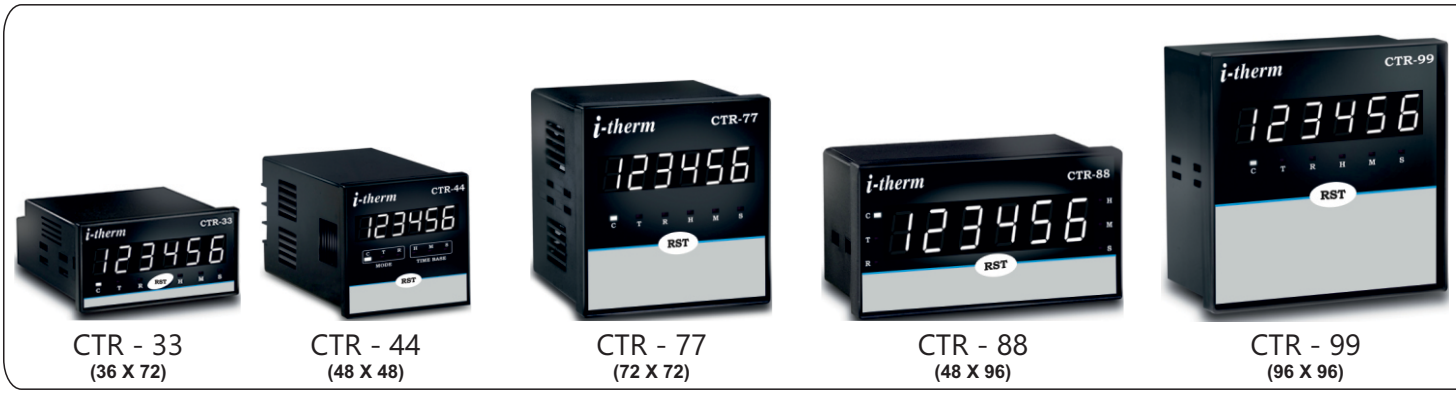
USER'S OPERATING MANUAL FOR CTR

(Models: CTR - 33 / 44 / 77 / 88 / 99)



CTR - 33 **(36 X 72)** | CTR - 44 **(48 X 48)** | CTR - 77 **(72 X 72)** | CTR - 88 **(48 X 96)** | CTR - 99 **(96 X 96)**

Specification:-

Display : 6 Digit, 7 segment LED (Bright White)

Model No.	CTR-33	CTR-44	CTR-88	CTR-77	CTR-99	Display Color
Display Height	0.39"	0.30"	0.56"	0.39"	0.56"	White

Control Input : a) Proximity Switch (PNP / NPN)
b) Potential free contact (Limit switch)
c) 230VAC input pulse (Optional)

Reset : a) Front Key (Programmable)
b) Remote Reset (Via Rear terminals)

Setting : Through Keyboard

Memory : Non Volatile (Flash)

Memory Retention: Up to 10 Years

Mains Supply : 90 to 270VAC

Sensor Supply : 12VDC (±10%) @ 30mA

Accuracy : 0.05% FSD

Mounting: Panel Mounting

Housing : Abs Plastic

Operating Temp. : 0 to 55°C

Relative Humidity : Below 95% RH (Non Condensing)

Dimensions : See Table no.1 on Page 2

Configuration Parameter:-

Type : a) As Event Counter
b) As Time Totaliser
c) As Rate Indicator

Range : a) AC / DC (Selective) (For Event Counter)
b) Auto / Manual (Selective)
(For Time Totaliser & Rate Indicator)

Resolution : a) 0.01 b) 0.1 c) 1 (For Rate Indicator)

Max. Range : a) 1 to 999999 Counts(For Counter)
b) See Table 2 (For Time Totaliser)
c) 4 to 9999 RPM (For rate Indicator)

Front Reset : Enable / Disable (Selective)

Memory : Enable / Disable (Selective)

Hold : Enable / Disable (Selective) (Optional)

Leading Zero : Enable / Disable (Selective)

Scalar : Multiply / Division (Selective) (for Counter)

Filter : 1 to 10 (Selective) (for Rate Indicator)

Ratio : 1 to 99 (Selective) (for Rate indicator)

SAFETY INSTRUCTION

This controller is meant for Counter, Timer & Rate Indicator applications. It is important to read the manual prior to installing or commissioning of controller. All safety related instruction appearing in this manual must be followed to ensure safety of the operating personnel as well as the instrument.

