

Electronic Modular Control Panel 3 (EMCP3)

Introduction and Specifications

Foreword

This presentation was prepared by Caterpillar Service Training to be a training overview of the EMCP3 for Caterpillar generator set service personnel. This presentation provides a description of the different levels of EMCP3, system specifications, wiring, optional modules, and an introduction to programming. As always, the proper service information for EMCP3 in SIS should be used for the latest specific details for operation, adjustments, programming and troubleshooting. Thank You.

Objectives

- System Overview
- Features
- System Interface
- Optional Modules
- Display Functions



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System Overview

- General System Strategy
- Block Diagrams
 - ADEM3
 - No ADEM3
- Product Compatibility
 - Olympian Branded
 - Caterpillar Branded
 - Standard Configurations
- Publications & Part Numbers



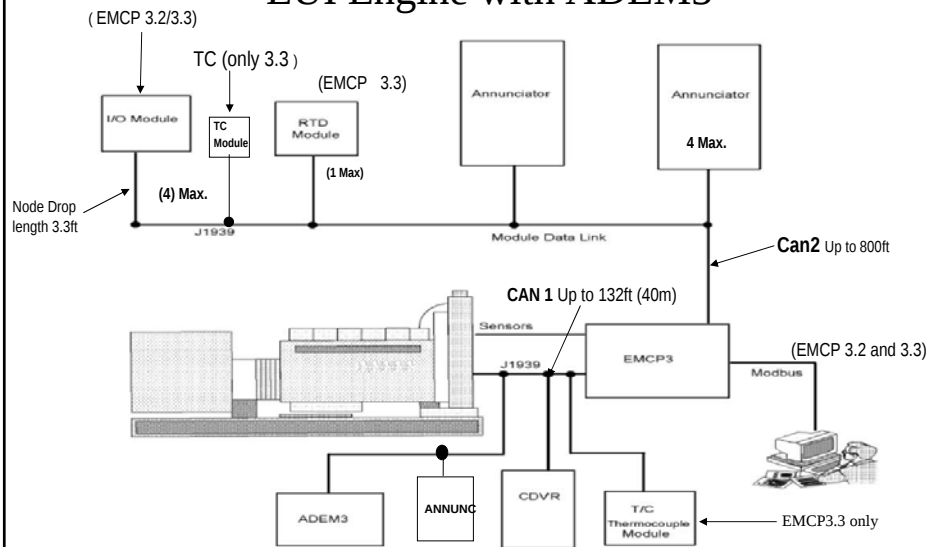
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Control System Strategy

- Common look and feel
- Superior features at competitive pricing
- Scalable – purchase only what is needed
- Flexible & configurable to adapt to site specific requirements

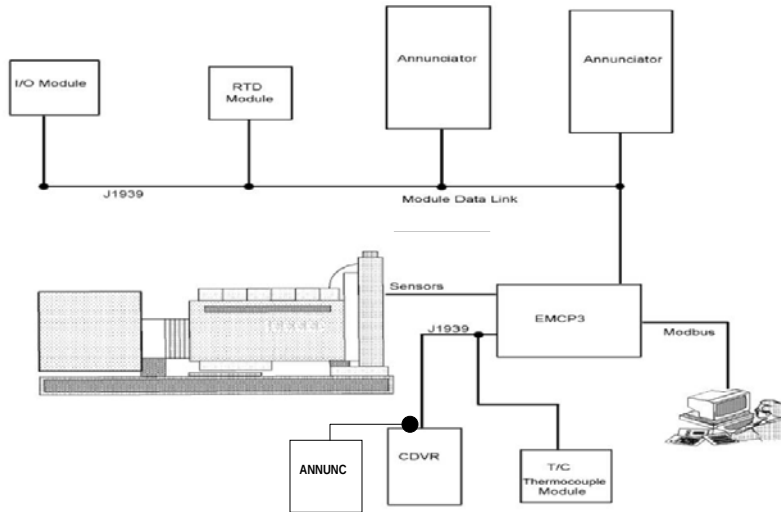
Block Diagram

EUI Engine with ADEM3



Block Diagram

MUI Engine without ADEM3



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Publications

CATERPILLAR®

REN7902-01
January 2006



REN7902

Systems Operation Troubleshooting Testing and Adjusting

NOTE:

Do not Discard

Dec 2003 version

EMCP 3

CNB1-Up (Generator Set)
ZAB1-Up (Generator Set)
CMC1-Up (Generator Set)
ZAD1-Up (Generator Set)
ZAF1-Up (Generator Set)
ZAH1-Up (Generator Set)
ZAJ1-Up (Generator Set)
BRK1-Up (Generator Set)
CAL1-Up (Generator Set)
ZAL1-Up (Generator Set)
FDN1-Up (Generator Set)
ZAP1-Up (Generator Set)
PBR1-Up (Generator Set)
ZAR1-Up (Generator Set)

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Part Numbers

D3500 ADEM3 System

- Control panel: 247-3343
- Schematic: 249-0606
- ADEM3 control: 206-2710
- Control group: 227-5800
- Control assembly: 227-5810
- Control assembly wiring diagram: 236-5138

Part Numbers

D3500 ADEM3 System

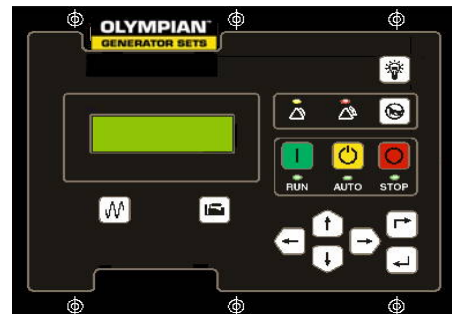
- Control group: 227-5800 (ver 3.1)
- Control group: 227-5801 (ver 3.2)
- Control group: 227-5802 (ver 3.3)

EMCP3 Features

- EMCP3.X Control Systems
 - Communication
 - Functionality
 - Optional Modules
 - Input/Output

EMCP3.1 Feature Summary

- Olympian Standard replaces 2000 series
- Communication
 - Data link local to ADEM3 (J1939) Can1
 - Hardwire sensor input without ADEM3 → 0 – 2K Ohm
- Functionality
 - Fault log up to 20 faults
 - 3 Phase Generator input Voltage and Current
 - Engine Controls
 - Optional Annunciator
 - CDVR Control (Latest Firmware)
 - Engine Protection
 - High coolant Temp
 - Low oil Pressure
 - Overspeed
 - Fail to Start (**Over-Crank**)



Operating Voltage 9-32 VDC, approx. 1.5 amp draw

EMCP3.1

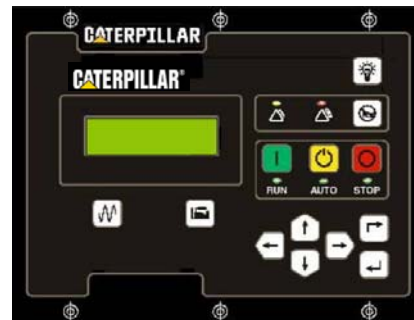
I/O

- 6 discrete sinking inputs
 - Digital In1 reserved for E-Stop
 - Digital In2 reserved for Remote Initiate (Non – A3)
- 2 analog resistive sender inputs
 - Passive Analog1 for Oil Pressure (Non – A, 0-2K)
 - Passive Analog2 for Coolant Temperature (Non – A3, 0-2K)
- 1 Magnetic Pick-Up input (**dedicated -currently**)
- 6 relay outputs
 - Relay1 Normally Open for Starter Motor Relay
 - Relay2 Normally Open for Fuel Control Relay (Non-A3)

EMCP3.2

Feature Summary

- Caterpillar <1MW standard replaces EMCPII
- Additional Communications
 - MODBUS RTU remote to customer (RS-485)
 - Module Data Link (J1939 – this is CAN2)
- Additional Functionality
 - Over/Under Voltage and Freq Protection
 - Generator Power Metering
- Optional Modules
 - Annunciator
 - Discrete I/O (limit 4)
 - Digital Voltage Regulator (CDVR)
 - Remote Monitoring
- - 40°C Panel Option



Operating Voltage: 9 – 32VDC, approx. 1.5 amp

EMCP3.2

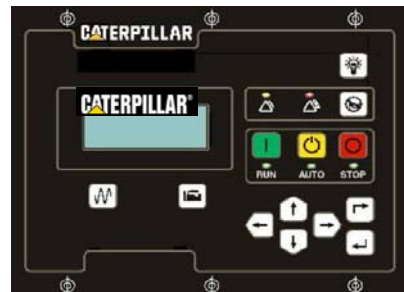
I/O

- Inputs
 - 2 more spare discrete sinking inputs (8 total)
 - 1 spare Passive analog resistive sender inputs (3 total)
 - 1 Magnetic Pick-Up input (like EMCP3.1)
- Outputs
 - 2 additional relay outputs (8 total)
 - 1 new spare sinking output (1 total)

EMCP3.3

Feature Summary

- Caterpillar 1-5.5MW standard replaces EMCPII+
- Additional Functionality
 - Advanced Engine Monitoring
 - More Pressures and Temperatures from ADEM3
 - Fuel Consumption
 - Emergency Override (DTO Flash File)
 - 400 Hz Capable
- Additional Optional Modules
 - Resistive Temperature Device (RTD)
 - Thermocouple (TC)
- Larger Display
- Additional Output
 - 1 more spare sinking output (2 total)

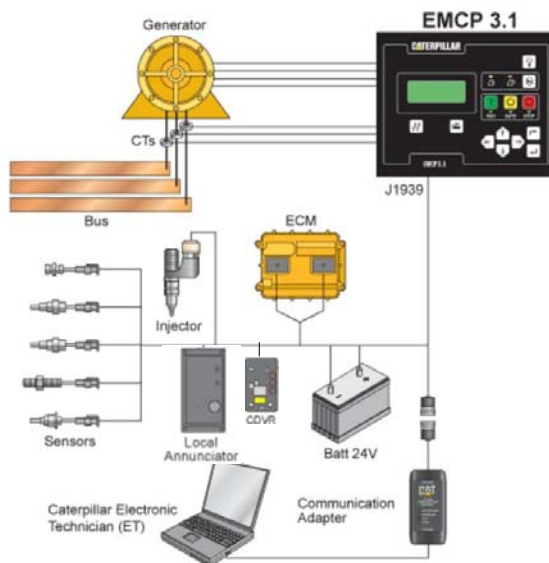


Operating Voltage: 9 – 32VDC, approx. 1.5 amp

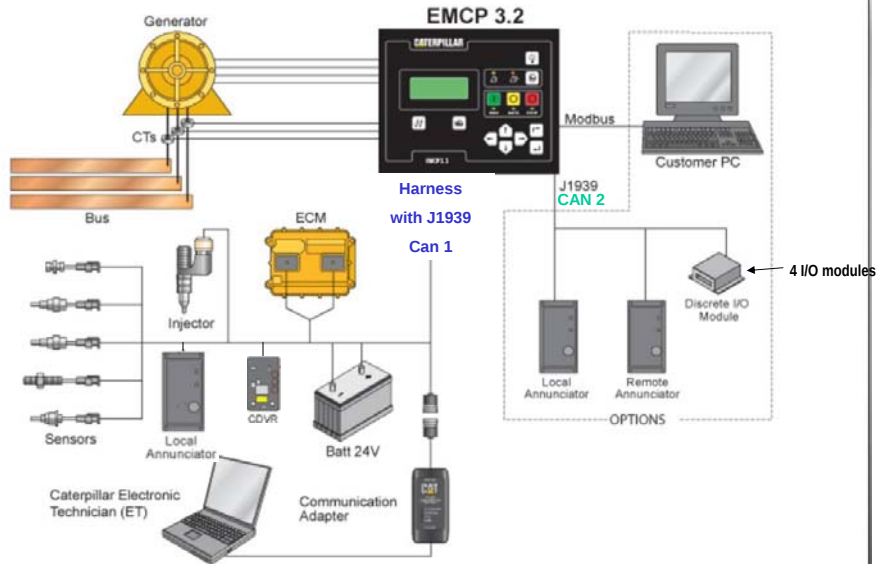
Firmware Enhancements

- **Firmware Revision 1.9** – Added the clear all function using the “Acknowledge Pushbutton” followed by the “Return” pushbutton.
- **Firmware Revision 1.9** – Added the full CDVR functionality to EMCP3.2 and 3.3.
- **Firmware Revision 2.1** – Programmable Cycle Timer (Allows 7 programmable timers to excersize the generator.
- **Firmware Revision 2.1** – Configurable Analog Inputs (Gives the spare analog input the choice of 3 Analog Maps (map 1 – Oil Temp, Map 2 – 3500 MUI Oil Temp, & Map 3 – FG Wilson Fuel Level))
- **Firmware Revision 2.1** – This is the fix for the EMCP3.3 changing from Auto to Stop by itself.
- **Firmware Revision 2.2** – (Not Released Yet) Will incorporate the DIO module into the EMCP3. The DIO module will no longer be a separate ECM.

EMCP3 Layout

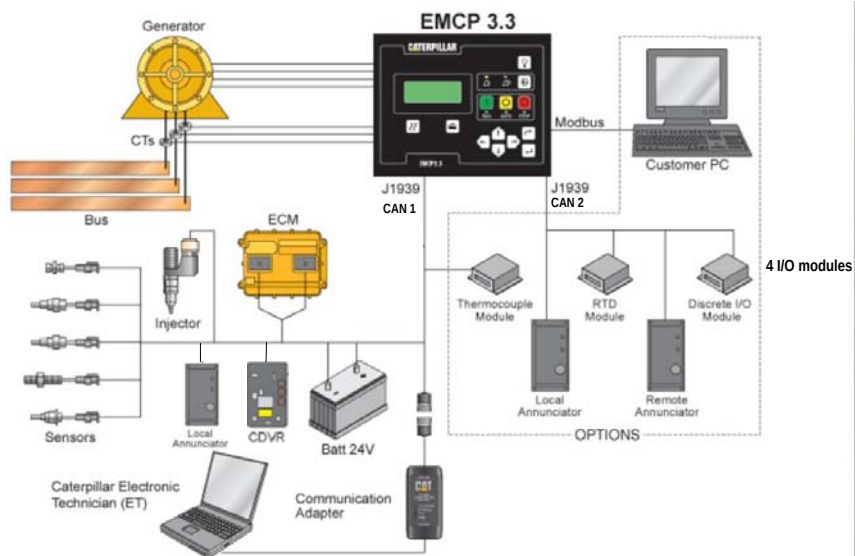


EMCP3.2 Layout



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EMCP3.3 Layout



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System Interface

- Inputs/Outputs
 - Digital & Analog Inputs
 - Speed Sensor
 - Voltage & Current Sensing
 - Digital & Relay Outputs
 - Desired Speed & Voltage
 - Data Links
 - J1 70 Pin Connector

Note: All wiring diagrams based on D3500 A3 systems.

Auto Start/Stop Block

Cat Electronic Technician 2007B v1.0-A8 (2007-03-05) - Configuration

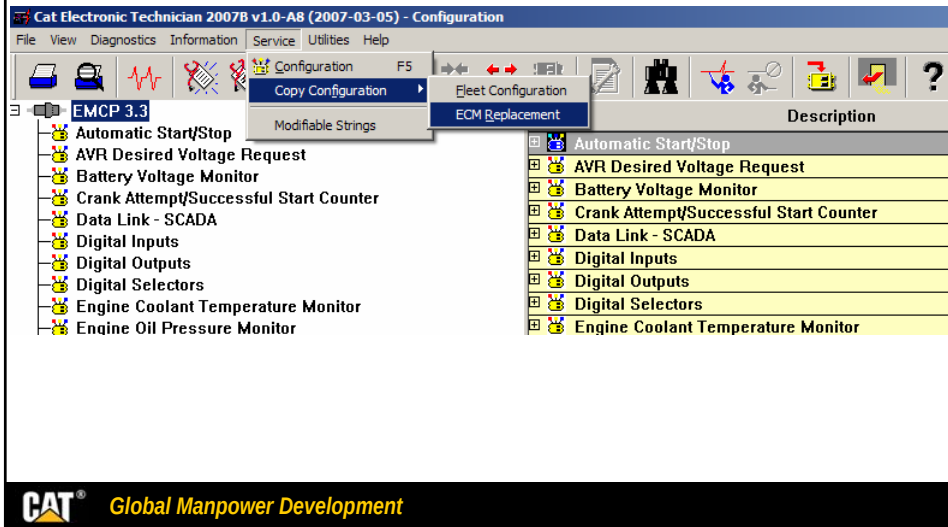
File View Diagnostics Information Service Utilities Help

EMCP 3.3

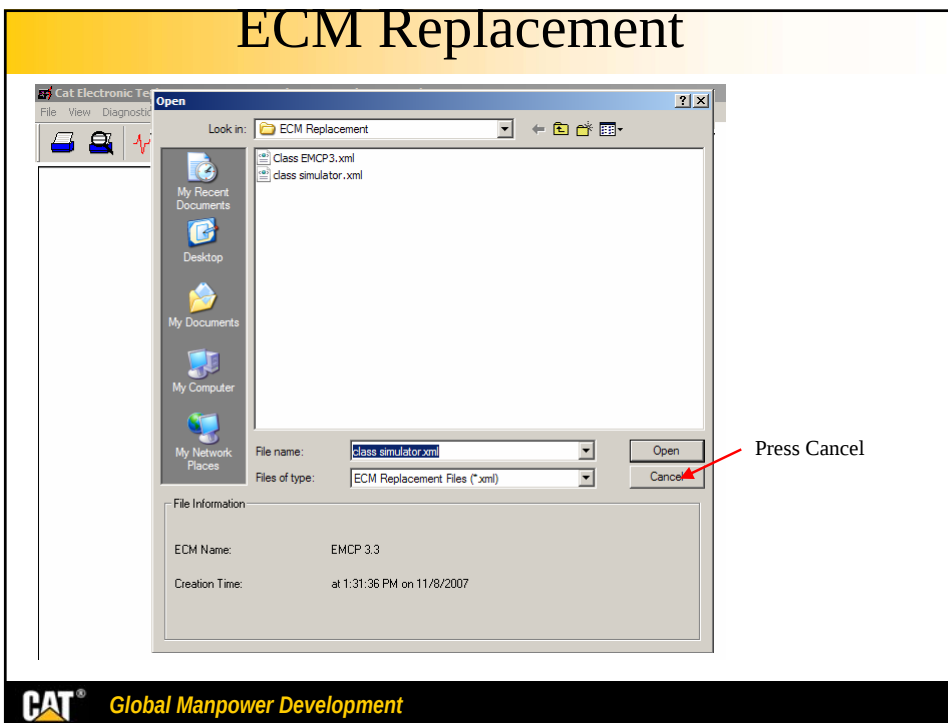
- Automatic Start/Stop
- AVR Desired Voltage Request
- Battery Voltage Monitor
- Crank Attempt/Successful Start Counter
- Data Link - SCADA
- Digital Inputs
- Digital Outputs
- Digital Selectors
- Engine Coolant Temperature Monitor
- Engine Oil Pressure Monitor
- Engine Speed Monitor
- Enhanced Engine Monitor
- Enhanced Generator Monitor
- Event Input Functions
- Event Output Functions
- Event Response Configuration - Diagnostic Events
- Event Response Configuration - Engine Protection Events
- Event Response Configuration - Generator Protection Events
- Event Response Configuration - Other System Events

