

GTR-60

Generator Controller

Manual



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Introduction

1、GTR-60 Panel

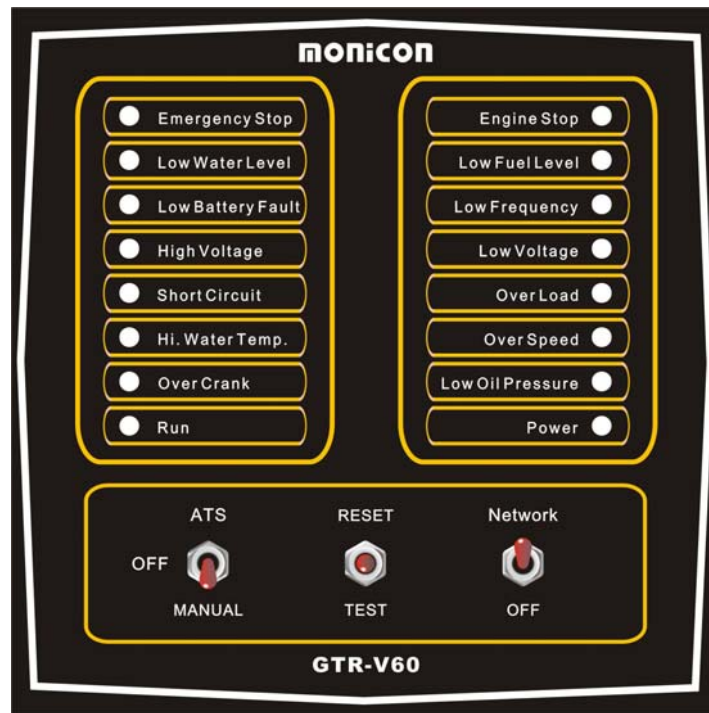


Fig.1 GTR-60

Indicators

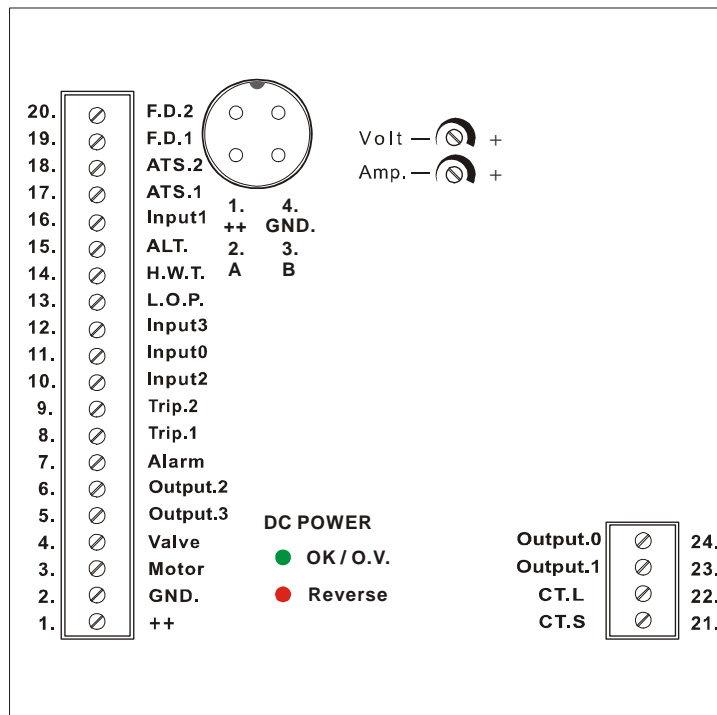
- ◆ Power
- ◆ Run
- ◆ Engine Stop
- ◆ Over Crank
- ◆ High Water Temp.
- ◆ Over Speed
- ◆ Low Oil Pressure
- ◆ Emergency Stop
- ◆ Low Water Level
- ◆ Low Fuel Level
- ◆ Low Battery Fault
- ◆ Low Frequency
- ◆ High Voltage
- ◆ Low Voltage

- ◆ Short Circuit
- ◆ Over Load

Operational Switch Function

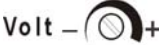
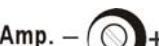



- ◆ **ATS**
Shorted ATS1 and ATS2 terminal behind the controller, the engine starts automatically.
- ◆ **Off**
Shutdown the engine or forbid start function.
- ◆ **Manual**
User starts the engine directly.
- ◆ **Reset**
 1. First time “Reset” shutdown the alarm.
 2. Second time “Reset” clears fault lights.
 3. Holding down for a longer period will produce 1st and 2nd time “Reset” functions.
- ◆ **Light Test**
Test lights for solid, clear, brightness and alarm.
- ◆ **Network**
Allow online authorized user entry for monitoring and control.
- ◆ **Off**
Not allow online authorized user entry for control.

2、Wirer Terminal



GTR-60 wirer terminal

GTR-60 Terminal

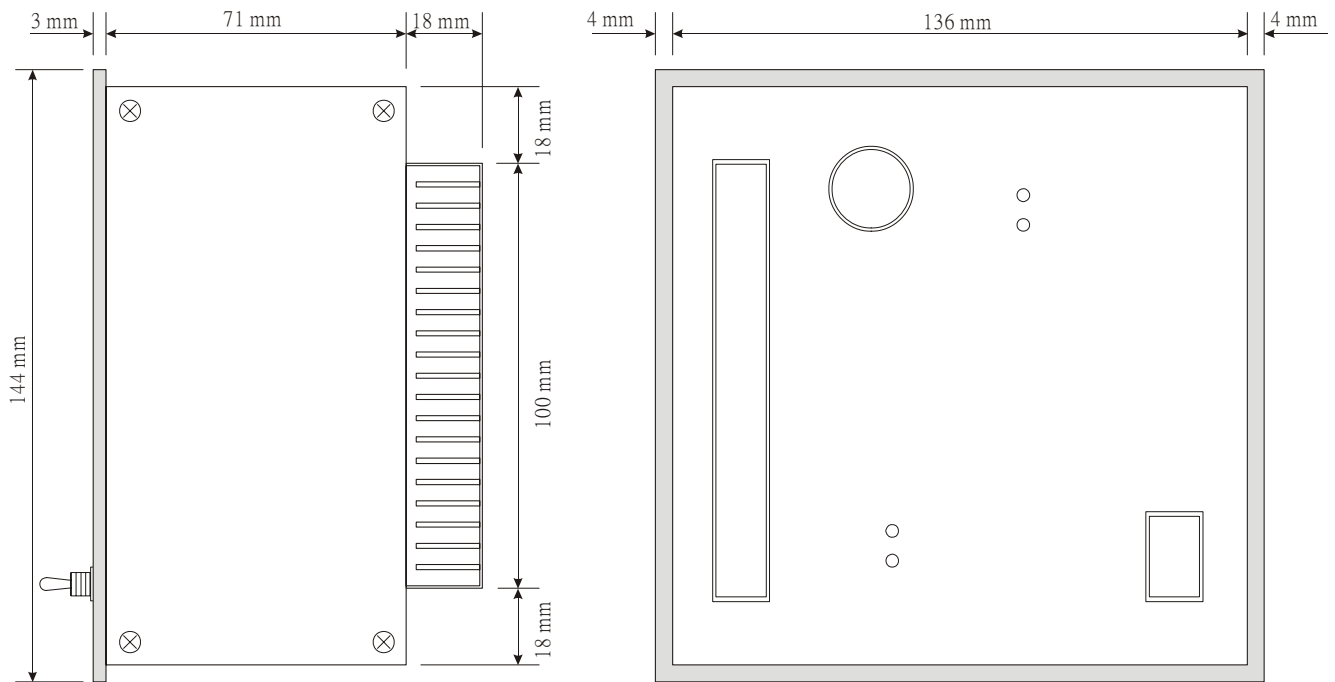
Europium style Connector	Number	Description	Code
	1	Input power (Battery +)	++
	2	Ground (Battery -)	GND
	3	Output starter relay	Motor
	4	Output fuel valve relay	Valve
	5	Output, Aux 3 relay	Output 3
	6	Output, Aux 2 relay	Output 2
	7	Output alarm relay	Alarm
	8	Electrical trip relay	Trip 1
	9	Electrical trip relay	Trip 2
	10	Input, Aux 2 switch	Input 2
	11	Input, Aux 0 switch	Input 0
	12	Input, Aux 3 switch	Input 3
	13	Input, Low oil press. switch	L.O.P.
	14	Input, High water temp. switch	H.W.T.
	15	Input, Alternator plus	ALT.
	16	Input, Aux 1 switch	Input 1
	17	Start 1	ATS 1
	18	Start 2	ATS 2
	19	Input, Frequency detect terminal	F.D. 1
	20	Input, Frequency detect terminal	F.D. 2
	21	Line current input (L)	CT.L
	22	Line current input (S)	CT.S
	23	Output, Aux. 0 Relay	Output.0
24	Output, Aux. 0 Relay	Output.1	
	AC Voltage VR		
	AC Ampere VR		
 OK / O.V.	OK: Solid "green" LED display O.V.: Solid "red" LED display		
 Reverse	Polarity fault		
	RS-485 Communication Port <ol style="list-style-type: none"> 1. Battery + 2. A 3. B 4. GND 		

[1] : Output Relay function can be changed according users requirements ◦

[2] : Output trip Relay is intended to be used to trip the Breaker or AVR fired current in order to cut off load to the generator ◦

[3] : VRs adjustment for matching tolerance between external and internal measuring meter readout ◦

3、CASE DIMENSIONS



Side View

Back View

Specifications

1、General

DC Supply:

8 ~ 36 VDC (Over 36 VDC the system will shutdown DC input.)

