DIGITAL HOUR METER COUNTER

Cat. No. : **Z2301N0G1FT00**
Z2221N0G2FT00

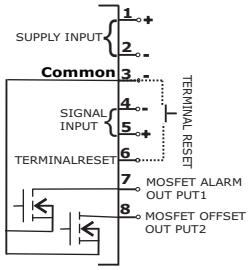
CE RoHS

FEATURES :

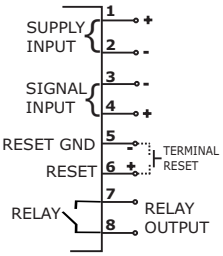
- Suitable for Hour meter & Counter (Up / Down) application
- Wide Hour meter range from 1 sec to 9999999 hrs.
- Wide counter range from 1 to 9999999 counts.
- Prescaling facility for Counter.
- Alarm facility for both Hour meter & Counter.
- MOSFET Output with Over Load detection.
- Retentive & Non-Retentive modes.
- 7 Digit LCD with luxurious green backlight.
- Compact size.
- Suitable for panel mounting.

CONNECTION DIAGRAM:

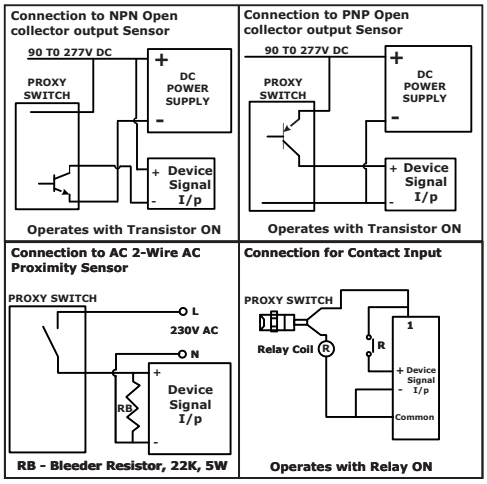
For Z2301N0G1FT00



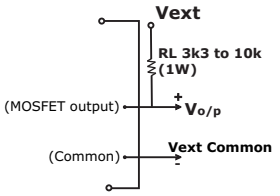
For Z2221N0G2FT00



Proximity Switch Connection Diagram:



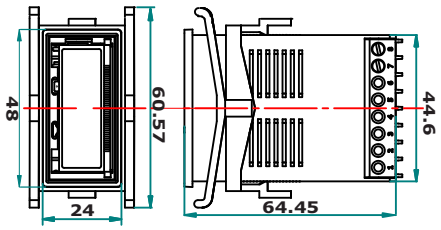
Using MOSFET O/P as signal I/P to External system



MOSFET O/P can be used to give logic signal to the external system (e.g. PLC I/P). For this pull-up resistor as shown in diagram should be used. Effective value of "RL" will decide O/P impedance.
Here when MOSFET is ON, signal low. Refer connection diagram.

Vo/p = Vext
(When MOSFET o/p off)

Overall Product Dimensions & Mounting Details (in mm)

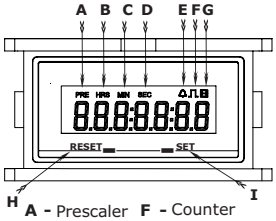


TERMINAL DETAILS :

Ø3.5 mm	0.40 N. m (3.5 Lb.in) Terminal screw - M2.5
	1X0.3 to 2.5 mm² Solid Wire
AWG	22 to 14

Panel cutout 22.0 mm X 44.8 mm

FRONT VIEW:



A - Prescaler
B - Hour
C - Minute
D - Second
E - Alarm
F - Counter
G - Hour Meter Symbol
H - RESET(RST)
I - SET

SYMBOL MEANING :

Symbol	Meaning
	Hourmeter - Blinking symbol means signal present.
	Counter - Product is in counter mode.
	Still symbol- Alarm is configured Blinking symbol- At alarm value reached.
PRE	Prescaler - Prescaler greater than 1 is selected.

