



**PCP**

# **Troubleshooting Guide**

**Table Of Contents**

**abs ref..... 7**

**AMB thermal switch..... 8**

**anybus 1 ..... 7**

**armature curr error ..... 9**

**auto flt reset event ..... 10**

**auto mode event..... 12**

**auto off jog stop ..... 13**

**backflush event ..... 10**

**background watchdog..... 14**

**br phase loss fault ..... 15**

**bus over voltage..... 16**

**bus reg tol time..... 17**

**bus reg tol vel ..... 17**

**bus undervoltage ..... 18**

**calendar event ..... 10**

**Callout ..... 10**

**casing prs ..... 19**

**casing temp ..... 20**

**circuit breaker..... 21**

**communication error ..... 22**

**current leakage..... 23**

**db thermal ..... 24**

**dh tool current..... 25**

**dh tool voltage..... 26**

**discharge prs..... 27**

**dwell end event ..... 10**

**dwell event..... 10**

**dynamic brake limit..... 28**

**dynamic brake ..... 29**

**ehalt..... 7**

**emergency shutdown ..... 30**

**engine temp..... 31**

**external stop..... 32**

**external trip..... 7**

**fast overcurrent..... 33**

**fbk circuit breaker ..... 9**

**field current loss ..... 9**

**firmware error ..... 34**

flow variance.....	35
fluid flow.....	36
fluid temp .....	37
follow marker .....	38
follow pg loss a .....	38
follow pg loss b .....	38
follow pg loss m .....	38
gas flow .....	39
gas leak .....	40
gas srch done event .....	41
gate driver dsat .....	42
gate driver U- .....	43
gate driver U+ .....	43
gate driver V- .....	43
gate driver V+ .....	43
gate driver W+ .....	43
gate driver W- .....	43
gauge event 2 .....	10
gauge event .....	10
generator.....	44

ground fault ..... 45

hand mode event..... 46

high prs ..... 47

high speed ..... 48

high torque..... 49

HS thermal switch ..... 50

identification error ..... 51

input/matrix overload..... 52

intake prs ..... 53

Inv thermal ewarn..... 7

inverter rms..... 54

ireg shutoff..... 55

level test event ..... 10

load defaults ..... 56

Load encoder error ..... 38

load fbk loss ..... 38

load marker ..... 38

load pg loss a ..... 38

load pg loss b ..... 38

load pg loss m ..... 38

load runaway ..... 38

low prs flow..... 57

low rod load ..... 7

low speed ..... 58

low torque ..... 59

low voltage supply ..... 60

max fault event ..... 10

modbus comm error ..... 61

modbus rtu comm loss..... 62

motor blower off ..... 7

motor fbk loss..... 38

motor marker ..... 38

motor pg loss a..... 38

motor pg loss b ..... 38

motor pg loss m ..... 38

motor rms ewarn ..... 7

motor rms limit ..... 63

motor runaway..... 64

motor temp..... 65

motor thermal switch..... 7

mtr ovid latched ..... 66

mtr ovid ..... 66

mtr uld latched..... 67

mtr uld ..... 67

negative torque ..... 68

non volatile mem ..... 69

nvmem battery ..... 70

obsync data error ..... 7

obsync receive ..... 7

operator reset event..... 71

optomux timeout ..... 7

output phase loss ..... 72

output/sin overload ..... 73

overrun ..... 74

overspeed trip..... 7

password event ..... 10

pos error ewarn ..... 7

pos error ..... 75

power ridethru end..... 11

power ridethru start ..... 11



power up event ..... 11

Process Wdt..... 76

pstandby event ..... 11

pump diffl prs ..... 77

pump forward event..... 11

pump off event..... 11

pump off ..... 11

pump reverse event ..... 11

pumper visit ..... 11

reference loss ..... 7

remote event ..... 78

reservoir low flow..... 11

rotaflex stop..... 7

rtc takeover ..... 7

rtu master err ..... 79

rtu slave err ..... 80

security breach..... 81

ssi receive ..... 7

start event ..... 11

stop event ..... 11

sync data error .....	7
sync receive.....	7
tank level .....	82
tank lvl input .....	83
thermal switch ewarn.....	7
torque reg error .....	84
tubing prs.....	85
tubing temp.....	86
UEdit Fault .....	87
unknown fbk module .....	7
user 1.....	88
user 2.....	88
user 3.....	88
user A .....	89
user B .....	89
user event 1 .....	90
user event 2 .....	90
vibration .....	91
vibrtn x .....	92
vibrtn y .....	92