Power Consumption:

Max. 10 W

Measuring Voltage:

10 ~ 300 VAC (Phase to Neutral, Accuracy 0.25 %)

Measuring Current:

..5 A (secondary detection readings below 0.15 A show zero display reading, Accuracy 0.25 %)

Measuring Frequency:

0 ~ 80 Hz (Min AC Volt: 10 V)

Charger AC Output Voltage Sensitivity:

1 V ~ 70 V Peak to Peak

Charger AC Output Frequency Sensitivity:

62 Hz ~ 10,000 Hz at rated engine speed

Relay Output:

10 A /30 VDC

Software Platforms:

Windows 98, Windows ME, Windows 2000, Windows XP (recommend)

Communication Protocol:

RS-485 (Dynamic encryption by Monicon technology)



Operating Temperature Range:

-30 °C ~ +70 °C

Dimension (W x H x D):

144 mm x 144 mm x 74 mm

Panel Cut-out (W x H):

138 mm x 138 mm

Weight:

1.4 Kg (3.08 lb.)

2、Controller Function

General Function:

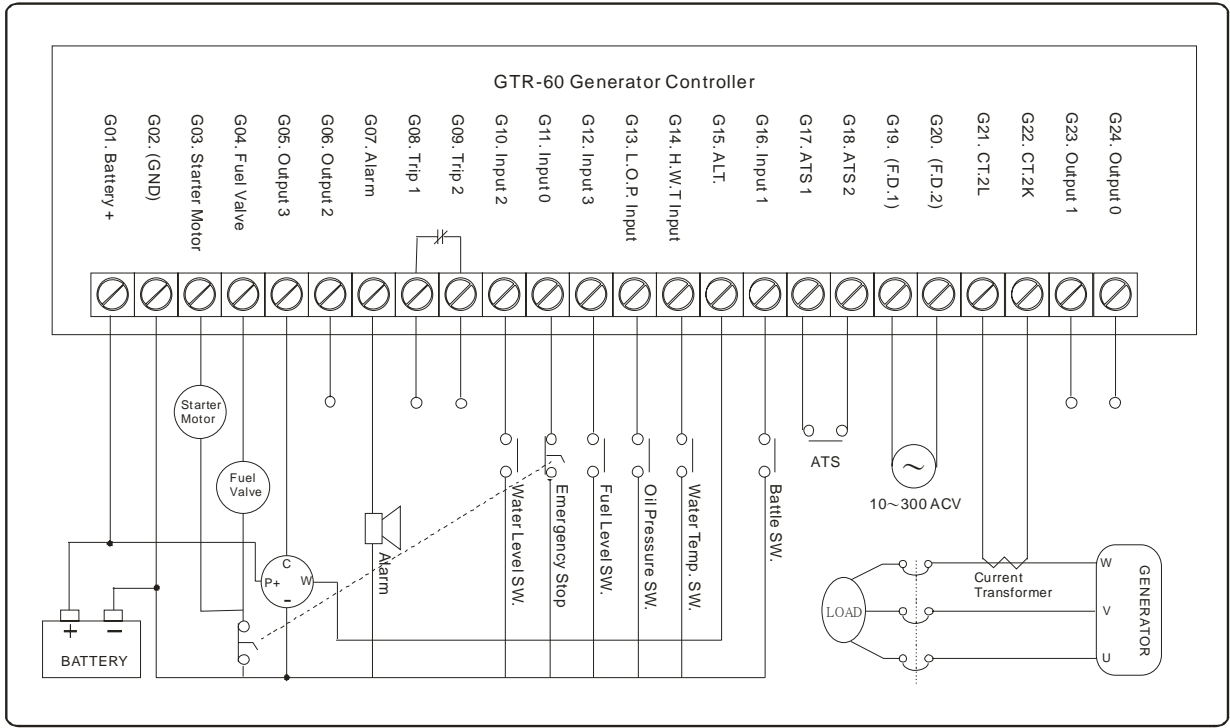
- **Network function:**
 - Remote start/stop and reset the controller by network circuitry
 - Parameter setting and reading
 - Input and output monitor
 - Fault history readout
 - Data acquisition can be down from a remote site
- **Panel function:**
 - Manual start / stop engine.
 - Automatically start / stop engine by ATS.
 - Reset the Genset.
 - Light test.

Protection function:

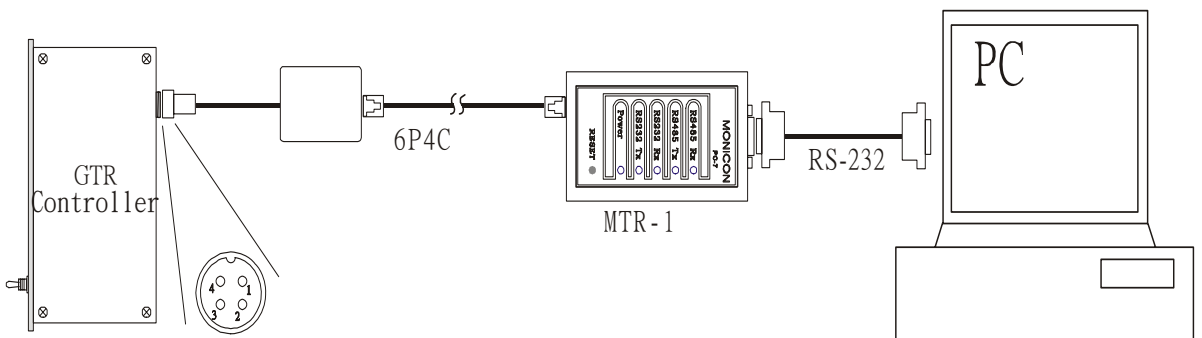
- **Engine respect:**
 - Over crank protection
 - Low oil pressure protection
 - High water temperature protection
 - Low water level protection
 - Over speed protection
- **Generator respect:**
 - Over load protection
 - Short circuit protection
 - Over voltage protection
 - Under voltage protection
 - High frequency protection
 - Low frequency protection
- **Battery respect:**
 - Low battery indicator
- **Peripheral respect:**
 - Aux. 0 protection
 - Aux. 1 protection
 - Aux. 2 protection
 - Aux. 3 protection