Following devices are also available in scope of GIC P. Ltd,
Z2121N0G1FT00 - DCHM, 90-277 VAC/DC, MOSFET OUTPUT
Z2001N0G1FT00 - DCHM, 7-60 VDC, MOSFET OUTPUT
For more details please visit us www.gicindia.com

Product Catalog Number	Z2301N0G1FT00	Z2221N0G2FT00
Supply Characteristics :		
Supply Voltage Range (Un)	9 to 30 VDC	85 to 265 VAC/VDC
Power Consumption	2 Wat max.	2VA / 1W
Supply Frequency	50/60 Hz	
I/P Signal Characteristics :		
Signal Voltage Range	9 to 30 VDC	85 to 265 VAC & 100 to 265 VDC
Signal Isolation		
Output Characteristics :		
Output type	2MOSFET:30 VDC/60 mA(Max.) Note:Use isolated input supply	Relay: 1 C/O, Contact Rating: 5 A(Res.)@250 VAC/30VDC Contact Material: Ag Alloy
Functional Characteristics :		
Display	7 digit LCD , 6.5 mm Height, 12 O' Clock, Transmissive	
Number of keys	2 (SET key & RST key)	
Reset function — Reset type	Terminal / Front / Auto Reset	
Reset function — Time(min.)	80 ms / 3 Sec / -	
Hour Meter Functions — Accuracy	+/- 2 Sec per day	
Hour Meter Functions — Ranges	Hrs : Min : Sec (999:59:59), Hrs : Min (99999:59), Hrs (9999999), Min (9999999), Sec (9999999)	
Counter Functions — Accuracy	100 %	
Counter Functions — Range	1 to 9999999.999	
Counter Functions — Decimal Point Position(max.)	3	
Counter Functions — Pre-scaler	4-Digit	
Counter Functions — Input Signal — Switching Freq.(max.)	10 Hz for AC and 40 Hz for DC	
Counter Functions — Input Signal — Pulse Width min.	50ms ON/50ms OFF for AC, 12.5ms ON/12.5ms OFF for DC	
Environmental Characteristics :		
Operating Temperature	-5° C to +55° C	
Storage Temperature	-10° C to +60° C	
Humidity	5 to 95% Rh (Without condensation)	
Maximum Operating Altitude	2000 m	
Pollution Degree	II	
Degree of Protection	Front side: IP40; Terminals: IP20, Housing : IP30	
Enclosure material	UL 94 V0 Plastic	
Casing color	Black	
Other Characteristics :		
Mounting	Flush mounting on panel cut-out	
Panel Cut-out	22mm X 44.8mm	
Weight (Un-packed)	52 gm	
Operating Position	Horizontal	
Termination wire Sizes	Wire size : 22-14 AWG, 0.3-2.5 mm	
EMI/EMC Compliance:		
Harmonic Current Emissions	IEC 61000-3-2 Ed. 4.0 (2014-02) Class A	
Voltage Flicker & Fluctuation	IEC 61000-3-3 Ed. 3.0 (2013-05) Class A	
ESD	IEC 61000-4-2 Ed. 2.0 (2008-12) Level II	
Radiated Susceptibility	IEC 61000-4-3 Ed. 3.2 (2010-04) Level III Criteria B	
Electrical Fast Transients(Supply)	IEC 61000-4-4 Ed. 3.0 (2012-04) Level IV	
Electrical Fast Transients(Signal)	IEC 61000-4-4 Ed. 3.0 (2012-04) Level III	
Surge	IEC 61000-4-5 Ed. 2.0 (2005-11) Level III	
Conducted Susceptibility	IEC 61000-4-6 Ed. 4.0 (2013-10) Level III	
Power Frequency Magnetic Field	IEC 61000-4-8 Ed. 2.0 (2009-09) Class 4	
Voltage Dips	IEC 61000-4-29 Ed. 1.0 (2000-08) Class B	
Conducted Emission Radiated Emission	CISPR 11 Ed. 5.1 (2010-05) Class A CISPR 11 Ed. 5.1 (2010-05) Class A	
Safety Compliance:		
Test Voltage (All terminal to housing)	IEC 60947-5-1 Ed. 3.1 (2009-07) 2.5 kV	
Single fault	IEC 61010-1 Ed. 3.0 (2010-06)	
Leakage Current	UL 508 Ed. 17 (1999-01) <3.5 mA	
Environmental Compliance :		
Cold Heat	IEC 60068-2-1 Ed. 6.0 (2007-03)	
Dry Heat	IEC 60068-2-2 Ed. 5.0 (2007-07)	
Vibration	IEC 60068-2-6 Ed. 7.0 (2007-12) 5 g	
Repetitive Shock	IEC 60068-2-27 Ed. 4.0 (2008-02) 40 g, 6 ms	
Non-repetitive Shock	IEC 60068-2-27 Ed. 4.0 (2008-02) 30 g, 15 ms	