**watchdog timer ..... 93**  
**water cut..... 94**  
**well id event..... 11**

**abs ref**

**anybus 1**

**ehalt**

**external trip**

**Inv thermal ewarn**

**low rod load**

**motor blower off**

**motor rms ewarn**

**motor thermal switch**

**obsync data error**

**obsync receive**

**optomux timeout**

**overspeed trip**

**pos error ewarn**

**reference loss**

**rotaflex stop**

**rtc takeover**

**ssi receive**

**sync data error**

**sync receive**

**thermal switch ewarn**

**unknown fbk module**

These faults are not currently used in this application and should never occur. If one of them is displayed it means that there is something set incorrectly in the Setup Values, or the DSP Control Module has a problem.

**Possible Causes**

**Remedies**

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause these faults to be displayed. Load a valid Archive into the drive.

Defective DSP Control Module

Replace the DSP Control Module and load a valid Archive into the drive.

**AMB thermal switch**

This fault indicates that the ambient temperature inside the drive enclosure has exceeded 73 deg C. This can be caused if the internal cabinet temperature is too high.

**Possible Causes**

**Remedies**

Enclosure Circulating Fan Failure (if used)

If the enclosure has circulating fans verify that they are operating properly.

Debris Or Contamination Restricting Airflow

Clean or replace any filters to ensure proper airflow.

Heat Exchanger Failure (if used)

If the enclosure has a heat exchanger verify that it is operating properly.

Counterbalance Or Brake Problem (if used)

If there is a counterbalance or brake on the unit verify that it is operating properly.

Possible Mechanical Problem

If the drive is using more current due to a mechanical drag this can produce more heat. Check the Dynacard

and Torque charts to look for a mechanical problem.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Defective Thermal Switch On DSP  
Control Module

Replace the DSP Control Module and load a valid Archive into the drive.

**armature curr error**

**fbk circuit breaker**

**field current loss**

These faults are for a DC motor. Since DC motors are almost never used in pumping these faults should never occur.

**Possible Causes**

**Remedies**

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Defective DSP Control Module

Replace the DSP Control Module and load a valid Archive into the drive.

Defective Drive

Replace the Drive.

#### **auto flt reset event**

The motor will automatically attempt to restart after most fault conditions provided the corresponding fault **restart delay** and **restart attempts** parameters are non-zero. The **fault restart delay** parameter on the Fault/Event Menu defines the dwell time between restart attempts. The **restart attempts** parameter on the Fault/Event Menu defines the number of times it will attempt to restart. Some specific faults have dedicated “attempt” and “restart delay” parameters. When this event occurs check the Fault History to see if there is a recurring fault that needs to be corrected.

#### **backflush event**

This event indicates that drive is performing backflush operation. No operator intervention required.

#### **calendar event**

If the Calendar Controller is enabled in the Features List Menu this event indicates that the Calendar Controller has either started or stopped the operation of the pumping unit to perform the requested operation. No operator intervention required.

#### **callout**

This event latches important informational data to the event history. Usually indicates the possible need for a service call to the well site. Used in conjunction with GMC® System subscription e-mail services. Check the Fault History to see if there is a recurring fault that needs to be corrected.

#### **dwell end event**

This event indicates that the pumping unit has resumed normal operation after the POC Controller had reduced speed to *POC dwell* spm. Set up the POC Controller in the Control Menu.

#### **dwell event**

This event indicates that the pumping unit has been temporarily slowed by the POC Controller to *POC dwell* spm. Set up the POC Controller in the Control Menu.