Description	Value	Unit
Engine Start Fault Protection Activation Delay Time	10	Sec
Crank Duration	12	Sec
Crank Cycle Rest Interval	5	Sec
Engine Purge Cycle Time	0	Sec
Maximum Number of Crank Cycles	5	
Cooldown Duration	0	min
Start Aid Activation Time	10	Sec
Crank Alert Activation Time	0	Sec
Crank Terminate RPM	400	RPM
Engine Fuel Type Configuration	Diesel	
Fuel Shutoff Solenoid Type Configuration	Energized to Run	
Engine Type Configuration	Mechanical	
Engine Controller J1939 Data Link Support Configuration	No J1939 Support	
Engine Cooldown Speed Configuration	Rated Speed	
Engine Operating State Input Configuration	Hardwired Input	
Fuel Priming Feature Enable Status	Disabled	
Engine Forced Idle Feature Enable Status	Enabled	

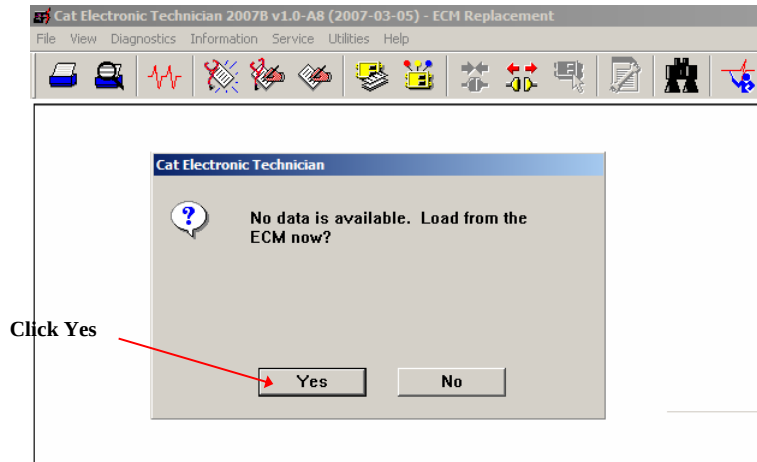
ECM Replacement



ECM Replacement

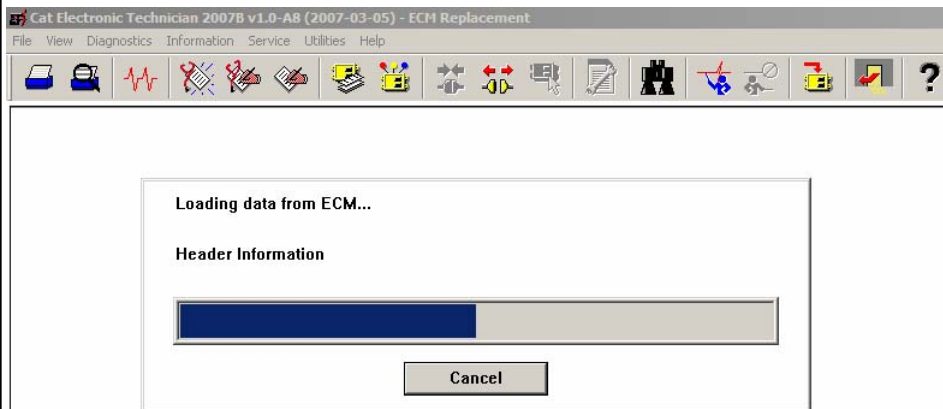


ECM Replacement



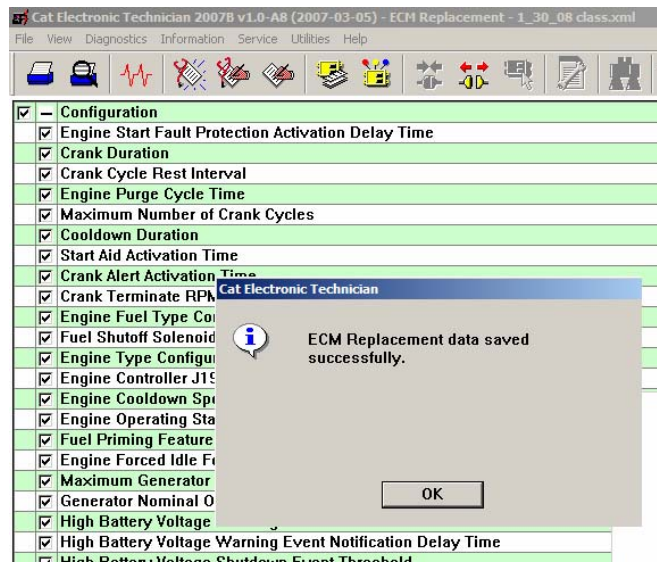
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ECM Replacement



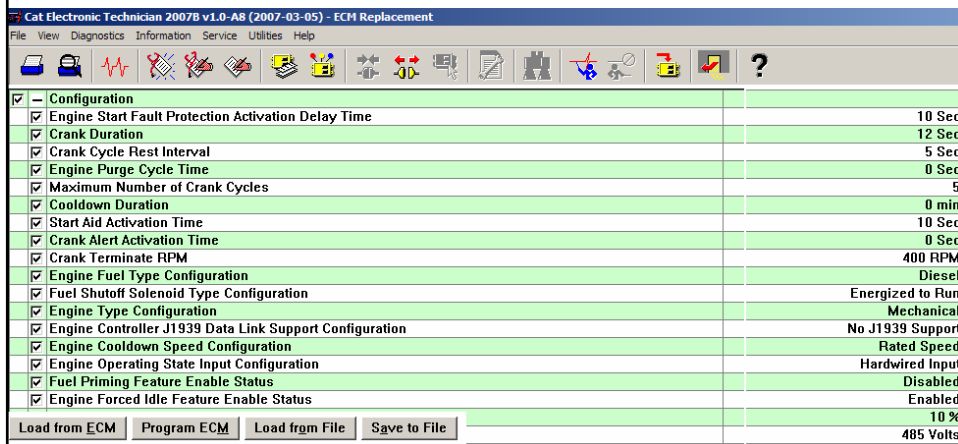
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ECM Replacement



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ECM Replacement



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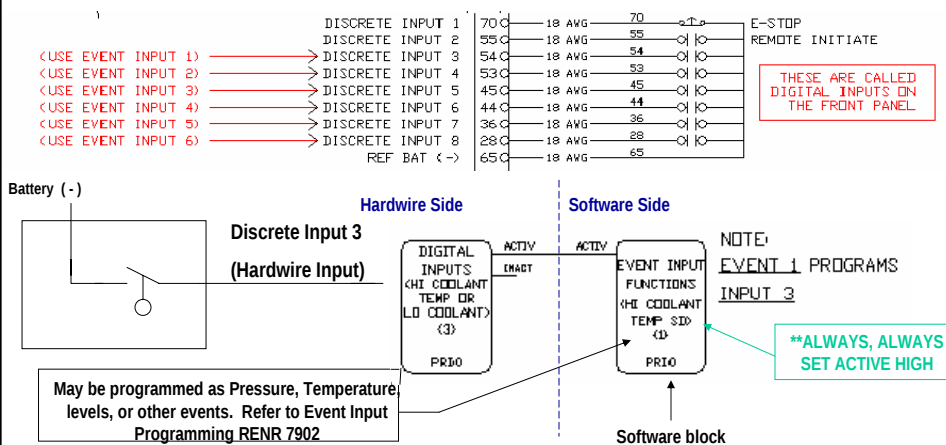
System Interface I/O

Digital Inputs

- Discrete low side (sinking) inputs
- Set to activate on:
 - Active High (normally closed contact)
 - OR Active Low (normally open contact)
- Digital In 1 wired to ground through E-Stop Switch
- Digital In 2 wired to ground through Remote Initiate Switch
- Other Digital In configured to monitor pressures, temperatures, levels, and other events.

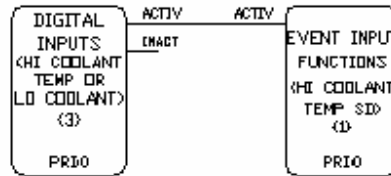
Digital Or Discrete Inputs

- The digital inputs are tied to hardware inputs
- May be called Discrete Inputs on the print
- Inputs tied to negative (bat. -)



Digital Inputs

Select "Active High" or Active Low"



NOTE:
EVENT 1 PROGRAMS
INPUT 3

Digital Input Programming

The Digital Inputs block is used to select whether the input is "Active High" (Normally Closed Contact) or "Active Low" (Normally Open Contact)

Event Input Programming

The Event Input will first be programmed as "Active High" or "Active Low". It should be left as "Active High"

The time delay is the next function to be set. Use the scroll up/down keys to choose the next function.

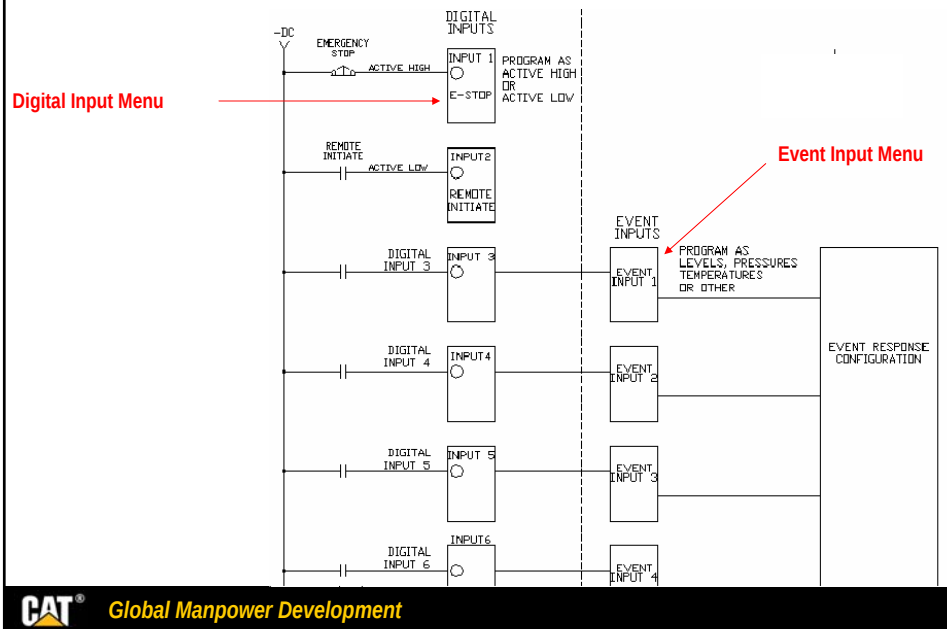
The next function will be the "Suspect Parameter Number". You can choose between Pressures, Temperatures, Levels, and Others (Pages 33-34).

After the SPN has been chosen, select the FMI. Can be High Warning, Low Warning, High Shutdown, Low Shutdown, and Status.

Adding a Low Fuel Level Switch

- 1) Find an unused "Digital Input"
- 2) Using ET, select the Digital Input
- 3) Select if it is Active High (Normally Closed) or Active Low (Normally Open). If the switch is held open for normal level and closes on low fuel, the switch would be Active Low.
- 4) Select "Event Input" from the menus.
- 5) Select the Event Input which corresponds to the Digital Input used for the Low Fuel Level Switch. Keep in mind there is an offset of 2 between the Digital Input and the Event Input (Digital Input minus 2 equals the Event Input number).
- 6) Using the pull down menu, select the SPN for Fuel Level.
- 7) Select the Time Delay for the switch before the fault occurs
- 8) Select the proper FMI Code (High or Low Warning, High, Low Shutdown, or Condition Exist.
- 9) DO NOT CHANGE THE ACTIVE STATE. LEAVE IT AS ACTIVE HIGH..

Digital Input Programming



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Loading The Modifiable Strings

Cat Electronic Technician 2006A v1.0 - ECM Summary

File View Diagnostics Information Service Utilities Help

Configuration F5
Copy Configuration

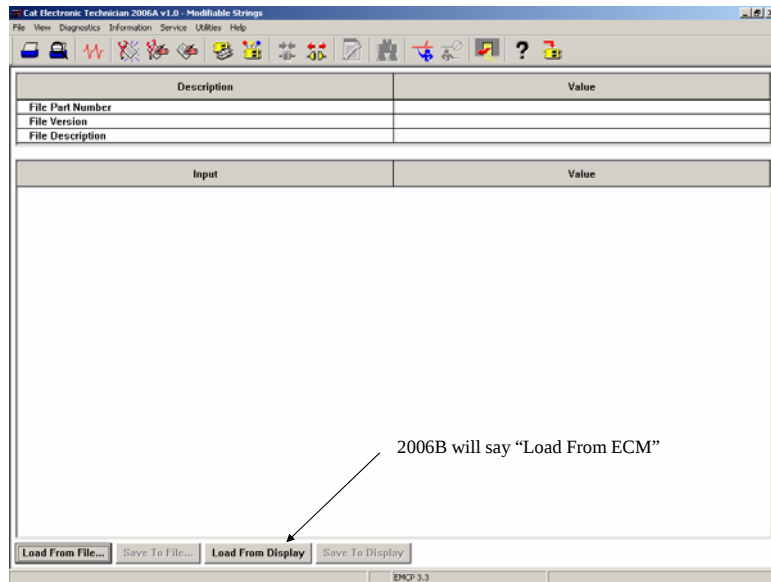
Available ECM[s]
EMCP 3.3

Modifiable Strings

Description	
ECM Serial Number	3493B003HR
ECM Part Number	2275802-00
Software Group Part Number	3041415-00
Software Group Description	L2 9_3 Standa
Software Group Release Date	OCT2006

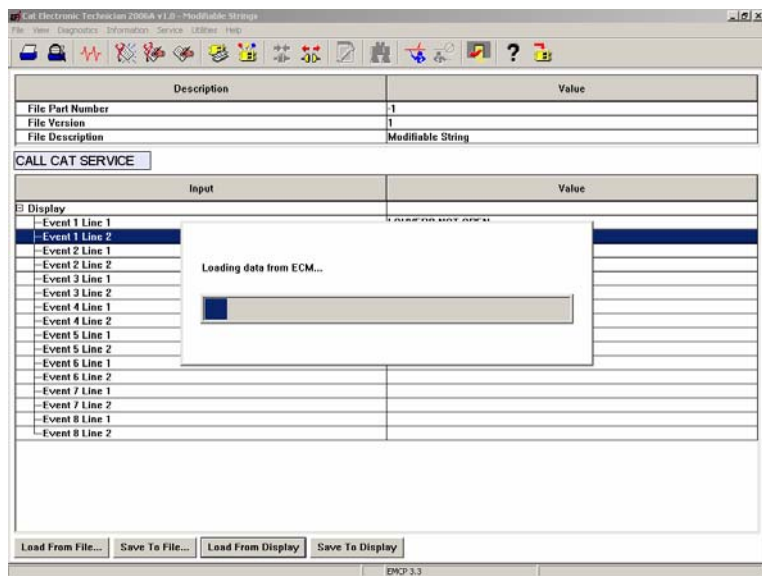
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Loading a Modifiable Text File



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Uploading From the Display



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Modifiable Text Strings

Cat Electronic Technician 2006A v1.0 - Modifiable Strings

File View Utilities Help

Opening a Saved String File

ECM Replacement File
Fleet Configuration File
Data Log File
Sea Trial General Information File
Sea Trial Steady State File
Sea Trial Transient File
Snapshot File
Cylinder Cutout Results File
Report File
Parameter Control List File
Warranty Report Data File
Component Configuration File
Modifiable String Data File

Description	Value
File Part Number	-1
File Version	1
File Description	Modifiable String

Display

Input	Value
Event 1 Line 1	GAS LEAK DETECTED
Event 1 Line 2	
Event 2 Line 1	
Event 2 Line 2	
Event 3 Line 1	
Event 3 Line 2	
Event 4 Line 1	

Saved Text Screen

Cat Electronic Technician 2006A v1.0 - Modifiable Strings

File View Utilities Help

Description	Value
File Part Number	-1
File Version	1
File Description	Modifiable String

Display

Input	Value
Event 1 Line 1	
Event 1 Line 2	
Event 2 Line 1	
Event 2 Line 2	
Event 3 Line 1	
Event 3 Line 2	
Event 4 Line 1	
Event 4 Line 2	
Event 5 Line 1	
Event 5 Line 2	
Event 6 Line 1	

Adding Text

Max viewable area

Double click in value to type message

Description	Value
File Part Number	-1
File Version	1
File Description	Modifiable String

Input	Value
Display	
Event 1 Line 1	
Event 1 Line 2	
Event 2 Line 1	
Event 2 Line 2	
Event 3 Line 1	
Event 3 Line 2	
Event 4 Line 1	

Can add second line of text

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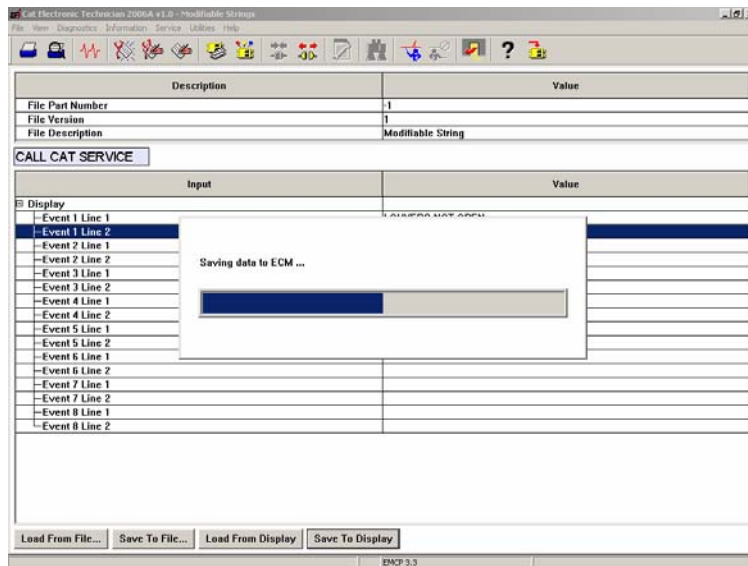
Text Added

