

CARE TAKE DEVICES® (Manufacturing Unit) Since 2002

(Manufacturer & Traders of **Electronic controllers**, being used in **REF. & AIR-CONDITIONERS**)

C-29 / 184, Behind Post Office, ZAKIR NAGAR, New Delhi-110025

ISO – 9001: 2008 Certified

CREATIVE MINDS® (Lab & Service Unit) Since 1982

(EARLIER KNOWN AS “ENTERTAINMENT ELECTRONICS REGD.”)

(Trouble shooter & Designer of **Electronic controllers**, being used in **REF. & AIR-CONDITIONERS**)

Shop No.382 / 4, Street No.17, Near Post Office, ZAKIR NAGAR, New Delhi-110025

ISO – 9001: 2008 Certified

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OUR CLIENTS :- HITACHI, BLUE STAR, WHIRLPOOL, VOLTAS, CARRIER, HAIER

To, _____

Kind Attn. Ms/Mr. _____

Sub: Company Profile, Product range, Services & Price list w.e.f. April, Ist. 2010

Dear Madam / Sir,

We take-over your problems and provides excellent solutions to you. Following products and services are active elements of our echo-friendly network. Please consider and feel the **comforts & earn more** in your business.

A- **PRODUCT RANGE.** (TABLE – 1)

Sl.No.	Item	Free Repair Commitment (at our service center)
1.	Intelligent Timers & Micro controllers	
	Model : A.T.M. Xpert -2C (1 Ph.)	12 Months
	Model : Server -2 (1 Ph.)	12 Months
	Model : Shelter Care -2C (1 Ph.) analog	12 Months
	Model : Shelter Care -2D (1 Ph.)	12 Months
	Model : Shelter Care -2D (3 Ph.)	12 Months
	Model : Server -3&4 (1 Ph.)	12 Months
2	Adjustable T.D.R (20 Amps.) 1Ph.	06 Months
3	Power Module for Honeywell Thermostat (20 Amps.) 1 Ph.	06 Months
4.	Three Phase Monitor	06 Months
5.	Controllers for refrigerators	06 Months
6.	Electronic Starter	06 Months
7.	Heating circuit (for comp. & heater)	06 Months

8.	Power Supply for D.C. Blower Motors, using in “AMTREX SENPAI and HITACHI ATOM & IOTA” Split A.C.	06 Months
9.	Automatic 3 Phase Sequence corrector	See page-13
10.	Three Phase Water level controller	12 Months.
11.	Temp. monitor & controller (AC/DC)	12 Months.
12.	SINGLE PHASE POWER GAURD (30 Amps.)	12 Months
13.	UNIVERSAL CORDLESS CONTROLLER FOR, A.H.U., Roof top, Window, Wall mounted split, Tower & Cassette type A.C.,	12 Months
14.	THREE PHASE POWER GUARD (30 Amps.)	12 Months

Table-2

S.No.	Current Rating Per Phase	Recommended Load Capacity (approximately)
1.	PSC 15 Amps. /Ø	For up to 5.0 Tr. Load.
2.	PSC 25 Amps. /Ø	For up to 8.0 Tr. Load.
3.	PSC 30 Amps. /Ø	For up to 10.0 Tr. Load.
4.	PSC 40 Amps. /Ø	For up to 13.0 Tr. Load.
5.	PSC 50 Amps. /Ø	For up to 16.0 Tr. Load.

B- REMOTE CONTROLLER’S REPAIR CHARGES.

1.	Corded Remote , SAC (wall mounted)	(Local)	Rs. 200/- Per Piece
2.	Cordless Remote , WAC/SAC (wall mounted)	(Local)	Rs. 250/- Per Piece
3.	Corded Remote , SAC/CASSETTE /DUCTABLE	(Branded)	Rs. 300/- Per Piece
4.	Cordless Remote , WAC/SAC/CASSETTE	(Branded)	Rs. 350/- Per Piece
5.	Communication Type (1 Phase) SAC/CASSETTE/DUCTABLE/PACKAGE		Rs. 600/-Per Piece
6.	Communication Type (3 Phase) SAC/CASSETTE/DUCTABLE/PACKAGE		Rs. 750/-Per Piece
7.	Phase Monitors	Rs. 200/-	Per Piece
8.	Hand sets	Rs. 100/-	Per Piece
9.	Chiller’s Controllers	Rs. 1200/-	Per Piece (minimum)
10.	Rest all		On actual repair cost.

SITE VISIT CHARGES.

- Double of Repair charges + convence in Delhi & NCR.
- Double of Repair charges + Rs.1000/- Per day + Boarding + convence, for rest of North India.

Note :- I Site visit facility is available for **special cases** only.

II If controller is found O.K. on the site, you will have to pay given repair charges, as applicable.

FREE REPAIR COMMITMENT.

I Six months from the date of repair.

II Free repair commitment will be void, if our “seal” found broken / open / tempered.

III Damaged/burnt/broken/software fail, controllers will not cover **free repair commitment** period.

TERMS & CONDITIONS.

I Except micro-controller I.C., SOLID STATE RELAYS , LCD & proprietary parts etc., all **electrical parts** are included in above charges.

II “A” class **missing parts** (I.C., Relay, Transformer, sensors) will be charged extra at actual cost.

TAXES AND DUTIES, (will be charged extra)

I	Delhi VAT	@ 12.5 %.
II	CST	@ 12.5 %
III	Service Tax	@ 10.3%

FRIEGHT

Extra, as applicable.

DELIVERY

- I With in 24 working hours (for repair cases) and as per stock status (for products).
- II May be repaired hand to hand in few specific / emergent cases only.
- III In rare cases of non-availability of the parts and major electrical breakdowns, you will have to bear with us.

PAYMENT

- I 100% (In cash) on delivery, or
- II As per terms & conditions of agreement with you.

GOVERNING LAW AND DISPUTE RESOLUTIONS

Terms and condition of use agreement and/ or Agreement, Privacy Policy shall be governed in all respect by the laws of Indian Territory. Care Take Devices considers itself and intended to be subject to the jurisdiction only of the Courts of Delhi, India. The parties to this Agreement hereby submit to the exclusive jurisdiction of the courts of Delhi, India.

NOTE:- The specifications of the products may change with out any notice, in order to improve the quality, reliability and features.

We assure you of our best services and we look forward to build-up a long lasting relationship.

Thanking you
Yours Sincerely

(M. Rashid Ansari)

Prop.

