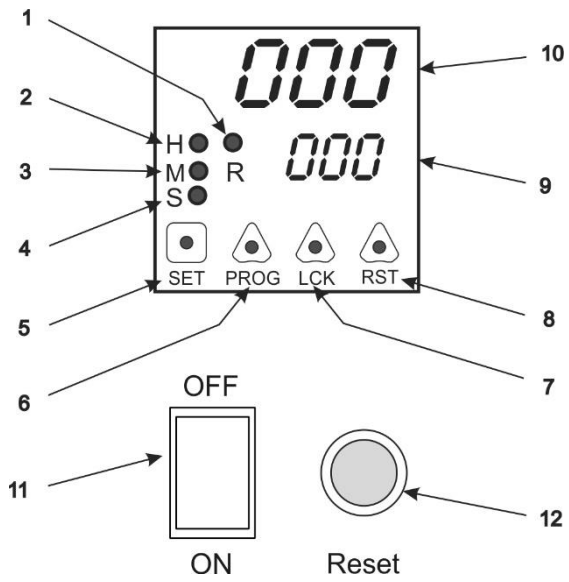
Precautions:

1. Keep the timer and power supply dry at all times.
2. Avoid utilizing very high current at very low voltage settings
3. Please read the manual carefully before using the power supply

Short Specifications for the timer:

Display	*Dual, 3 digit seven segment LED*
Operating modes:	*On Delay, Interval, Cyclic On first and Cyclic Off first first*
Counting direction:	*Down*
Accuracy	*±0.05% of set time of 50 msec (whichever is greater)*
Operating temp	*0 to 50°C*
Humidity	*95% RH*

Timer and timer control layout



1. Indicator for Timer at rest (Indicates cycle is complete)
2. Indicator for hours
3. Indicator for minutes
4. Indicators for seconds (Blinking lights on 2/ 3/ 4 indicates that the timer is counting down)
5. SET *or* Go to the next item on the menu
6. PROGRAM *or* Change the 1st digit of time
7. LOCK *or* Change the 2nd digit of time
8. RESET *or* Change the 3rd digit of time
9. Display of the SET time
10. Display of the countdown timer
11. Timer ON/ OFF switch
12. Reset the time switch

Legend for Timer LED's 

Using the timer

Section 1. General information

The timer is a multifunctional unit which can be set in different ranges to cover from 1 millisecond to 999 hours. Due to the large number of functions the use of the timer may *seem* complicated to a beginner but is quite simple to use.

1. The timer can be used to:
    1. Countdown from a set value of time (described in this manual)
       E.g. From 3hr.45min to 0h.00min
    2. Perform cyclical operations
       E.g. ON for 10min, OFF for 20min, ON for 10min, OFF for 20min …
    3. Start at a delayed point and stop after the specified time interval
       E.g. Start after 24hr, run for 50min

   If you wish to use the timer for any functions other than countdown please contact us.

2. Understanding the range: ***Setting the range is not the same as setting the countdown.***

- The range is the maximum time that you could want to set the timer to. Within the range you can set it to any time.

  E.g. 1 – If the range selected is **9hr.59min** then you can set the timer to
  0 hr. 01 min [1 min] *Minimum time*
  0 hr. 30 min [30 mins]
  3 hr. 50 min [3 hours and 50 minutes]
  9 hr. 59 min [9 hours and 59 minutes] *Maximum time*

  E.g. 2 – If the range selected is **99.9hrs** then you can set the timer to
  00.1 hr [6 min] *Minimum time*
  00.5 hr [30 mins]
  03.5 hr [3 hours and 30 minutes]
  99.9 hr [99 hours and 54 minutes] *Maximum time*

  Note - The timer can be set to any other point within the range. The points given above are examples.

- List of all time ranges possible: (for pictoral depiction check Fig. 1)

		Range	Can be set to	Use in Laboratory
Seconds		9.99 sec	0 - 9 sec and 99 milli sec	Not commonly used
		99.9 sec	0 - 99 sec and 9 milli sec	Not commonly used
		999 sec	0 - 999 sec (approx. 16 min)	Not commonly used
Minutes		9.59 min:sec	0 - 9 min and 59 sec	Not commonly used
		99.9 min	0 - 99 min and 54 sec (approx. 1 hr and 40 mins)	Can be used for short gels
		999 min	0 - 999 min (approx. 16 hrs and 40 mins)	Can be used for all gels and blotting. Is tedious to calculate
Hours	✓	9.59 hr:min	0 - 9 hrs and 59 min	Can be used for all gels and most blotting and is easy to set
	✓	99.9 hr	0 - 99 hrs and 54 min	Can be used for all gels and blotting
		999 hr	0 - 999 hrs	Not commonly used

✓ For common electrophoresis applications you would need to select the range of **9hr.59min**. Our power supply is adjusted to this range when supplied to you.