FREQUENTLY ASKED QUESTIONS :

Q1. How can I change the device mode from Counter to Hour Meter or vice versa ?
Ans: To change the device mode from counter to hour meter or vice versa , it is required to reset the device, then in edit mode select the respective mode.

Q2. How to Reset the Counter/Hour meter, if 'Reset' is disabled?
Ans: If user disables Reset and save the setting, after that again user enables reset then only Terminal reset option is available to user. User has to enable the terminal reset, then reset the device count/time by shorting terminal reset pin & common ground pin. After this only user will see all reset settings in Edit menu .

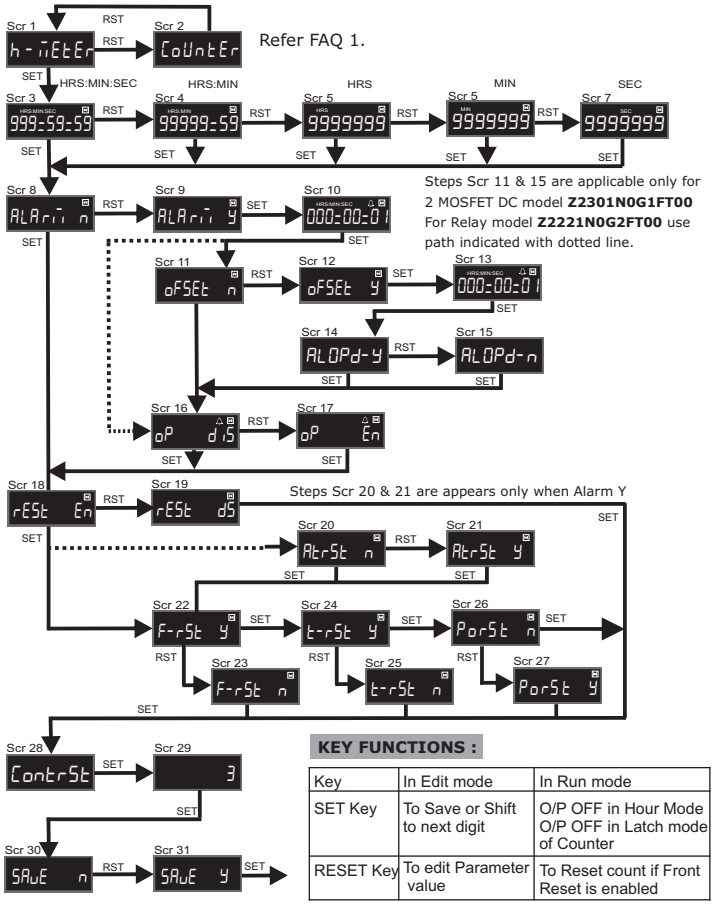
Q3. What should I do when device flashes the Roll over message?
Ans: This means, device display limit is rolled over, then reset the count/time or change the resolution. Screen 50

Q4. What should I do when device flashes the Over load message?
Ans: This means, that device output MOSFET is over loaded, Press SET key for 3sec to see the normal screen & make sure that connected load current should not be greater than 60mA. Screen 51

Optional Accessory: ZF1907P: This is the Adapter plate suitable for mounting the Digital counter Hour meter, in panel cutout of 50mm x 25mm with counter sunk M4 screw fitting with vertical center to center distance of 38.2mm.