Timing : 9 AM to 9 PM (March to Oct.) and 10 AM to 8 PM (Nov. to Feb.)

Weekly off : Sunday

Date: _____ 2010 _____

1) INTELLIGENT TIMERS & MICRO CONTROLLERS :-

A) A.T.M. Xpert – 2c

B) Server – 2 (See page-5 & 6)

C) Shelter Care – 2c (See Page-6 & 7)

D) Shelter Care – 2d (See page-8 & 9)

1. These “**Timers**” are used for automatic change over between the combinations of **Two** Air conditioners.
2. A.T.M. Xpert-2c operates on a single supply source (220 VAC \pm 15% 50 Hz) through single stabilizer and SHELTER CARE-2b, 2c & 2d can operate either on a single supply source (220 VAC \pm 15% 50 Hz) connected across, or any two separate phases are connected with **L₁** & **L₂** terminals, through separate stabilizers (2 Nos.).
3. Above models deliver **two** separate outputs of **220 VAC 20 Amperes** to operate up to 2.0Tr. machines in cyclic manner for the programmed time / period.

E) Server - 3 & 4 (See page- 10& 11)

For automatic change-over among the combination of **three** and **four** Air conditioners.

A.T.M.Xpert-2C

- 1-Provides **2 out puts**, to drive 2 ACs.
- 2-Both out puts are available in **CYCLIC** way, after a preset time.(one out put at a time)
- 3-Pre set time is selectable by **Dip switch-4**. (**5Hrs. or 10Hrs.**) Microprocessor calculates the **Run Time**. If Power fails, controller saves the current status.
- 4-As power up the controller **Relay-1** is switched ON after the “**ON DELAY**” of **3 minutes**, **LED-1** (yellow) **blinks** during on delay time. LED-1 becomes off when Relay-1 gets start.
- 5-**Key-1** (quick start) is used to by-pass ON DELAY.
- 6-After completing the 5Hrs. or 10Hrs. run time (as selected by Dip switch-4) Relay-1 becomes switched off, and **Relay-2** becomes **ON** with **15 seconds delay**, for next cycle. During this delay **LED-1** (yellow) **blinks for 15 seconds**. Key-1 is un-operational during this time delay.
- 7-**Key-2** (system ON/OFF) is used to switch ON and OFF the system (**keep press for >3 sec.for both logics**) No out put is available in OFF mode.
- 8-**LED-2** (red) glows, when system is OFF.
- 9-**Dip switch-3** is used to select **AUTO or MANUAL** function. In **AUTO mode** , controller works in cyclic way with equal time duration in both channels. But in **manual mode** , it provides only one out put permanently(as selected by Dip switch-3). This single out put also behaves in cyclic way with un-equal time duration, 5 Hrs. ON & 1Hr. OFF, or 10Hrs.ON & 2Hrs.OFF in NORMAL position. And 5 minutes ON & 1minute OFF, or 10 minutes ON & 2 minutes OFF in DEMO. position. During OFF cycle, O/P is not available, but both LED-1 & 2 blinks alternately, in order to represent OFF cycle.
- 10-**Dip switch-2** is used to select **OUT PUT-1 or OUT PUT-2**. (**This switch is operational, when Dip switch-3 will be in manual mode.**)
- 11-**Dip switch-1** is used to select **NORMAL or DEMO**. Function. In **normal** mode, change over time is 5Hrs. and 10Hrs. (as selected by Dip switch-4), but , in **Demo** mode, 5Hrs.becomes 5 minutes and 10Hrs. becomes 10 minutes.

NOTE-1 :- To re-set the run time counter, keep press the **Key-1**(quick start) for **>5 sec. or until both LED-1&2 glows for a moment** when system is ON (**not in time delay mode**). Time counter of both sections becomes zero, and system starts from O/P-1.

NOTE-2 :- In **manual** mode only, (when any out put is selected) and power becomes fail during **OFF time**, If OFF time was spent > 50 % , controller keeps OFF the selected O/P for balance period after power re-gain. If OFF time was spent < 50 % , controller starts the selected O/P from zero time after power re-gain.

NOTE-3 :- In **manual** mode only, (when any out put is selected) and power becomes fail during **ON time**, If ON time was spent > 75 % , controller starts the selected O/P from zero time after power re-gain.

If ON time was spent < 75 % , controller provides the O/P for balance period.

Server-2

1. This timer is used for Automatic change-over between the combination of **two** Air-conditioners.
2. It can operate either on a single phase supply source (220V AC \pm 15% 50 Hz) when both inputs are connected across the mains supply or inputs can be connect to the any two separate phase of a 3 phase supply source with common neutral.
3. Both outputs have up to 20 Amps. load carrying capability to operate up to 2.0 Tr. Air-conditioners.
4. Change over after every 2 or 4 hours (field settable).
5. Demonstration mode available (5 minutes cycle).
6. 3 minutes "ON" delay.
7. Timer ON/OFF Switch, with OFF indicator.
8. The controller saves the last settings in its memory.
9. Heat resistant Teflon wires are used in load line.
10. Field wiring terminals:- 30 Amps bakelite.
11. One machine stand-by and one operational in every cycle.
12. LED indicators for, timer "OFF", On delay (LED blinks), temp. achieved, HRT, AC-1/AC-2 ON.
13. Auto / Manual (AC-1 / AC-2) selection switch.
15. High Room Temp. guard, so that, stand-by machine could help to running machine, if it is not achieving the required Room Temp., because of any problem. Stand-by machine will cut in at set temp.+ differential temp.+3⁰C and cut off at set temp.+ differential temp.
16. Potential free **N/O, N/C** (optional) contacts in healthy conditions are available, for the connections of **ext. Alarms**, for **HRT**.
17. At the time of installation, if room temp. is \geq set temp.+ differential temp.+ 3⁰C, both machines operate together with the preset starting delay.
18. Independent power input facility for controller. So that, in case of MCB trip down by any reason, H.R.T. Alarm can be generate. (3 cores power cord is provided).
19. High Temp. Alarm at $\geq 32^0$ C.
20. Temp. sensor : - 10 K Ω (N.T.C.)
21. If temp. sensor is fail (open or short circuit), display shows "SF" and all O/Ps. Becomes OFF.

Temp. Controller & Display (2 Digits)

1. Set Temp. range:- 16⁰ C to 27⁰ C (display blinks).
2. Room Temp. display range:- 00 to +99⁰ C (display glows).
3. Cut off at set point & cut in by +2⁰ C or +3⁰ C in set value.
4. Keys available:- Temp. Set & Enter / Up / Down / System ON,OFF.