✓ For some long blotting applications you may want to set the range to **99.9hrs**.

Understanding Ranges: Fig. 1

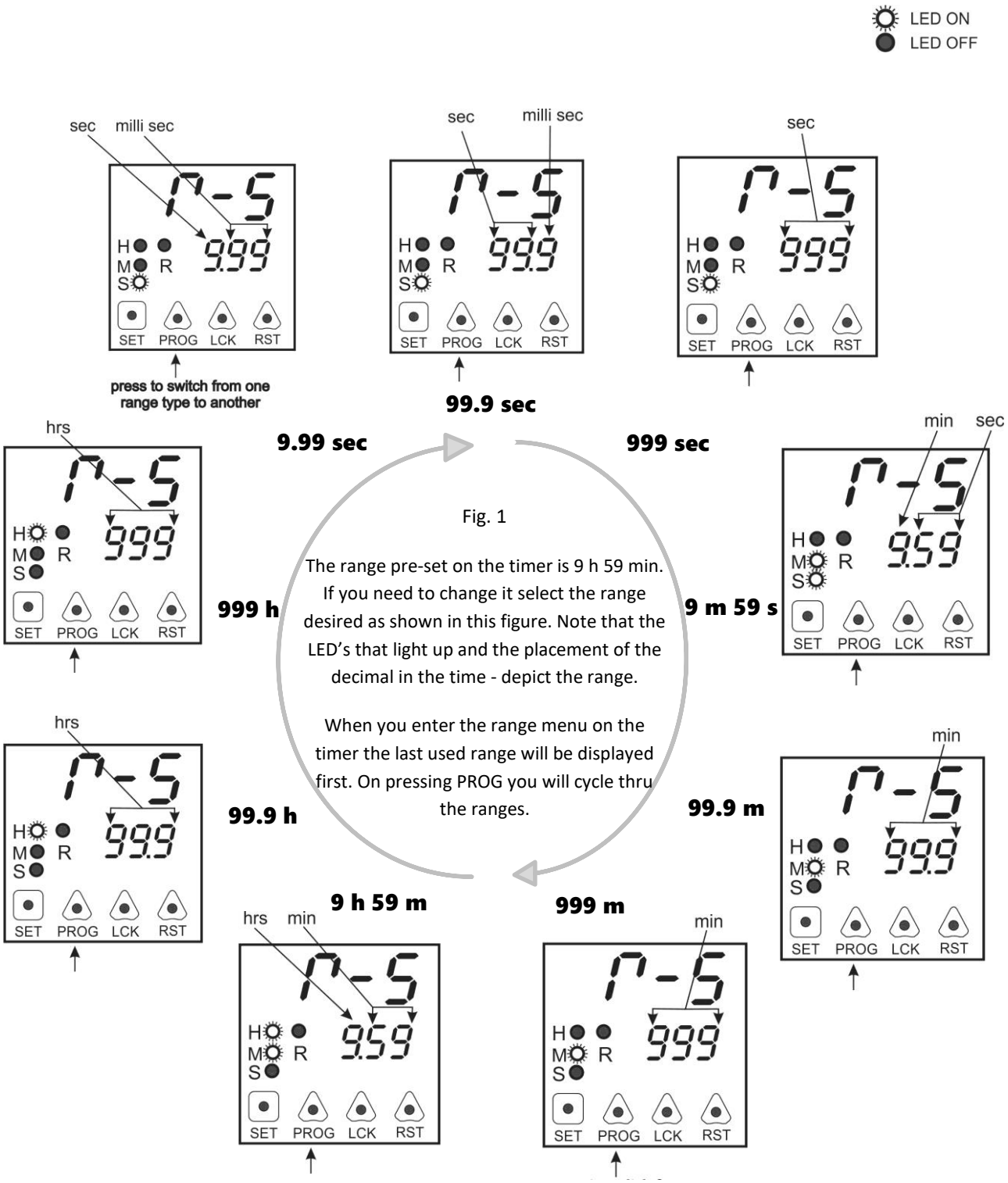


Fig. 1

The range pre-set on the timer is 9 h 59 min. If you need to change it select the range desired as shown in this figure. Note that the LED's that light up and the placement of the decimal in the time - depict the range.