Description	Value
File Part Number	-1
File Version	1
File Description	Modifiable String

Input	Value
Display	
Event 1 Line 1	GAS LEAK DETECTED
Event 1 Line 2	
Event 2 Line 1	
Event 2 Line 2	
Event 3 Line 1	
Event 3 Line 2	
Event 4 Line 1	
Event 4 Line 2	
Event 5 Line 1	

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Download to Display

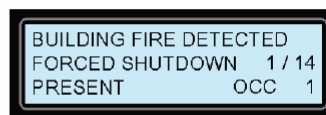


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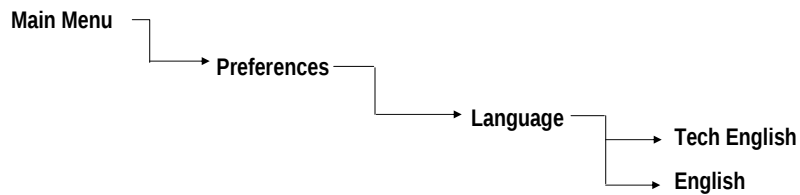
Tech English and English



Tech English will display the Custom Event Number



English will display the Modifiable string



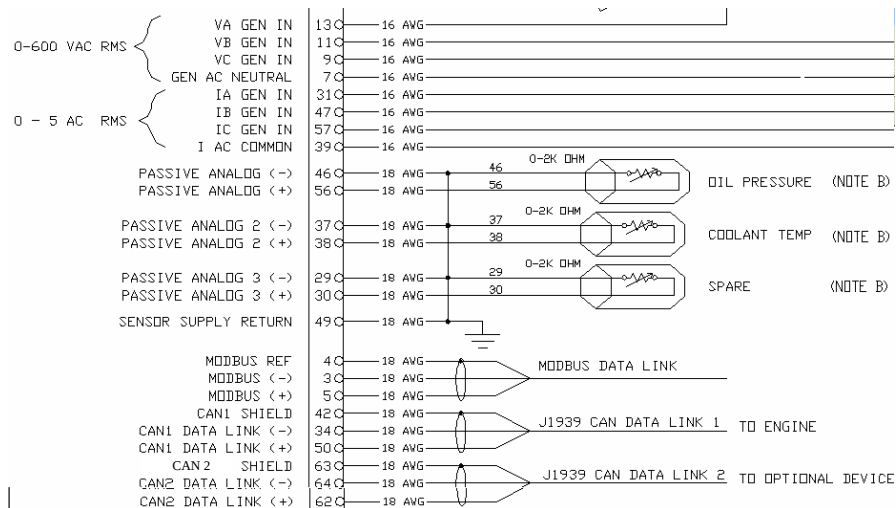
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System Interface I/O

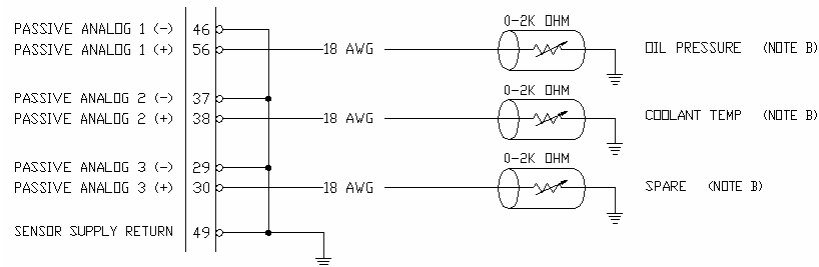
Analog Inputs

- Resistive senders (0-2000 Ohm)
- Passive analog 1 for Oil Pressure (Non-A3)
246-8150
- Passive Analog 2 for Coolant Temp (Non-A3)
246-8151
- Passive Analog 3 spare (not EMCP3.1)

Analog Inputs



1 Wire Sender



Note: In the latest firmware revision (Oct 2006), the spare input has 3 sensor maps: 1. VDO Oil Temperature 2. 3500 MUI Oil Temperature 3. Fozmula Fuel Level Map.

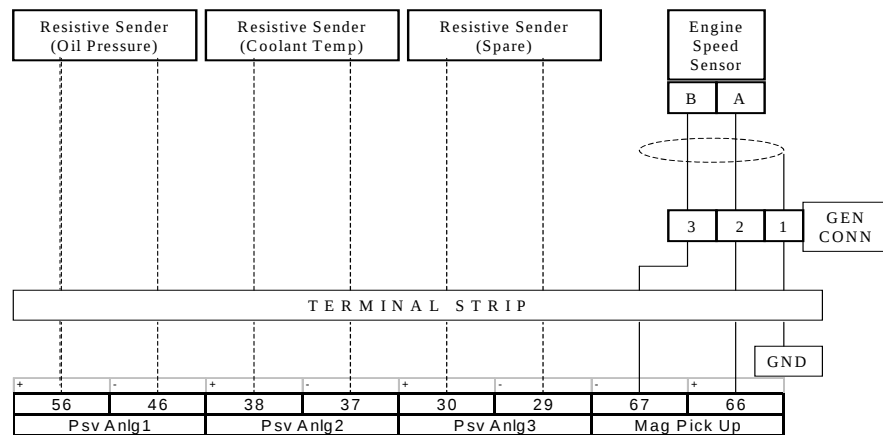
System Interface I/O

Speed Sensor

- Magnetic Pick Up (MPU) used to determine RPM
- MPU- and MPU+ shielded by ground wire
- Internal resistance of 142 Ohms
- Independent MPU used by EMCP3 only

System Interface I/O

Analog Input Wiring



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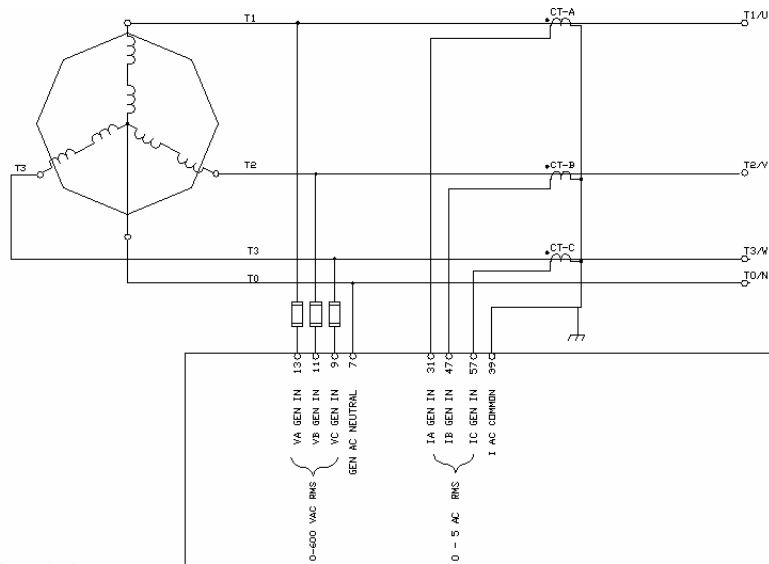
System Interface I/O

Voltage and Current Sensing

- Three Phase Generator Current
 - 0-5A RMS AC current input for L0-L2
 - IA Gen In, IB Gen In, IC Gen In, I Gen AC Common
- Three Phase Generator Voltage
 - 0-600vac for L0-L2
 - VA Gen In, VB Gen In, VC Gen In, Gen AC Neutral

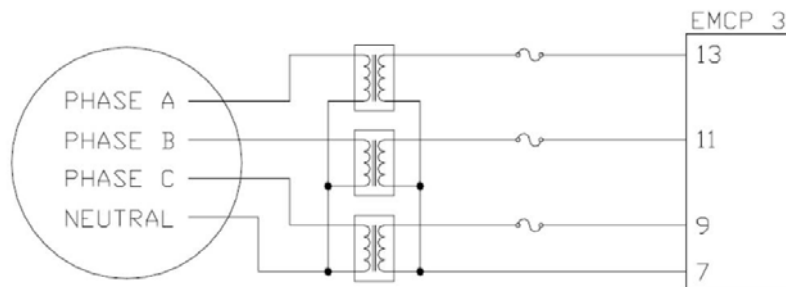
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Voltage/Current Sensing Wiring



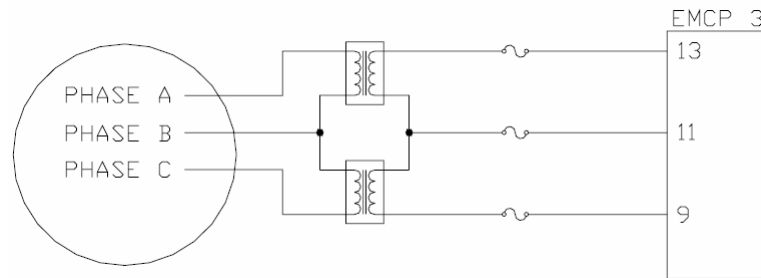
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Wye PT's with 4 wire Wye Generator



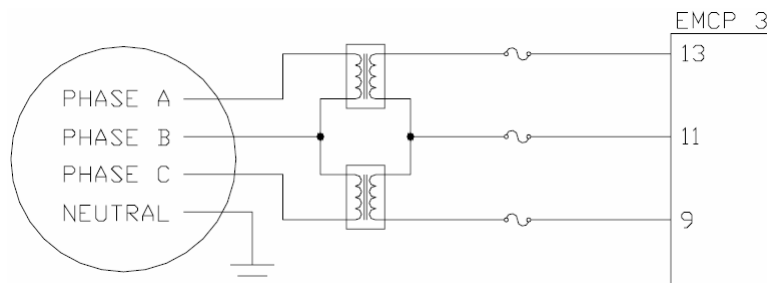
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Open Delta Configuration on a Delta Connected Generator



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Open Delta Configuration With 4 Wire Wye Generator



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System Interface I/O

Relay Outputs

- Relay 1 through 6 are Form-A
 - One Normally Open (NO) contact
- Relay 7 & 8 are Form-C
 - One NO contact
 - One Normally Closed (NC) contact
- Current Capabilities
 - Switching DC Loads
 - Maximum Current: 2 Amps at 30 DCV



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System Interface I/O

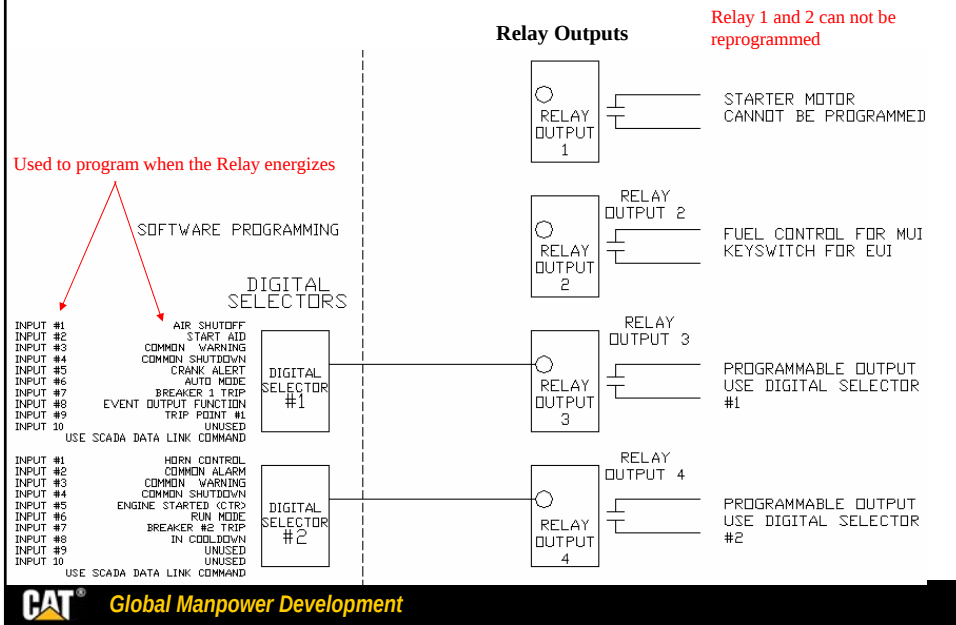
Relay Outputs

- Relay1 configured for Starter Motor
- Relay2 configured for Fuel Control (Non-A3)
- All other Relays
 - Controlled by corresponding digital selector (offset by 2)

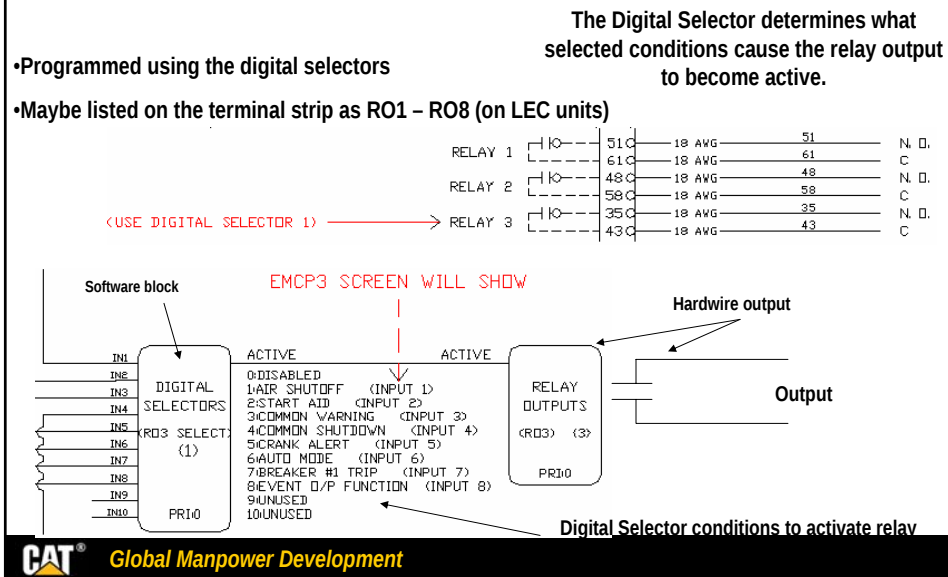


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Relay Outputs



Relay Outputs



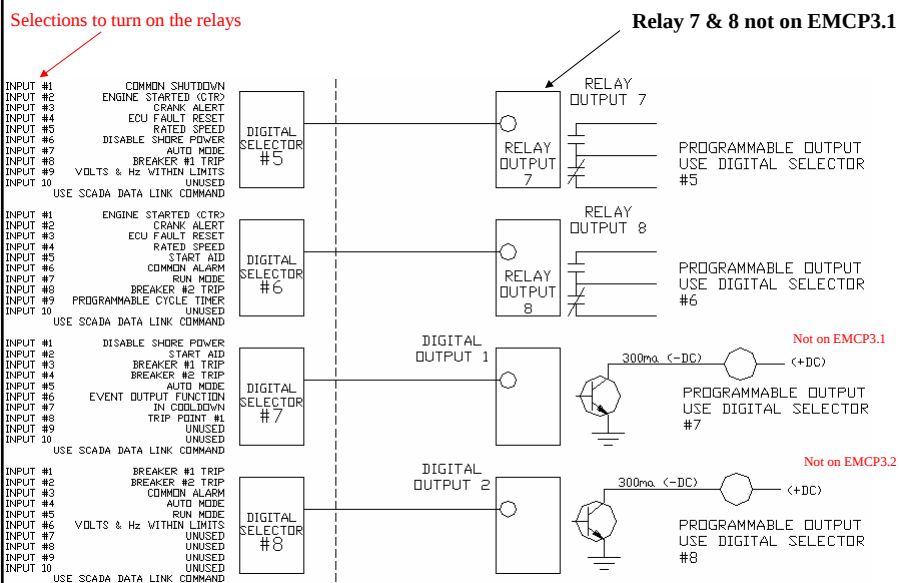
System Interface I/O

Digital Outputs

- 300mA low side (sinking) drivers
- Convey On/Off information to operate relays, solenoids, and indicator lamps
- Examples:
 - Shore Power Control Relay
 - Ether
 - Pre-lube

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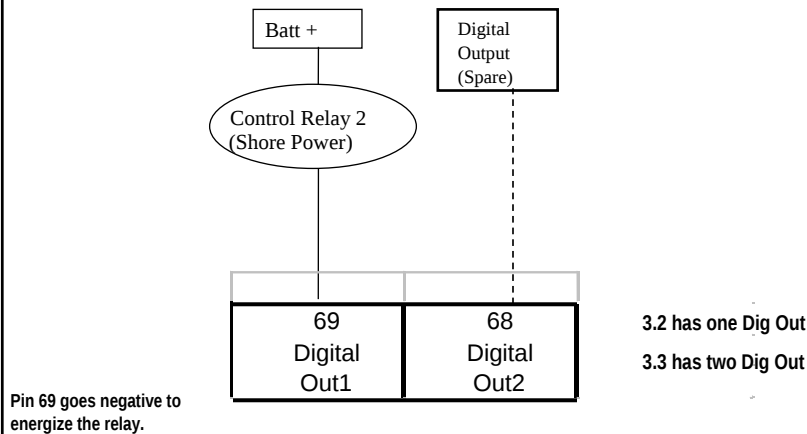
Digital Outputs



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System Interface I/O

Digital Output Wiring



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Flashing The EMCP3

Caution: There are early versions of EMCP3 (2665553) which won't directly upgrade to the newer Firmware. When upgrading these units the Relay Outputs may have to be rewired and reconfigured to accept the new Digital Selectors. If in doubt call support.

Old Firmware 2665553

Note: Digital Selectors 2 thru 8 also have programming differences.