Wiring

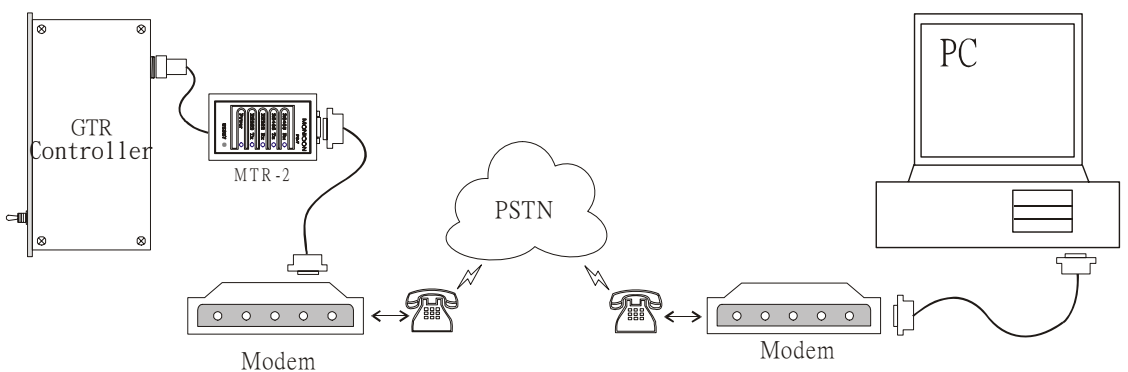
1、Wiring example



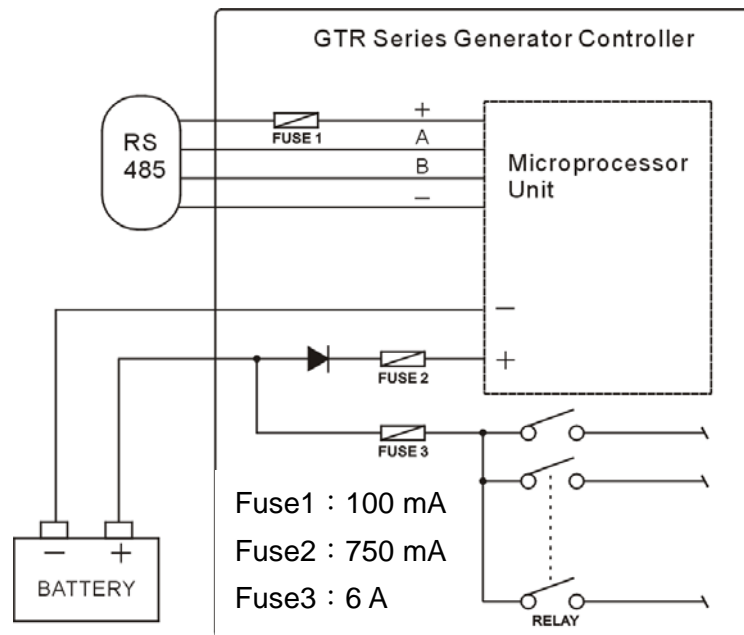
2、Connection in short distance



3、Connection by modem

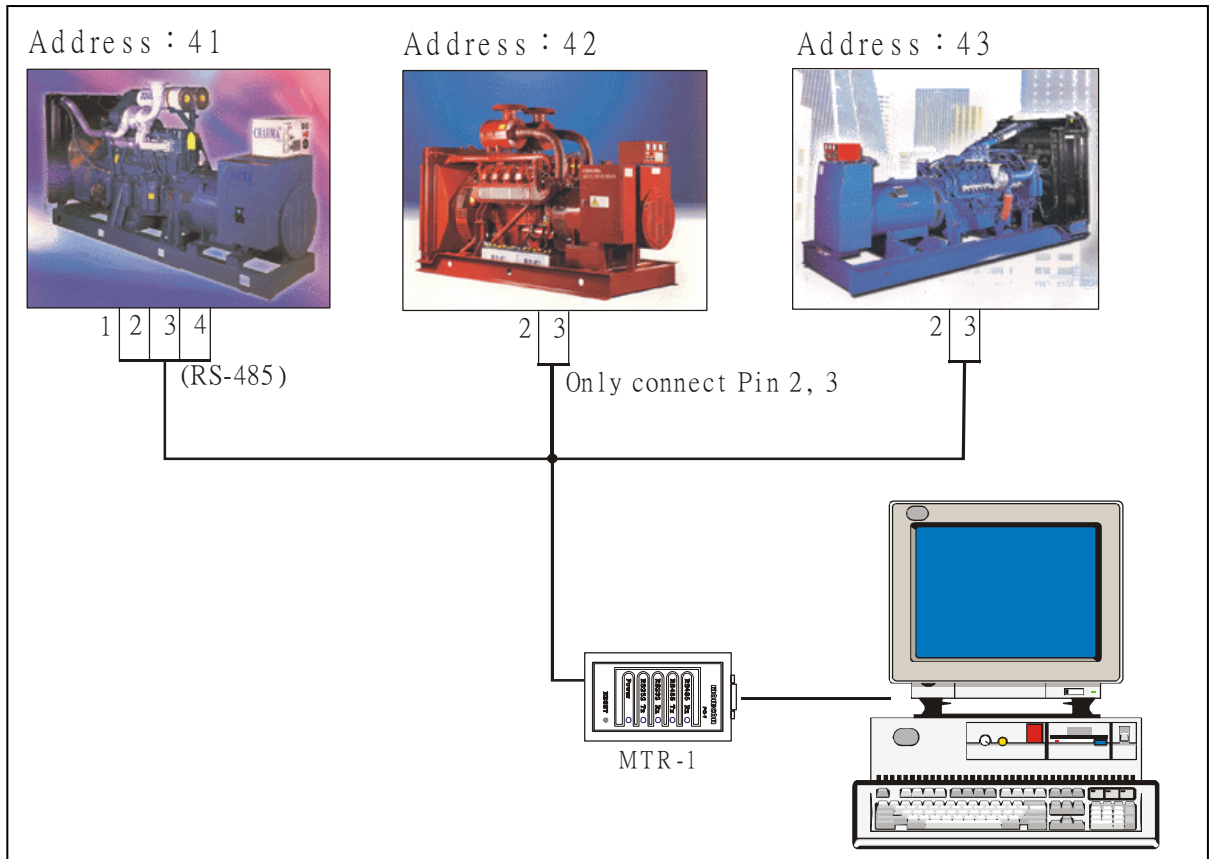


4、Location of inside fuse and protecting value



5、Group connection

- Every genset controller must be have own identified number to support recognition by software. Go to System/Other page, and change the id number.
- Group wiring :
The Rs-485 communication port terminal pin 1 and pin 4 supplied MTR-1, so one genset controller need to be connected with pin 1,2,3,4. The other connected with pin 2, 3 only.



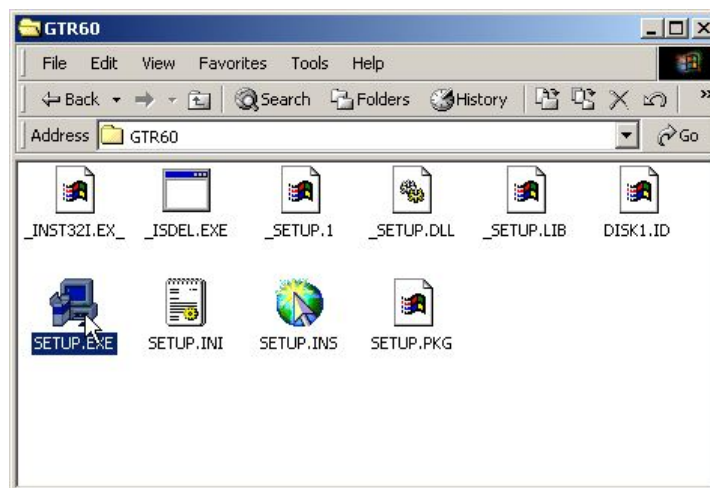
*It is strong suggestion using another power source to power the communication card (MTR-1), If the wire length over 25 meters. That can prevent the MTR-1 in unpredictable condition by voltage drop.

GTR Series Software Installation

6、GTR-60 Software Installation Procedure

■ Step 1 :

Insert the installation disc in the CD ROM drive, and then choose the folder “GTR60”, double-click “Setup.exe”. The wizard will guide you to finish whole setups.

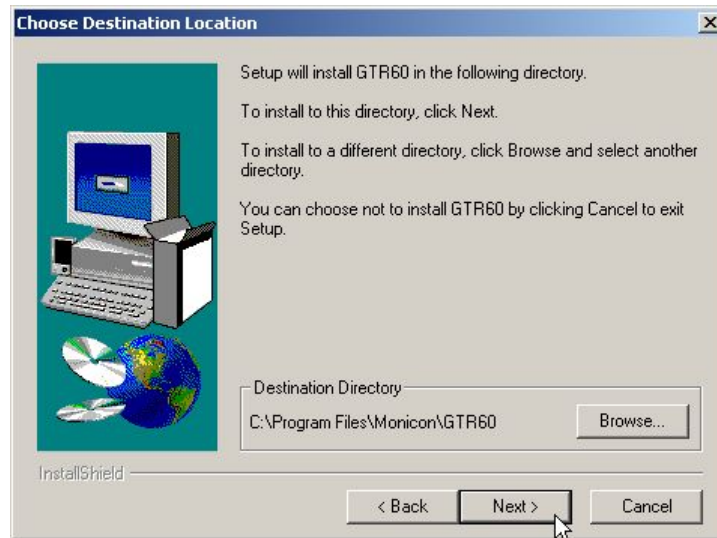


■ Step 2 :

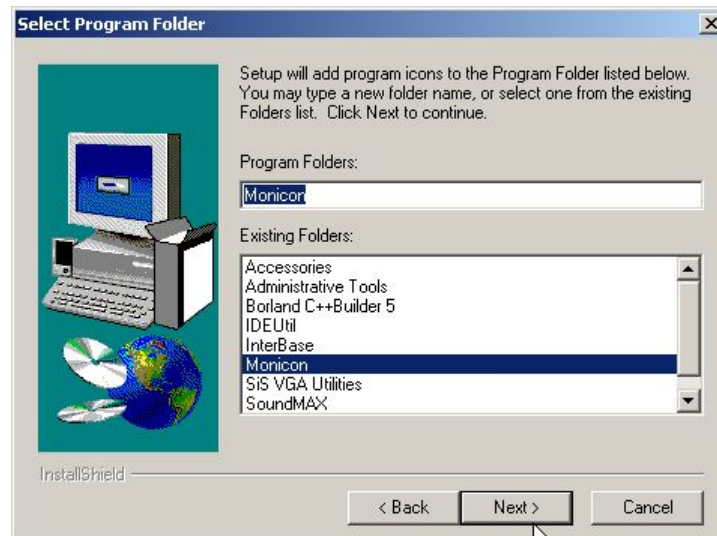
Welcome Screen



■ **Step 3 :**
Choose Destination Location



■ **Step 4 :**
Select Program Folder



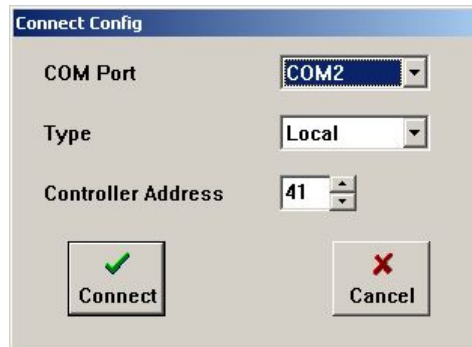
■ **Step 5 :**
Restart Windows.