When you enter the range menu on the timer the last used range will be displayed first. On pressing PROG you will cycle thru the ranges.

Section 2. Setting the time range and the countdown time on the timer

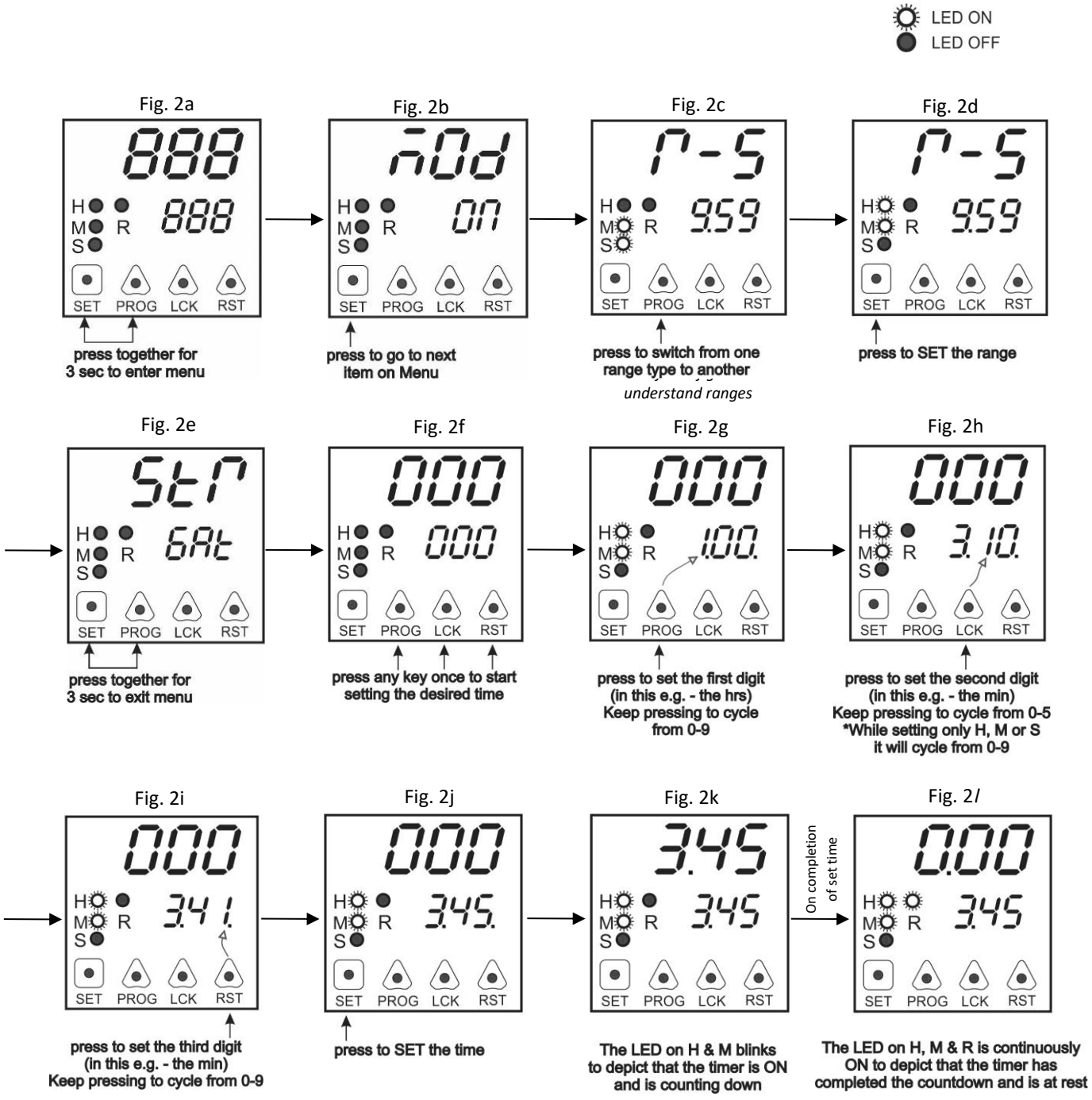
- ***If you wish to only set the countdown time and not the range go directly to section 3.***
- ***To understand what 'range' means, go to Pg. 7 and read the section 1 on ranges (also refer Fig. 1.)***