#### **gauge event**

#### **gauge event 2**

There is a gauging data-logger that latches every 24 hours at gauge time. This message tells you that it has happened. No operator intervention required.

#### **level test event**

This event shows that the drive is performing a Well ID and Fluid Level test. If these options have been enabled in the Setup Values the test will run automatically at preset times. No operator intervention required.



### **max fault event**

This Event indicates that there are no more auto-restarts allowed. The allowable restart attempts have been used. Operator intervention required. Check the Fault History to see if there is a recurring fault that needs to be corrected.

### **password event**

If drive is password protected this event detects password level entry. This Event is logged every time someone enters the password.

**power ridethru start**

**power ridethru end**

If the Backspin Power Ride Thru control feature is enabled the drive uses the energy stored in the fluid column to maintain control of the pump during power loss. This event indicates that the drive performed this function. No operator intervention required unless this event is happening often. Check the fault history and correct the power problem if needed.

**power up event**

This Event indicates that drive has been powered up after a shutdown for any reason. Check the Fault History to see if there is a recurring problem with the input power to the unit.

**pstandby event**

This Event indicates that the pumping unit has been temporarily stopped by the POC Controller and will restart once POC off time has expired. Set up the POC Controller in the Control Menu.

**pump off**

This event indicates that there is fluid at the pump but the pump is not filling completely.

**pump forward event**

This indicates that pump is running at forward direction.

**pump off event**

This event indicates that a pump off state was detected but has recovered.

**pump reverse event**

This indicates that pump is running at reverse direction.

**pumper visit**

This event indicates that the pumper/service technician has logged pumper visit code in the Maintenance Menu

**reservoir low flow**

This event indicates that the pumping unit has detected a low reservoir flow condition.

**start event**

This event indicates that the motor has started. Check the Fault History to see if there is a recurring fault that needs to be corrected.

**stop event**

This event indicates that the motor has stopped. Check the Fault History to see if there is a recurring fault that needs to be corrected.

**well id event**

If the Well ID Test has been set to run periodically this event indicates that a Well ID Test has been performed.

**auto mode event**

The HAND / OFF / AUTO switch has been moved to the auto position. If the operator changed the switch there is no problem. If not follow the list below.

**Possible Causes**

**Remedies**

Loose Or Damaged Wiring

Verify that the wiring from the HAND / OFF / AUTO switch is good.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Defective DSP Control Module

Replace the DSP Control Module and load a valid Archive into the drive.

### auto off jog stop

If one of the digital inputs is set to AUTO OFF JOG SWITCH this fault indicates that the Input became TRUE. Set up logic polarity, fault detection delay and restart delay in the Digital I/O Menu.

#### Possible Causes

#### Remedies

Input Became TRUE

If this Input is being used check the wiring and the device sending this signal to the Drive to verify that it did send the Input.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Defective DSP Control Module

Replace the DSP Control Module and load a valid Archive into the drive.

## **background watchdog**

This fault indicates that the software did not execute the proper instruction sequence. A defective inverter control module is a possible cause of repeated background watchdog faults.

### **Possible Causes**

Setup Values Changed Or Corrupted

Defective DSP Control Module

### **Remedies**

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Replace the DSP Control Module and load a valid Archive into the drive.

### **br phase loss fault**

The drive detects excessive voltage fluctuations on the DC bus. This fault is often caused by a loss, imbalance or voltage sag on one or more phases of incoming power.

#### **Possible Causes**

#### **Remedies**

Loss Of Incoming Phase

Check incoming power for correct voltage, and balance between phases.

Grounding Problem

Verify the integrity of the systems ground connections.

Defective Power Board Or IPM Module

Check and / or replace the Power Board or IPM module.

Defective Drive

Replace the Drive.

## **bus over voltage**

This fault indicates that the DC bus voltage has exceeded the maximum allowable limit. This can occur if the drive stops too quickly or the input power is too high. Bus overvoltage occurs at 800 VDC, in 460 volt drives, at 400 VDC in 230 volt drives, and at 1000 VDC in 600 volt drives.