5. L.E.D. indicator glows, when room Temp. is achieved & machines are tripped-off by room temp. sensor.
Note: - Field wiring diagram is printed on the “Timer” cabinet.

Dip switch.

- 1- For selection of Demo. or Normal mode.
- 2- For selection of change-over time, 2 or 4 hours.
- 3- For selection of +2⁰ C or +3⁰ C cut in temp.
- 4- For selection of group or individual operation.

TO RESET TIMER MEMORY, KEEP PRESS “QUICK START” KEY, UNTILL THE “OFF INDICATOR & ON DELAY” LEDs LIGHT UP TOGETHER FOR A MOMENT.

KEEP PRESS **INCREASE KEY** TILL 5 SECONDS TO LOCK **OR** UN-LOCK KEY BOARD.

Shelter Care – 2C

S.No.	Features & Specifications
	Change over between the combination of two (1.5 Tr.) machines.
1	Change-over time is selectable (4Hrs./8Hrs. \pm 3%) by sliding switch.
2	Demonstration mode available (Approximately 9 to 10 minutes per cycle).
3	Built in re-chargeable battery back up for timer I.C. with charging facility, so that, change-over time shall not disturb due to power break downs or change over between mains and generator supplies. (Approximately 30 mins. Back-up)
4	Timer ON/OFF switch (T.B.R) with Battery On/Off & time “ Reset ” features.
5	Line (Power with on delay), M-I (AC-I) “On”, M-II (AC-II) “On”, Hi. Temp., M-I fail, M-II fail & Temp. achieved L.E.D. Indicators.
6	Built in short duration timer circuit (>2 minutes “On” delay) with “Quick Start” key.
7	Auto & Manual (I / II) modes available.
8	High Room Temp. guard, so that, stand-by machine could help to running machine, if it is not achieving the required Room Temp., because of any problem. 2 nd machine will cut in at 27 ⁰ C & cut off at 25 ⁰ C.
9	Potential free N/C (or N/O optional) contacts in healthy conditions are available, for the connections of ext. Alarms , against power fail, HRT, M-I fail & M-II fail.
10	At the time of instillation, if room temp. is high, both machines will operate together. 2 nd machine will start after 1 min. time delay with respect to machine 1.
11.	Using, Heat resistant Teflon wires, for internal wiring of 220 V. inputs & outputs.
12.	Power consumption of timer: 50 Watts (max.).
13.	Field wiring terminals: 30 amperes bakelite strip.
14.	Cabinet: Metallic CRC 23gauge.
15.	P.C.B. : Glass epoxy.
16.	Under current setting at & below 6 amps. and over current setting at & above 12 amps.
17.	Waiting time for Aircon Fail Alarm: - 18 Mins. (Approx.) for under current cases & 10 seconds (Approx) for over current cases.
18.	High Temp. Alarm at 32 ⁰ C & above.
19.	Thermostat: - 10 K Ω (N.T.C. type)
20.	In case of failure of any A.C., other (O.K.) A.C. takes its position, till get it repair.

Temp. Controller & Display (2 Digits)

1. Set Temp. range: - 16⁰ C to 32⁰ C

2. Room Temp. display range: - 00⁰ C to +99⁰ C
3. Cut off at set point & cut in by +2⁰ C.
4. Keys available: - Temp. set / Up / Down .
5. L.E.D. indicator glows, when room Temp. is achieved & machines are tripped off by thermostat.

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Note: - Field wiring diagram is printed on the “Timer” cabinet.

Notes/Operations (Shelter Care -2C)

TEST THE CONTROLLER IN LOADED CONDITIONS ONLY.

1. Keep T.B.R. Switch in “On” position for “Auto” (Timer) mode, and wait (Up to 3 Mins.) for output. To avoid “On delay” press “Quick Start” Key.
2. “Line” L.E.D. glows Red when “On delay” works.
3. “Line” L.E.D. glows Green when Timer provides output, for machines.
4. Keep T.B.R. switch in “Off” position, when Timer is not in use (to avoid battery discharged) **OR** when using machines manually.
5. Keep “Auto/M-I/M-II” Selector Switch in M-I or M-II position (as required), for Manual operation. In manual mode “on delay” will activate again, therefore, wait (Up to 3 Mins.) for output. To avoid “On delay” press “Quick Start” Key.
6. Keep “Demo./4Hrs./8Hrs.” switch in Demo. Position, when testing the system. And select 4 Hrs. or 8 Hrs. (as required) after successful installation / testing.
7. To “Re-set” the time, switch Off T.B.R. switch once and switch on again after few seconds. The On delay will activate again therefore, wait (Up to 3 Mins.) for output. To avoid “On delay” press “Quick Start” Key.
8. LED (M-I) will glow during all **odd** cycles of timer and power of 220 VAC (as per Input) will be available on the output (M-I) terminal.
9. LED (M-II) will glow during all **even** cycles of timer and power of 220VAC (as per input) will be available as the output (M-II) terminal.
10. At the time of installation or in routine, if room temp. is $\geq 27^{\circ}\text{C}$ & both machines are O.K., M-I & M-II work together with time delay of 1 min. (approx). As temp. goes down upto $\leq 25^{\circ}\text{C}$, the one machine becomes stand-by (according to cycle).
11. In spite of team working of machines, if room temp. goes high and reaches the temp. level of 32°C , Red LED (for Hi.Temp.) glows and Alarm contacts for “Hi. room Temp” become operational.
12. If input supply to the controller through **L-1** disconnects due to any reason, Alarm contacts for “Power fail” become operational.
13. When M-I or M-II becomes fail due to any reason, the controller waits upto 18 Mins. (Approx.) in order to avoid false alarms / information's, then activate failure reporting circuit. Respective Red LED glows and respective alarm contacts for “M-I fail / M-II fail” become operational. As failure reporting circuit activities, the stand-by machine becomes “ON” till the rectification of failed machine.

Notes/Operations Temp. Controller & Display

14. Press the **SET** key once and fill up the temp. value to be maintained in the room by the help of **UP** & **DN** keys. Again press the **SET** key once, in order to store the entered data.

Note: - keep set temp. level below 25°C , because stand-by machine operates at 27°C & cutoff at 25°C .

15. As set Temp. is achieved, green LED (for “Temp. Achieve”) glows & out put for machine becomes “OFF.”
16. On the increment of 2°C in room temp. machine starts again.