GENERAL

- The Controller must be configured correctly for intended operation. Incorrect configuration could result in damage to the equipment or the process under control or it may lead personnel injury.
- The Controller is generally part of control panel and in such a case the terminals should not remain accessible to the user after installation.

MECHANICAL

- The Controller in its installed state must not come in close proximity to any corrosive/combustible gases, caustic vapors, oils, steam or any other process by products.
- The Controller in its installed state should not be exposed to carbon dust, salt air, direct sunlight.
- Ambient temperature and relative humidity surrounding the Controller must not exceed the maximum specified limit for proper operation.
- The Controller in its installed state must be protected against electromagnetic interferences. Ventilation holes provided on the chassis of the instrument are meant for thermal dissipation hence should not be obstructed in the panel.

ELECTRICAL

- The Controller must be wired as per wiring diagram & it must comply with local electrical regulation.
- Care must be taken not to connect AC supplies to low voltage sensor input.
- Circuit breaker or mains s/w with fuse (275V/1A) must be installed between power supply and supply terminals to protect the Controller from any possible damage due to high voltage surges of extended duration.
- Circuit breaker and appropriate fuses must be used for driving high voltage loads to protect the Controller from any possible damage due to short circuit on loads.
- To minimize pickup of electrical noise, the wiring for low voltage DC and sensor input must be routed away from high current power cables. Where it is impractical to do this, use shielded ground at both ends.
- The Controller should not be wired to a 3-Phase supply with unearthed star connection. Under fault condition such supply could rise above 264 VAC which will damage the Controller.
- The Electrical noise generated by switching inductive loads might create momentary Fluctuation in display, alarm latch up, data loss or permanent damage to the instrument. To reduce this use snubber circuit across the load.

⚠CAUTION: To prevent the risk of electrical shock, switch off the power before making/removing any connection or removing the Event Counter from its enclosure.

Mechanical Installation :-

The label on the Event Counter identifies the serial number, wiring connections and batch number.

Over all Dimensions & Panel Cutout in "mm".

MODEL:- CTR-33 / CTR-44 / CTR-77 / CTR-88 / CTR-99

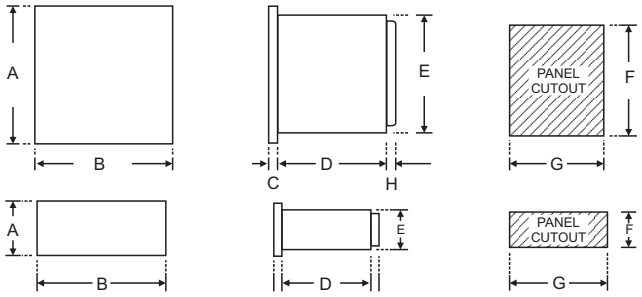


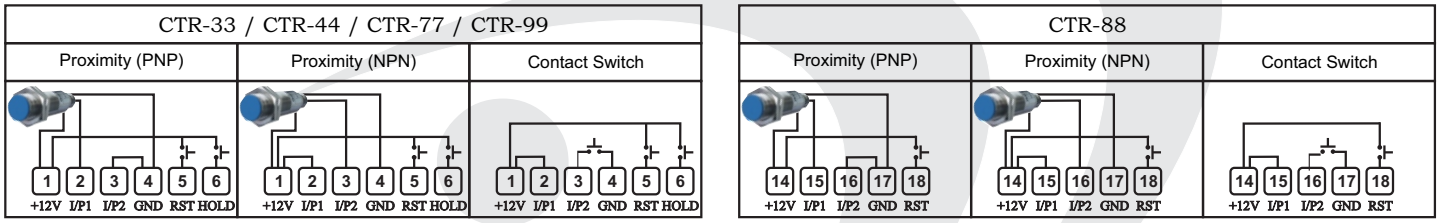
Table 1:-

Dim / Model	A	B	C	D	E	F	G	H
CTR - 33	36	72	5	64	21	32	68	9
CTR - 44	48	48	8	75	43	44	44	9
CTR - 77	72	72	10	65	66	68	68	9
CTR - 88	48	96	10	45	43	44	92	9
CTR - 99	96	96	10	45	89	92	92	9

Installation Guidelines:-

1. Prepare the cut-out with proper dimension as shown in figure.
2. Remove clamp from Event Counter
3. Push the Event Counter through panel cut-out and secure the Event Counter in its place by tightening the side clamp.