To enter in edit mode, Press SET & RESET key simultaneously for 3 sec. Product firmware version is displayed for 500ms and then Scr 1 is displayed.

Hour Meter Flow :-



KEY FUNCTIONS :

Key	In Edit mode	In Run mode
SET Key	To Save or Shift to next digit	O/P OFF in Hour Mode O/P OFF in Latch mode of Counter
RESET Key	To edit Parameter value	To Reset count if Front Reset is enabled

Mode selection :-
Set Hour meter mode as per required resolution. Refer (Scr 3 to Scr 7)
If the resolution is changed in RUN mode then hour meter shows time change as per selected mode.

Alarm value selection :-
To set alarm value Press SET key to select each digit & press RESET key to edit the digit,
Press SET key. The next digit starts blinking, after modifying last digit all digits starts blinking.
Press SET to set the Alarm time. Refer Scr 8 to Scr 10

Note: Alarm is of recurring type alert. Recurring alert occurs continuously at a predefined period. It is Start to Start type.
After changing Alarm value, if new Alarm value less than Current value then, output will turn on at display value equal to (Current value + alarm value). If new alarm value is greater than current display value, then output turns when alarm value is reached.

Alarm output dependancy:
Alarm output dependancy: This is the dependancy of offset output with alarm output.
If ALoPd y is selected then, Offset output is acknowledged before turning ON the alarm output, then alarm output will not turn ON when alarm value is reached.
If ALoPd n is selected then alarm output will turn ON at alarm value reached.
Refer Scr 11 to Scr 13

Offset value selection: User can select offset output with Alarm output.
Offset value should not be greater than or equal to Alarm value. While editing the offset value, care has been taken to avoid the selection of such value. i.e. If offset value is greater than or equal to Alarm value then it will not accept. Refer Scr 14 to Scr 15

Output Enable / Disable :-
Using this setting output can be made either enabled Or disabled. Refer Scr 16 to Scr 17

Reset Enable / Disable :-
Device can be reset through 4 different ways. Reset Disable - Device will set as non-resettable. Refer Scr 18 to Scr 27.

Auto reset allows user to reset Time or Count Automatically if AtrSt - y. Auto reset is enable, if Alarm value is enable.
For Counter:- If output type is Latch, then device will reset after pressing RESET key. If output type is time out, then device will reset after time out.
For Hour meter:- Device will reset hour meter after pressing RESET key.

Front reset allows user to reset Time or Count by pressing RST key for 2 sec.

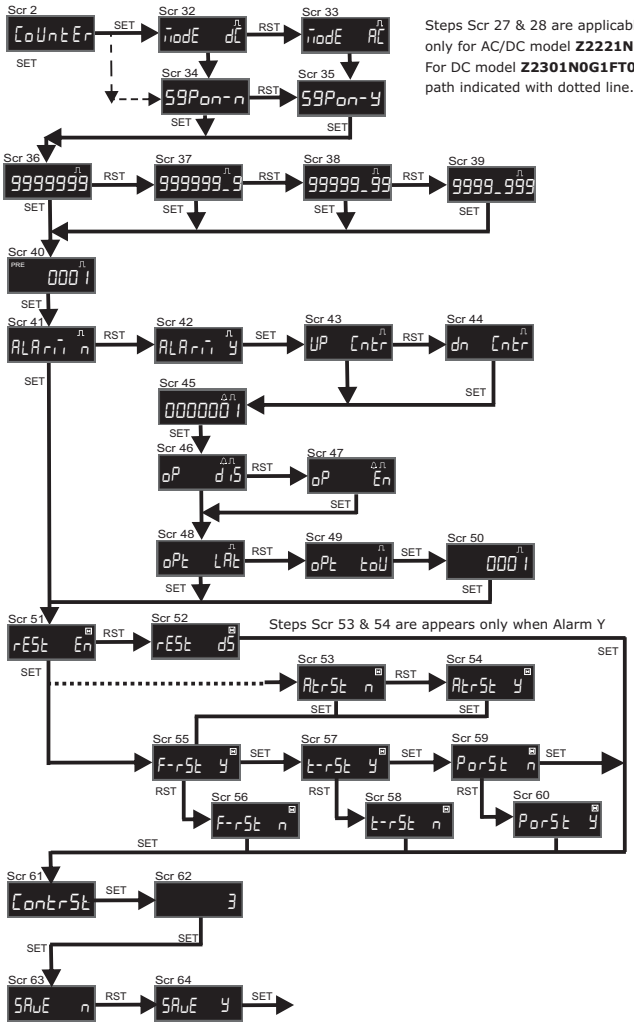
Terminal reset allows user to reset Time or Count by shorting reset terminal to ground for minimum 80 mS .