INTELLIGENT μ CONTROLER (1Ø & 3 Ø)

(SHELTER CARE – 2D)

A **Change over between the combination of two Air-conditioners.**

As power up the “Controller”, **3 digits 7 segment display** shows present **“room temperature”** in step of 1⁰C. AC-1 starts after the time delay of approximately **three minutes**.

B. **Quick Start Key :-** This key is used to by-pass, initial **“ON” delay** of 3 minutes (after power up).

C. **MODE Key :- (Scrolls between 2 steps.)**

1. **Demo. mode, “LED (Demo)”** becomes ON. (in this mode, change-over time for toggling of both AC-1&2 is fixed for **5 Mins.** each.) Display shows “tst”.

Note:- In this mode , **all** below said functions / features are **un-operational**.

2. **Normal mode**, display shows continuously Room Temp. & Demo LED becomes OFF. (in this mode, change over time for toggling of both ACs depends on setting of **cycle** time.)

Note:-When switch over from **Demo Mode** to **Normal Mode**, AC-1 starts from **“Zero”** hour, and AC-2 becomes stand-by till the end of 1st. cycle.

D. **FUNCTION Key :- (scrolls between 5 steps with respective LED indications.)**

Step-1, **LED (Room Temp.)** becomes **“ON”** and display shows settings of **“room temp.”** (18⁰C to 27⁰C) in step of 1 dig. Default setting is **23⁰C**. Running AC cut off at **set point** & cut in as per setting of **differential temp.**

Step-2, **LED (Differential Temp.)** becomes **“ON”** and display shows setting of **“differential temp.”** (+2, +3, +4 & +5⁰C). Default setting is **+3⁰C**.

Step-3, **LED (H.R.T. Alarm)** becomes **“ON”** and display shows setting of **“Alarm temp.”** (33 to 40⁰C). Default setting is **33⁰C**. **Alarm Relay** becomes ON at set temp. & above. This is never ON at below set temp. It is independent from all functions.

Step-4, **LED (Cycle)** becomes **“ON”** and display shows setting of **“change-over time”** in order of **One hour per step** (01Hr. to 12Hrs.) Default setting is **6 Hrs.** After programmed **“time”** controller toggles AC-1 to AC-2 or AC-2 to AC-1.

Step-5, **All 4 LEDs glows.** Select **10 or 18 mins.** time for A.C. fail alarm activation, during **under current** conditions.

NOTE :- The stand-by AC **cut in at setting of room temp.+ differential temp. +3⁰C** in parallel of **running AC** (if it is not cooling) & Cut off by **minus 3⁰C**. In this case Stand-by AC switch ON after the time delay of **One min.** after sensing the **setting of room temp.+ differential temp. +3⁰C**. If, running AC is in under current condition, this feature is disabled.

E. **Up Key :-** By pressing this key, required value **increases**.

F. **Down Key :-** By pressing this key, required value **decreases**.

G. **Enter Key :-** By pressing this key, programmed value **stores** & corresponding LEDs,(Room Temp., Differential Temp., H.R.T. alarm, Cycle or **all 4**) will turn **“Off”** to ensure the

registration of entered data .

- H. Default key** After pressing this key, Controller works on **default settings**, as below,
- 1- Room temp.= 23°C
 - 2- Differential temp.= +3°C
 - 3- H.R.T. alarm = 33°C
 - 4- Cycle = 6Hrs.
 - 5- Mode = normal
 - 6- Time counter = 00
 - 7- A.C.fail alarm time = 18 mins. during under current case.
- I.** If power fails, **all settings remain same** (last memory stores) . It saves current status after every 10 minutes.
- J - AUTO / MANUAL KEY :-** (scrolls in 3 steps) By pressing this key, display shows “**nor, AC1, AC2**” step wise. It recognized data after 3 seconds.
- 1- In **nor** mode, AC-1 & AC-2 toggles as usual.
 - 2- In **AC1** mode, only AC-1 is available permanently with temp. control feature.
 - 3- In **AC2** mode, only AC-2 is available permanently with temp. control feature.
- K-**
- 1- When AC-1 is in ON cycle, and during this cycle, under current signal is found, AC-1 will turn OFF after a time delay of **10 or 18 mins.**, Now, **AC-2 ON & AC-1 fail alarm relay** will turn ON Permanently. The toggling action will stop. It will re-set by power cut off. Temp. control is there.
 - 2- When AC-1 is in ON cycle, and during this cycle, over current signal is found, AC-1 will turn OFF after a time delay of **10 sec.**, Now, **AC-2 ON & AC-1 fail alarm relay** will turn ON Permanently. The toggling action will stop. It will re-set by power cut off. Temp. control is there.
- L-**
- 1- When AC-2 is in ON cycle, and during this cycle, under current signal is found, AC-2 will turn OFF after a time delay of **10 or 18 mins.**, Now, **AC-1 ON & AC-2 fail alarm relay** will turn ON Permanently. The toggling action will stop. It will re-set by power cut off. Temp. control is there.
 - 2- When AC-2 is in ON cycle, and during this cycle, over current signal is found, AC-2 will turn OFF after a time delay of **10 sec.**, Now, **AC-1 ON & AC-2 fail alarm relay** will turn ON Permanently. The toggling action will stop. It will re-set by power cut off. Temp. control is there.
- NOTE:-** If, conditions in points “**K**” & “**L**” becomes normal, before ending the time delay of either 18 / 10 mins. or 10 sec. the said process disables. If both ACs fails, both alarms will be available.
- M-** **Under voltage protection at & below 175VAC**, and **Over voltage protection at & above 260 VAC**.
- N-** **Field settable** (**NO / NC**) potential free alarm contacts are available. Default, **N/O** in **healthy** conditions, and **N/C** in **failures**.
- O-** To **lock** and **un-lock** the key board (except Quick start key), keep pressed the **Up Key** until the display shows “**LOC**” (for few sec.). When un-locked, display will show “**ULO**” for few sec.
- P-** If sensor fails, (open or short) display shows “**SF**” permanently, and all the functions related with sensor becomes disable till get it correct. Controller works as a simple timer only.
- Q-** If memory fails, display shows “**EPF**” (for few sec.) after every 10 minutes and controller does not update new entries till get it correct.
- R-** Provision of both AC and DC operating supplies.
-
- S-** **Protects against reverse phasing and phase loss.**