New Firmware

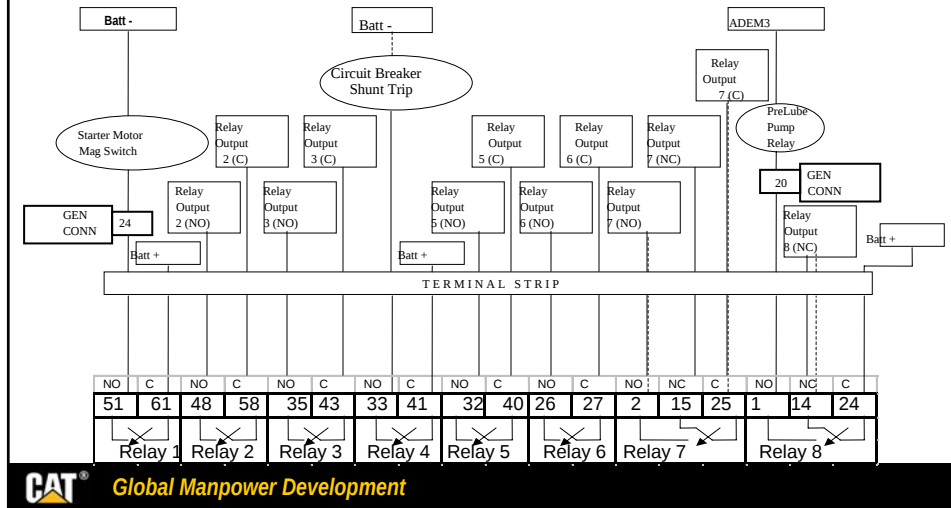
Digital Selector # 1 configuration Options	
Display Text	Condition
Disabled	Disabled
Use Input #1 ⁽¹⁾	Air Shutoff ⁽¹⁾
Use Input #2	Start Aid
Use Input #3	Common Warning
Use Input #4	Low Coolant Temperature Warning
Use Input #5	Breaker #1
Use Data Link Input	Use SCADA Data Link Command

Digital Selector #1 configuration Options	
Condition	Display Text
Disabled	Disabled
Air Shutoff	Use Input #1
Start Aid	Use Input #2
Common Warning	Use Input #3
Common Shutdown	Use Input #4
Crank Alert	Use Input #5
Auto Mode	Use Input #6
Breaker #1 Trip	Use Input #7
Event Output Function	Use Input #8
Unused	Use Input #9
Unused	Use Input #10
Use SCADA Data Link Command	Use Data Link Input

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System Interface I/O

Relay Output Wiring



System Interface I/O

Desired Speed & Voltage

- A3/A4 systems
 - Desired speed from EMCP3 to ECM over J1939 data link
 - Desired voltage from EMCP3 to CDVR over J1939 data link
- Non-A3/A4 EUI and PEEC systems
 - Desired speed from potentiometer and speed brick
 - Desired voltage from switch on voltage regulator or over J1939. New firmware selectable.

System Interface I/O

Desired Speed & Voltage (Continued)

Notes continued

System Interface I/O

Desired Speed & Voltage (Continued)

Notes Continued

System Interface I/O

Data Links – CAN2.0 J1939

- Non-isolated, shielded data link for local communication
- Main branch maximum 800 ft long (CAN2)
- CAN1 132 Ft. (40 Meters)
- Local branches maximum 3.3 ft from main
- Terminating resistors required at extreme ends to reduce reflection

System Interface I/O

Data Links – CAN2.0 J1939

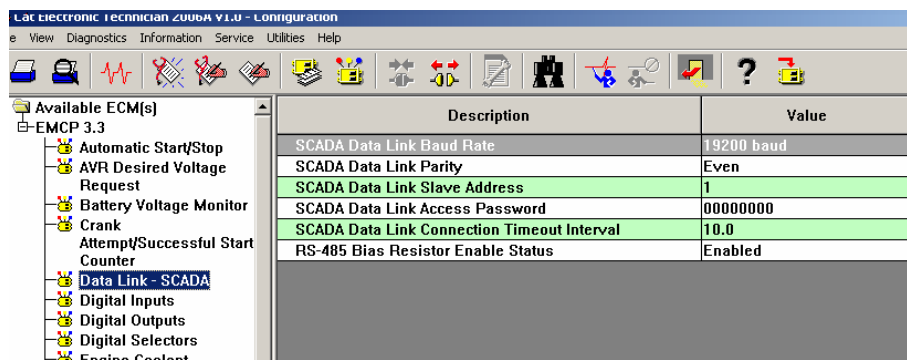
- CAN1 Data link from EMCP3 to:
 - A3/A4
 - Engine and Generator Service Connectors
 - CDVR
 - Thermocouple Module #2
- CAN2 Data link (not EMCP3.1)
 - Annunciator Module
 - Resistive Temperature Device/Thermocouple Module #1
 - Discrete I/O Module

System Interface I/O

Data Link - MODBUS

- MODBUS
 - Communication with PC built into control strategy
 - No need for communication module
- Optically isolated, half duplex RS-485 data link for SCADA

SCADA ADDRESS

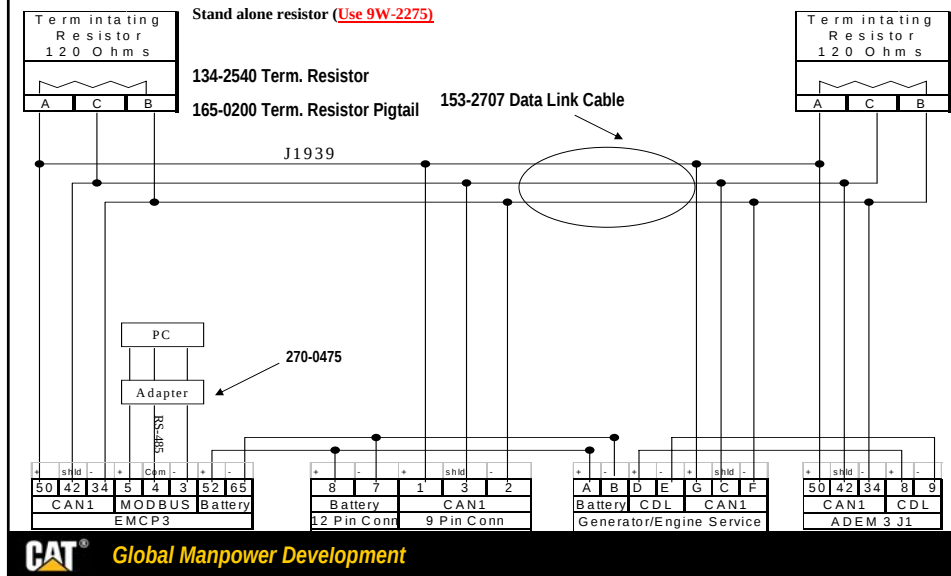


Description	Value
SCADA Data Link Baud Rate	19200 baud
SCADA Data Link Parity	Even
SCADA Data Link Slave Address	1
SCADA Data Link Access Password	00000000
SCADA Data Link Connection Timeout Interval	10.0
RS-485 Bias Resistor Enable Status	Enabled

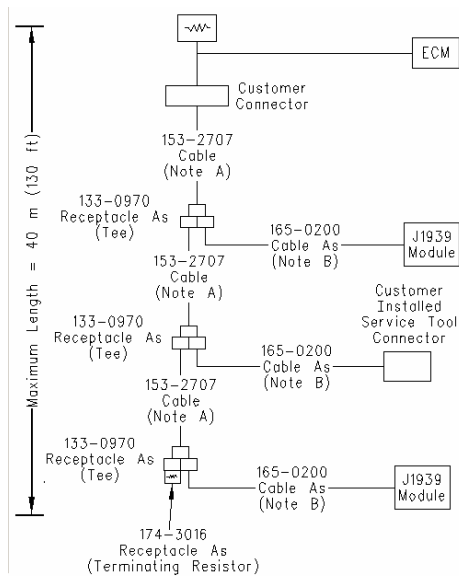
8 Data Bits and 1 Stop Bit

Setup for Cat Switchgear

System Interface I/O Modbus & CAN1 Wiring

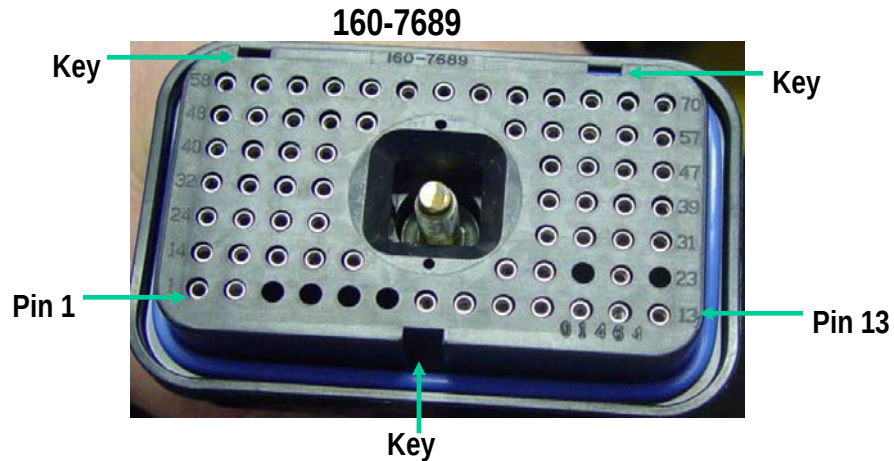


CAN Layout



From Marine Guide

System Interface I/O J1 70 Pin Connector



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Reset the Password Level in ET

1-Configuration

3-Set Security Level to 0

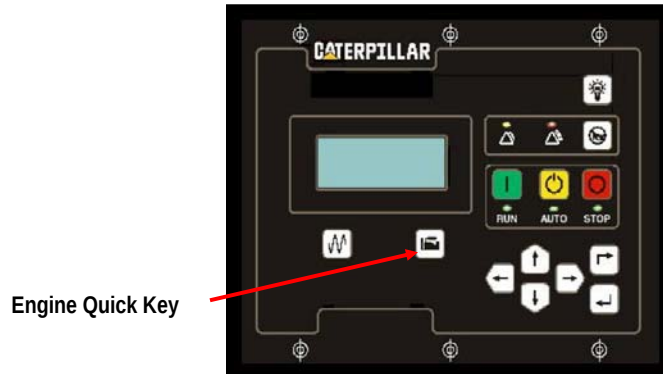
2-Srvc Maint Interval

Description	Value
Maintenance Level 1 Cycle Interval Hours	500
Maintenance Level 1 Cycle Interval Days	180
Customer Password Security Level to Reset Service Maintenance Interval	3-Factory, Single Use

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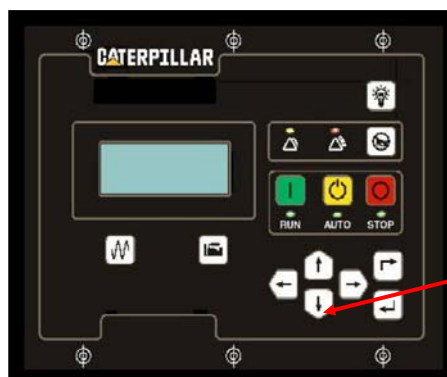
Reset Service Maintenance Interval

1. Press the Engine Quick Key on the front of the EMCP3



CAT® Global Manpower Development

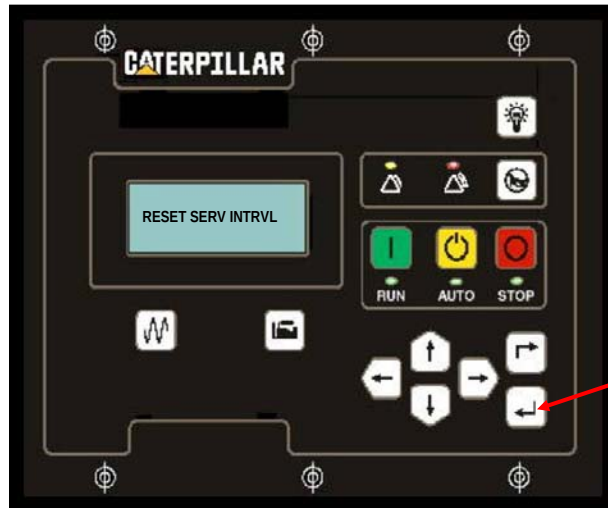
Use the Down Arrow



Use the "Down Arrow" to highlight,
"RESET SERV INTRVL"

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Press the “ENTER” button



ENTER Button

Requires Level 3 access or to have the password level reduced.

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Disabling the Service Interval

1

2

3: Set to "Disable condition"

Cat Electronic Technician 2006A v1.0 - Configuration

File View Diagnostics Information Service Utilities Help

Description	Value
Service Maintenance Interval Warning Event Response Configuration	Activate Warning Condition
Service Maintenance Interval Warning Event Audible Alert	No
High Starting Air Pressure Warning Event Response Configuration	Activate Warning Condition
High Starting Air Pressure Warning Event Audible Alert	Yes
High Starting Air Pressure Warning Event Breaker #1 Trip	Yes
High Starting Air Pressure Warning Event Breaker #2 Trip	Yes
High Starting Air Pressure Shutdown Event Response Configuration	Activate Hard Shutdown Condition
High Starting Air Pressure Shutdown Event Audible Alert	Yes
High Starting Air Pressure Shutdown Event Breaker #1 Trip	No
High Starting Air Pressure Shutdown Event Breaker #2 Trip	No
Low Starting Air Pressure Warning Event Response Configuration	Activate Warning Condition
Low Starting Air Pressure Warning Event Audible Alert	Yes

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Optional Modules

- Annunciator
- Discrete I/O
- Thermocouple (TC)
- Resistive Temperature Device (RTD)



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Optional Module Annunciator

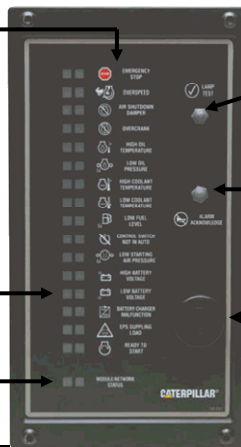
Dealer configurable
with replaceable film

236-1158 With Film

Standard Film # 240-8703

16 LED pairs announce
events, diagnostics, and
ready signals

LED pair indicates
network/module status



Lamp Test Button

- LED's
- Horn

Alarm Acknowledge

Horn and Silencer

Annunc. W/O Film 236-1159
Custom Film Kit 260-6898
Wall box Assembly 252-7504

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Optional Module Annunciator

Notes Continued

Optional Module Annunciator

- Can be installed remotely up to 800 ft
- Designed for 1 on CAN1 and 4 on CAN2
- Communicate over CAN2 with no discrete input point wiring
- Each LED pair has four settings configured with Cat Service Tool
 - Suspect Parameter Number (SPN)
 - Trigger Type (disabled, general event, specific event)
 - Trigger Severity Level
 - Failure Mode Identifier (FMI)

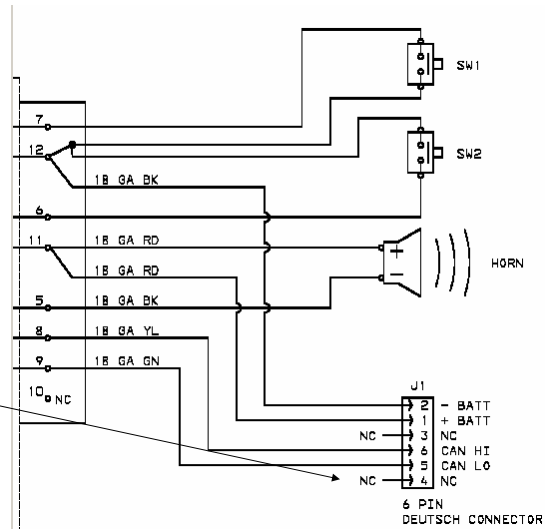
Controller Area Network

Annunciator

Annunciator Wiring

Purchased units should come with a Deutsch Connector

Deutsch Part Number:
155-2274



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Annunciator SPN's

It is highly recommended that you upgrade to ET2007B in order to program & recognize SPNs

Supported SPNs

Supported SPNs	
SPN Description	SPN
Fuel Level (External Tank)	38
Aftercooler Temperature	52
Starting Air Pressure	82
Fuel Filter Differential Pressure	95
Fuel Level (Local Tank)	96
Engine Oil Level	98
Oil Filter Differential Pressure	99
Engine Oil Pressure	100
Crankcase Pressure	101
Air Filter Differential Pressure	107

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Annunciator SPN's

Annunciator SPN

SPN Description	SPN	SPN Description	SPN
Altitude	106	Exhaust Gas Port 4 Temperature	1140
Engine Coolant Temperature	110	Exhaust Gas Port 5 Temperature	1141
Engine Coolant Level	111	Exhaust Gas Port 6 Temperature	1142
Fire Extinguisher Pressure	137	Exhaust Gas Port 7 Temperature	1143
Battery Voltage (switched)	158	Exhaust Gas Port 8 Temperature	1144
Battery Voltage	168	Exhaust Gas Port 9 Temperature	1145
Ambient Air Temperature	171	Exhaust Gas Port 10 Temperature	1146
Inlet Air Temperature	172	Exhaust Gas Port 11 Temperature	1147
Exhaust Temperature	173	Exhaust Gas Port 12 Temperature	1148
Engine Oil Temperature	175	Exhaust Gas Port 13 Temperature	1149
Engine Speed	190	Exhaust Gas Port 14 Temperature	1150
SCADA Data Link Fault	625	Exhaust Gas Port 15 Temperature	1151
Primary Data Link (J1939 #1)	639	Exhaust Gas Port 16 Temperature	1152
Event Input Function #1	701	Exhaust Gas Port 17 Temperature	1153
Event Input Function #2	702	Exhaust Gas Port 18 Temperature	1154
Event Input Function #3	703	Exhaust Gas Port 19 Temperature	1155
Event Input Function #4	704	Exhaust Gas Port 20 Temperature	1156
Event Input Function #5	705	Accessory Data Link Fault (J1939 #2)	1231
Event Input Function #6	706	Emergency Shutdown Override Mode Active Warning	1237
Event Input Function #7	707	Ruptured Fuel Basin - Primary Tank	1239
Event Input Function #8	708	Unexpected Engine Shutdown	1383
Event Input Function #9	709	Engine Failure to Start Shutdown	1694
Event Input Function #10	710	Right Exhaust Temperature	2433
Event Input Function #11	711	Left Exhaust Temperature	2434
Event Input Function #12	712	Generator Frequency	2436
Event Input Function #13	713	Generator AC Voltage	2440
Event Input Function #14	714	Generator AC Current	2448
Event Input Function #15	715	Generator Reverse Power (KW)	2452
Event Input Function #16	716	Generator Reverse Power (KVA)	2456
Emergency Stop Shutdown	970	Service Interval Warning	2648
Generator Bearing Temperature #1	1122	Air Damper Closed	4000
Generator Bearing Temperature #2	1123	ATS in Normal Position	4001
Generator Winding Temperature #1	1124	ATS in Emergency Position	4002
Generator Winding Temperature #2	1125	Battery Charger Failure	4003
Generator Winding Temperature #3	1126	Generator Control Not in Automatic Warning	4007
Exhaust Gas Port 1 Temperature	1137	Generator Breaker Failure to Open	4009
Exhaust Gas Port 2 Temperature	1138		

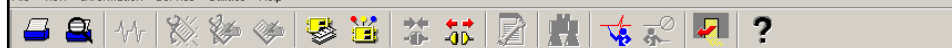


Global Manpower Development

Annunciator Configuration

Cat Electronic Technician - ECM Summary

File View Information Service Utilities Help



Available ECM(s)

Alarm Module #1

You can locate the latest flash file in TMI WEB...You should upgrade to latest software at start-up.