Power ON reset: PorSt n - Count / time retains at power ON. PorSt y - Count / time resets at power ON

Contrast control :-
Using this function contrast level of LCD can be adjusted from 0 to 7. Refer Scr 28 & Scr 29

Save :- Confirmation to save edited parameter. Refer Scr 30 to Scr 31.
Save Y - Saves the edited parameter in memory.
Save N - It will not save edited parameters.

Counter Flow:- **Auto reset is not applicable for Down counter.**



Input signal selection:

Note: This part is applicable for AC-DC product only. Refer Scr 32 & Scr 33.
ModE dc for DC signal selection. ModE AC for AC signal selection.
SgPon-n - There is no increment in count if signal is present at power ON.
SgPon-y - Increments the count if signal is present at each power ON. Refer Scr 34 & Scr 35.

Decimal point selection:-
Four decimal point position selection available. Refer Scr 36 to Scr 39.

Prescaler :-It means number of pulses required to increment display value by 1.
User has to select Decimal point position(Resolution) as per prescaler value set**.**
e.g. Lets say if application is of bottle counting & 10 bottles per box. So select Prescaler as 10, Set decimal point as 1, then after 10 pulses, it increments display value by 1 and for one pulse, it increments display by 0.1.
If the same application is considered as 125 bottles per box, then select prescaler as 125, Set decimal point as 3, then after 125 pulses it increments display value by 1 and for one pulse, it increments display by 0.008. Refer Scr 40

Alarm value selection :-
Refer Scr 41 to Scr 45.

Up counter functionality is recurring alarm type, output turns on every time after alarm value reaches & it continues the counting.

Down counter functionality is Preset type. It starts from alarm value & when value reaches to zero output turns on. Auto reset is not applicable for Down counter.

Note:
After changing Alarm value, if new Alarm value less than Current value then, out put turns on at display value equal to (Current value + alarm value). If new alarm value is greater than current display value then, output turns on at alarm value.

Output Enable / Disable :-
Using this setting output can be made either enabled Or disabled.
Refer Scr 46 to Scr 47.

NOTE :
When output is enabled, MOSFET output turns ON when alarm value is reached.
When output is disabled, MOSFET output remains OFF even when alarm value is reached.
Alarm symbol blinks when alarm value reaches, irrespective of output enabled/disabled.

Output Type :- There are two type of output functionality. Refer Scr 48 to Scr 50.

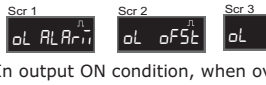
Latch
Once Alarm Value reaches, Output becomes ON & remains ON until it gets acknowledged.
It also retains its state after power OFF/ON cycle.

Time out
When output turns ON it remains ON till the timeout period, which is in seconds.
Timeout value can be set from 1 to 9999

After this screen for Reset types, Contrast & setting same Screen 18 to 31 will appear in order.

Note:-
In counter for 1,2,3 decimal point, when display value is greater than 7 digit, then device will show "Rollover". If device shows rollover then select the lower decimal point position.
In No decimal point - after rollover value will reset to zero.

Over load condition for Two MOSFET :-



In output ON condition, when over load condition is occurs then "oL ALArm" or "oL oFSE_" is displayed in two MOSFET device only,output is turned OFF. Press SET key to normal screen or device will go to RUN mode after TIMEOUT period.
When both output are ON and both at over load condition then "oL both" screen will occurs