Server-3 & 4

1. This timer is used for Automatic change-over between the combination of **three & four** (field settable) Air-conditioners, respectively.
2. It can operate either on a single phase supply source (220V AC \pm 15% 50 Hz), when all inputs are connected across the mains supply or inputs can be connect to the separate phase of a 3 phase supply source with common neutral.
3. All outputs have up to 20 Amperes load carrying capability to operate up to 2.0 Tr. Air-conditioners.
4. Change over after every 2 or 4 hours (field settable).
5. Demonstration mode available (5 minutes cycle).
6. 3 minutes “ON” delay.
7. Staggered start of A.Cs.
 1st A.C. starts after on delay (3 minutes).
 2nd A.C. starts after 15 sec. of 1st A.C.
 3rd A.C. starts after 15 sec. of 2nd A.C.
 4th A.C. starts after 15 sec. of 3rd A.C. (During H.R.T. conditions)
8. Timer ON/OFF Switch, with OFF indicator.
9. The controller saves last setting in its memory.
10. Heat resistant Teflon wires are used in load line.
11. Field wiring terminals:- 30 Amps bakelite.
12. One machine stand-by and rest all operational in every cycle.
13. After every change-over, the first of running machines, become stand-by for next cycle.
14. LED indicators for, timer “OFF”, On delay (LED blinks), temp. achieved, HRT, AC-1,2,3,4 ON.
15. High Room Temp. guard, so that, stand-by machine could help to running machines, if they are not achieving the required Room Temp., because of any problem. Stand-by machine will cut in at set temp.+ differential temp.+3⁰C and cut off at set temp.+ differential temp.
16. Potential free **N/O**, **N/C** (optional) contacts in healthy conditions are available, for the connections of **ext. Alarms**, for **HRT**.
17. At the time of installation, if room temp. is \geq set temp.+ differential temp.+ 3⁰C, all machines operate together with the preset starting delay.
18. Independent power input facility for controller. So that, in case of MCB trip down by any reason, H.R.T. Alarm can be generate. (3 cores power cord is provided).
19. High Temp. Alarm at $\geq 32^0$.
22. Temp. sensor : - 10 K Ω (N.T.C.)
23. If temp. sensor is fail (open or short circuit), display shows “SF” and all O/Ps. Becomes OFF.

Temp. Controller & Display (2 Digits)

1. Set Temp. range:- 16⁰ C to 27⁰ C (display blinks).
2. Room Temp. display range:- 00 to +99⁰ C (display glows).
3. Cut off at set point & cut in by +2⁰ C (or +3⁰ C, optional) in set value.
4. Keys available:- Temp. Set & Enter / Up / Down / System ON,OFF.
5. L.E.D. indicator glows, when room Temp. is achieved & machines are tripped-off by room temp. sensor.

Note: - Field wiring diagram is printed on the “Timer” cabinet.

Table

Time	Operational Machines	Stand-by Machine
At 12.00 Noon	M- 1, 2, 3	M – 4
At 02:00 PM	M- 2, 3, 4	M – 1
At 04:00 PM	M- 3, 4, 1	M – 2
At 06:00 PM	M- 4, 1, 2	M – 3

Note:- Above table and literature belongs to server- 4 model with 2 hours setting.

Dip switch.

- 5- For selection of Demo. or Normal mode.
- 6- For selection of change-over time, 2 or 4 hours.
- 7- For selection of server-3 or server-4 model.
- 8- For selection of group or individual operation.

TO RESET TIMER MEMORY, KEEP PRESS “QUICK START” KEY, UNTILL THE “OFF INDICATOR & ON DELAY” LEDs LIGHT UP TOGETHER FOR A MOMENT.

KEEP PRESS **INCREASE KEY** TILL 5 SECONDS TO LOCK **OR** UN-LOCK KEY BOARD.

2) ADJUSTABLE T.D.R. (20 Amps. 1Ph.)

Creates starting time delay between AirConditioners to prevent **Heavy Starting Load** on the main supply line. (Approximately 2.5 Mins. fixed delay on step-1, + 5 Seconds. Delay on each step). No. of steps = 12

- Inbuilt **Quick Start** Switch for immediate start.
- Time Delay and Power Output bi-colour **LED Indicator**.
- Very useful on sites where output for all ACs. is from **Servo Stabilizer**, &
- Where frequent power cutoff **AND** change over between **Mains & DG** .
- Heat resistant Teflon wires are used.

3) ADAPTOR FOR HONEY WELL THERMOSTAT (20 Amps. 1Ph.)

The Honey well thermostats can not handle the load of compressor directly, and it do not have 3 mins. Starting delay.

- Provides starting delay to Compressor.
- Proper arrangement for connection of Mains supply, Compressor, Indoor Motor and Honeywell thermostate.
- 20 Amps. Handling capacity, with compressor ON indicator.
- Heat resistant Teflon wires are used in load line.
- **Low cost** product with inbuilt features.

4) THREE PHASE MONITOR:

- Protects the three phase **compressors & motors** against **phase loss & reverse phase sequence**.
- LED indicators are available for **healthy supply, phase loss & reverse phasing**.
- Protection of low & high voltages.

5) CONTROLLERS FOR REFRIGERATORS. For use In WHIRLPOOL (INTELCOOL) MODEL.

6) ELECTRONIC STARTER : Some remote operated airconditioners, which does not start itself after regaining of the power.

This circuit helps to start airconditioners automatically.

7) HEATING CIRCUIT : Remotes of Airconditioners are modified to work in heat pump mode in addition to cooling operation.

Modification is done on Same Handset and Thermostat .

8) POWER SUPPLY FOR D.C. INDOOR MOTOR, USING IN “AMTREX SENPAI” & “HITACHI ATOM & IOTA”

- Whenever there is remote control failure in **Senpai, Atom & Iota** model having DC indoor motor, remote controller can not by pass. Therefore, by using this device machine can be operational for the time being till remote is not available/under repair.
- You can use it, as a “Test Equipment” to check these costly motors, before to purchase. This is available for 1.0 Tr., 1.5 Tr. and 2.0 Tr. in the same device.