Description	Value
Alarm Module #1	
ECM Serial Number	0525B013HW
ECM Part Number	2361158-03
Software Group Part Number	2597053-01
Software Group Description	ANNUNCIATOR
Software Group Release Date	Dec2004



Global Manpower Development

Changing the ECU Instance

Cat Electronic Technician - Configuration

File View Information Service Utilities Help

Configuration F5
Copy Configuration

Available ECM(s)
Alarm Module #1
To configure the LEDs, use Service->LED Pair Configuration

Description	Value
ECM Serial Number	0525B013HW
ECU Instance	1
Annunciator Data Link Global Acknowledge Enable Status	Enabled

Note: The ECU instance will only need changed if there are duplicate modules on the same CAN bus. If there were three Annunciators on CAN2, the ECU Instance would need to be different on each Annunciator.

The Thermocouple module on CAN 1 has to be ECU Instance #2 and a Thermocouple Module on CAN#2 has to be ECU Instance #1.

CAT Global Manpower Development

Global Acknowledge

Cat Electronic Technician - Configuration

File View Information Service Utilities Help

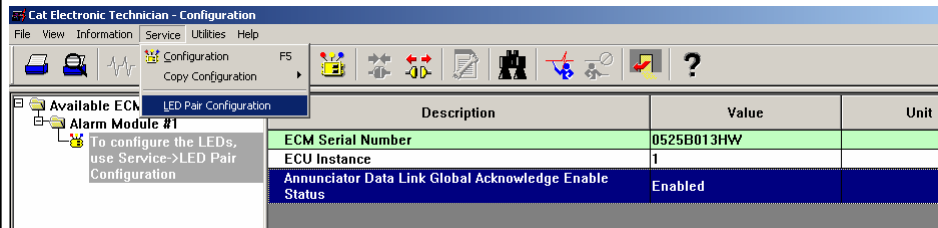
Available ECM(s)
Alarm Module #1
To configure the LEDs, use Service->LED Pair Configuration

Description	Value
ECM Serial Number	0525B013HW
ECU Instance	1
Annunciator Data Link Global Acknowledge Enable Status	Enabled

Enabling the Global Acknowledge allows the user to reset an alarm from any Acknowledge Key. To disable this feature, double click on Enable and set it to disable.

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LED Pair Programming



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LED Pair Configuration

Cat Electronic Technician - LED Pair Configuration				
File View Information Service Utilities Help				
	Trigger Condition	Severity Level	Suspect Parameter Number	Failure Mode Identifier
LED Pair # 1	Specific Event	Condition Met, Red On, Other Not Used, Horn On	Emergency Stop Shutdown (970)	
LED Pair # 2	Specific Event	Condition Met, Red On, Other Not Used, Horn On	Engine Failure to Start Shutdown (1664)	
LED Pair # 3	Specific Event	Low Warning	Engine Coolant Temperature (110)	
LED Pair # 4	Specific Event	High Warning or High Shutdown	Engine Coolant Temperature (110)	
LED Pair # 5	Specific Event	Low Warning or Low Shutdown	Engine Oil Pressure (100)	
LED Pair # 6	Specific Event	High Shutdown	Engine Speed (190)	
LED Pair # 7	Specific Event	Low Warning or Low Shutdown	Engine Coolant Level (111)	

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Trigger Condition

Cat Electronic Technician - LED Pair Configuration				
File View Information Service Utilities Help				
	Trigger Condition	Severity Level	Suspect Parameter Number	Failure Mode
LED Pair # 1	Specific Event	Condition Met, Red On, Other Not Used, Horn On	Emergency Stop Shutdown (970)	
LED Pair # 2	Specific Event	Condition Met, Red On, Other Not Used, Horn On	Engine Failure to Start Shutdown (1664)	
LED Pair # 3	Specific Event	Low Warning	Engine Coolant Temperature (110)	
LED Pair # 4	Specific Event	High Warning or High Shutdown	Engine Coolant Temperature (110)	
LED Pair # 5	Specific Event	Low Warning or Low Shutdown	Engine Oil Pressure (100)	
LED Pair # 6	Specific Event	High Shutdown	Engine Speed (190)	
LED Pair # 7	Disabled	Low Warning or Low Shutdown	Engine Coolant Level (111)	
LED Pair # 8	General Event	Low Warning	Fuel Level (Local Tank) (96)	
LED Pair # 9	Specific Event	Condition Met, Amber On, Other Not Used	Unknown SPN (4002)	
LED Pair # 10	Specific Event	Condition Met, Amber On, Other Not Used, Horn On	Unknown SPN (4007)	

CAT Global Manpower Development

Severity Level

Cat Electronic Technician - LED Pair Configuration				
File View Information Service Utilities Help				
	Trigger Condition	Severity Level	Suspect Parameter Number	Failure Mode
LED Pair # 1	Specific Event	Condition Met, Red On, Other Not Used, Horn On	Emergency Stop Shutdown (970)	
LED Pair # 2	Specific Event	Condition Met, Red On, Other Not Used, Horn On	Engine Failure to Start Shutdown (1664)	
LED Pair # 3	Specific Event	Low Warning	Engine Coolant Temperature (110)	
LED Pair # 4	Specific Event	High Warning or High Shutdown	Engine Coolant Temperature (110)	
LED Pair # 5	Specific Event	Low Warning or Low Shutdown	Engine Oil Pressure (100)	
LED Pair # 6	Specific Event	High Shutdown	Engine Speed (190)	
LED Pair # 7	Specific Event	Condition Met, Amber On, Other Not Used	Engine Coolant Level (111)	
LED Pair # 8	Specific Event	Condition Met, Amber On, Other Not Used, Horn On	Fuel Level (Local Tank) (96)	
LED Pair # 9	Specific Event	Condition Met, Amber On, Red Off	Unknown SPN (4002)	
LED Pair # 10	Specific Event	Condition Met, Red On, Amber Off	Unknown SPN (4007)	
LED Pair # 11	Specific Event	Condition Met, Red On, Other Not Used	Engine Coolant Level (111)	
LED Pair # 12	Specific Event	Condition Met, Red On, Other Not Used	Engine Coolant Level (111)	
LED Pair # 13	Specific Event	Condition Met, Red On, Other Not Used, Horn On	Unknown SPN (4003)	

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More Severity Level

Cat Electronic Technician - LED Pair Configuration				
File View Information Service Utilities Help				
	Trigger Condition	Severity Level	Suspect Parameter Number	Failure Mode
LED Pair # 1	Specific Event	Condition Met, Red On, Other Not Used, Horn On	Emergency Stop Shutdown [970]	
LED Pair # 2	Specific Event	Condition Met, Red On, Other Not Used, Horn On	Engine Failure to Start Shutdown [1664]	
LED Pair # 3	Specific Event	Low Warning	Engine Coolant Temperature [110]	
LED Pair # 4	Specific Event	High Warning or High Shutdown	Engine Coolant Temperature [110]	
LED Pair # 5	Specific Event	Low Warning or Low Shutdown	Engine Oil Pressure [100]	
LED Pair # 6	Specific Event	High Shutdown	Engine Speed [190]	
LED Pair # 7	Specific Event	High or Low Warning	Coolant Level [111]	
LED Pair # 8	Specific Event	High or Low Warning, High or Low Shutdown	Oil (Local Tank) [96]	
LED Pair # 9	Specific Event	High or Low Warning, High or Low Shutdown or Diagnostic	SPN (4002)	
LED Pair # 10	Specific Event	High Shutdown	SPN (4007)	
LED Pair # 11	Specific Event	High Warning	Voltage [168]	
LED Pair # 12	Specific Event	High Warning	Voltage [168]	
LED Pair # 13	Specific Event	High Warning or High Shutdown	SPN (4003)	

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Suspect Parameter Number

Cat Electronic Technician - LED Pair Configuration				
File View Information Service Utilities Help				
	Trigger Condition	Severity Level	Suspect Parameter Number	Failure Mode
LED Pair # 1	Specific Event	Condition Met, Red On, Other Not Used, Horn On	Emergency Stop Shutdown [970]	
LED Pair # 2	Specific Event	Condition Met, Red On, Other Not Used, Horn On	Engine Failure to Start Shutdown [1664]	
LED Pair # 3	Specific Event	Low Warning	Engine Coolant Temperature [110]	
LED Pair # 4	Specific Event	High Warning or High Shutdown	Engine Coolant Temperature [110]	
LED Pair # 5	Specific Event	Low Warning or Low Shutdown	Engine Oil Pressure [100]	
LED Pair # 6	Specific Event	High Shutdown	Engine Speed [190]	
LED Pair # 7	Specific Event	Low Warning or Low Shutdown	Aftercooler Temperature [52]	
LED Pair # 8	Specific Event	Low Warning	Air Filter Differential Pressure [107]	
LED Pair # 9	Specific Event	Condition Met, Amber On, Other Not Used	Altitude [108]	
LED Pair # 10	Specific Event	Condition Met, Amber On, Other Not Used, Horn On	Ambient Air Temperature [171]	
LED Pair # 11	Specific Event	High Warning	Auxiliary I/O #1 [701]	
LED Pair # 12	Specific Event	Low Warning	Auxiliary I/O #10 [710]	
LED Pair # 13	Specific Event	Condition Met, Amber On, Other Not Used, Horn On		

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Optional Module

Discrete I/O

- Mount on genset or remote
- System designed for up to 4 I/O Modules
- Configured with Cat Service Tool
- Communicate over CAN2 with no discrete input point wiring
- Non-volatile memory allows for functionality during set point configuration and communication through CAN2



234-0275

Mating Plug

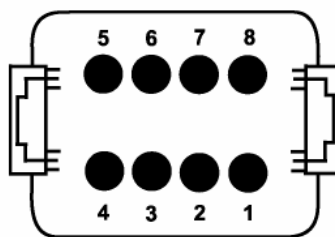
9X-7147 (40pin)

Harness 261-5614



Global Manpower Development

Power and Communication



FRONT VIEW
MODULE MOUNTED CONNECTOR
DEUTSCH P/N: DT13-08PA

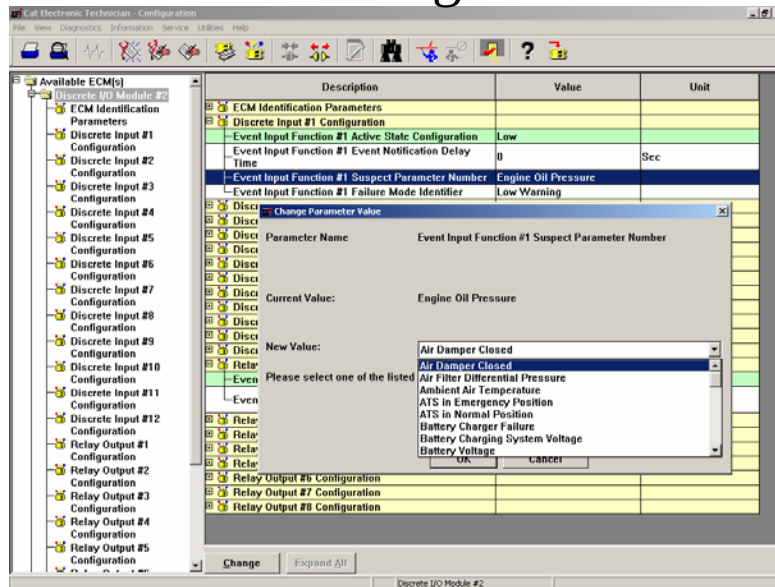
1 = PWR+ 5 = SHIELD
2 = CAN-H 6,7,8 = NOT USED
3 = CAN-L
4 = PWR-

BOX MOUNTING



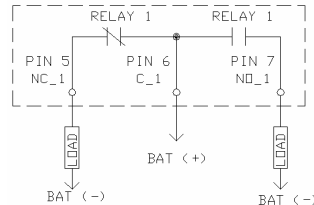
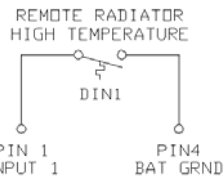
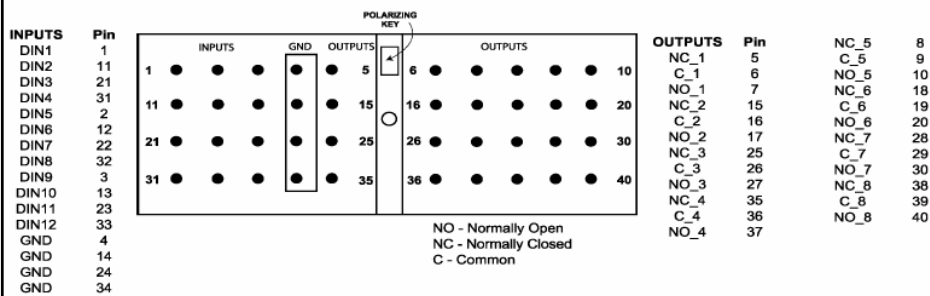
Global Manpower Development

SPN Configuration



CAT® Global Manpower Development

FRONT VIEW OF
MODULE MOUNTED CONNECTOR
DEUTSCH P/N: DRC13-40PB



CAT® Global Manpower Development

Optional Module Discrete I/O

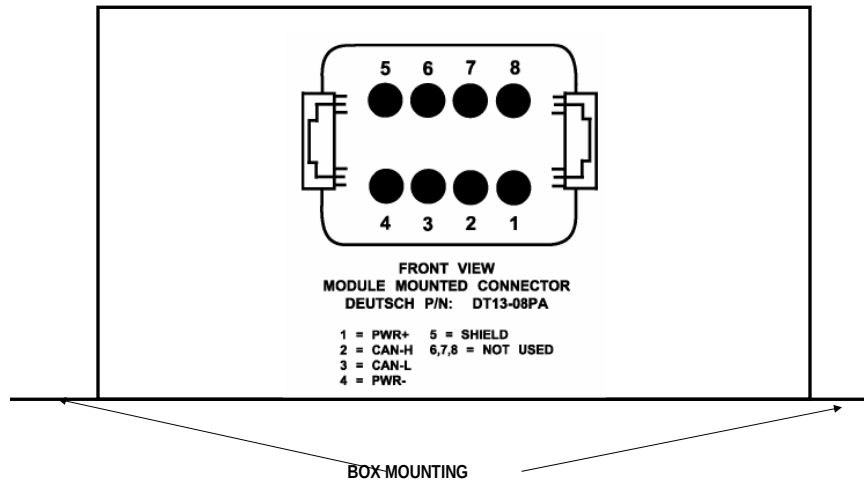
- Reads 12 Discrete Inputs with 4 return channels
 - Sinking input with external switch closure to BATT (-)
 - Warning inputs will automatically reset as input goes non-active
 - Shutdown inputs will reset when reset message received on J1939
- Sets 8 Form-C Relay Outputs
 - 2 Amp @ 30 VDC
 - General event output activates for and alarm &/or shutdown
 - Specific event output activates for programmed SPN and FMI

Optional Module TC & RTD

- Thermocouple (TC)
 - Reads 20 inputs from type J or K thermocouples
- Resistive Temperature Device (RTD)
 - Scans 8 inputs from platinum RTD sensors
 - Sensor type 2, 3, or 4-wire RTD
 - Sensor resistance of 100 ohms
 - Temperature coefficient configurable for 5 types of platinum

Thermocouple Module 234-1644 RTD Module 234-1645 Mating Plugs 9X-0141

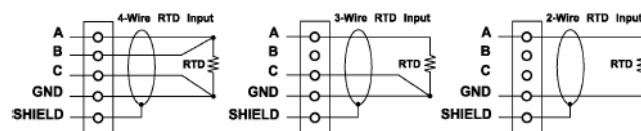
Power and Communications



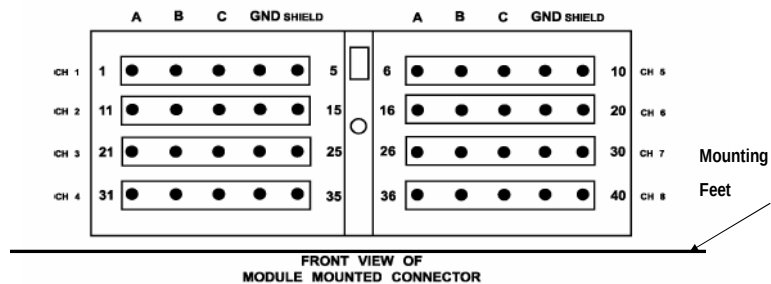
CAT® Global Manpower Development

Thermocouple & RTD

Typical Connections – RTD Module:

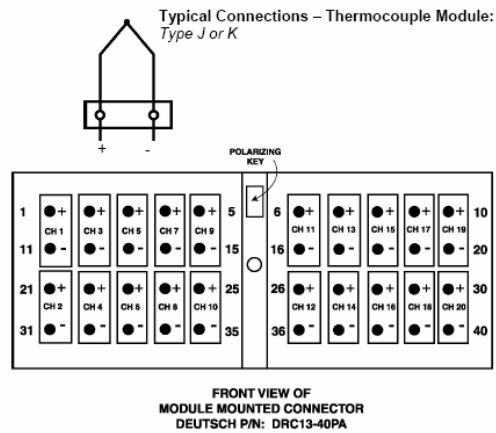


RTD MODULE - PIN OUT



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Thermocouple



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Optional Module TC & RTD

- Diagnostics
 - Open/Short circuits in sensors
 - Over/Under temperature warnings and shutdowns (set points configurable with Cat Service Tool)
 - Broadcasts data on J1939
 - Stores 20 diagnostic log entries in non-volatile memory
- EMCP3 displays info and performs engine shutdown