### **Possible Causes**

### **Remedies**

Excessive Voltage On Input

Check the input voltage. If it is too high it may be necessary to add an isolation transformer to step it down.

DB Resistor Problem

Check for proper resistance, and wattage in the Dynamic Brake resistor assembly. Check that all connections are tight.

Possible Bus Capacitor Failure

Check for proper capacitance in the DC Bus.

Deceleration Time Too Short

Increase the "Decel time" in the Drive Menu to reduce the voltage regenerated into the DC Bus.

### **bus reg tol time**

### **bus reg tol vel**

These faults are only enforced when using the bus regulator. If the motor is not able to decelerate quickly enough the regulator will start to time until the bus reg tol time value is met, then execute a BUS REG TOL TIME fault.

If the feedback velocity exceeds the commanded speed by the bus reg tol vel value the BUS REG TOL VEL fault will be displayed. If there is another Bus fault shown troubleshoot that fault first. If not follow the list below.

#### **Possible Causes**

#### **Remedies**

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Defective DSP Control Module

Replace the DSP Control Module and load a valid Archive into the drive.



## **bus undervoltage**

This fault indicates that the DC bus voltage has exceeded the minimum allowable limit. For 480VAC drives this value is 360 DC volts and for 230VAC drives, this value is 160 DC volts.

### **Possible Causes**

Low Voltage On Input

Loose Sense Wire

Damaged Ribbon Cable

Defective Gate Driver Module

Defective Or Damaged DSP Interface

Defective DSP Control Module

### **Remedies**

Check the input voltage. If it is too low it may be necessary to add an isolation transformer to step it up.

Verify that the sense wire to the DC bus, or Gate Driver Module is secure.

Replace the ribbon cable between the DSP Control Module and the Gate Driver Module.

Replace the Gate Driver Module.

Replace the DSP interface board (above 150HP)

Replace the DSP Control Module and load a valid Archive into the drive.

## **casing prs**

If an analog Casing Pressure sensor is used this fault indicates that the sensor reading has exceeded the fault or warning limits set in the Signals In Menu.

### **Possible Causes**

Flow Valve Closed

Defective Casing Pressure Sensor

Setup Values Changed Or Corrupted

Defective DSP Control Module

### **Remedies**

Verify proper valve positions.

If this analog input is being used check the wiring and the Casing Pressure sensor to verify that it is operating properly.

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Replace the DSP Control Module and load a valid Archive into the drive.

## **casing temp**

If an analog Casing Temperature sensor is used this fault indicates that the sensor reading has exceeded the fault or warning limits set in the Signals In Menu.

### **Possible Causes**

Defective Casing Temperature Sensor

Setup Values Changed Or Corrupted

Defective DSP Control Module

### **Remedies**

If a Casing Temperature sensor is being used check the wiring and verify that the sensor is operating properly.

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Replace the DSP Control Module and load a valid Archive into the drive.

### **circuit breaker**

This fault indicates that the torque command has been saturated at the torque limit for a time equal to 1.1 times the longer of the acceleration or deceleration times.

#### **Possible Causes**

#### **Remedies**

Possible Mechanical Problem

If the motor is not able to respond properly due to a mechanical drag it can trigger this fault. Check the Torque charts to look for a mechanical problem.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

### **communication error**

This fault indicates that dynlink master did not communicate with the drive for a time interval greater than the setup dynlink timeout.

#### **Possible Causes**

#### **Remedies**

Loose Or Defective Wiring

Check the communication wiring to the DSP Control Module. Verify that all connections are tight.

Defective Communication Device

Verify that the device communicating to the DSP Control Module is operating properly.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Defective DSP Control Module

Replace the DSP Control Module and load a valid Archive into the drive.

## current leakage

If current leakage source is not DISABLED, fault indicator based on input value. Set up warning and fault detection ranges, fault detection delay and restart delay in the Signal In Menu.

### Possible Causes

### Remedies

Defective Current Leakage Sensor

If a Current Leakage sensor is being used check the wiring and verify that the sensor is operating properly.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Defective DSP Control Module

Replace the DSP Control Module and load a valid Archive into the drive.

