

# **GTR-50**

# **Generator Controller**

# **Manual**



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# Introduction

## 1、GTR-50 Panel

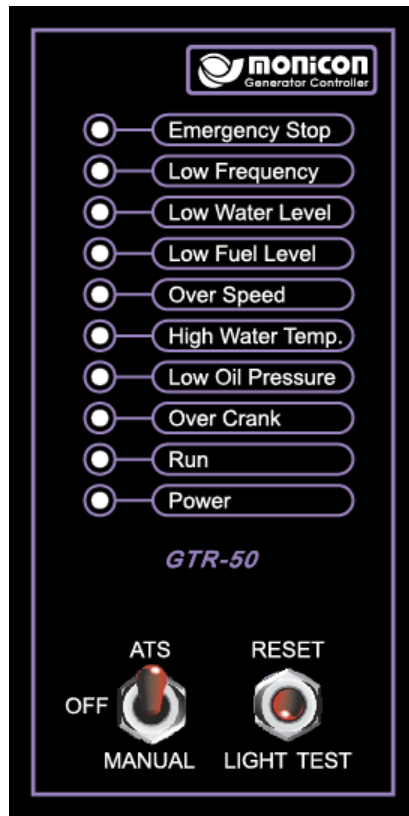


Fig.1 GTR-50

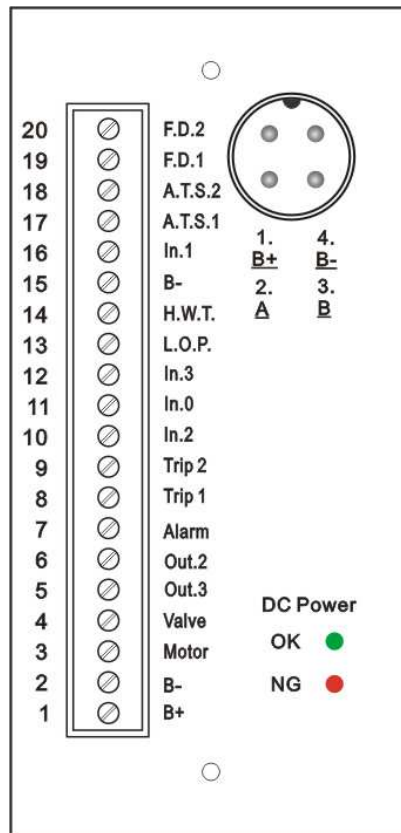
### Indicators

- ◆ Power Indication
- ◆ Running Indication
- ◆ Over Crank
- ◆ Low Oil Pressure
- ◆ High Water Temp.
- ◆ Over Speed
- ◆ Low Oil Level
- ◆ Low Water Level
- ◆ Under Frequency
- ◆ Emergency Stop

## Operational Switch Function

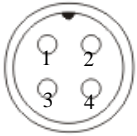
- ◆ **ATS**  
Shorted ATS1 and ATS2 terminal behind the controller, the engine starts automatically.
- ◆ **Manual**  
User starts the engine directly.
- ◆ **Off**  
Shutdown the engine or forbid start function.
- ◆ **Reset**
  1. Turn on the LCD backlit.
  2. First time "Reset" shutdown the alarm. Second time "Reset" clears fault lights.
  3. Holding down for a longer period will produce 1<sup>st</sup> and 2<sup>nd</sup> time "Reset" functions.
- ◆ **Light Test**  
Test lights for solid, clear, brightness and alarm.