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Thermocouple Setup

Cat Electronic Technician - Configuration

File View Diagnostics Information Service Utilities Help

Available ECM(s)

- Thermocouple Module #1
 - ECM Identification Parameters
 - Thermocouple Input # 1
 - Thermocouple Input # 2
 - Thermocouple Input # 3
 - Thermocouple Input # 4
 - Thermocouple Input # 5
 - Thermocouple Input # 6
 - Thermocouple Input # 7
 - Thermocouple Input # 8
 - Thermocouple Input # 9
 - Thermocouple Input # 10
 - Thermocouple Input # 11
 - Thermocouple Input # 12
 - Thermocouple Input # 13
 - Thermocouple Input # 14
 - Thermocouple Input # 15

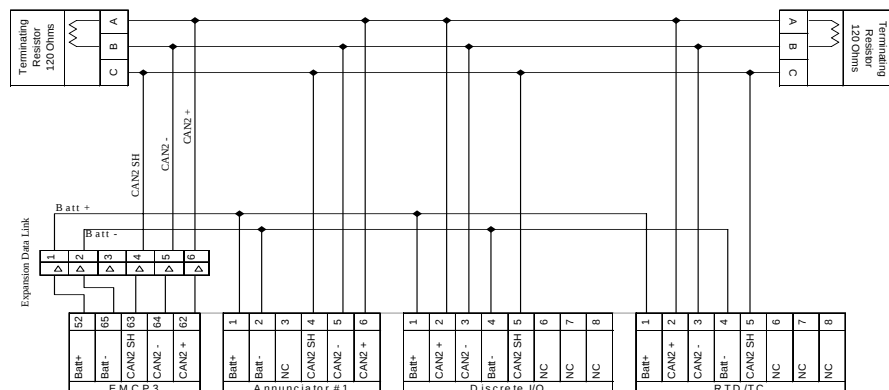
Description	Value	
ECM Identification Parameters		
Thermocouple Input # 1		
Thermocouple Input #1 Sensor Type Configuration	K-type	
Temperature Input #1 Suspect Parameter Number	1124	
Temperature Input #1 High Temperature Shutdown Event Threshold	401	Deg F
Temperature Input #1 High Temp Shutdown Event Notification Delay Time	10	Sec
Temperature Input #1 High Temperature Warning Event Threshold	356	Deg F
Temperature Input #1 High Temperature Warning Event Notification Delay Time	10	Sec
Temperature Input #1 Low Temperature Warning Event Threshold	-4	Deg F
Temperature Input #1 Low Temperature Warning Event Notification Delay Time	10	Sec
Thermocouple Input # 2		
Thermocouple Input # 3		
Thermocouple Input # 4		
Thermocouple Input # 5		
Thermocouple Input # 6		

Random Wound Generators use Thermocouples and Form Wound use RTD's

CAT Global Manpower Development

Optional Module Wiring CAN2

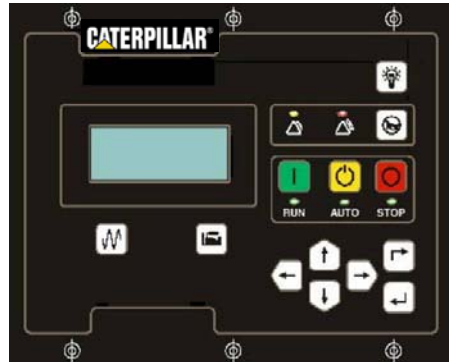
134-2540



CAT Global Manpower Development

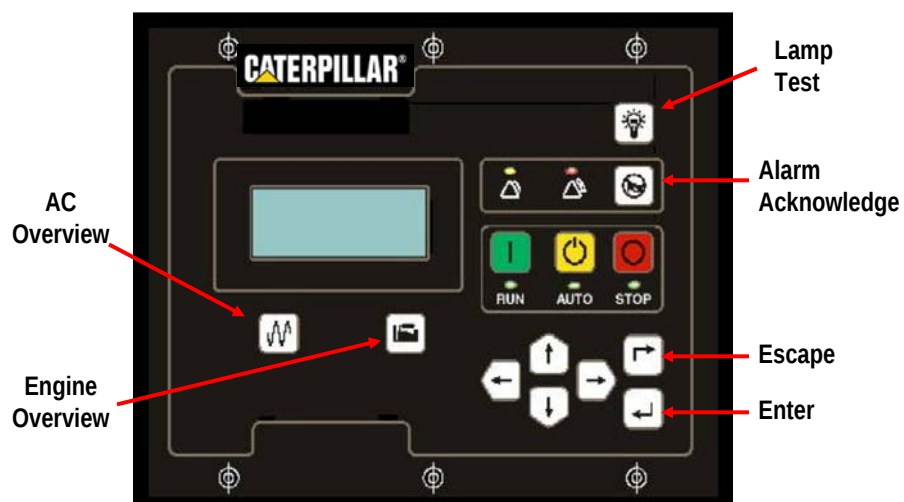
Display Functions

- Navigation Keys
- Password Entry
- Event Viewing & Clearing
- Setpoint programming



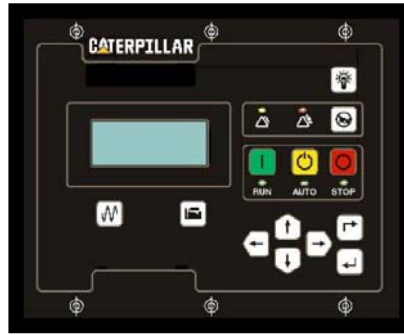
CAT® Global Manpower Development

Navigation Keys



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Navigation Keys (Cont.)



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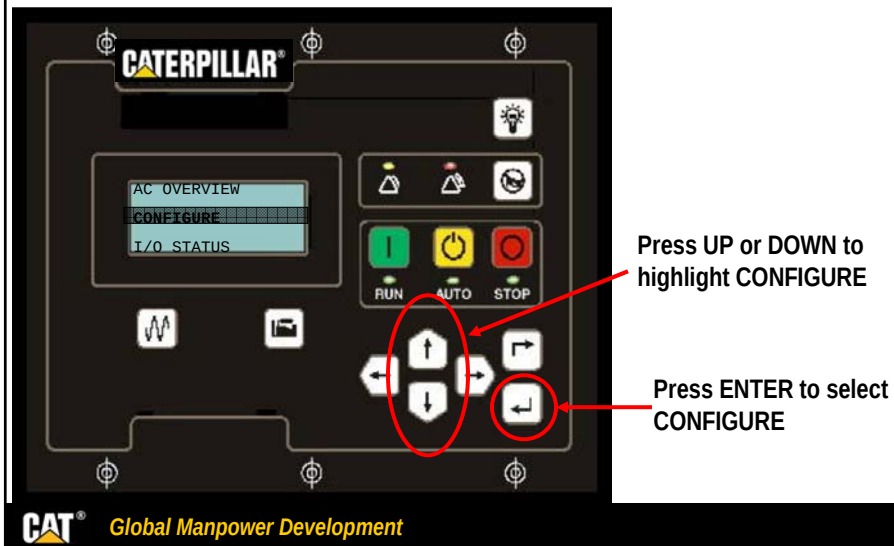
Password Entry

- Level 1 for customer
- Level 2 for technician to program all set points
- Level 3 for resetting hours and energy meters (call Caterpillar for password)
- Passwords time out in 10 min. after last keystroke and need to be disabled during service

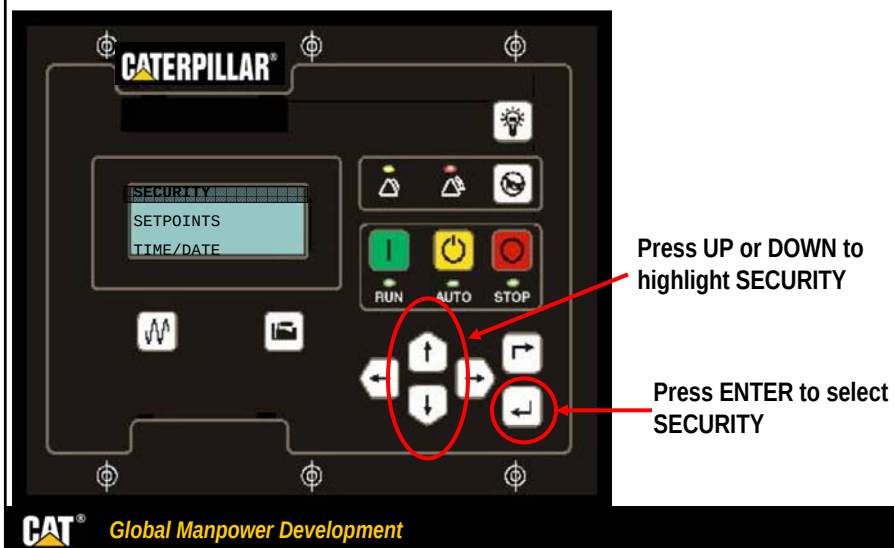
NOTE: If no password has been entered, the control defaults to level 2 access.

CAT® Global Manpower Development

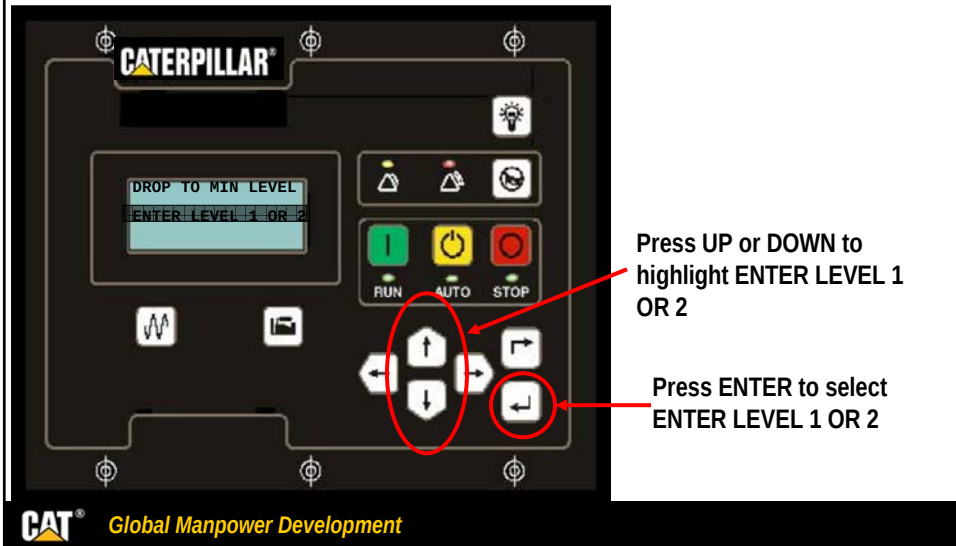
Password Entry



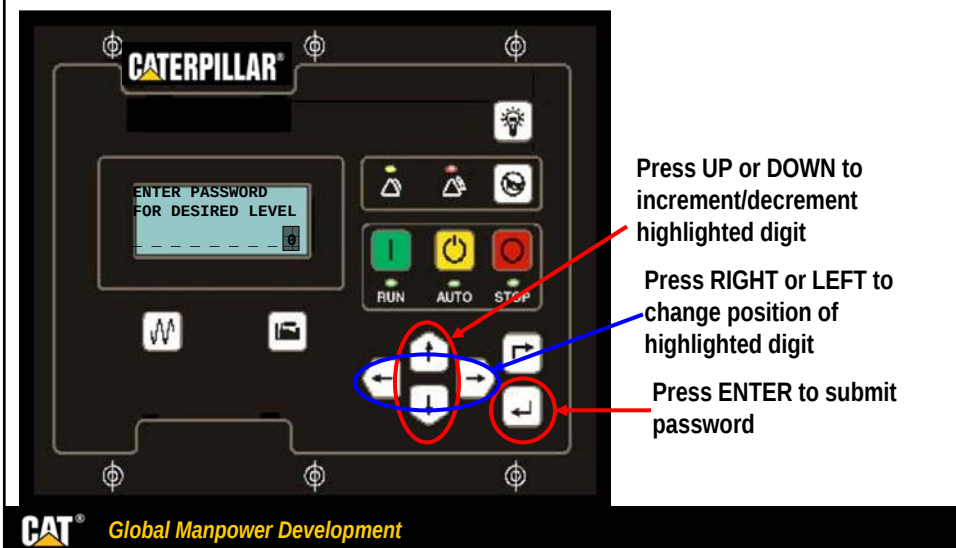
Password Entry



Password Entry



Password Entry



Password Entry

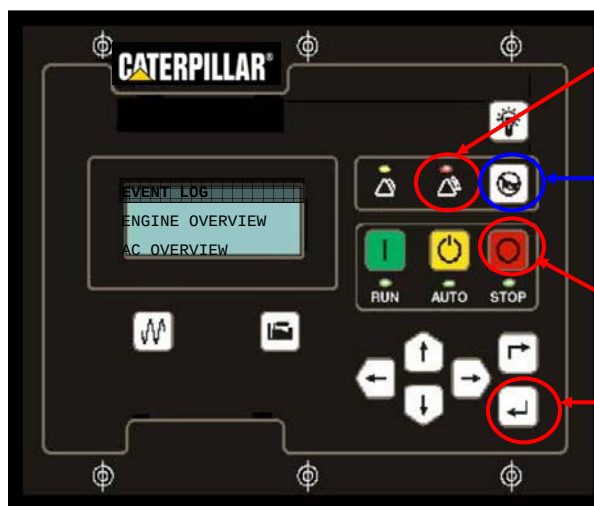
- Password length
 - Maximum 16 digits
 - Minimum 1 digit
 - Disabled when 0
- EMCP3 displays padlock if level too low to change parameter

Password Levels

- | | |
|-----------------------|----------------------------|
| 1: Drop to Min Level | 4: Change Level 1 Password |
| 2: Enter Level 1 or 2 | 5: Change Level 2 Password |
| 3: Enter Level 3 | 6: Change SCADA Password |

CAT® Global Manpower Development

Event Viewing & Clearing



Flashing red light is unacknowledged shutdown event

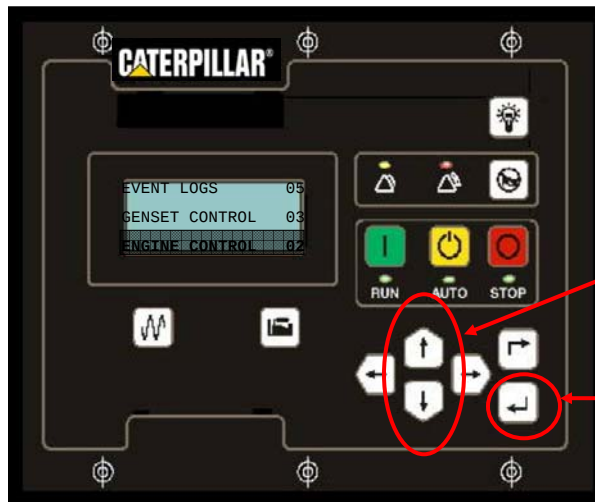
Press ALARM ACKNOWLEDGE to silence horn and stop flashing

Press STOP to shut down engine

Highlight EVENT LOG and press ENTER

CAT® Global Manpower Development

Event Viewing & Clearing

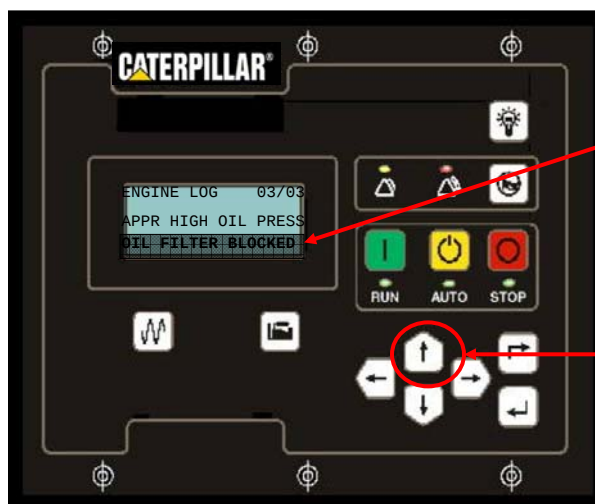


Select ECM

Press ENTER to view event log

CAT® Global Manpower Development

Event Viewing & Clearing

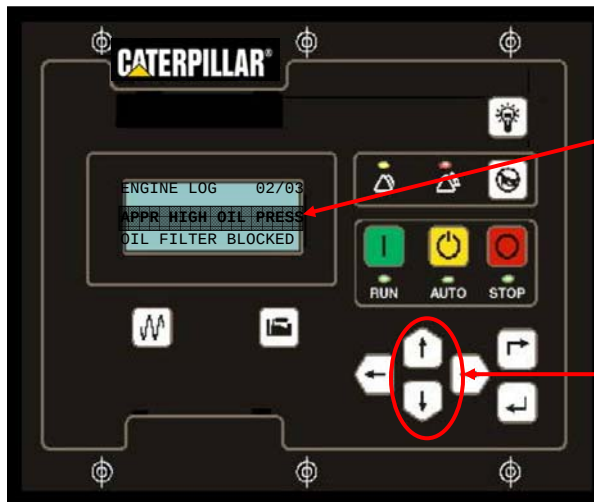


Fault 3 of 3 is Oil filter blocked

Scroll up for previous event

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Event Viewing & Clearing

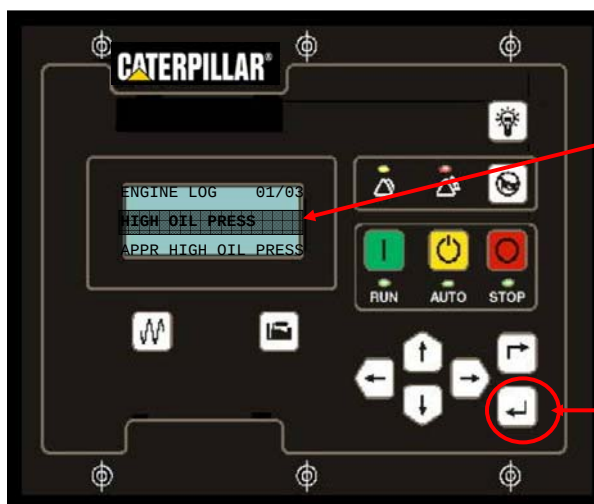


Fault 2 of 3
Approaching High Oil
Pressure

Scroll up or down for
other events

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Event Viewing & Clearing

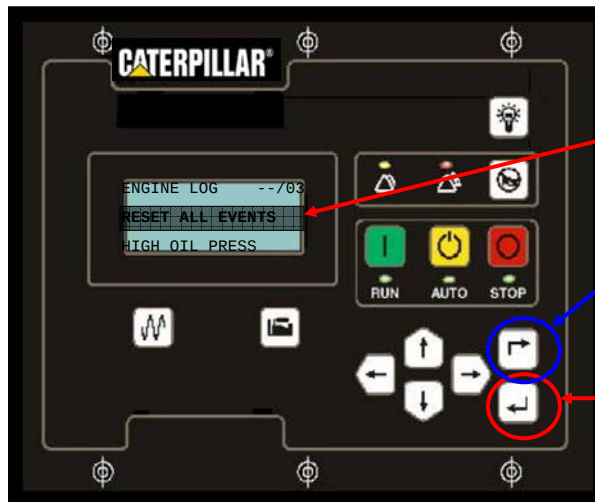


Fault 1 of 3 High Oil
Pressure

After condition has
been repaired, Press
ENTER

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Event Viewing & Clearing



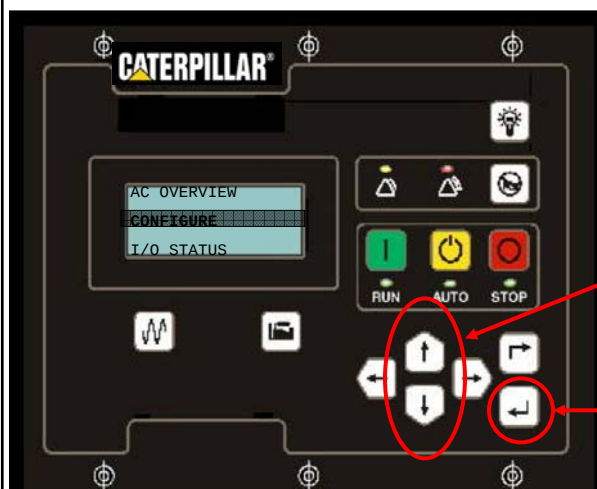
RESET ALL EVENTS will be highlighted if condition repaired and control in STOP