7、Software Manual

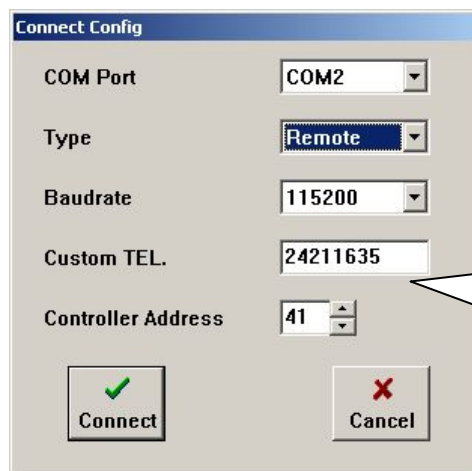
Button Description

-  『Connection』

The connection-setting window displayed after clicked this button. User need to be set comport, connection method and controller ID. Then click connection button make the communication working between controller and computer.



Local connection setting window



Modem connection setting window

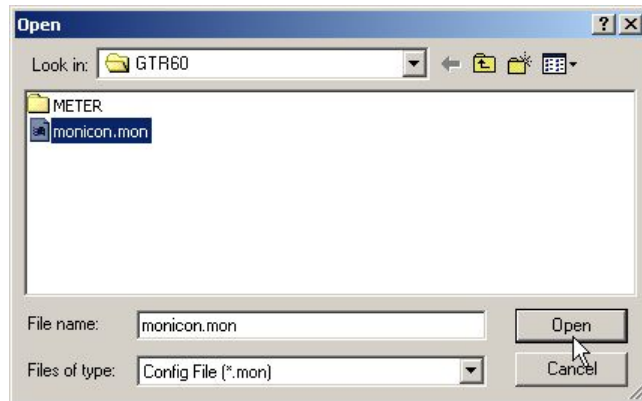
User need be filled baud rate phone number when using Modem connection

-  『Disconnection』

Push this button can cut off connection between computer & controller ◦

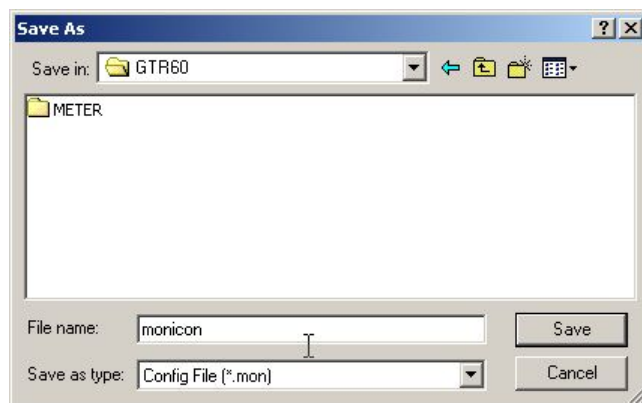
-  『Open an exist file』

This is open an exist configuration File to GTR-80 soft ware in order to comfit GTR controller with same requirement ◦



■  『 Save parameter in a file 』

This is save all parameters in to a file as a record of that controller or a configuration library ◦

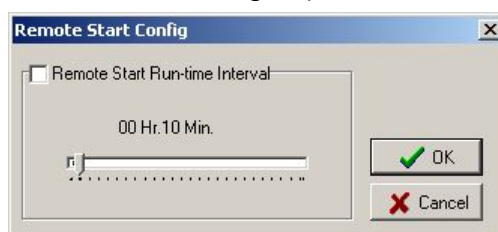


■  『 Remote Start 』

When the software connected with condoner, User can start Engine by 2 ways.

- 1 Enable Running Interval timer then click OK. The engine will start at next second, and will be stop until timer expired.
- 2 Direct click OK, then the engine will start at next second, and will not be stop unless communication Failed or stop button click.

(Note: communication may fail by many reasons, so it is strong suggestion using Method 1 to start engine)



-  『Remote Shutdown』

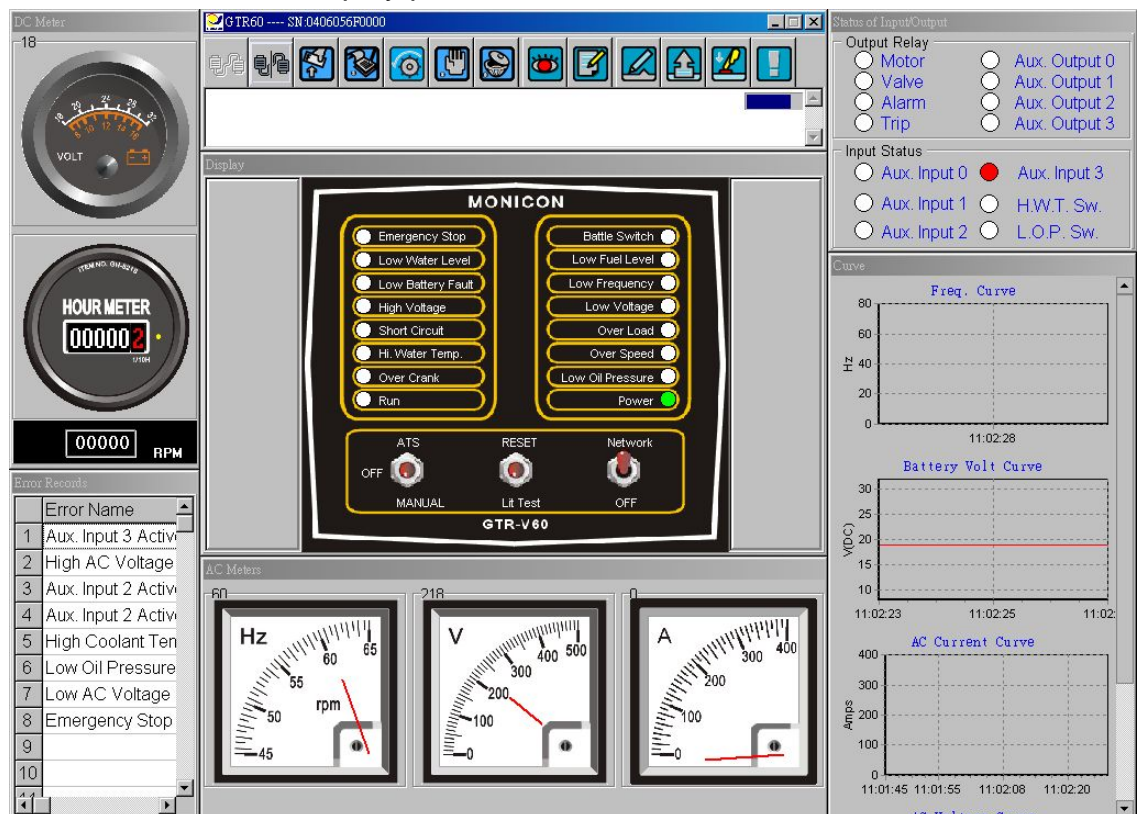
Click this button can shutdown the running engine by network remote start.

-  『Reset』

Click this button can clear fault status ◦

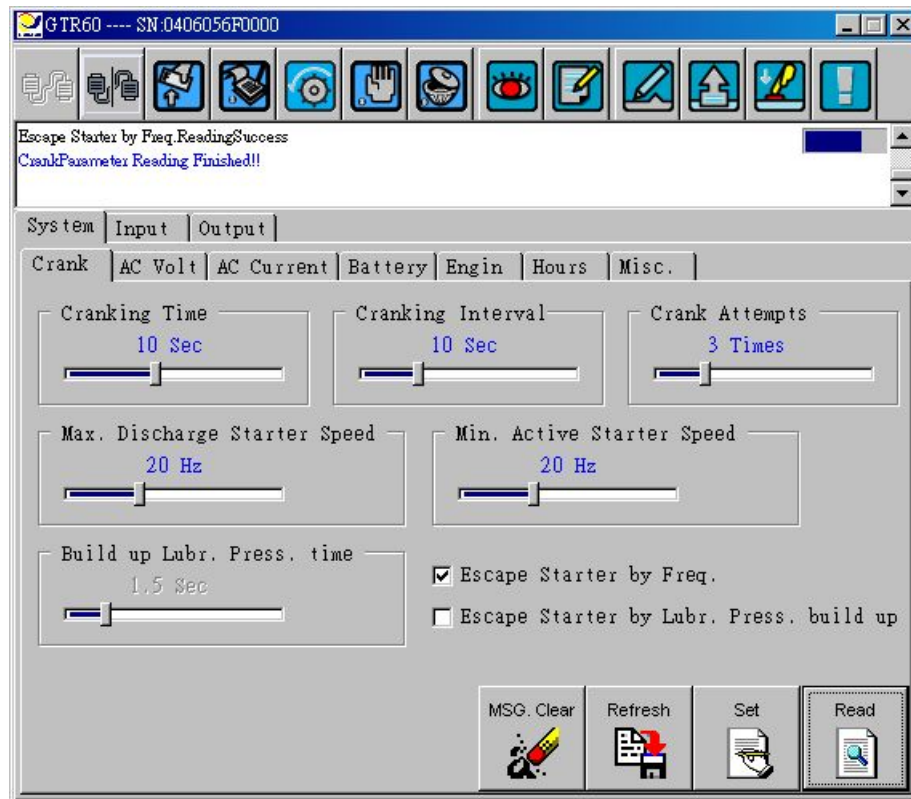
-  『Panel』

Push this button will display panel and all real-time information.