9. Intelligent (Automatic) Three Phase Sequence Corrector

- Protects the **“Three phase Motors & Compressors”** against **phase loss / over write** conditions. During such conditions Machine becomes off.
- Provides **“correct phase sequence”** to the connected three phase loads. Whenever input phase sequence is incorrect. Machine works in its proper order.
- Separate **LED** indicators, for
 - (1) On Delay. (bi-colour)
 - (2) Healthy supply. (green)
 - (3) Corrector mode. (red)
 - (4) Phase loss/ over write. (red)
 - (5) Over Load. (red)
- Provides starting delay.
- Protects against over current / load.
- Heat resistant Teflon wires are used in three phase input and output stages.
- CRC 22 gauge metallic, powder coated, wall mounting type cabinet.
- Glass epoxy P.C.B.
- Branded contractors (BCH) and other components are used.
- By-pass switch is also available.
- Available in following **RATINGS**

S.No.	Current Rating Per Phase	Recommended Load Capacity (approximately)
1.	PSC 15 Amps. /Ø	For up to 5.0 Tr.
2.	PSC 25 Amps. /Ø	For up to 8.0 Tr.
3.	PSC 30 Amps. /Ø	For up to 10.0 Tr.
4.	PSC 40 Amps. /Ø	For up to 13.0 Tr.
5.	PSC 50 Amps. /Ø	For up to 16.0 Tr.

NOTE: Check the **running current** of **single phase devices** (using in machine) & add it into **compressors** current, then select the **P.S.C. MODEL**. Keep 20% margin in current for better efficiency and results.

- Free Repair Commitment:- **CONTACTOR (00 Months) REST ALL (12Months)**.

10. Three Phase Water Level Controller

11. Temp. controller, display & alarm (with 2 digits 7 segment display).

12. POWER GUARD SINGLE-PHASE

SPG-10

パワーガード単相

- 1- DIGITALLY FIELD SETABLE **OVER SUPPLY** CUT OFF (240 TO 270 VOLTS RANGE).
AUTO RE-SETS, WHEN INCOMING VOLTAGE WILL BE MINUS 10V IN RESPECT OF SET VALUE. **DEFAULT SETTING IS 260V.**
- 2- DIGITALLY FIELD SETABLE **UNDER SUPPLY** CUT OFF (170 TO 200 VOLTS RANGE).
AUTO RE-SETS, WHEN INCOMING VOLTAGE WILL BE +15V IN RESPECT OF SET VALUE. **DEFAULT SETTING IS 180V.**
- 3- DIGITALLY FIELD SETABLE **OVER CURRENT** CUT OFF (10 Amps. TO 30 Amps. RANGE).
RE-SETS **MANUALLY**, BY POWER CUT OFF.
- 4- PROTECTION AGAINST ABNORMAL **LINE FREQUENCY** (FIELD SETABLE, 50Hz \pm UPTO 4%) AUTO RE-SETS, WHEN LINE FREQUENCY WILL BE IN SET RANGE.
DEFAULT SETTING IS 49 & 51 Hz.
- 5- FIELD SETABLE (10 TO 180 SECONDS, IN STEP OF 5 SECONDS) **STARTING DELAY**
WITH DOWN COUNTER. **DEFAULT SETTING IS 10 Sec.**
- 6- FITTED WITH **32 Amps. MCB.**
- 7- PROTECTION AGAINST BROKEN / POOR **NEUTRAL.**
- 8- **PHASE TO PHASE** VOLTAGE / SUPPLY PROTECTION (415 VAC INPUT).
NOTE :- DURING SUCH CONDITIONS, THIS DEVICE IS ABSOLUTELY SAFE.
- 9- PROVISION OF **LOCK** THE KEY BOARD AFTER PROGRAMME & **UN-LOCK** FOR THE PROGRAMME, WITH OUT ANY PASS WORD. DISPLAY SHOWS “**LOC**” & “**ULO**”.
- 10- THE **TOTAL RUN TIME** CAN ALSO KNOW, WITH COUNTER RE-SET (AUTO / MANNUAL) FACILITY. AFTER 999 Hrs. IT RE-SETS AUTOMATICALLY. WHEN RESETS, DISPLAY SHOWS “**rES**”.
- 11- **SPG-10**, ALWAYS REMEMBER LAST MEMORY.
- 12- **Heat resistant Teflon wires** ARE USED IN **LOAD LINE.**
- 13- 22 GAUGE CRC, POWDER COATED, WALL MOUNTING & **WEATHER HANDLING** TYPE CABINET.

ROUTINE MODE

IN THIS MODE, **SPG-10**, REGULERLY DISPLAYS, AT EVERY 10 SECONDS INTERVEL.

- 1- INCOMMING **VOLTAGE** IN VOLTS. LED-1 GLOWS.
- 2- RUNNING **CURRENT** IN AMPERES. LED-4 GLOWS.
- 3- INSTANT **POWER** IN KILO WATTS. LED-5 GLOWS.
- 4- LINE **FREQUENCY** IN HERTZ. LED-6 GLOWS.

PROGRAMME MODE

IN THIS MODE, USER CAN SET THE **SPG-10**, AS PER SAFETY REQUIREMENTS OF AIR-CONDITIONER.

- 1- LED-1 BLINKS, FOR **OVER SUPPLY** CUT OFF LIMIT.
- 2- LED-2 BLINKS, FOR **UNDER SUPPLY** CUT OFF LIMIT.
- 3- LED-3 BLINKS, FOR **OVER CURRENT** CUT OFF LIMIT.
- 4- LED-4 BLINKS, FOR **OVER FREQUENCY** CUT OFF LIMIT.
- 5- LED-5 BLINKS, FOR **UNDER FREQUENCY** CUT OFF LIMIT.
- 6- LED-6 BLINKS, FOR **STARTING DELAY** TIME.
- 7- ALL 6 LEDs BLINK, FOR **DEFAULT VALUES**.

SAFETY MODE

WHEN ELECTRICAL CONDITIONS ARE OVER or UNDER THE PROGRAMMED LIMITS, **SPG-10**, PROTECTS THE AIR-CONDITIONER, AND DISPLAYS SHOWS THE REASON IN FORM OF **CODES** AS BELOW.

- 1- **“OS”** FOR OVER SUPPLY.
- 2- **“US”** FOR UNDER SUPPLY.
- 3- **“OC”** FOR OVER CURRENT.
- 4- **“OF”** FOR OVER FREQUENCY.
- 5- **“UF”** FOR UNDER FREQUENCY.

WHEN **SPG-10** IS IN SAFETY MODE, DISPLAY FLASHES & BUZZER BEEPS (3 BEEPS) AT EVERY 10 SECONDS INTERVEL, AND CONTROLL OUT PUT BECOMES OFF.

DURING ERROR CONDITIONS, **SPG-10** ALLOWS TO ENTER INTO PROGRAMME MODE FOR RE-PROGRAMME.