## 2、Wirer Terminal



GTR-50 wirer terminal

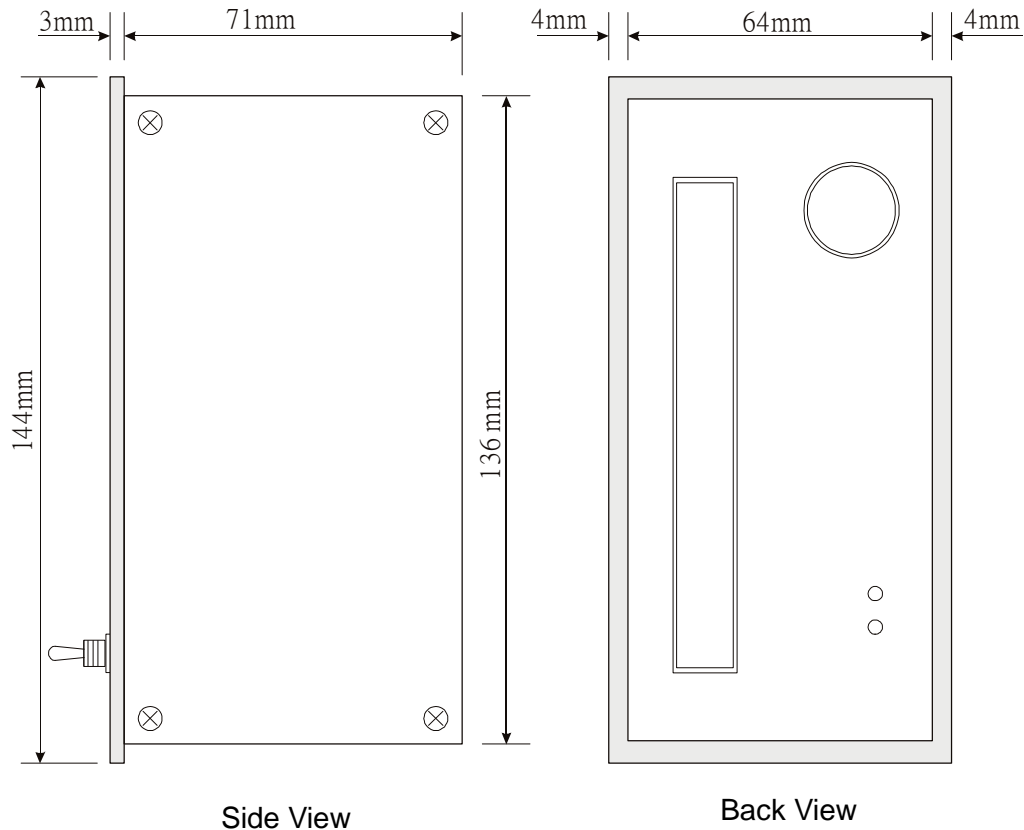
**GTR-50 Terminal**

Europium style Connector	Number	Description	Code
	1	Input power (Battery +)	B+
	2	Ground (Battery -)	B-
	3	Output starter relay	Motor
	4	Output fuel valve relay	Valve
	5	Output, Aux 3 relay	Out. 3
	6	Output, Aux 2 relay	Out. 2
	7	Output alarm relay	Alarm
	8	Electrical trip relay	Trip 1
	9	Electrical trip relay	Trip 2
	10	Input, Aux 2 switch	In. 2
	11	Input, Aux 0 switch	In. 0
	12	Input, Aux 3 switch	In. 3
	13	Input, Low oil press. switch	L.O.P.
	14	Input, High water temp. switch	H.W.T.
	15	Ground (Battery -)	B-
	16	Input, Aux 1 switch	In. 1
	17	Start 1	A.T.S. 1
	18	Start 2	A.T.S. 2
	19	Input, Frequency detect terminal	F.D. 1
20	Input, Frequency detect terminal	F.D. 2	
<b>OK</b> ●	OK: Solid "green" LED display		
<b>NG</b> ●	Polarity fault		
	RS-485 Communication Port	1. B + 2. A 3. B 4. B -	

[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 filed current in order to cut off load to the generator ◦

### 3、CASE DIMENSIONS



## Specifications

### 1、General

**DC Supply:**

8 ~ 36 VDC

**Power Consumption:**

Max. 10 W

**Measuring Frequency:**

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

**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):**

72 mm x 144 mm x 74 mm

**Panel Cut-out (W x H):**

67 mm x 138 mm

**Weight:**

0.63 Kg (1.39 lb.)

## 2、Controller Function

### **General Function:**

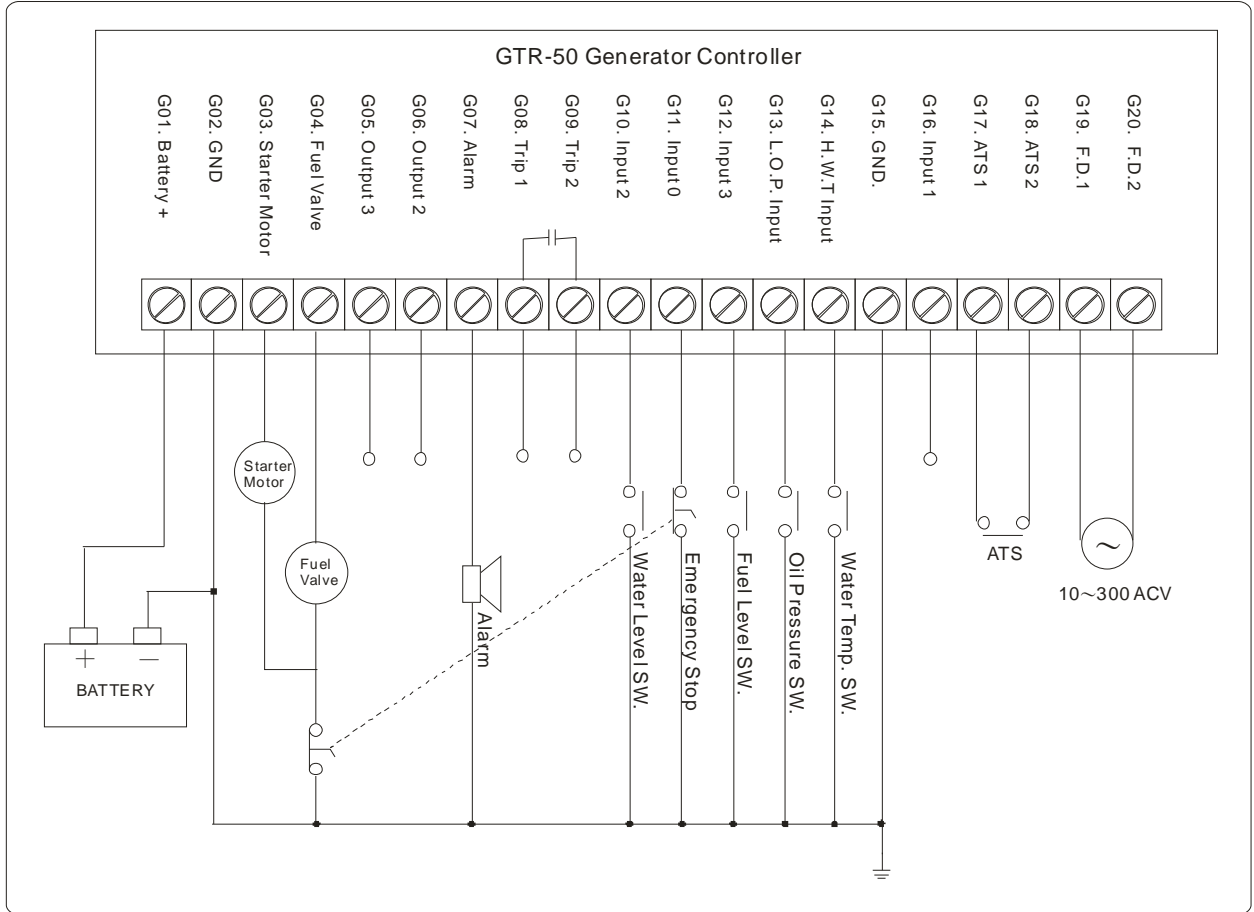
- **Network function:**
  - Remote start/stop and monitor the controller by network circuitry
  - Parameter setting and reading
  - Input and output monitor
  - Fault history readout
- **Panel function:**
  - Manual start / stop engine.
  - Automatically start / stop engine by ATS.
  - Reset the Genset.
  - Light test.