-  『 Setting 』

Click this bottom the setting screen will display ◦



-  『 Fault Record 』

Read Rawest 16 Fault Record ◦

-  『 Read All Parameter 』

Reads all parameters From controller ◦

-  『 Set All Parameter 』

Write all parameters into controller ◦

-  『 About 』

Display Information of “Monicon” company, and software version.

-  『 Read Parameter 』

Click this button can read parameters back from controller while connection established.

- 
『 Setting Parameter 』

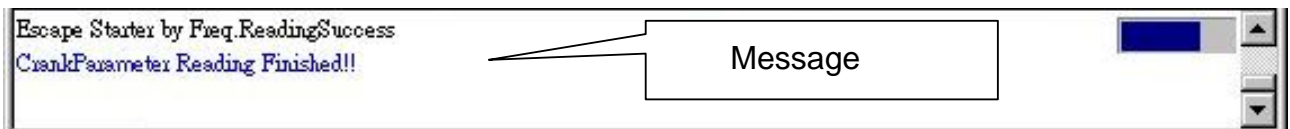
Click this button can write parameters into controller while connection established.

- 
『 Parameter Re-Flash 』

After user write parameters in to controller, the parameter is in un-working memory until click this blotter to Load in the run procure .

- 
『 Message Clear 』

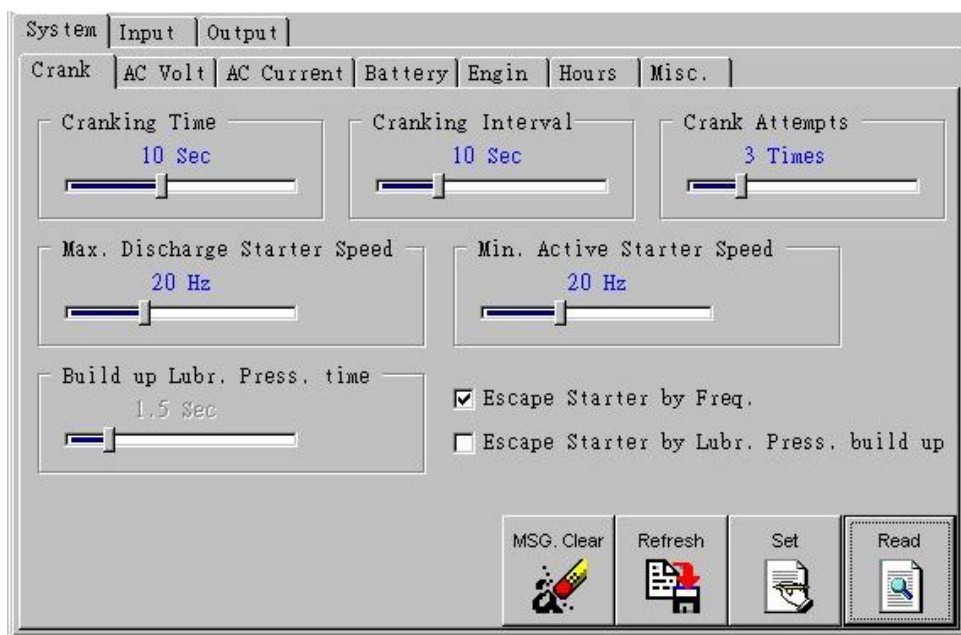
This button can clear the text in message window .



Parameter Screen Description

1、 『 System 』 Page

- 『 Crank 』 page**
 - Parameter Screen**

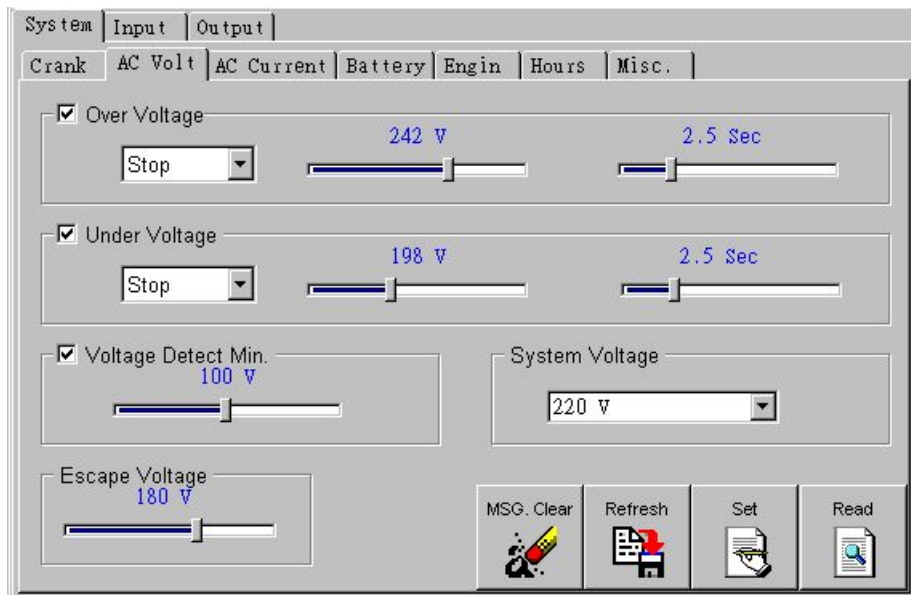


➤ **Parameter Item**

Crank Parameter			
Parameter name	Default	Range	Description
Cranking time	10 Sec	3~20	Set the maximum limitation of the cranking time.
Crank interval	10 Sec	3~30	Interval between Cranking.
Crank disconnect beyond frequency	20 Hz	15~30	When frequency goes about this setting, the starter motor will escape.
Crank enable minimum frequency	20 Hz	15~30	When frequency is below this setting, the starter motor can be activated.
Cranking Attempt	3 Attempt	1~10	Total cranking attempts. °
Lubricant pressures SW. escape starter	1.5 Sec.	0.125~7.5	Escape starter, when the lubricant pressure built up.
Detect Alternate frequency	Enable	Enable/Disable	Escape starter by frequency.
Detect Lubricant pressures sw	Disable	Enable/Disable	Escape starter by lubricant pressure built up.