1.1. Switch ON the power supply, and switch the pause button to RESUME/ RUN.
1.2. Switch ON the Timer ON/ OFF switch.
1.3. Press the SET and PROG button on the timer simultaneously for 3 sec. (Fig. 2a)
Note: The timer will exit the menu if unused for 30 sec.
1.4. Press SET button once to go to Menu option of setting range. (Fig. 2b)
1.5. Press the PROG button to toggle between the different range options. (Fig. 2c)
1.6. The range displayed first will depend on what has been previously set. On a new power supply the timer range is pre-set to 9 h: 59 min. The cycle of ranges have been displayed in Fig. 1.
1.7. Once the desired range is displayed, press the SET button once (Fig. 2d)
1.8. Press SET and PROG button simultaneously for 3 sec. (Fig. 2e)
1.9. The time desired can be set by pressing once any one of the PROG, LCK or RST keys (Fig. 2f).
1.10. Use the PROG button to change the first digit (reading left to right), the LCK button to change the second digit and the RST button to change the third digit. (Fig 2g-2i)
E.g. 1 – If the time range selected in **H** then the digits can denote two possibilities; 99.9 hrs or 999 hrs. Note the decimal on the set time.
Time ranges of **M** and **S** follow the same logic.
E.g. 2 – If the time range selected is **H & M** then the first digit denotes the hours (up to 9 hours) and the second and third digits denote the minutes (up to 59 mins). Time ranges of **M & S** follow the same logic
1.11. Once the desired time is selected Press SET. (Fig 2j)
1.12. The countdown time display will now depict the countdown time. (Fig 2k)
(Note: the LED for the range selected will start blinking. If the power supply is paused the lights will remain ON continuously)
1.13. The countdown time display will countdown till **000**. The timer and the power supply will stop (the voltmeter and ammeter displays will remain ON but will show 000). The LED light on the range set and the indicator for AT REST (**R**) will remain ON continuously. (Fig 2*l*)

If there is a power failure, or the mains of the power supply is switched off, or the timer is switched off, then the last countdown time and set time will remain stored in memory (for approx. 10 years). Whenever power is restored or mains of the power supply are switched ON or the timer is switched ON the countdown will continue from the time point where it had been interrupted.

Setting the time range and the countdown time on the timer: Figure 2

(This figure pictorially describes section 2)



Section 3a. Setting the countdown time on the timer

3.a.1 Switch ON the power supply and the timer ON/ OFF switch

3.a.2 Switch the pause button to RESUME/ RUN

3.a.3 The timer will come on and display the time set and countdown time pending (if any) from the previous use.

3.a.4 The LED lights depict which time range has been selected (Refer to Fig. 1). If you need to change the range please go to section 2. If range selected is the desired range please proceed.

3.a.5 Use the PROG button to change the first digit (reading left to right), the LCK button to change the second digit and the RST button to change the third digit. (Fig 3a1-3a3)

3.a.6 Once the desired time is selected press SET. (Fig 3a4)

3.a.7 Press the red RESET button on the front panel. (Fig 3a5)

3.a.8 The countdown time display will now depict the countdown time. (Fig 3a6)
(Note: the LED for the range selected will start blinking. If the power supply is paused the lights will remain ON continuously)

3.a.9 The countdown time display will countdown till **000**. The timer and the power supply will stop (the voltmeter and ammeter displays will remain ON but will show 000). The LED light on the range set and the indicator for AT REST (**R**) will remain ON continuously. (Fig 3a7)

If there is a power failure, or the mains of the power supply is switched off, or the timer is switched off, then the last countdown time and set time will remain stored in memory (for approx. 10 years). Whenever power is restored or mains of the power supply are switched ON or the timer is switched ON the countdown will continue from the time point where it had been interrupted.

Section 3b. Restarting the countdown time on the timer

3.b.1 If you wish to rerun the timer press the RESET switch (red color on front panel).