### **Protection function:**

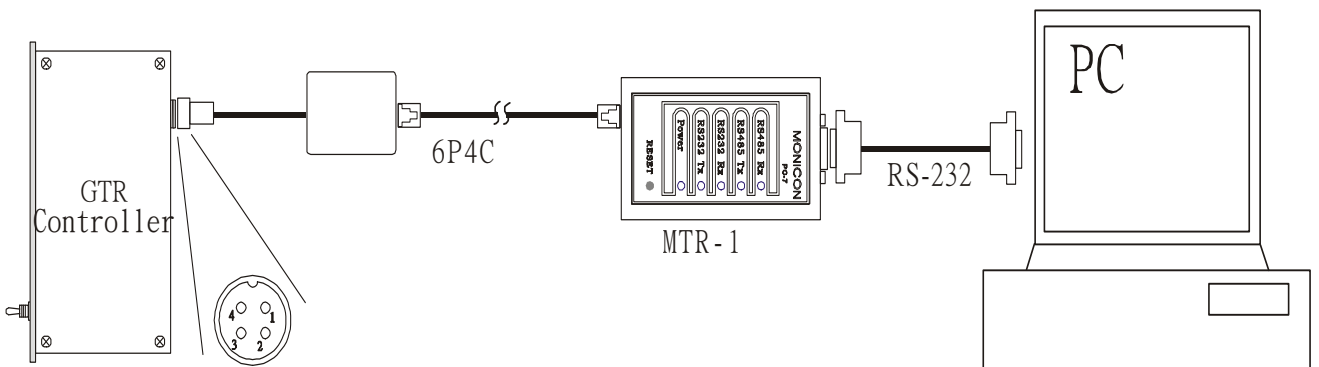
- **Engine respect:**
  - Over crank protection
  - Low oil pressure protection
  - High water temperature protection
  - Low water level protection
  - Over speed protection
- **Generator respect:**
  - High frequency protection
  - Low frequency protection
- **Peripheral respect:**
  - Lower fuel level protection
  - Aux. Input