■ 『AC Voltage』 Page

➤ **Parameter Screen**



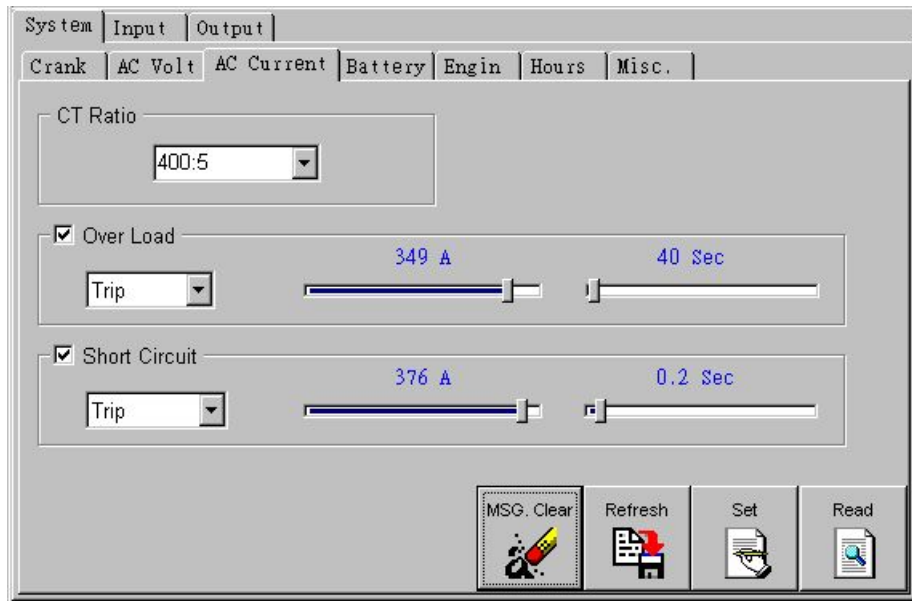
➤ Parameter Item

Over Voltage Parameter			
Parameter name	Default	Range	Description
Enable	Checked	Enable/Disable	Checked means enable.
Action mode	Trip	See note	Four kind action modes can be selected. Shutdown, Trip, Alarm, Indicate.
Voltage	242 Voltage	108~439	The range will change by system voltage selected.
Delay Time	2.5 Sec.	0.25~10	Delay time.
Under Voltage Parameter			
Parameter name	Default	Range	Description
Enable	Checked	Enable/Disable	Checked means enable.
Action mode	Trip	See note	Four kind action modes can be selected. Shutdown, Trip, Alarm, Indicate.
Voltage	191 Voltage	91~392	The range will change by system voltage selected.
Delay Time	2.5 Sec.	0.25~10	Delay time.
Voltage Detecting Minimum			
Parameter name	Default	Range	Description
Enable	Unchecked	Enable/Disable	Checked means enable.
Voltage	100 Voltage	52~225	Under this setting then all the Voltage protection function will disable
Ac volt escarp starter			
Parameter name	Default	Range	Description
AC Voltage escape start	186 Voltage	53~380	Escape starter by AC Voltage build up.
System voltage			
Parameter name	Default	Range	Description
System voltage	220 Voltage		Choose system Voltage :110V、120V、190V、208V、220V、380V、440V、480V、3300V。

- 1 Stop (Level 0): The highest priority for panel switches such as Manual/off/ATS or Emergency switch (None-maskable).
- 2 Stop (Level 1): A serious fault has occurred and the generator should shut down immediately.
- 3 Trip (Level 2): A fault input doesn't make the generator stop immediately, but performs an electrical trip and waits a period defined by parameter "Shut down from exceeded failure time" then shut down engine.
- 4 Alarm (Level 3): A fault input only outputs a signal to the alarm and indicates with LED light.
- 5 Indicating (Level 4): It is only indicated when a fault input by flickering lights.

■ 『Current』 Page

➤ Parameter Screen

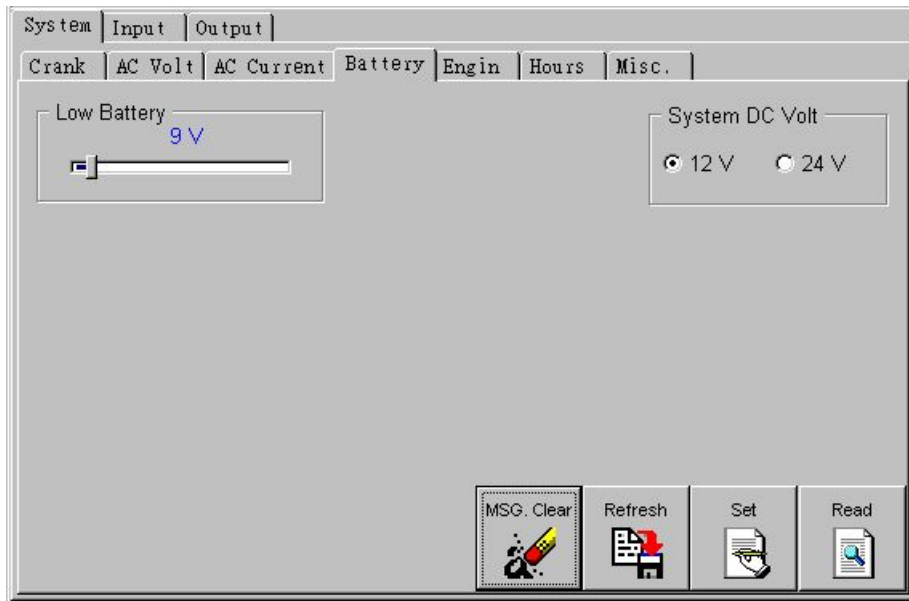


➤ Parameter Item

CT Ratio			
Parameter name	Default	Range	Description
CT Ratio	400 : 5	20~6000	Select car rent transformer patio
Over Load Parameter			
Parameter name	Default	Range	Description
Enable	Checked	Enable/Disable	Checked means enable.
Action Mode	Trip		Four kind action modes can be selected. Shutdown, Trip, Alarm, Indicate.
Current	349 A	2~400	The range will change by CT Ratio selected.
Delay	40 Sec.	10~2550	Delay Time. °
Short Circuit			
Parameter name	Default	Range	Description
Enable	Checked	Enable/Disable	Checked means enable.
Action Mode	Trip		Four kind action modes can be selected. Shutdown, Trip, Alarm, Indicate.
Current	376 A	2~400	The range will change by CT Ratio selected.
Delay	0.2 Sec.	0.1~2	Delay Time °

■ 『Battery』 Page

➤ Parameter Screen

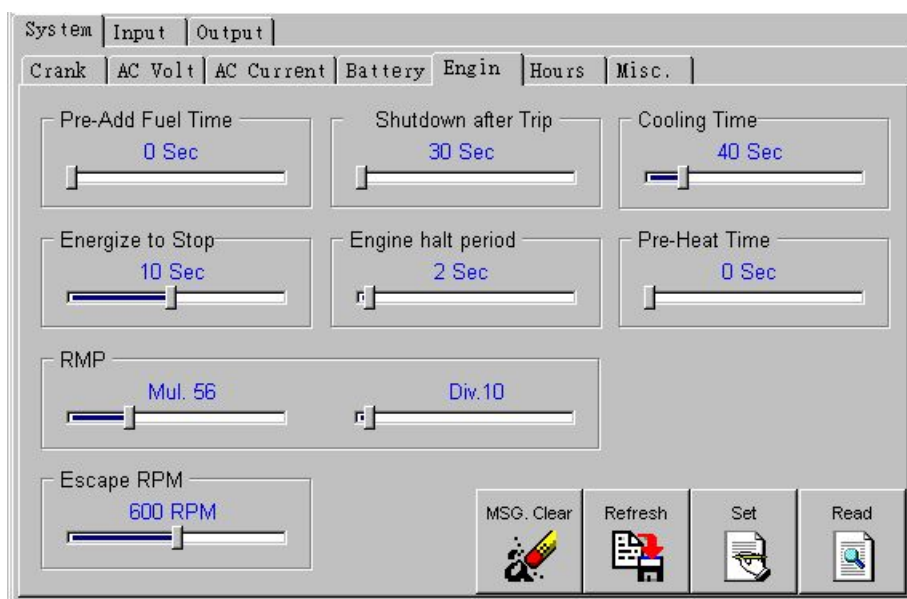


➤ Parameter Item

Battery Parameter			
Parameter name	Default	Range	Description
Low Battery Volt. Setting	19.2 DCV	7.6~26	DC volts under this setting value will cause warning or alarm if enable alarm function.
System DC Volt.	24 DCV	12、24	

■ 『Engine』 Page

➤ Parameter Screen

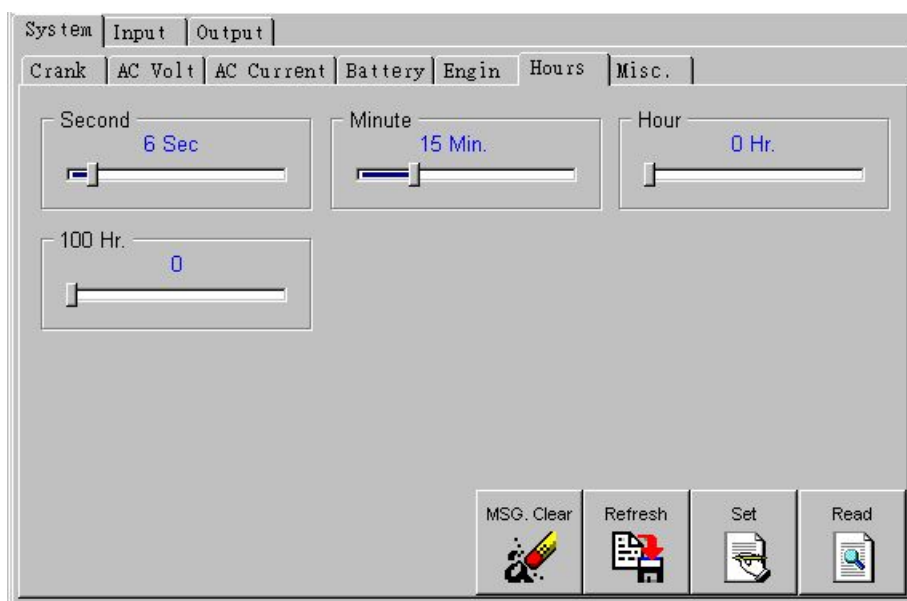


➤ **Parameter Item**

Engine Parameter			
Parameter name	Default	Range	Description
Pre-Add Fuel Time	0 Sec.	0~10	The time of pre-add Fuel before start Engine
Engine halt period	2 Sec.	1~30	Engine will be halt a period of time after fault shat down
Shutdown After Trip	30 Sec.	30~900	When trip activated the Run light will flash and trip relay energized, the control will shut down the engine if fault not clear before setting time up
Coiling time	1 Sec.	1~240	After normal shat down the engine the cooling procedure will be activated cooling time will be no used in fault shut down or by manual switch off
Energies to stop	10 Sec.	1~20	The timer is setting how long the fuel solenoid should be energized to stop the engine completely
Pre-Heat Timer	0 Sec.	0~60	The Pre-Heat procedure will activated AUX. Output if selected before engine start.
RPM Parameter			
Parameter name	Default	Range	Description
RPM multiple factor	56	1~200	The ratio of rotation of main frame Versus chargers.
RPM Divider factor	10	1~200	
RPM Escape starter	600	400~1000	Escape starter by RPM, when engine speed over this setting point.