3.b.2 The timer resets and starts the countdown

Section 3c. Changing the countdown time on the timer while timer is running

3.c.1 While the timer is functioning you can increase or decrease the set time easily

3.c.2 Press the PROG, LCK or RST buttons to set the desired time. (Fig 3c1-3c3)

3.c.3 Press SET (Fig 3c4)

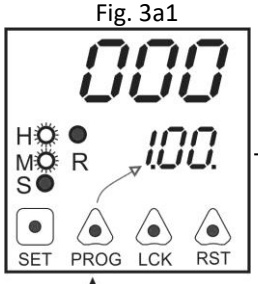
3.c.4 Press the RESET switch (red color on front panel). (Fig 3c5)

3.c.5 The timer will start countdown (3c6)

3.c.6 The countdown time display will countdown till **000**. The timer and the power supply will stop (the voltmeter and ammeter displays will remain ON but will show 000). The LED light on the range set and the indicator for AT REST (**R**) will remain ON continuously. (Fig 3c7)

Setting the countdown time on the timer: Figure 3a This figure pictorially describes section 3a

Fig. 3a1

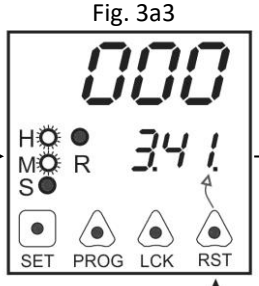


press to set the first digit
(in this e.g. - the hrs)
Keep pressing to cycle
from 0-9

Fig. 3a2

press to set the second digit
(in this e.g. - the min)
Keep pressing to cycle from 0-5
*While setting only H, M or S
it will cycle from 0-9

Fig. 3a3

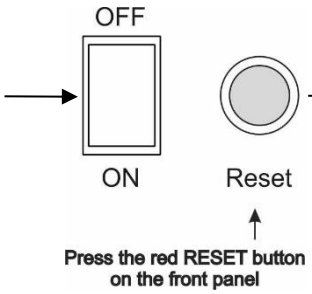


press to set the third digit
(in this e.g. - the min)
Keep pressing to cycle from 0-9

Fig. 3a4

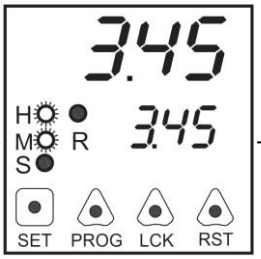
press to SET the time

Fig. 3a5



Press the red RESET button
on the front panel

Fig. 3a6



The LED on H & M blinks
to depict that the timer is ON
and is counting down

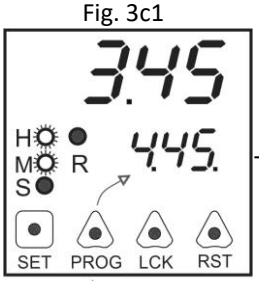
On completion of set time

Fig. 3a7

The LED on H, M & R is continuously
ON to depict that the timer has
completed the countdown and is at rest

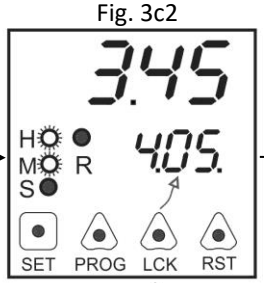
Changing the time while timer is running: Figure 3c This figure pictorially describes section 3c)

Fig. 3c1



press to set the first digit
(in this e.g. - the hrs)
Keep pressing to cycle
from 0-9

Fig. 3c2



press to set the second digit
(in this e.g. - the min)
Keep pressing to cycle from 0-5
*While setting only H, M or S
it will cycle from 0-9

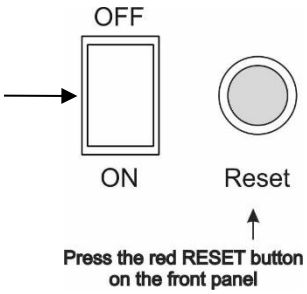
Fig. 3c3

press to set the third digit
(in this e.g. - the min)
Keep pressing to cycle from 0-9

Fig. 3c4

press to SET the time

Fig. 3c5



Press the red RESET button
on the front panel

Fig. 3c6

The LED on H & M blinks
to depict that the timer is ON
and is counting down

On completion of set time

Fig. 3c7

The LED on H, M & R is continuously
ON to depict that the timer has
completed the countdown and is at rest