# Wiring

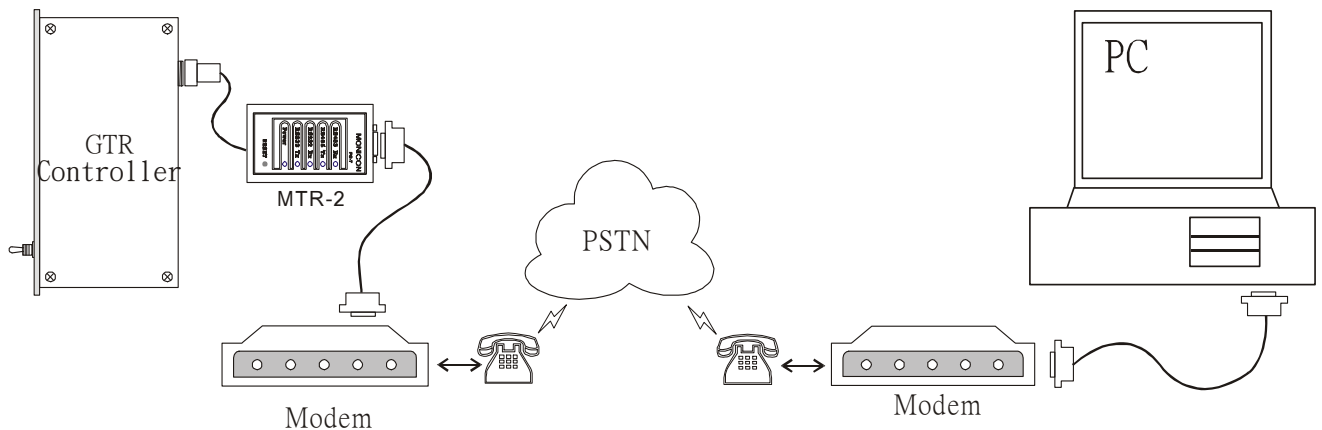
## 1、Wiring example



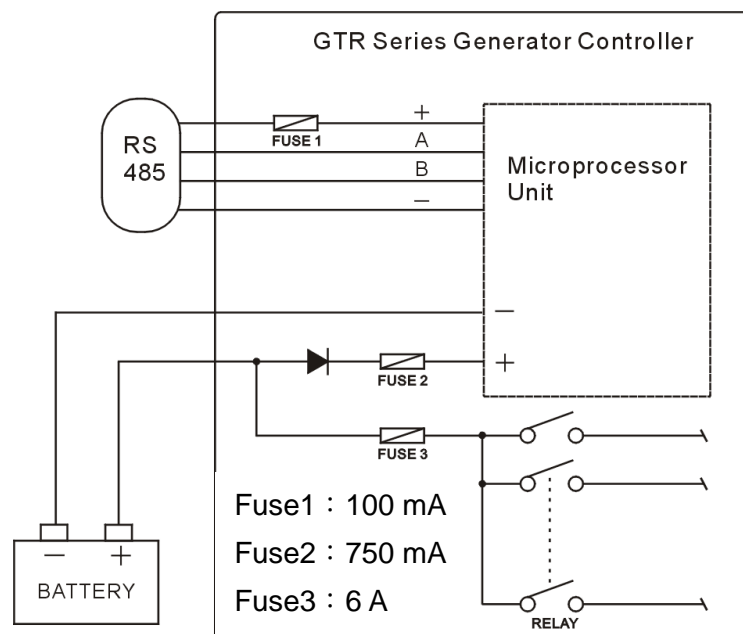
## 2、Connection in short distance



### 3、Connection by modem



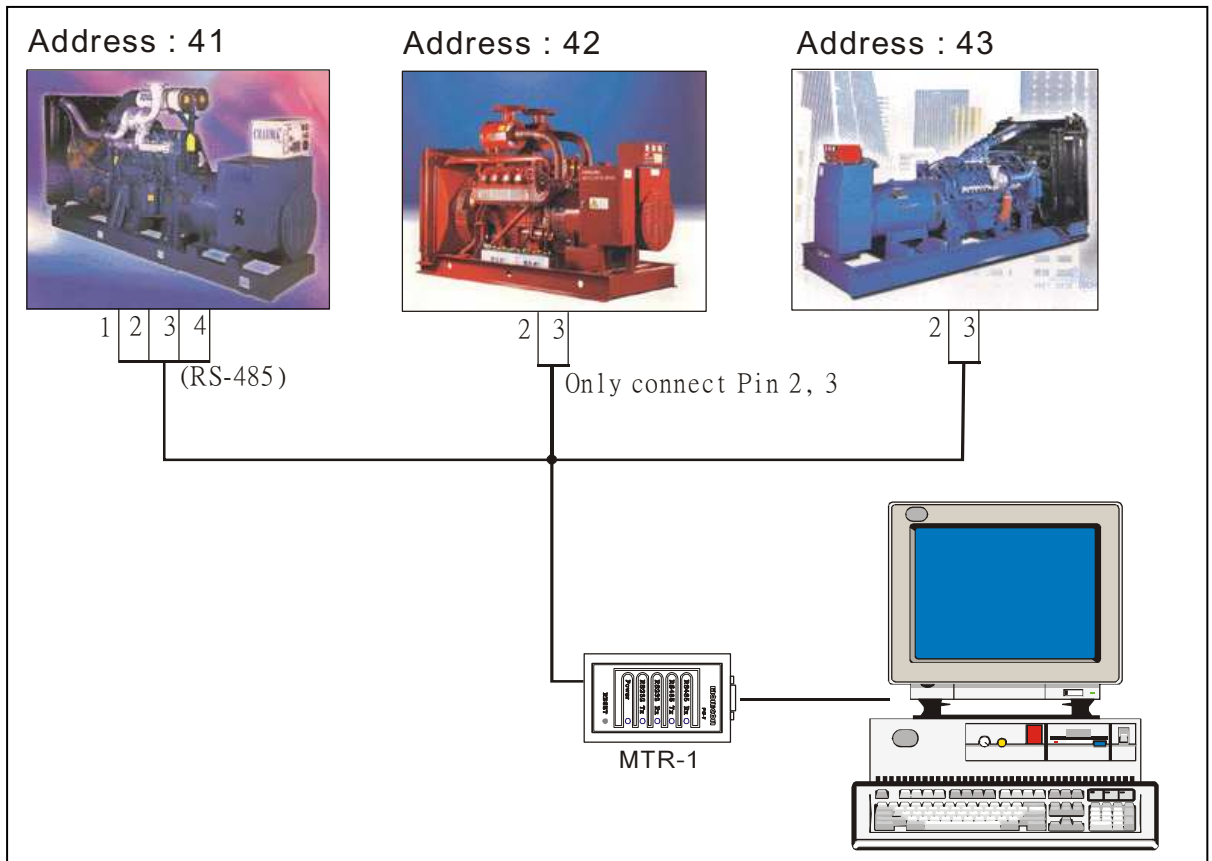
### 4、Location of inside fuse and protecting value



### 5、Group connection

- Every genset controller must 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.





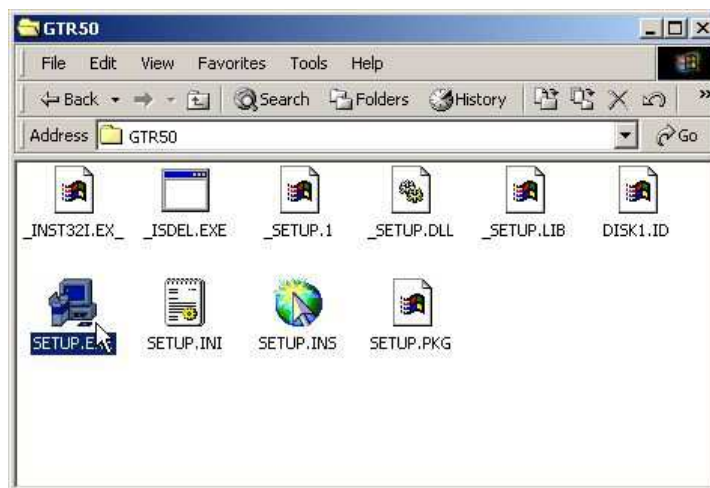
\*It is strong suggestion using another power source to power the communication card (MTR-1), If the wire length over 25 meters. That can prevent the MTR-1 in unpredictable condition by voltage drop.

# GTR Series Software Installation

## 6、GTR-50 Software Installation Procedure

### ■ Step 1 :

Insert the installation disc in the CD ROM drive, and then choose the folder “GTR50”, double-click “Setup.exe”. The wizard will guide you to finish whole setups.