■ 『Run Hour』 Page

➤ **Parameter Screen**

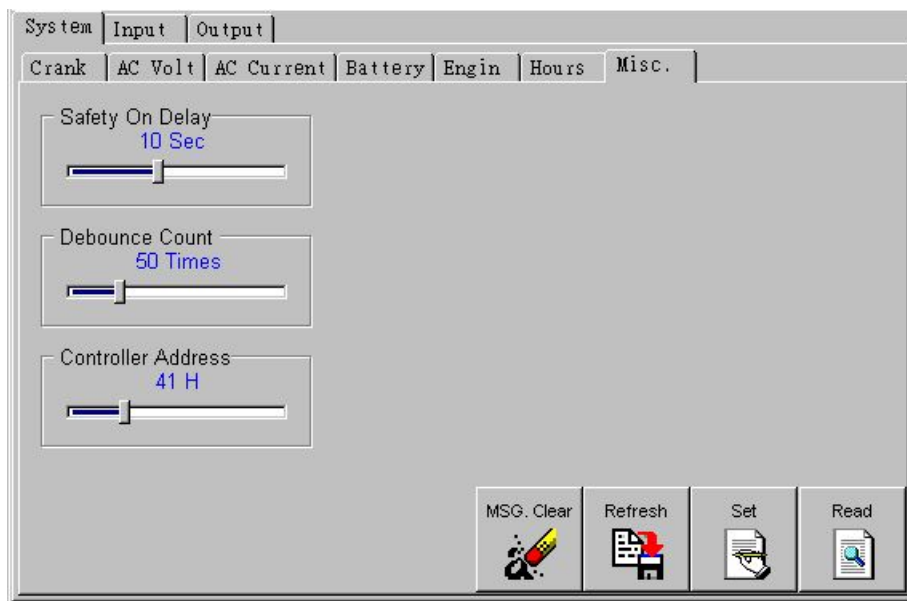


➤ **Parameter Item**

Run Hour Parameter			
Parameter name	Default	Range	Description
Second	0	0~59	Set Run Hour "Second" Value.
Minute	0	0~59	Set Run Hour "Minute" Value.
Hour	0	0~99	Set Run Hour "Hour" Value.
100 Hour	0	0~36	Set Run Hour "100 Hour" Value.

■ 『Miscellaneous』 Page

➤ **Parameter Screen**



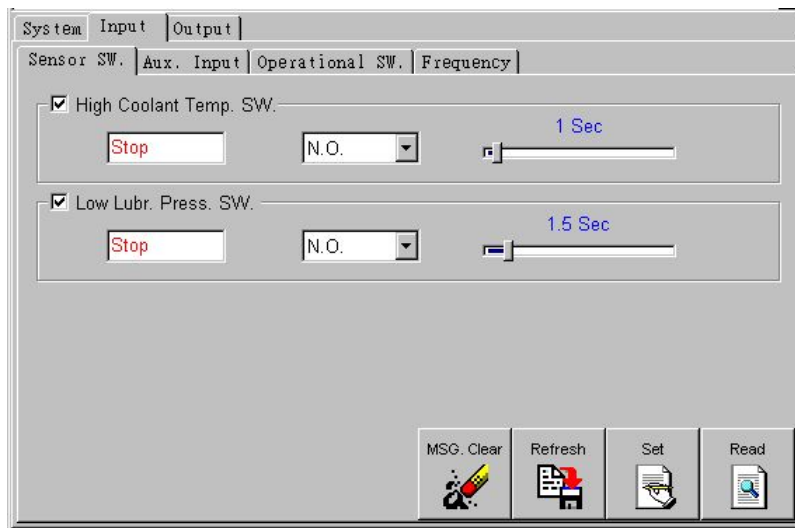
➤ **Parameter Item**

Misc. Parameter			
Parameter name	Default	Range	Description
Safety On Timer	10 Sec.	3~20	All alarms are ignored until safety on timer expired, except the emergency stop, over speed.
De-bounce	50 Attempt	5~200	De bounce time can avoid the Interference by Electronic or magnetic.
Controller Address	41 H	01~FF	Controller address is for identification while multiple controllers connected in the same network.

2、 『Input』 Page

■ 『Sensor Switch』 Page

➤ Parameter Screen

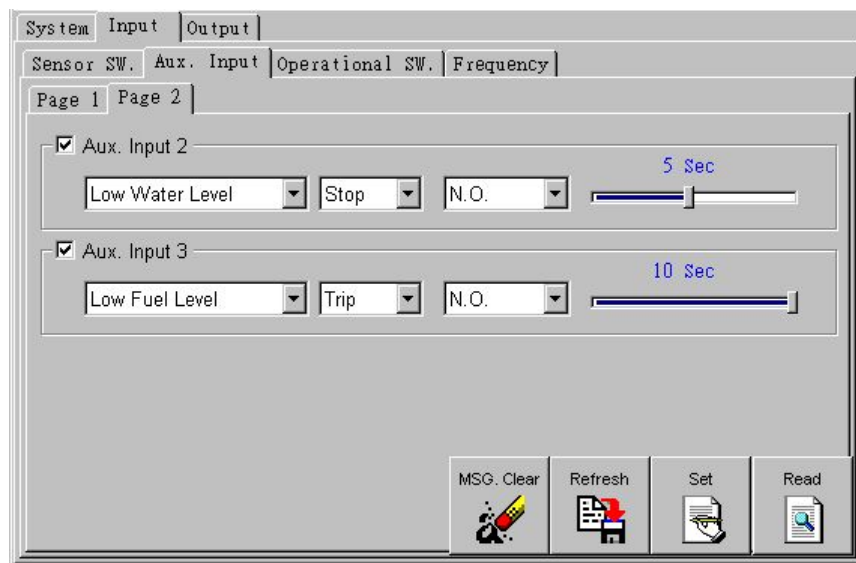
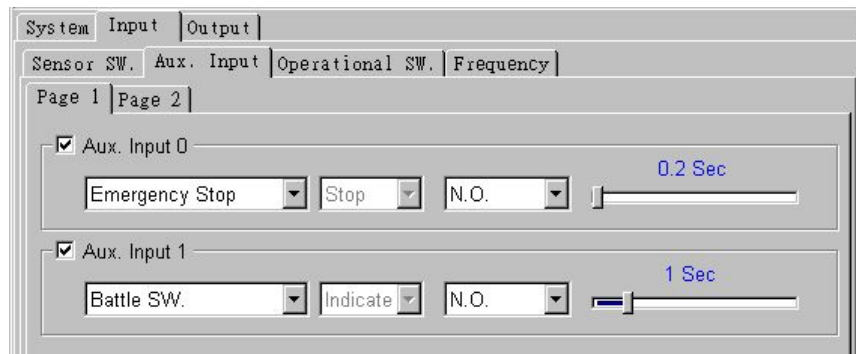


➤ Parameter Item

High Water Temp. Switch Parameter			
Parameter name	Default	Range	Description
Enable	Checked	Enable/Disable	Checked means enable.
Action Mode	Shutdown	Shutdown	
Switch Type	N.O.	N.O./ N.C.	N.O. : This switch returns a closed signal during low oil pressure conditions, once oil pressure is established the switch will open. N.C. : This switch returns an open signal during low oil pressure conditions, once oil pressure is established the switch will close.
Delay Time	1 Sec.	0.25~50	Delay Time
Low Oil Pressure Switch Parameter			
Parameter name	Default	Range	Description
Enable	Checked	Enable/Disable	Checked means enable.
Action Mode	Shutdown	Shutdown	
Switch Type	N.O.	N.O./ N.C.	N.O. : This switch returns a closed signal during low oil pressure conditions, once oil pressure is established the switch will open. N.C. : This switch returns an open signal during low oil pressure conditions, once oil pressure is established the switch will close.
Delay Time	1.5 Sec.	0.2~40	Delay Time