Typical Application:-



Reset Function:-

Event Counter	Time Totaliser	Function
Actual Count 632457 After Reset Display RESET to Zero 0	Hrs Min Sec 632457 After Reset Display RESET to Zero Hrs Min Sec 0	**Note**:- (a) If Reset key is pressed & Front reset is enable Display will Reset to Zero. (b) Via rear Reset Terminal Display will Reset to Zero.

Hold Function:-

Error Message	HOLd 123456	If Hold input is Enabled and Hold terminal is closed at rare. Counting will be Hold & Error message will be displayed with the last count until error is corrected.

Table 2:-

Range No.	Range	Resolution
1	9999.99 s	0.01 sec
2	99999.9 s	0.1 sec
3	999999 s	1 sec
4	9999 m 59 s	1 sec
5	99999.9 m	0.1 min
6	999999 m	1 min
7	99 h 59 m 59 s	1 sec
8	9999 h 59 m	1 min
9	99999.9 h	0.1 hrs
10	999999 h	1 hrs

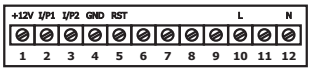
Leading Zero Function:-

Leading Zero Enable	Leading Zero Disable
000123	123

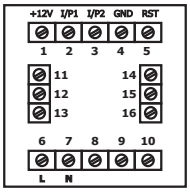
Electrical Installation:-

The electrical connection diagram is shown on the Event Counter enclosure as shown below.

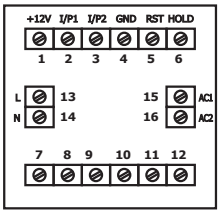
CTR-33



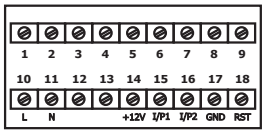
CTR-44



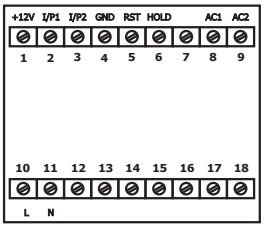
CTR-77



CTR-88

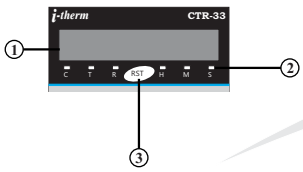


CTR-99

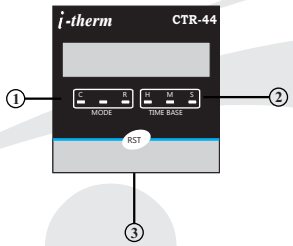


Front Panel:-

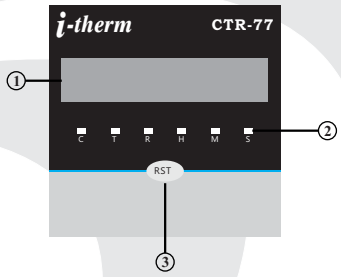
CTR-33



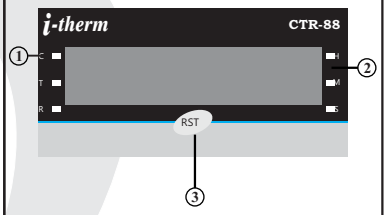
CTR-44



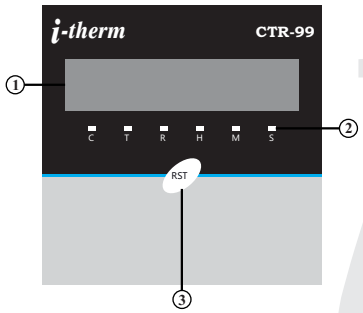
CTR-77



CTR-88



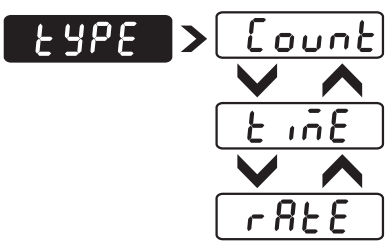
CTR-99



NO.	NAME	Run Mode	Programming Mode
1	Display	It will display, Count, Time & RPM with respective type Selected	Parameter and Sub-Parameter.
2	LED Status	For Event Counter mode 'C' LED will glow, For Time Totaliser 'T' will glow, & for Rate Indicator 'R' LED will glow. 'H, M & S' LED will glow only in Time Totaliser with Selective Range.	
3	RST Key	To reset the count & Time	(1) To access Configuration mode at power on. (2)To store parameter value. (3) To alter parameter value in program mode.