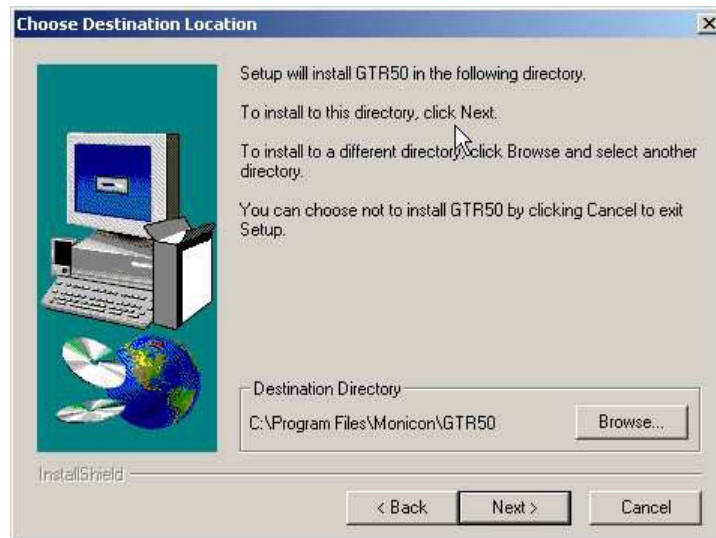


### ■ Step 2 :

#### Welcome Screen



■ **Step 3 :**  
**Choose Destination Location**



■ **Step 4 :**  
**Select Program Folder**

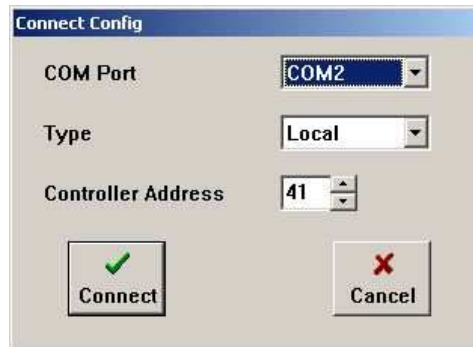


■ **Step 5 :**  
**Restart Windows**

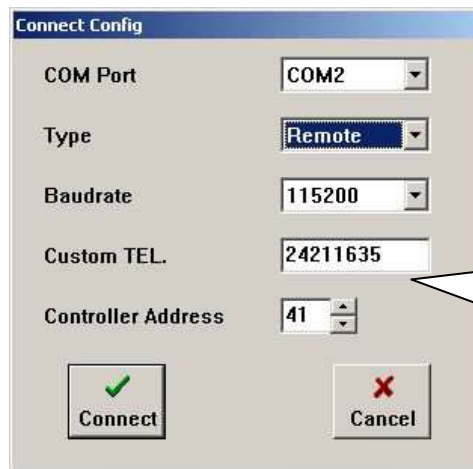
## 7、Software Manual Button Description

-  『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

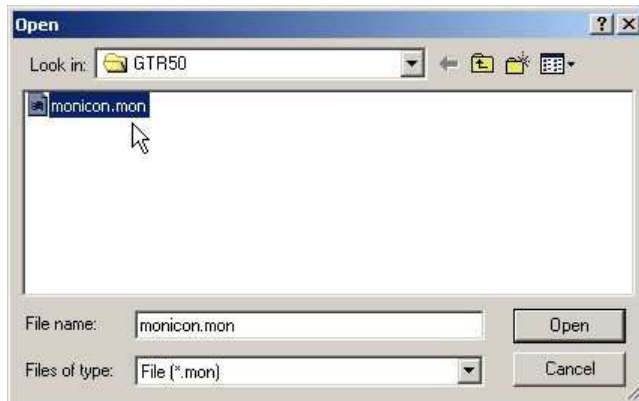
User need be filled baud rate phone number when using Modem connection


-  『Disconnection』

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

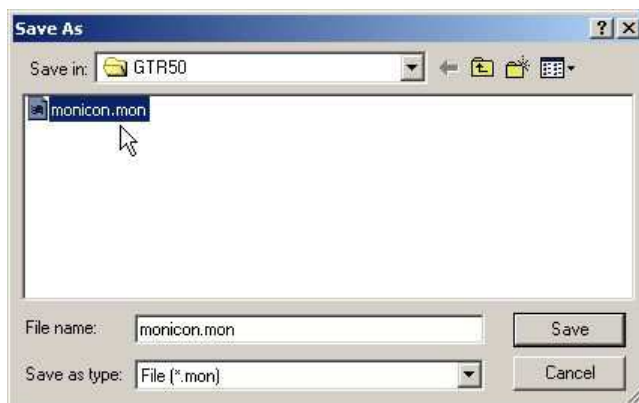
-  『Open an exist file』

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 ◦

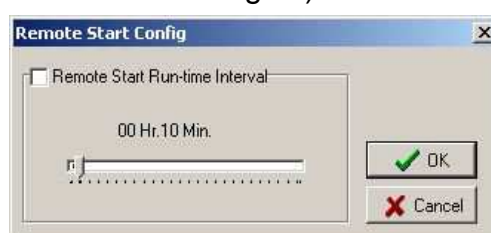












■  『Remote Start』

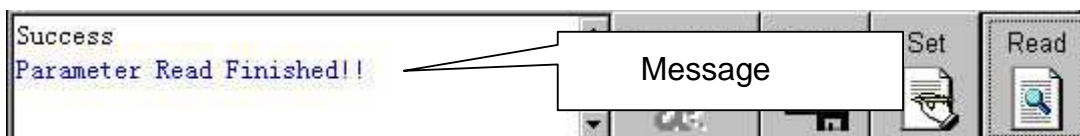
When the software connected with condoner, User can start Engine by 2 ways.