Press ESCAPE twice to return to main menu

Press ENTER to clear fault and turn off shutdown light

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Setpoint Programming

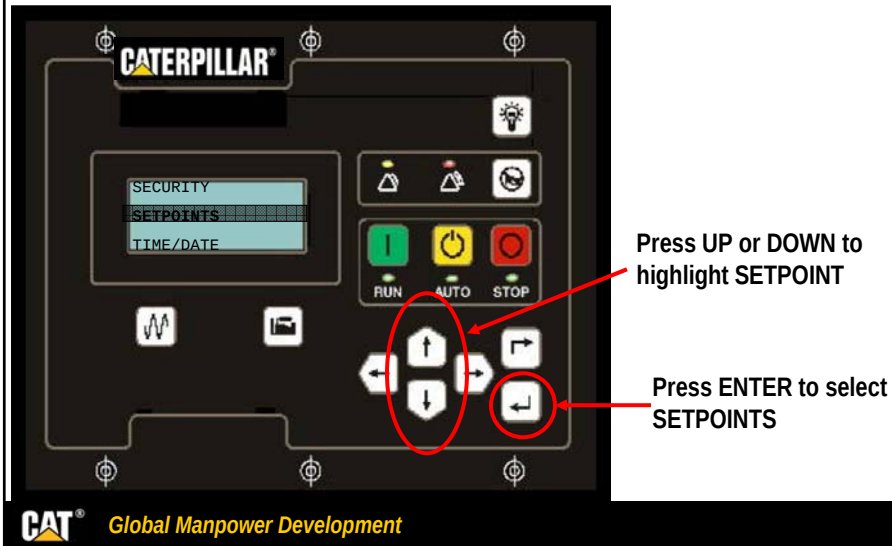


Press UP or DOWN to highlight CONFIGURE

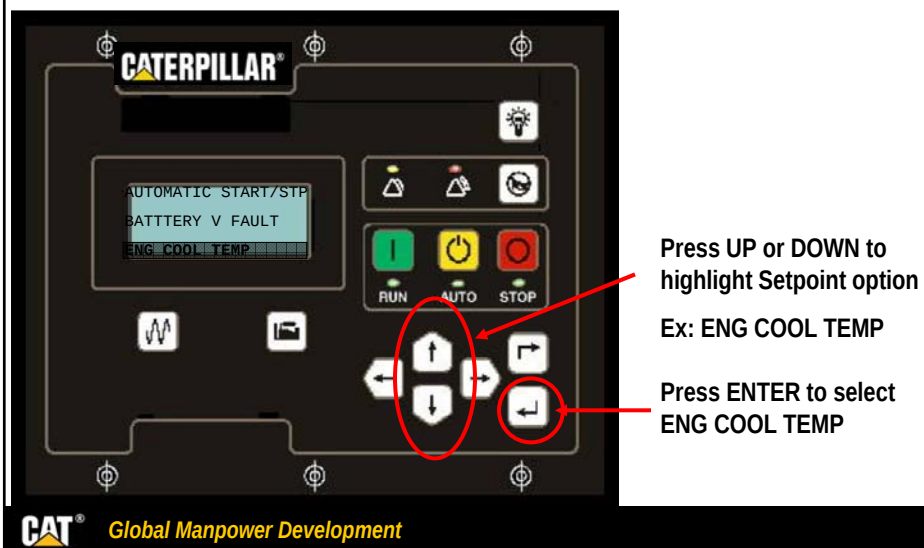
Press ENTER to select CONFIGURE

CAT® Global Manpower Development

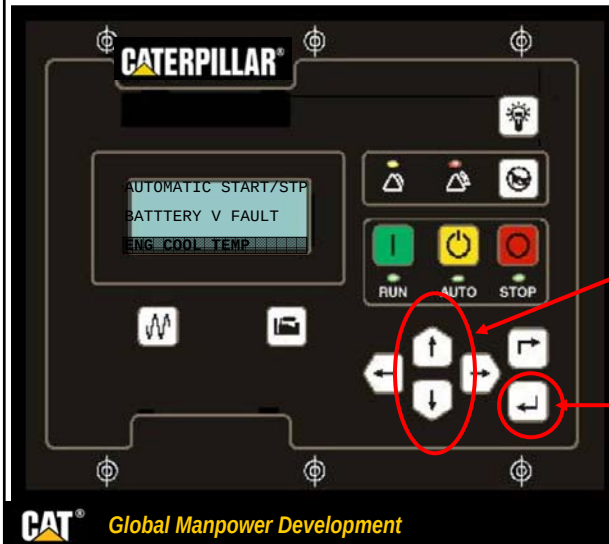
Setpoint Programming



Setpoint Programming



Setpoint Programming



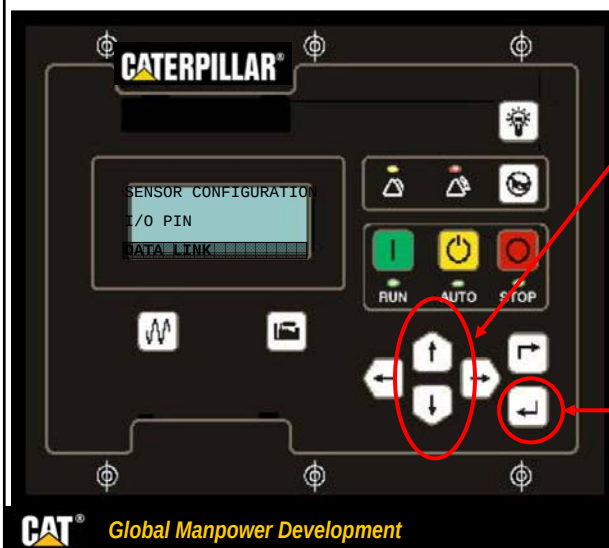
Press UP or DOWN to highlight Setpoint option

Ex: ENG COOL TEMP

Press ENTER to select ENG COOL TEMP

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Setpoint Programming



Press UP or DOWN to choose sensor signal source

ADEM3 or ADEM 4 uses DATA LINK

All other gensets use I/O PIN

Press ENTER to select DATALINK

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Launch SIS WEB

- Select "Downloads"

ALTONFER INC. **CAT Service Information System** Shutdown SIS

EQUIPMENT - (View equipment information)
 < Make: NO EQUIPMENT SELECTED

Product Identification

Type serial number or prefix:
 Arrangement:

[Select Equipment Model](#)

Highlights

- ▶ New Information
- ▶ Frequently Asked Questions
- ▶ **Downloads**

Additional Service Information

- ▶ Engine Technical Marketing

Access Methods - Product ID Required

Parts Search:
 search by part number or keyword

- ▶ Product Structure
- ▶ Document Structure
- ▶ SMCS Code
- ▶ Basic Search
- ▶ As Shipped Engine
- ▶ Filter Search
- ▶ Remanufactured Parts Search

Access Methods - Product ID Not Required

- ▶ Advanced Full Text Search

CAT® Global Manpower Development

EMCP3 Monitoring Software

Product Identification

Type serial number or prefix:
 Arrangement:

[Select Equipment Model](#)

Highlights

- ▶ New Information
- ▶ Frequently Asked Questions
- ▶ **Downloads**

Additional Service Information

- ▶ Engine Technical Marketing Information - TMI Web
- ▶ Remanufactured Products
- ▶ Repair Option BUILDER Data
- ▶ Caterpillar Certified Rebuild
- ▶ Dealer Service Tools Catalog

Access Methods - Product ID Required

Parts Search:
 search by part number or keyword

- ▶ Product Structure
- ▶ Document Structure
- ▶ SMCS Code
- ▶ Basic Search
- ▶ As Shipped Engine
- ▶ Filter Search
- ▶ Remanufactured Parts Search

Access Methods - Product ID Not Required

- ▶ Advanced Full Text Search
- ▶ Media Search
- ▶ Similar Parts Search
- ▶ NPR
- ▶ Parts List

CAT® Global Manpower Development

Download EMCP3 Monitoring Software

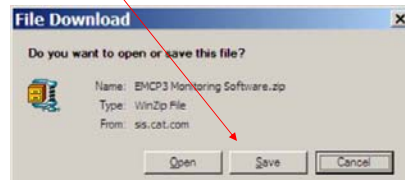
Parts Selection List		from a Switch. To download PSeL, please go to the following website: <u>https://nacd.cat.com/infocast/frames/prodsupp/pse/</u>	16/03/2006	
EMCP3 Monitoring Software	<u>EMCP3 Monitoring Software.zip</u>	The EMCP3 Monitoring Software allows the user to communicate to with a EMCP3.2 or EMCP3.3 over MODBUS. The user must have either a RS232 to RS485 converter connected to their computer, or can connect from the computer's internal modem to an onsite modem with the ability to communicate over RS485.	06/05/2005	<u>Additional Info</u>
3054 3056 MCS Marine	<u>3054 3056 MCS Marine.zip</u>	The latest CAT version utility and configuration software for 3054/3056 MCS controllers.	12/11/2005	<u>Additional Info</u>
AccuGrade 1D 2D Version 10	<u>AccuGrade 1D 2D v10.exe</u>	This is a self-extracting zip file that contains all the current production software for AccuGrade 1D 2D Version 10	22/11/2006	<u>Additional Info</u>
AccuGrade 3D Version 6.10 English	<u>AccuGrade 3D v6.10 English.exe</u>	This is a self-extracting zip file that contains all the current production software for the English AccuGrade 3D version 6.10	17/05/2006	<u>Additional Info</u>
AccuGrade 3D Version 6.10 Multilingual	<u>AccuGrade 3D v6.10 Multiling.exe</u>	This is a self-extracting zip file that contains all available language files for AccuGrade 3D version 6.10. For component firmware refer to AccuGrade 3D v6.10 English.exe	17/05/2006	<u>Additional Info</u>

Select EMCP Monitoring Software

Parts Selection List		To download PSeL, please go to the following website: <u>https://nacd.cat.com/infocast/frames/prodsupp/pse/</u>	03/16/20
EMCP3 Monitoring Software	<u>EMCP3 Monitoring Software.zip</u>	The EMCP3 Monitoring Software allows the user to communicate to with a EMCP3.2 or EMCP3.3 over MODBUS. The user must have either a RS232 to RS485 converter connected to their computer, or can connect from the computer's internal modem to an onsite modem with the ability to communicate over RS485.	05/06/20
3054 3056 MCS	3054 3056 MCS	The latest CAT version utility and	

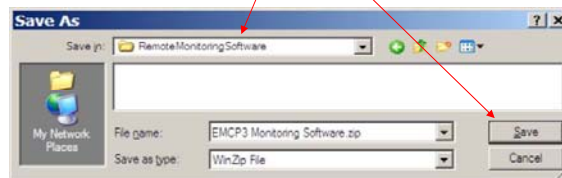
Save File

- Select Save



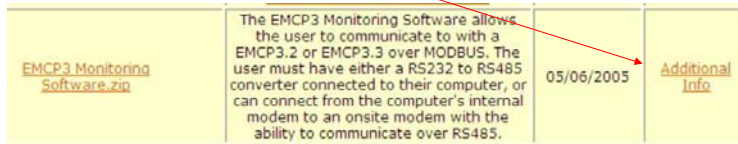
Save As

- Select an appropriate folder then click “Save”



Additional Info

- Next, select the “Additional Info” Link



EMCP3 Monitoring Software.zip	The EMCP3 Monitoring Software allows the user to communicate to with a EMCP3.2 or EMCP3.3 over MODBUS. The user must have either a RS232 to RS485 converter connected to their computer, or can connect from the computer's internal modem to an onsite modem with the ability to communicate over RS485.	05/06/2005	Additional Info
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Quick Start Guide

- Notice the notes on the next web page & then select the link for the “Quick Start Guide”. Save the file to an appropriate folder.

EMCP3 Monitoring Software

The EMCP3 Monitoring Software allows the user to communicate to with a EMCP3.2 or EMCP3.3 over MODBUS. The user must have either a RS232 to RS485 converter connected to their computer, or can connect from the computer's internal modem to an onsite modem with the ability to communicate over RS485.

The part number of the software is 276-1861-00. The default passwords are "admin" for administrator and "password" for poweruser and normaluser.

Quickstart Guide

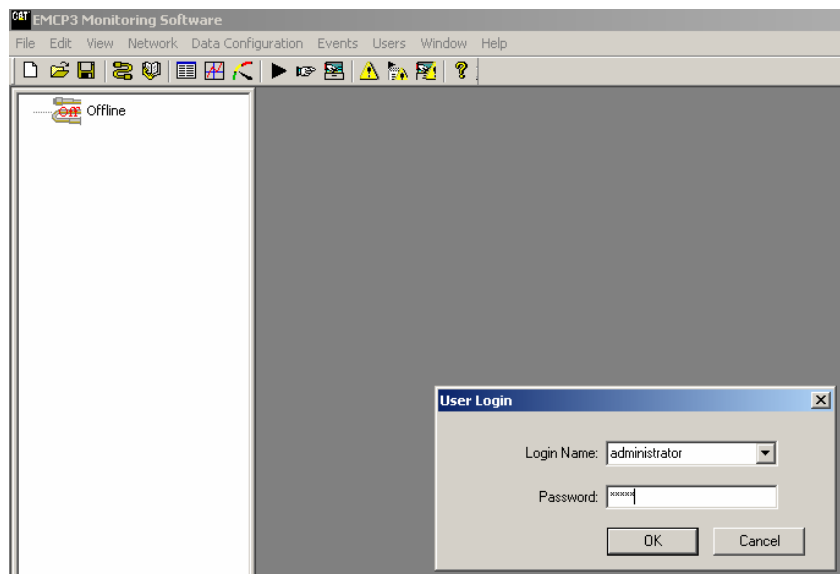
Select the link below to download the instructions in Microsoft Word format for setting up and using EMCP3 Monitoring Software to interface EMCP3.2 and EMCP3.3 genset controllers via modbus communications.

[EMCP3 monitoring software - QUICKSTART ver1_0.doc](#)

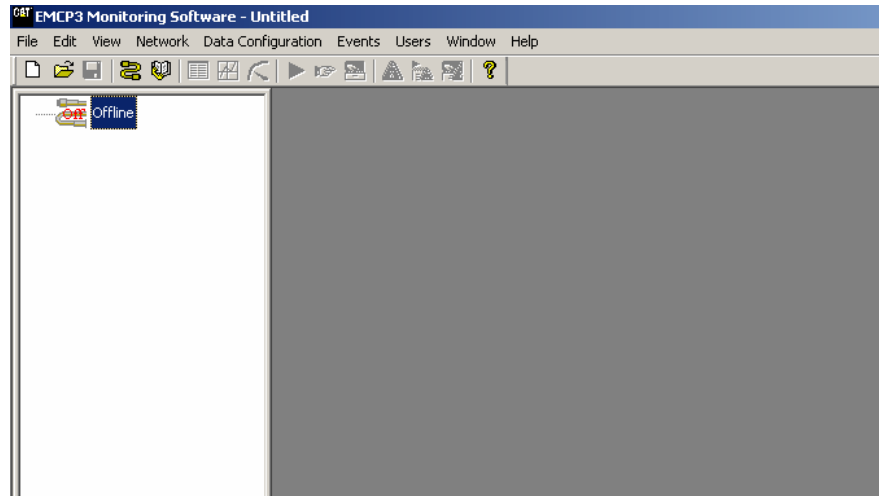
EMCP3 Monitoring Software

- The Monitoring Software has a default user interface that can be customized.
 - You must go “Off-line, close the control panel, and Edit to make changes.