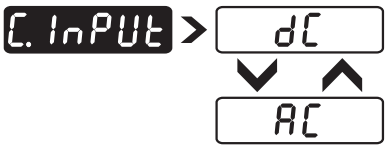
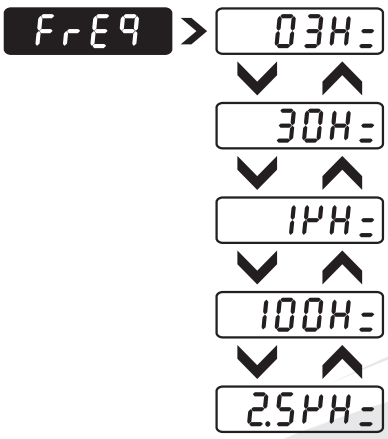
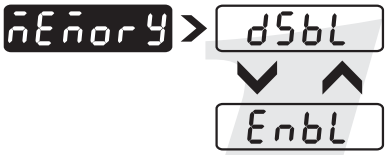
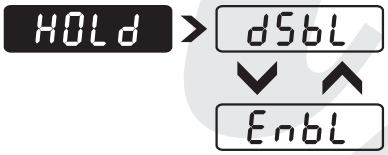
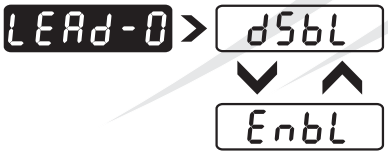
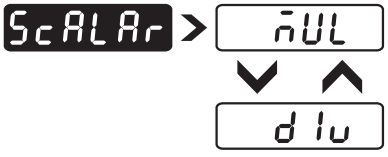
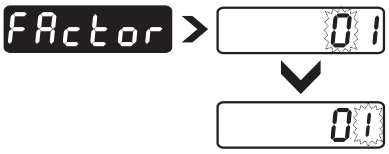
Programming:-

1) To enter in this mode press and hold "RST" key for 5 sec. at power on.
2) "Config" & "V.4.0.9" message will toggle on display for 3 sec. After this Message unit will allow the user to configure different parameters with options as described below.
3) Press and release "RST" key to scroll between the parameter options.
4) Press and hold down "RST" key for 3 sec to store the parameter.
5) If "RST" key is not pressed till 15 sec. configuration mode will be exit automatically.
6) Display will toggle between the parameter shown in shaded and the last selected options or values at every 1sec. interval with corresponding LED status.

Parameter	Display	Description	Default
Type		User Can Select the option between Count, time & Rate type. **Count:-** If selected, Instrument will work as Event counter. Ref. Page No. 4 **Time:-** If selected, Instrument will work as Time Totaliser. Ref. Page No. 5 **Rate:-** If selected, Instrument will work as Rate Indicator. Ref. Page No. 6	Count