## db thermal

This fault indicates that the Dynamic Brake thermal input has returned TRUE as defined in the Digital I/O Menu. It indicates that the Dynamic Brake Resistor has overheated.

### Possible Causes

### Remedies

Problem With DB Resistor

Check for proper resistance, and wattage in the Dynamic Brake resistor assembly. Check that all connections are tight.

Deceleration Time Too Short

Increase the Decel time parameter in the Drive Menu to reduce the voltage regenerated into the DC Bus. This will reduce the power dissipated by the Dynamic Brake Resistor.

### dh tool current

If dh tool current source is not DISABLED, fault indicator based on input value. Set up warning and fault detection ranges, fault detection delay and restart delay in the Signal In Menu.

#### Possible Causes

#### Remedies

Defective Current Sensor

If a Current sensor is being used check the wiring and verify that the sensor is operating properly.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Defective DSP Control Module

Replace the DSP Control Module and load a valid Archive into the drive.



### dh tool voltage

If dh tool voltage source is not DISABLED, fault indicator based on input value. Set up warning and fault detection ranges, fault detection delay and restart delay in the Signal In Menu.

#### Possible Causes

#### Remedies

Defective Voltage Sensor

If a Voltage sensor is being used check the wiring and verify that the sensor is operating properly.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Defective DSP Control Module

Replace the DSP Control Module and load a valid Archive into the drive.

## **discharge prs**

If discharge prs source is not ESTIMATE, fault indicator based on input value. Set up warning and fault detection ranges, fault detection delay and restart delay in the Signal In Menu.

### **Possible Causes**

### **Remedies**

Defective Discharge Pressure Sensor

If a Discharge Pressure sensor is being used check the wiring and verify that the sensor is operating properly.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Defective DSP Control Module

Replace the DSP Control Module and load a valid Archive into the drive.

## dynamic brake limit

This fault indicates the dynamic braking has been active above the duty cycle limit.

### Possible Causes

### Remedies

Problem With DB Resistor

Check for proper resistance, and wattage in the Dynamic Brake resistor assembly. Check that all connections are tight.

Deceleration Time Too Short

Increase the "Decel time" in the Drive Menu to reduce the voltage regenerated into the DC Bus. This will reduce the power dissipated by the Dynamic Brake Resistor.

Power Limiting Or Regen Power Limit

Enable Power Limiting and / or decrease Regen Power Limit in the Power Menu.

## **dynamic brake**

This fault is generated by the dynamic brake gate drive circuit if the IGBT turns on into a short circuit.

### **Possible Causes**

Problem With DB Resistor

Defective Drive

### **Remedies**

Check for proper resistance in the Dynamic Brake resistor assembly. Check for shorts in the wiring.

Replace the Drive.

## emergency shutdown

This fault indicates that the Emergency Shut Down input has become TRUE as defined in the Digital I/O Menu.

### Possible Causes

Input Became TRUE

Setup Values Changed Or Corrupted

Defective DSP Control Module

### Remedies

If this Input is being used check the wiring and the device sending this signal to the Drive to verify that it did send the Input.

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Replace the DSP Control Module and load a valid Archive into the drive.

## engine temp

On units operating with a Generator this fault indicates that the engine temperature sensor reading has exceeded the fault or warning limits set in the Signals In Menu.

### Possible Causes

### Remedies

Engine Cooling Problem

Check the radiator and cooling hoses on the Generator for leaks. Verify coolant level in the radiator.

Loose Or Damaged Wiring

Verify that the wiring connections for the Engine Temperature sensor are tight.

Defective Sensor

Verify that the Engine Temperature sensor is operating properly.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

## external stop

This fault indicates that the External Stop input has become TRUE as defined in the Digital I/O Menu.

### Possible Causes

Input Became TRUE

Setup Values Changed Or Corrupted

Defective DSP Control Module

### Remedies

If this Input is being used check the wiring and the device sending this signal to the Drive to verify that it did send the Input.

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Replace the DSP Control Module and load a valid Archive into the drive.