- 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 ◦
- 
**「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 ◦

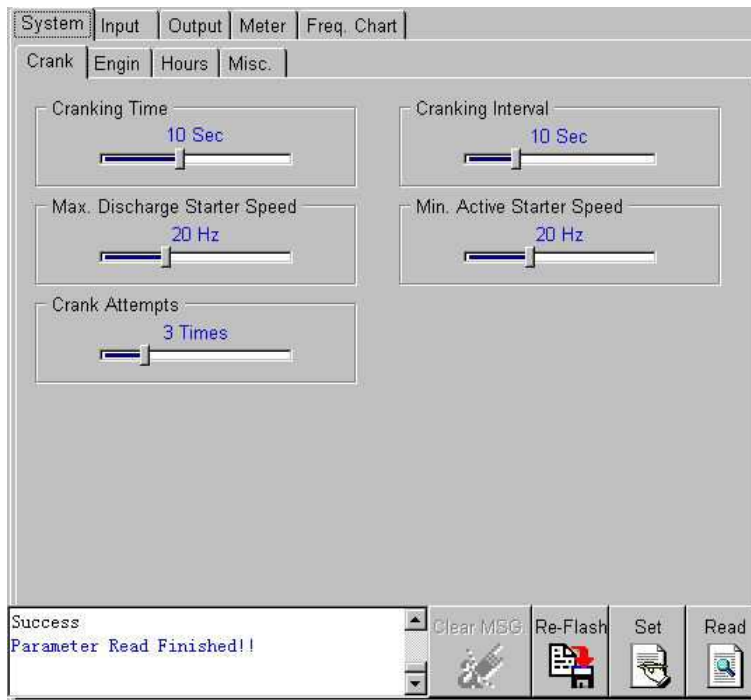


# Parameter Screen Description

## 1、 『System』 Page

### ■ 『Crank』 page

#### ➤ Parameter Screen

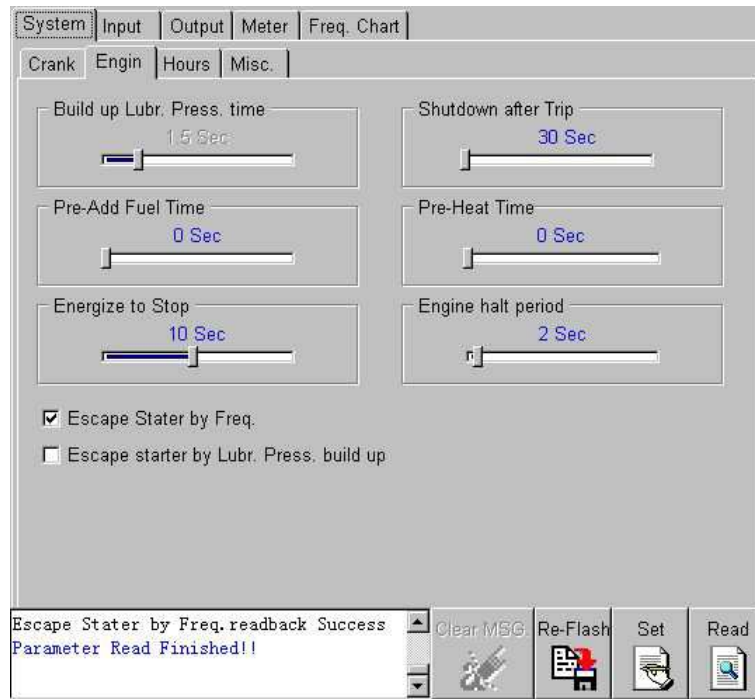


#### ➤ Parameter Item

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. °

■ 『Engine』 Page

➤ Parameter Screen



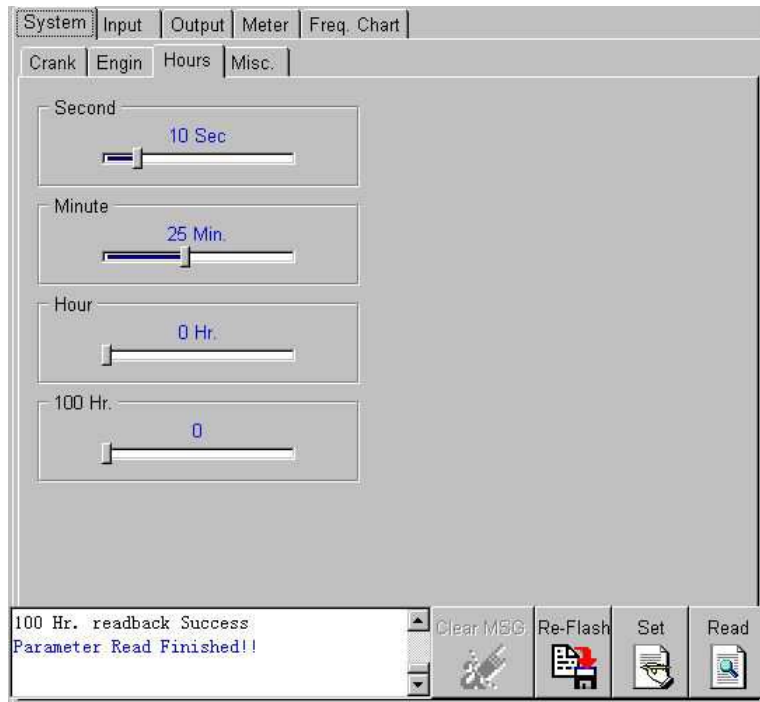
➤ Parameter Item

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.
Detect Alternate frequency	Enable	Enable/Disable	Escape starter by frequency.
Detect Lubricant pressures sw	Disable	Enable/Disable	Escape starter by lubricant pressure built up.