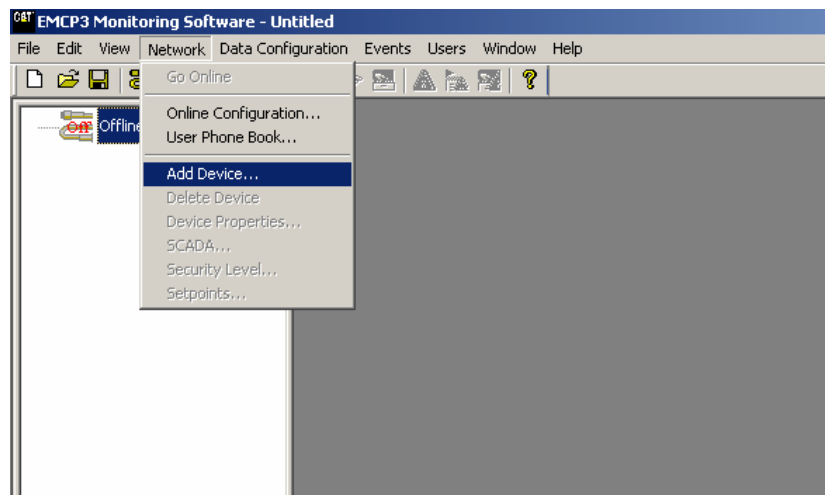
Initial Screen



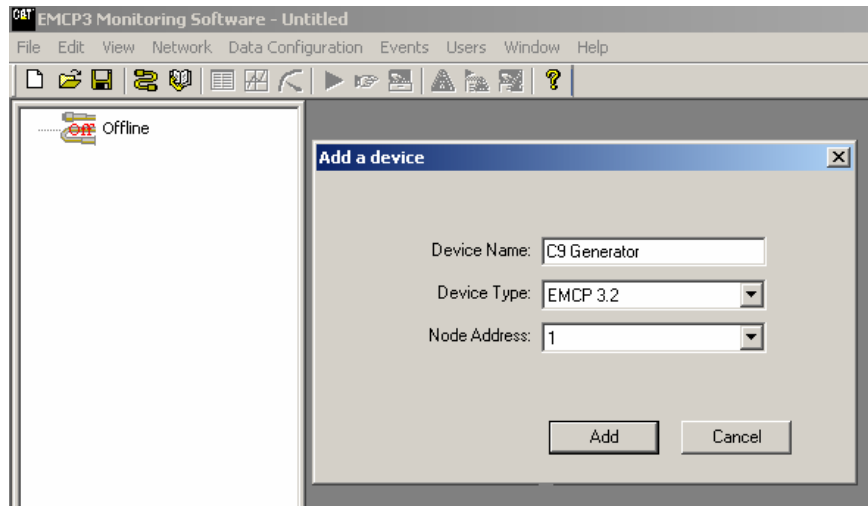
Edit/View Page



Adding A Device

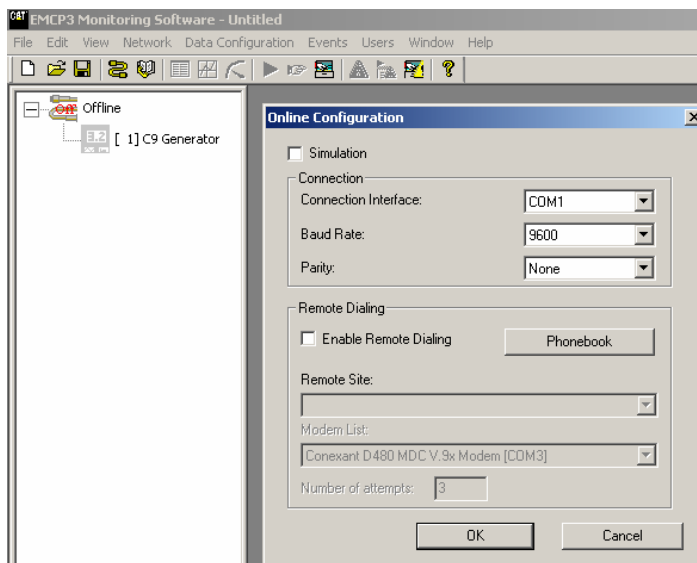


Add the Device Name



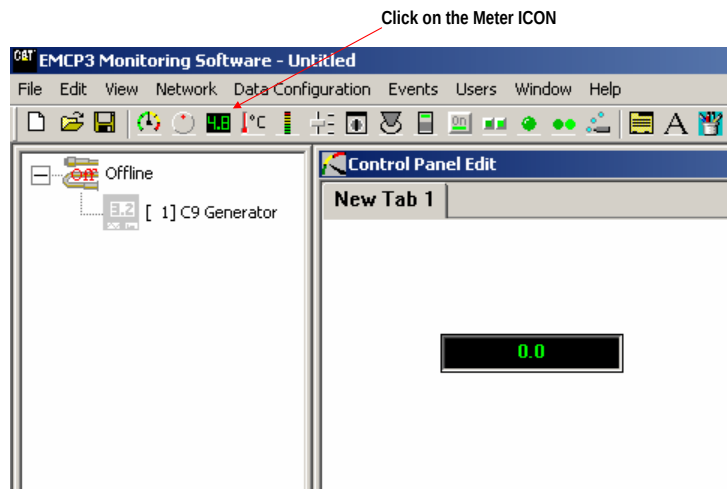
CAT Global Manpower Development

Communication Setup

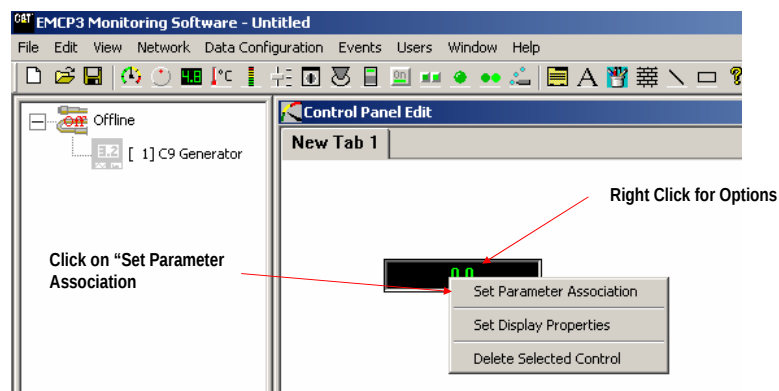


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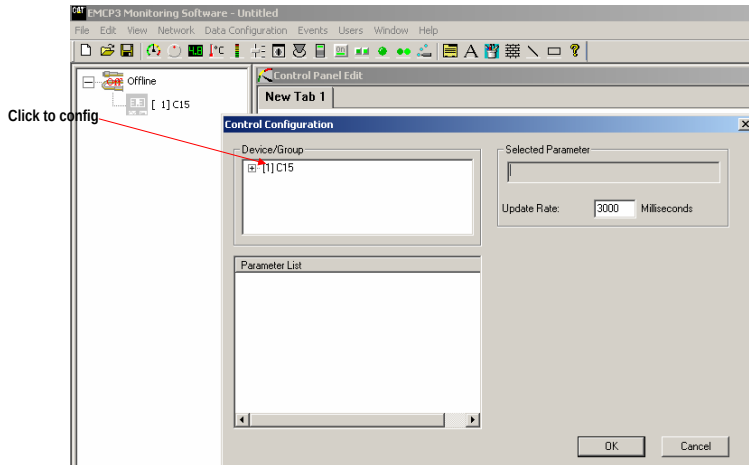
Adding A Meter



Parameter Association

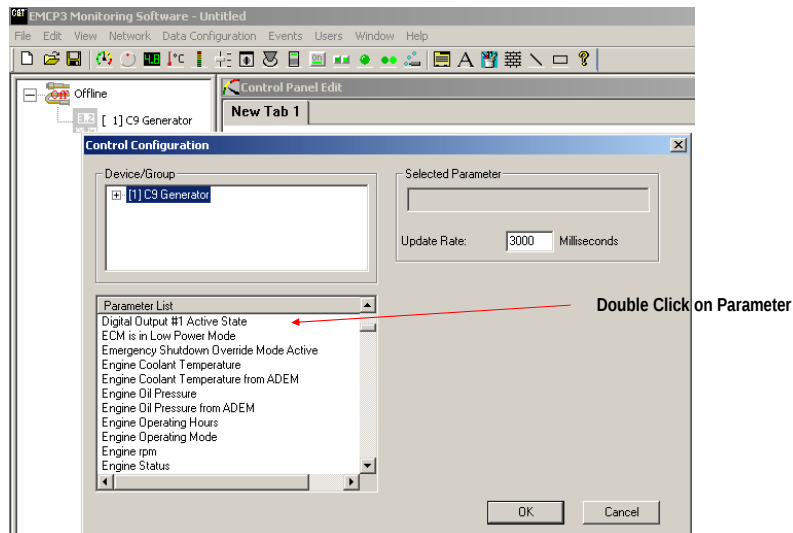


Control Configuration



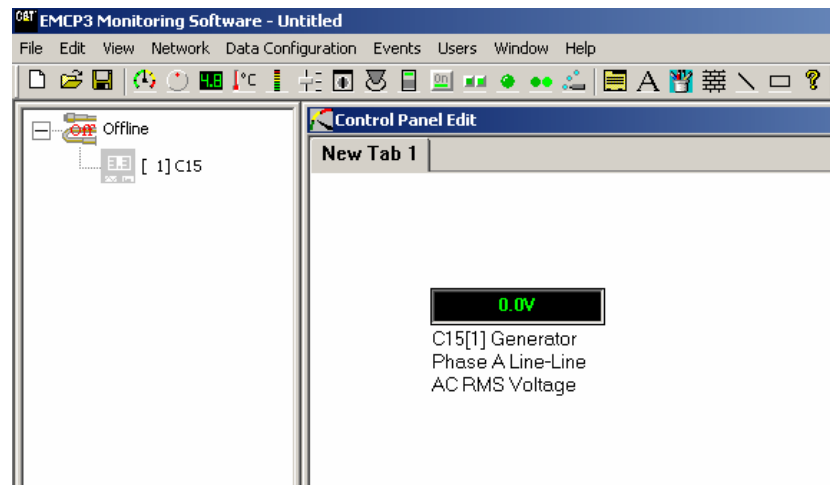
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Control Configuration

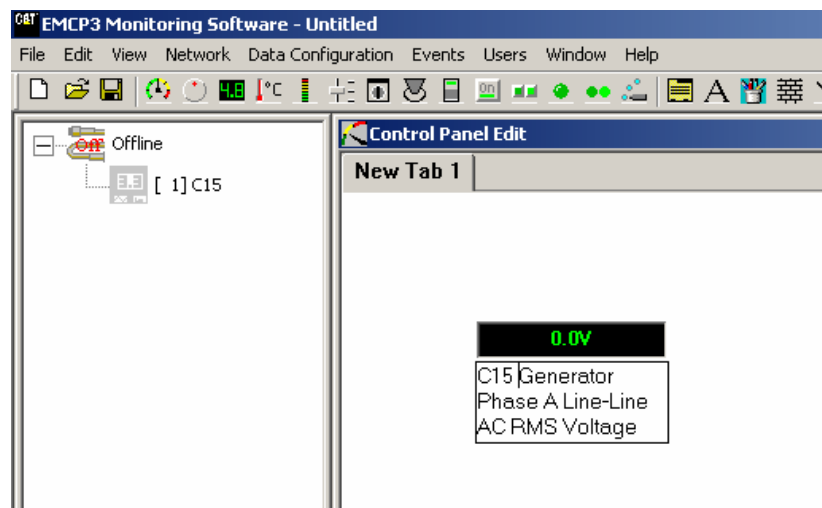


CAT® Global Manpower Development

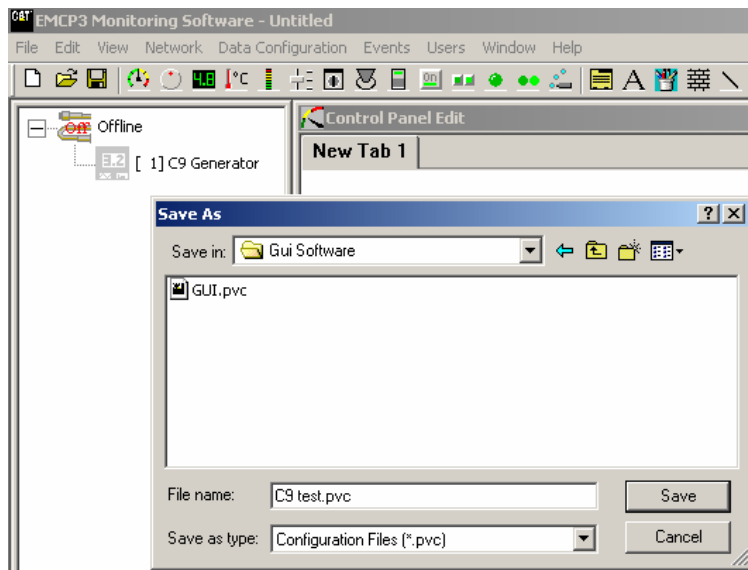
Meter With Description



Meter Description

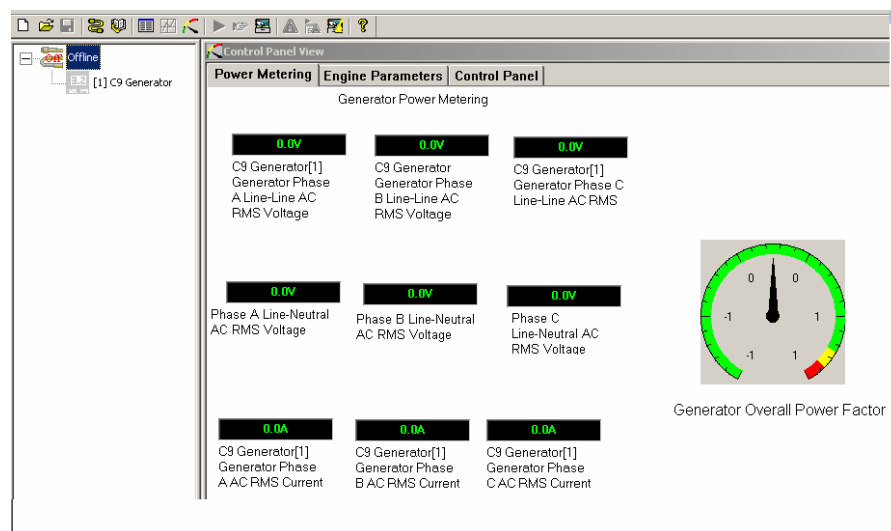


Saving the File



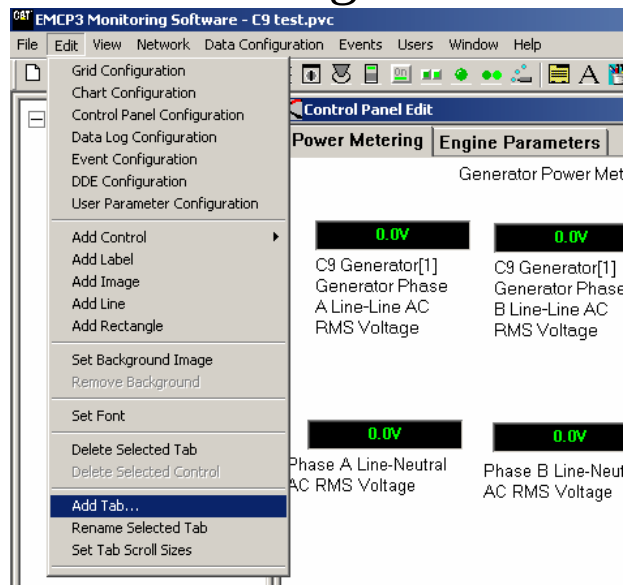
CAT® Global Manpower Development

Power Metering



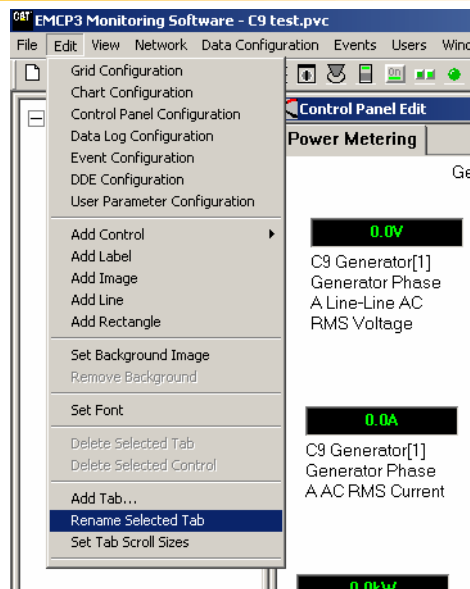
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Adding Tab



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Rename New Tab



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Parameters to Check at Start-up

- High Coolant Temp Warning & Shutdown
- Overspeed Shutdown
 - Check setting in Woodward L-Series governors on the Olympian product.
- Always check voltage setpoint at startup



Global Manpower Development

EMCP3 Configuration File

Most new generator packages have the ECM Replacement Files saved on SIS Web. The following is a procedure for retrieving those files



Global Manpower Development

Factory Configuration

SIS website

Website address -
<https://sis.cat.com>

Select service software files



Select ECM Replacement Files

Select ECM Replacement Files

- Select File Type
- ▶ Flash Files - ECM Software Files
 - ▶ Remanufactured Injector Trim Files - Remanufactured Injector Software Files
 - ▶ Injector Trim Files - Injector Software Files
 - ▶ Cylinder Files - Cylinder Software Files
 - ▶ Valve Files - Valve Software Files
 - ▶ ECM Replacement Files - As Shipped Configuration Software Files

Enter Package Serial Number

The screenshot displays the CAT Service Information System (SIS) web interface within a Microsoft Internet Explorer browser. The browser's address bar shows the URL: https://sis.cat.com/sisweb/servlet/cat.dcs.sis.controller.CSSISFileSearchServlet?searchfield1=SXC00501&searchfield1_operator=EQ&searchfield1_joinType=AND. The page title is "Service Software Files - ECM Replacement Files Download". The interface includes a "Go To:" search bar and a "Shutdown SIS" button. The main content area is divided into two sections. The left section, titled "ECM Replacement Files Download", contains a "Serial Number" field with the value "SXC00501" and a "Search" button. Below this is a "Change File Type" dropdown menu set to "6) ECM Replacement Files". The right section, titled "To download an ECM replacement file:", provides instructions: "Place the cursor over the appropriate file" and "Press the left mouse button to save the file". Below these instructions is a section titled "ECM Replacement Files Available for Download" with a "Filename" field containing the text "SXC00501_GENERATOR SET-GENERATOR CONTROLLER_1_20060522183708.XML". The bottom of the page features the CAT logo and the text "Global Manpower Development".

Dealer Solution Network

- If the EMCP3 replacement file is not on SIS web ask your TC to contact the DSN with the package serial No.