OPERATIONAL DETAILS

A- **PROGRAMME / EXIT KEY**, SCROLLS IN 7 STEPS,

- 1- LED-1 BLINKS, SET OVER SUPPLY.
- 2- LED-2 BLINKS, SET UNDER SUPPLY.
- 3- LED-3 BLINKS, SET OVER CURRENT.
- 4- LED-4 BLINKS, SET OVER FREQUENCY (51 or 52 Hz).
- 5- LED-5 BLINKS, SET UNDER FREQUENCY (48 or 49 Hz).
- 6- LED-6 BLINKS, SET STARTING DELAY.
- 7- ALL 6 LEDs BLINK, SET THE **CONTROLLER** AT DEFAULT VALUES (NO or YES).

B- **INCREASE KEY**, TO INCREASE VALUES. KEEP PRESS TILL 5 SECONDS TO LOCK OR UNLOCK KEY BOARD.

C- **DECREASE KEY**, TO DECREASE VALUES. KEEP PRESS TILL 5 SECONDS TO KNOW RUN TIME.

D- **ENTER KEY**, TO STORE DATA. KEEP PRESS TILL 5 SECONDS TO RE-SET RUN TIME. DISPLAY SHOWS **“ rES “**.

E- **HOLD / RELEASE KEY**, TO HOLD ANY READING IN ROUTINE MODE.

F- **BY-PASS SWITCH, (with center “off” provision)** IS ALSO IN-BUILT, TO BY-PASS **SPG-10**.

13- UNIVERSAL CODRLESS CONTROLLER (ISR-09)

For use in,

Window AC

Wall mounting split AC

Cassette type AC

Tower type AC

A.H.U.

Roof top type AC.

Features,

- 1- As power up the controller, all glowing components are light up for few seconds, in order to ensure that all LEDs and segments are O.K.
- 2- When machine is in ON state,
 - a. **The 7 segment display** normally shows the set temperature in **Cool / Dry** modes. (No temp. display in fan mode.)
 - b. **One of the three + Auto Fan** speed (in order of High / Medium / Low) is available, as selected. (Respective LED, H/M/L glows.)
 - c. Out put for **Swing Motor** is available (If swing key is already pressed for Swing ON). Provision of 220VAC motor .
 - d- Out put for **Compressor**, is available after the time delay of **3 minutes**.

KEYS OF NON-LCD HAND SET,

- 3- **POWER ON-OFF KEY.....**By pressing this key, machine completely switch OFF or ON at previous settings. (This key is also available on display panel.)
- 4- **MODE KEY.....**By pressing this key , **COOL / DRY / FAN** mode scrolls in the said order , and respective LED glows. When **FAN mode** is selected , display becomes off. In any **Cooling mode** compressor trip-off at set temp. and cut-in, when room temp. increases by **+2 °C** in respect of set value. If room Temp. increases **+2 °C** in respect of set temp. before 3 minutes, Processor waits up to total 3 minutes, then **µP** provides out put for compressor. If temp. increases after 3 minutes, compressor gets start immediately.
- 5- **FAN KEY**By pressing this key , one of three + Auto Fan speed selects in order of **H , M , L ,Auto** and respective LED glows. In Auto Fan speed, fan runs on High speed with compressor and shift to Low speed automatically, when compressor gets trip-off through thermostat. **Low or High** speed LED glows accordingly. **NOTE:-** Provision to use with a **single, double & triple speed Fan Motor** (through hardware setting).
- 6- **SWING KEY.....**By pressing this key , **Swing motor** gets ON or OFF. It is an independent function.
- 7- **TEMPERATURE UP KEY**By pressing this key , required temp. values increases, **16 to 30 °C** and it is available in **COOL & DRY** modes.
- 8- **TEMPERATURE DOWN KEY**By pressing this key , required temp. values decreases, **30 to 16 °C** and it is available in **COOL & DRY** modes.
- 9- **TIMER KEY**By pressing this key , **OFF TIMER** sets **00 to 24 Hrs.** in step of one hour. Respective LED glows. After completing the programmed time, machine gets OFF. When time is set for ZERO ZERO, or user switched off the machine, Timer function becomes disable and timer LED turns off. It is available in **all modes**.
- 10- **SLEEP MODE KEY.....** **This feature is available in Cool mode only.** By pressing this key, set temp. changes automatically **+1°C every Hr.** (2 steps only) Buzzer beeps on every change. Respective LED glows. After 2nd. Step, temp. setting does not. If key is pressed again, sleep mode becomes cancel. After 12 hrs. it becomes cancel automatically. After cancellation , it goes back to the previous setting. Fan selection, Timer mode and temp. setting is allowed. If power ON/OFF key is pressed, sleep mode becomes cancel.
- 11- **DRY mode.....** In this mode, **Fan speed** is default low. And **comp.** works in **cyclic** mode. If room temp. is **more then 3 °C** in respect of set value, comp. runs for 6 mins. and stop for 6 mins. If room temp. is **less then 3 °C** in respect of set value, comp. runs for 12 mins. and stop for 12 mins. **The Comp. cut off through thermostat at set temp.** And re-start, when room temp. increases by **+2°C** in respect of set temp.
- 12- Out put for **Drain pump** is available. It is independent from **comp.** section , it works on the basis of **float switch** reporting only. Provision of both **NC & NO** type float switches (field set able).

13- MISC. FEATURES are as under,

- a. Error codes, “**SF**” for room sensor fail (open or short circuit), **EP** for memory fail.
- b. When sensor fails, compressor runs for 30 mins. And cut off for 15 mins. In cyclic mode. Display shows “ SF ” continuously. Except Power ON/OFF & Timer keys, all keys becomes un-operational.
- c. When memory fails, display shows “ EP” for few seconds, machine starts on **default** settings (Cool mode and high fan). User can change the settings, but, new entries does not store.
- d. **Pre-set memory**..... If power regains after break-down, machine stars at previous settings.
- e. On each user setting, Buzzer beeps & after few seconds, Display blinks (during display related functions). to ensure acceptance of command given. **After blink, display normally shows set temp.**
- f. By externally slightly change in Field terminal wiring, it can operate with a 24V system. Like **Roof top** type machines and **A.H.Us.**