■ 『Run Hour』 Page

➤ Parameter Screen

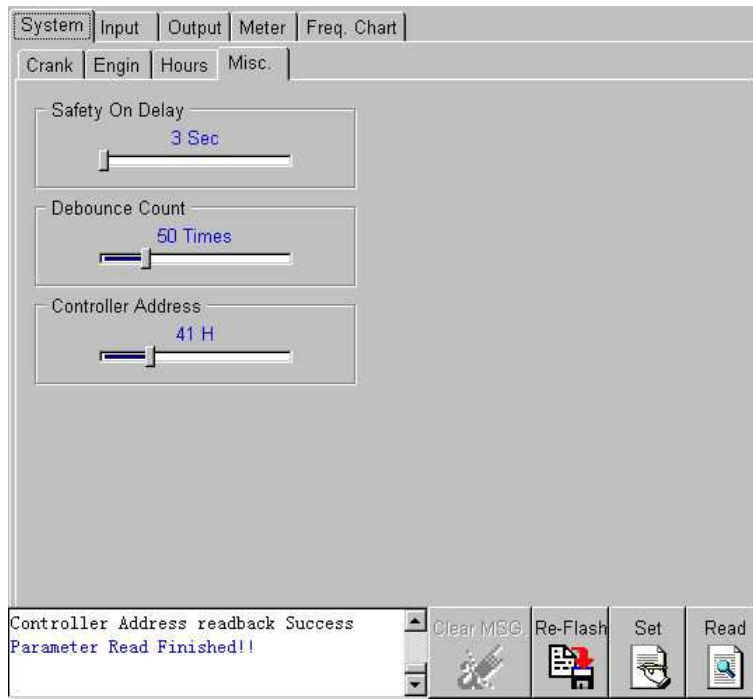


➤ Parameter Item

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

■ 『Miscellaneous』 Page

➤ Parameter Screen



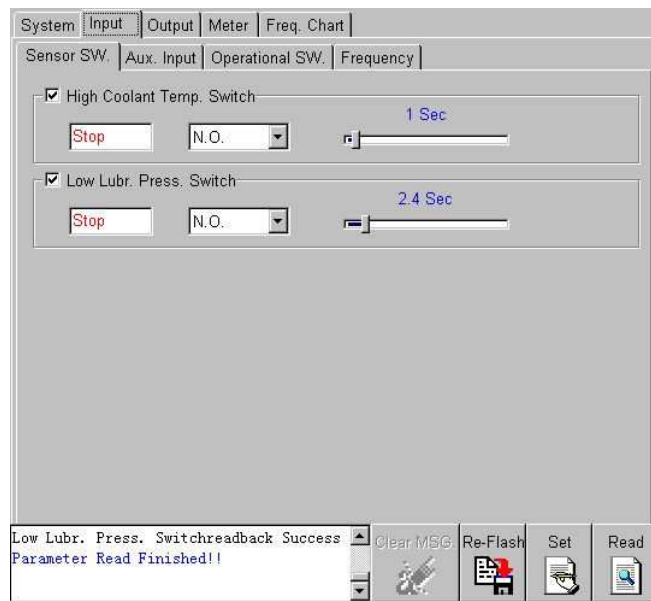
➤ Parameter Item

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 same network.
System Non-Auto	Enable	Enable/Disable	The controller will lunch an alarm when the controller operating switch in off position if checked.
Low speed Engine	Disable	Enable/Disable	The frequency vale multiple 2 as engine speed if checked otherwise multiple 3.

## 2、 『Input』 Page

### ■ 『Sensor Switch』 Page

#### ➤ Parameter Screen

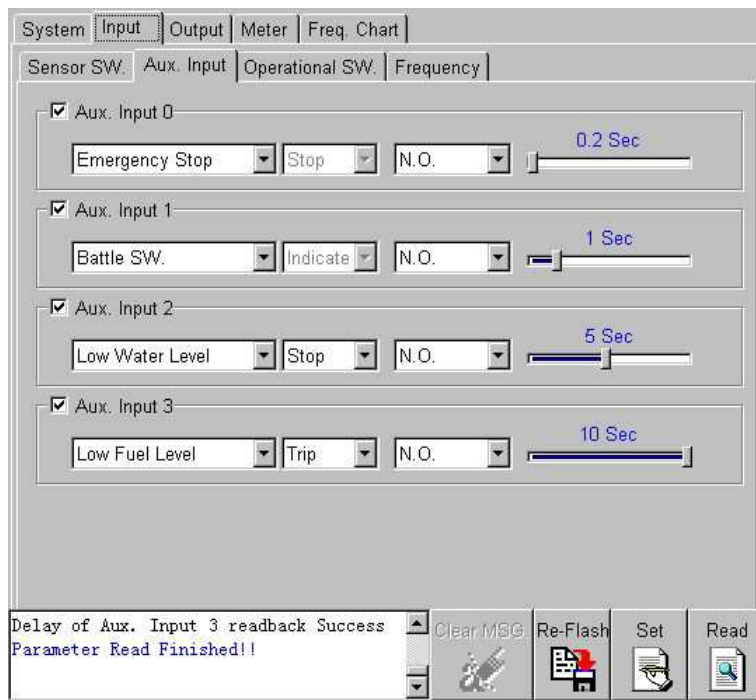


#### ➤ Parameter Item

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.	<b>N.O.</b> : This switch returns a closed signal during low oil pressure conditions, once oil pressure is established the switch will open. <b>N.C.</b> : 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.	<b>N.O.</b> : This switch returns a closed signal during low oil pressure conditions, once oil pressure is established the switch will open. <b>N.C.</b> : 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