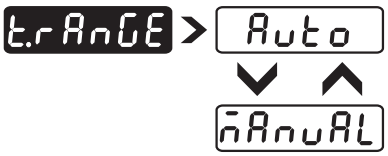
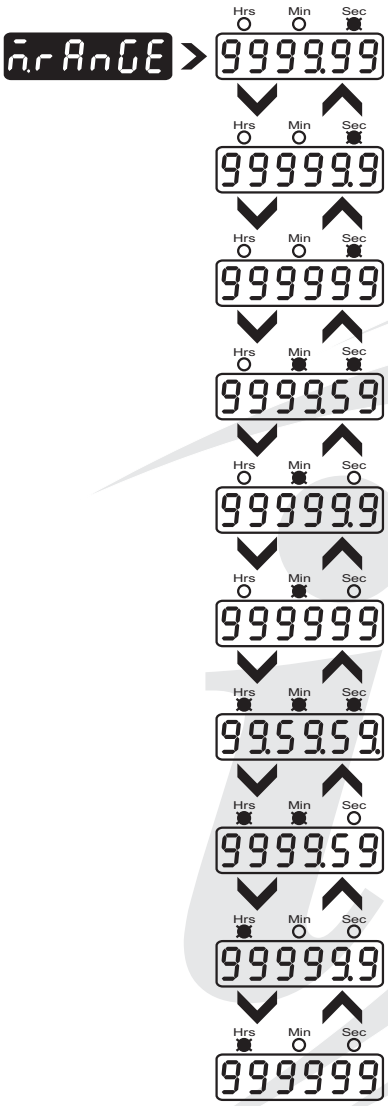
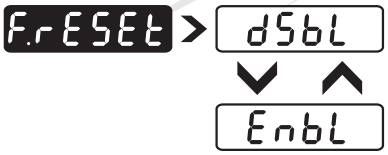
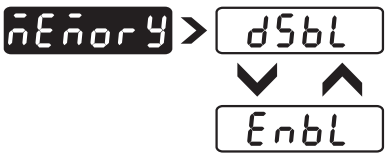
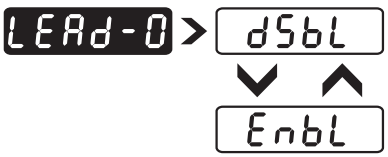
CTR As Event Counter:-

Below all Parameter will appears only if Type as 'COUNT' selected.

Parameter	Display	Description	Default
Count Type		**DC:-** If selected count input from Proximity or Potential free contact. **AC:-** If selected count input from 230V AC supply.	DC
Input Freq.		**Input Frequency :-** User can select the frequency of count pulse at the input terminal. This feature is useful in avoiding noise signal. **03:-** If selected count input frequency is 3Hz. **30:-** If selected count input frequency is 30Hz. **100:-** If selected count input frequency is 100Hz. **1000:-** If selected count input frequency is 1000Hz. **2500:-** If selected count input frequency is 2500Hz.	30Hz
Front Reset		**Disable:-** If selected; user can not reset the counter by pressing RET key. Only remote reset at back terminal is allowed. This feature is useful to avoid unauthorized attempt to reset the counter during run mode. **Enable:-** If selected user can reset the counter by pressing RET (reset) key located at front panel.	Enable
Memory		**Disable:-** If selected Count or Time will Reset on every power on. **Enable:-** If selected, Count or Time will be store on internal Flash on every Power fail, that count & time will be retain on every power on.	Enable
Hold Input		This features allows the user to hold the Counter for some specific interlocks. **Disable:-** If selected, User can not Hold the Running Count. **Enable:-** If selected, With the help of Back Terminal User can hold the Running Count.	Disable
Leading Zero		**Disable:-** If selected, Leading Zeros will not display in Run mode. **Enable:-** If selected, Leading Zeros will display in Run mode.	Disable
Scaler		User can select between Multiply or Division operation for incoming count pulse. **Multiply:-** If Selected, Incoming count pulse get Multiply by the factor selected by user. **Division:-** If Selected, Incoming count pulse get Divided by the factor selected by user.	Div
Factor		After selecting Scalar option MSB Digit start flashing. **MSB Digit :-** User can set MSB Digit between 0 to 9 by pressing RST key momentarily. **LSB Digit :-** After Holding RST Key for 3 Sec. LSB Digit will start blinking. User can set LSB Digit between 0 to 9 by pressing RST key momentarily.	01

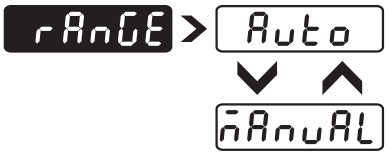
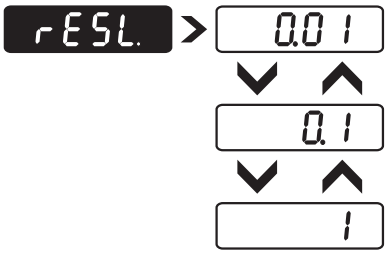
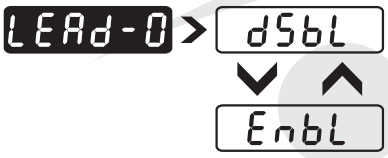
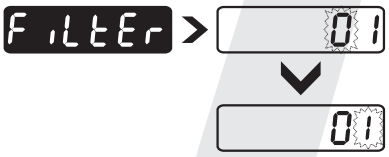
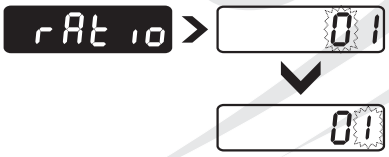
CTR As Time Totaliser :-

Below all Parameter will appears only if Type as 'TIME' selected.