14-

POWER GUARD THREE-PHASE

TPG-10

パワーガード三相

- 1- DIGITALLY FIELD SETABLE **OVER SUPPLY** CUT OFF (430 TO 450 VOLTS RANGE). AUTO RE-SETS, WHEN INCOMING VOLTAGE WILL BE MINUS 10V IN RESPECT OF SET VALUE. **DEFAULT SETTING IS 440V.**
- 2- DIGITALLY FIELD SETABLE **UNDER SUPPLY** CUT OFF (350 TO 370 VOLTS RANGE). AUTO RE-SETS, WHEN INCOMING VOLTAGE WILL BE +15V IN RESPECT OF SET VALUE. **DEFAULT SETTING IS 360V.**
- 3- DIGITALLY FIELD SETABLE **OVER CURRENT** CUT OFF (10 Amps. TO 30 Amps. RANGE, IN STEP OF 1 Amp.). RE-SETS **MANUALLY**, BY POWER CUT OFF.
- 4- PROTECTION AGAINST ABNORMAL **LINE FREQUENCY** (FIELD SETABLE, 50Hz ± UPTO 4%) AUTO RE-SETS, WHEN LINE FREQUENCY WILL BE IN SET RANGE. **DEFAULT SETTING IS 49 & 51 Hz.**
- 5- DIGITALLY FIELD SETABLE (10 TO 180 SECONDS, IN STEP OF 5 SECONDS) **STARTING DELAY** WITH DOWN COUNTER. **DEFAULT SETTING IS 10 Sec.**
- 6- PROTECTS, AGAINST **REVERSE SEQUENCE OF 3 PHASES, PHASE LOSS & PHASE OVER-WRITE** CASES.
- 7- PROVISION OF **LOCK** THE KEY BOARD AFTER PROGRAMME & **UN-LOCK** FOR THE PROGRAMME, WITH OUT ANY PASS WORD. DISPLAY SHOWS “**LOC**” & “**ULO**”.
- 8- THE **TOTAL RUN TIME** CAN ALSO KNOW, WITH COUNTER RE-SET (AUTO / MANNUAL) FACILITY. AFTER 999 Hrs. IT RE-SETS AUTOMATICALLY. WHEN RESETS, DISPLAY SHOWS “**rES**”.
- 9- **TPG-10**, ALWAYS REMEMBER LAST MEMORY.
- 10- **Heat resistant Teflon wires** ARE USED IN **LOAD LINE**.
- 11- 22 GAUGE CRC, POWDER COATED, WALL MOUNTING & **WEATHER HANDLING** TYPE CABINET.

ROUTINE MODE

IN THIS MODE, **TPG-10**, REGULERLY DISPLAYS, AT EVERY 10 SECONDS INTERVEL.

- 1- **R-Y** PHASE VOLTAGE IN VOLTS. LED-1 GLOWS.
- 2- **Y-B** PHASE VOLTAGE IN VOLTS. LED-2 GLOWS.
- 3- **B-R** PHASE VOLTAGE IN VOLTS. LED-3 GLOWS.

- 4- RUNNING **CURRENT** (R Ph.) IN AMPERES. LED-4 GLOWS.
- 5- INSTANT **POWER** IN KILO WATTS. LED-5 GLOWS.
- 6- LINE **FREQUENCY** IN HERTZ. LED-6 GLOWS.

PROGRAMME MODE

IN THIS MODE, USER CAN SET THE **TPG-10**, AS PER SAFETY REQUIREMENTS OF AIR-CONDITIONER.

- 7- LED-1 BLINKS, FOR **OVER SUPPLY** CUT OFF LIMIT.
- 8- LED-2 BLINKS, FOR **UNDER SUPPLY** CUT OFF LIMIT.
- 9- LED-3 BLINKS, FOR **OVER CURRENT** CUT OFF LIMIT.
- 10- LED-4 BLINKS, FOR **OVER FREQUENCY** CUT OFF LIMIT.
- 11- LED-5 BLINKS, FOR **UNDER FREQUENCY** CUT OFF LIMIT.
- 12- LED-6 BLINKS, FOR **STARTING DELAY** TIME.
- 13- ALL 6 LEDs BLINK, FOR **DEFAULT VALUES**.

SAFETY MODE

WHEN ELECTRICAL CONDITIONS ARE OVER or UNDER THE PROGRAMMED LIMITS, **TPG-10**, PROTECTS THE AIR-CONDITIONER, AND DISPLAYS SHOWS THE REASON IN FORM OF **CODES** AS BELOW.

- 14- “**OS**” FOR OVER SUPPLY.
- 15- “**US**” FOR UNDER SUPPLY.
- 16- “**OC**” FOR OVER CURRENT.
- 17- “**OF**” FOR OVER FREQUENCY.
- 18- “**UF**” FOR UNDER FREQUENCY.
- 19- “**PL**” FOR PHASE LOSS.
- 20- “**rS**” FOR REVERSE SEQUENCE OF PHASE.

WHEN **TPG-10** IS IN SAFETY MODE, DISPLAY FLASHES & BUZZER BEEPS (3 BEEPS) AT EVERY 10 SECONDS INTERVEL, AND CONTROL OUT PUT BECOMES OFF.

DURING ERROR CONDITIONS, **TPG-10** ALLOWS TO ENTER INTO PROGRAMME MODE FOR RE-PROGRAMME.

OPERATIONAL DETAILS

A- **PROGRAMME / EXIT KEY**, SCROLLS IN 7 STEPS,

- 21- LED-1 BLINKS, SET OVER SUPPLY. (APPLICABLE FOR ALL PHASES.)
- 22- LED-2 BLINKS, SET UNDER SUPPLY. (APPLICABLE FOR ALL PHASES.)
- 23- LED-3 BLINKS, SET OVER CURRENT.
- 24- LED-4 BLINKS, SET OVER FREQUENCY (51 or 52 Hz).
- 25- LED-5 BLINKS, SET UNDER FREQUENCY (48 or 49 Hz).
- 26- LED-6 BLINKS, SET STARTING DELAY.
- 27- ALL 6 LEDs BLINK, SET THE **CONTROLLER** AT DEFAULT VALUES (NO or YES).

B- **INCREASE KEY**, TO INCREASE VALUES. KEEP PRESS TILL 5 SECONDS TO LOCK OR UN-LOCK KEY BOARD.

- C- **DECREASE KEY**, TO DECREASE VALUES. KEEP PRESS TILL 5 SECONDS TO KNOW RUN TIME.
- D- **ENTER KEY**, TO STORE DATA. KEEP PRESS TILL 5 SECONDS TO RE-SET RUN TIME. DISPLAY SHOWS “ rES “.
- E- **HOLD / RELEASE KEY**, TO HOLD ANY READING IN ROUTINE MODE.
- F- **BY-PASS SWITCH, (with center “off” provision)** IS ALSO IN-BUILT, TO BY-PASS TPG-10.