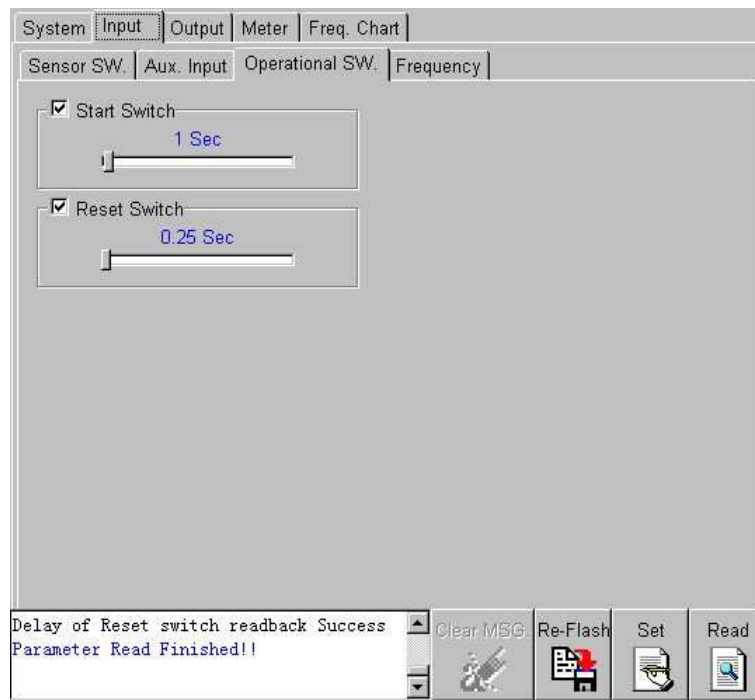


➤ Parameter Item

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

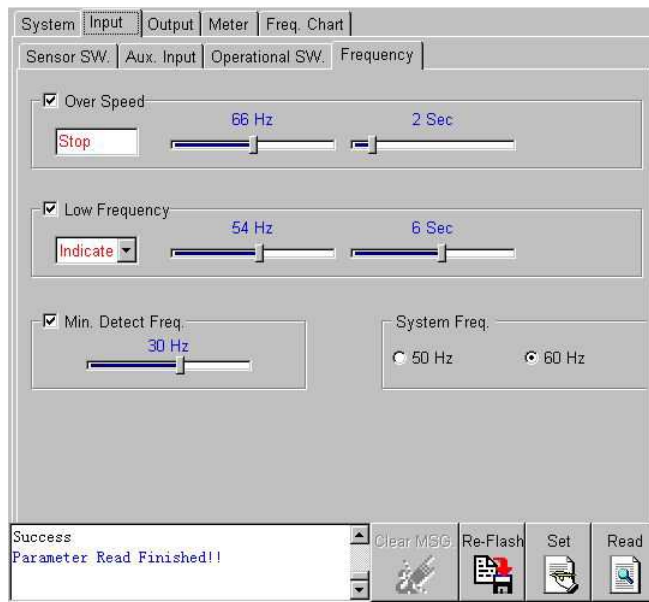


➤ Parameter Item

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



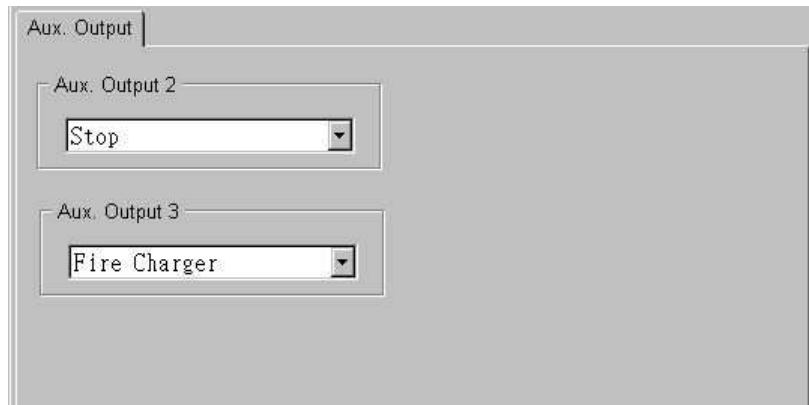
➤ Parameter Item

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 frequency.
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	Enable/Disable	Checked	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) "Error Occur", (2) "Standby", (3) "Pre-heat", (4) "Start Period", (5) "Start Interval", (6) "Run", (7) "Stop", (8) "Engine Halt", (9) "Generator Working", (10) "Reset Activate", (11) "System Trip", (12) "System Alarm", (13) "Fire Charger", (14) "Reserve 1", (15) "Reserve 2", (16)
Output Relay 1	Pre-heat duration	See Description	"Reserve 3", (17) "Under Frequency Active", (18) "Reserve 4", (19) "Reserve 5", (20) "Reserve 6", (21) "Reserve 7", (22) "Reserve 8", (23) "Reserve 9", (24)
Output Relay 2	Energized to stop	See Description	"Spare", (25) "Engine Running", (26) "Low Water Level Active", (27) "Reserve 10", (28) "Low Fuel Level Active", (29) "Over Crank", (30) "High Coolant Temp. Active", (31) "Over Speed Active", (32) "Low Lube. Press. Active", (33) "Emergency Stop Active", (34)
Output Relay 3	Fire changer	See Description	"Reserve 11", (35) "Reserve 12", (36) "Auto Start", (37) "Reserve 13", (38) "Reserve 14", (39) "Reserve 15"