Parameter	Display	Description	Default
Time Range		By this parameter user can select Range for Timing. **Auto** : If selected time range will be automatically incremented with increment in time. **Manual** : If selected user can select particular range for timing.	Auto
Manual Time Range		**Range : 9999.99 Sec.** **Resolution : 0.01 Sec.** **Range : 99999.9 Sec.** **Resolution : 0.1 Sec.** **Range : 999999 Sec.** **Resolution : 1 Sec.** **Range : 9999Min. 59 Sec.** **Resolution : 1 Sec.** **Range : 99999.9 Min.** **Resolution : 0.1 Min.** **Range : 999999 Min.** **Resolution : 1 Min.** **Range : 99Hrs. 59Min. 59Sec** **Resolution : 1 Sec.** **Range : 9999Hrs. 59Min.** **Resolution : 0.1 Min.** **Range : 99999.9 Hrs.** **Resolution : 0.1 Hrs.** **Range : 999999 Hrs.** **Resolution : 1 Hrs.**	999999 Min.
Front Reset		**Disable:-** If selected; user can not reset the counter by pressing RET key. Only remote reset at back terminal is allowed. This feature is useful to avoid unauthorized attempt to reset the counter during run mode. **Enable:-** If selected user can reset the counter by pressing RET (reset) key located at front panel.	Enable
Memory		**Disable:-** If selected Count or Time will Reset on every power on. **Enable:-** If selected, Count or Time will be store on internal Flash on every Power fail, that count & time will be retain on every power on.	Enable
Leading Zero		**Lead-0:-** This parameter allows the user to Enable or Disable Leading Zeros in Run mode. **Disable:-** If selected, Leading Zeros will not display in Run mode. **Enable:-** If selected, Leading Zeros will display in Run mode.	Disable

CTR As Rate Indicator :-

Below all Parameter will appears only if Type as 'RATE' selected.

Parameter	Display	Description	Default
Time Range		By this parameter user can select Range of resolution for Rate Indicator. **Auto** : If selected time range will be automatically incremented with increment in time. **Manual** : If selected user can select particular range for timing.	Auto
Resl[n]		By this parameter user can select Range of resolution for Rate Indicator. **0.01 Resolution:-** If Selected, In Run Mode RPM Resolution will be in 0.01 & Maximum Display is 99.99 RPM. **0.1 Resolution:-** If Selected, In Run Mode RPM Resolution will be in 0.1 & Maximum Display is 999.9 RPM. **1 Resolution:-** If Selected, In Run Mode RPM Resolution will be in 1 & Maximum Display is 9999 RPM.	1
Leading Zero		**Lead-0:-** This parameter allows the user to Enable or Disable Leading Zeros in Run mode. **Disable:-** If selected, Leading Zeros will not display in Run mode. **Enable:-** If selected, Leading Zeros will display in Run mode.	Disable
Filter		The controller is equipped with an digital filter which is used to filter out any extraneous pulses on the RPM. If the RPM signal is fluctuating due to noise, increase the filter constant value. (Minimum Value = 1) **MSB Digit :-** While MSB Digit is Flashing, User can set MSB Digit between 0 to 9 by pressing SET key momentarily. To store the Value press and Hold SET Key for 3 sec. **LSB Digit :-** After Holding SET Key for 3 Sec. LSB Digit will start Flashing. User can set LSB Digit between 0 to 9 by pressing SET key momentarily. To store the value press and hold SET Key for 3 Sec.	03
Ratio		**Ratio:-** This parameter allows the user to select the Divider factor for RPM Value (Minimum Value = 1). **MSB Digit :-** While MSB Digit is Flashing, User can set MSB Digit between 0 to 9 by pressing SET key momentarily. To store the Value press and Hold SET Key for 3 sec. **LSB Digit :-** After Holding SET Key for 3 Sec. LSB Digit will start Flashing. User can set LSB Digit between 0 to 9 by pressing SET key momentarily. To store the value press and hold SET Key for 3 Sec.	01

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