■ 『Aux. Input』 Page

➤ Parameter Screen



➤ Parameter Item

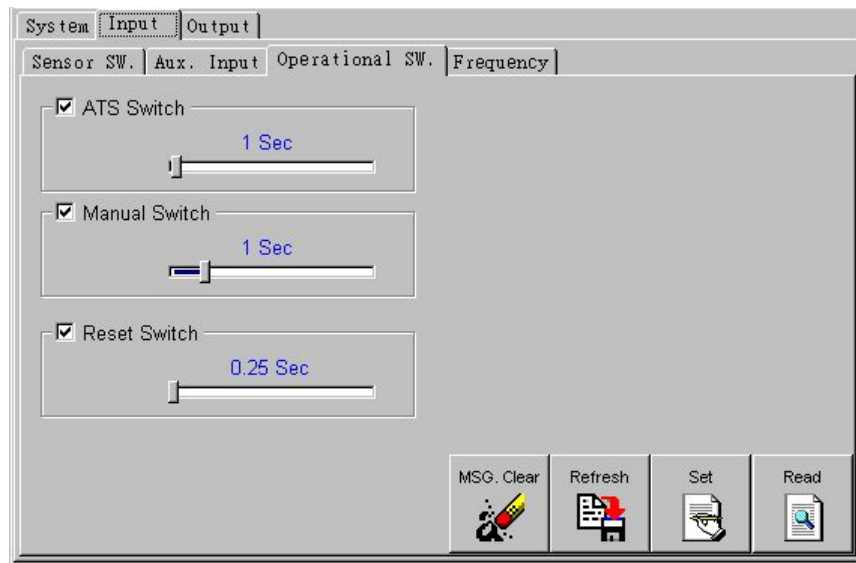
Aux. Input Parameter					
Parameter name	Enable	Name as	Action Mode	Switch Type	Timer
Aux. Input 0	Checked	Emergency Stop	Shutdown	N.C.	0.2 Sec
Aux. Input 1	Checked	Battle	Indicate	N.O.	1 Sec
Aux. Input 2	Checked	Low Water Level	Shutdown	N.O.	5 Sec
Aux. Input 3	Checked	Low Fuel Level	Trip	N.O.	10 Sec

Descriptions :

The Aux. Inputs can be named as Emergency Stop, Battle, Lower, Low Water Level, Low Fuel Level, Low Battery Volt, High Fuel Level, Pre-Alarm、charge fail、Over Load, Low Water Temp., Pre-Heat and Spare.

■ 『Operation Switch』 Page

➤ Parameter Item

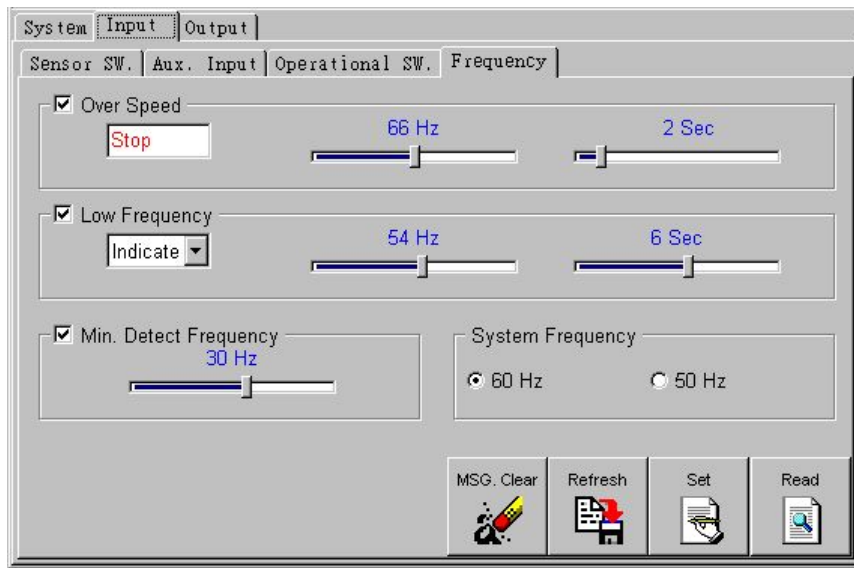


➤ Parameter Item

ATS Switch			
Parameter name	Default	Range	Description
Enable	Checked	Enable/Disable	Checked means enable.
Hold Time	1 Sec.	0.25~2.5	Minimum holding time.
Manual Switch			
Parameter name	Default	Range	Description
Enable	Checked	Enable/Disable	Checked means enable.
Hold Time	1 Sec.	0.25~5	Minimum holding time.
Reset Switch			
Parameter name	Default	Range	Description
Enable	Enable/Disable	Checked	Checked means enable.
Hold Time	0.25~2.5	0.25 Sec.	Minimum holding time.

■ 『Frequency』 Page

➤ Parameter Screen



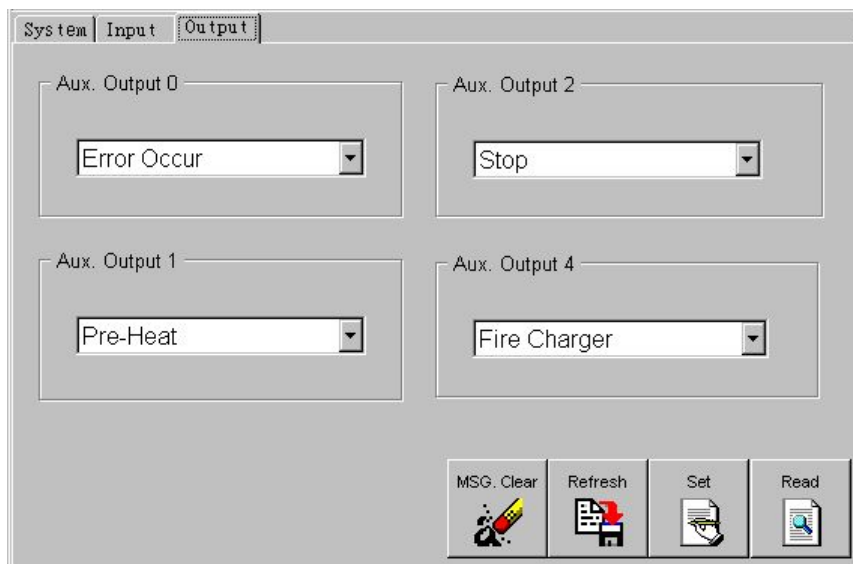
➤ Parameter Item

Over Frequency Parameter			
Parameter name	Default	Range	Description
Enable	Checked	Enable/Disable	Checked means enable.
Action Mode	Shutdown	Shutdown	
Frequency Setting (60 Hz)	66 Hz	60~72	This Range will be difference according to system frequency.
Frequency Setting (50 Hz)	55 Hz	50~60	
Delay Time	2 Sec.	1~10	Delay Time.
Under Frequency Parameter			
Parameter name	Default	Range	Description
Enable	Checked	Enable/Disable	Checked means enable.
Action Mode	Indicate		Four kind action modes can be selected. Shutdown, Trip, Alarm, Indicate.
Frequency Setting (60 Hz)	54 Hz	48~59	This range will be limited according to system frequently.
Frequency Setting (50 Hz)	45 Hz	40~50	
Delay Time	6 Sec.	1~10	Delay Time

Minimum Detect Frequency			
Parameter name	Default	Range	Description
Enable	Checked	Enable/Disable	Checked means enable.
Frequency Setting	30 Hz	10~45	Under this setting all frequency protection will be disabled
System Frequency			
Parameter name	Default	Range	Description
Frequency Setting	60 Hz	50、60	System frequency value

3、 『 Output Relay 』 Page

➤ Parameter Screen



➤ Parameter Item

Auxiliary output Relay Faction			
Parameter name	Default	Range	Description
Output Relay 0	Error occure	See Description	(1) "All Fault", (2) "Start Command Duration", (3) "Pre-heat Duration", (4) "Start Detect Duration", (5) "Cran Reset Duration", (6) "Run Duration", (7) "Stop Duration", (8) "Forbid Start Duration", (9) "Gen. Run Success", (10) "Reset Button Pressed", (11) "System Trip", (12) "System Alarm", (13) "Charger Output", (14) "Reserve 1", (15) "Reserve 2", (16) "Reserve 3", (17) "Low Frequency Active", (18) "High AC Voltage Active", (19) "Low AC Voltage Active", (20) "AC Overload", (21) "AC Short", (22) "Reserve 4", (23) "Reserve 5", (24) "Spare", (25) "Engine Start Success", (26) "Low Water
Output Relay 1	Pre-heat duration	See Description	
Output Relay 2	Energized to stop	See Description	



Output Relay 3	Fire changer	See Description	Level Active", (27) "Low Bat. Active", (28) "Low Oil Level Active", (29) "Over Crank", (30) "High Water Temp. Active", (31) "Over Speed Active", (32) "Low Oil Press. Active", (33) "Emergency Stop Active", (34) "Reserve", (35) "Manual Start", (36) "Auto Start", (37) "Remote Position", (38) "Reserve 6", (39) "Idle"
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