### **fast overcurrent**

This fault indicates that the instantaneous current of the inverter has exceeded the maximum allowable limit. This can indicate that there is an output shorted.

#### **Possible Causes**

#### **Remedies**

Defective Motor Or Wiring

Check for shorts in the motor and the wiring out to the motor.

Shorted IGBT Transistor

Go through the Transistor Checking Procedure to verify that the IGBT's are not shorted. If one is found to be shorted replace the Drive.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Defective Drive

Replace the Drive.



### **firmware error**

This fault indicates that the application program running in the drive cannot execute properly.

#### **Possible Causes**

Setup Values Changed Or Corrupted

Corrupted Application Program

Defective DSP Control Module

Defective Drive

#### **Remedies**

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Reload the Application Program and then load a valid Archive to the Drive.

Replace the DSP Control Module and load a valid Archive into the drive.

Replace the Drive.

## flow variance

Flow variance fault detection. Flow variance is the difference between the estimated, and sensor flow value. The fault is set when the difference is greater than the flow variance alarm value, and must be greater for the flow variance time.

### Possible Causes

### Remedies

Pump Or Fluid Level Problem

Verify that the pump is operating properly and not plugged with paraffin or silt. Check fluid level in the well.

Loose Or Damaged Cable

Verify that the wiring for the Fluid Flow sensor is secure.

Defective Sensor

Verify that the Fluid Flow sensor is operating properly.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

## fluid flow

If Fluid Flow Source is not ESTIMATE this fault indicates that the fluid flow sensor reading has exceeded the fault or warning limits set in the Signals In Menu.

### Possible Causes

### Remedies

Pump Or Fluid Level Problem

Verify that the pump is operating properly and not plugged with paraffin or silt. Check fluid level in the well.

Loose Or Damaged Cable

Verify that the wiring for the Fluid Flow sensor is secure.

Defective Sensor

Verify that the Fluid Flow sensor is operating properly.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

## fluid temp

If fluid temp source is not ESTIMATE, fault indicator based on input value. Set up warning and fault detection ranges, fault detection delay and restart delay in the Signal In Menu.

### Possible Causes

### Remedies

Loose Or Damaged Cable

Verify that the wiring for the Fluid Temperature sensor is secure.

Defective Sensor

Verify that the Fluid Temperature sensor is operating properly.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

**follow marker**  
**follow pg loss a**  
**follow pg loss b**  
**follow pg loss m**  
**Load encoder error**  
**load fbk loss**  
**load marker**  
**load pg loss a**  
**load pg loss b**  
**load pg loss m**  
**load runaway**  
**motor fbk loss**  
**motor marker**  
**motor pg loss a**  
**motor pg loss b**  
**motor pg loss m**

These faults are monitoring feedback devices that are normally not used on pumping applications and should never occur.

**Possible Causes**

Setup Values Changed Or Corrupted

**Remedies**

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Defective DSP Control Module

Replace the DSP Control Module and load a valid  
Archive into the drive.

Defective Drive

Replace the Drive.

## **gas flow**

If Gas Flow Source is not DISABLED this fault indicates that the fluid flow sensor reading has exceeded the fault or warning limits set in the Signals In Menu.

### **Possible Causes**

Loose Or Damaged Cable

Defective Sensor

Setup Values Changed Or Corrupted

### **Remedies**

Verify that the wiring for the Gas Flow sensor is secure.

Verify that the Gas Flow sensor is operating properly.

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

## **gas leak**

This fault indicates that the gas leak input has returned TRUE as defined in the Digital I/O Menu.

### **Possible Causes**

Input Became TRUE

Setup Values Changed Or Corrupted

Defective DSP Control Module

### **Remedies**

If this Input is being used check the wiring and the device sending this signal to the Drive to verify that it did send the Input.

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Replace the DSP Control Module and load a valid Archive into the drive.



### gas srch done event

The SINGLE / DUAL / OPTIMIZE switch has been moved to the optimize position. If the operator changed the switch there is no problem. If not follow the list below.

#### Possible Causes

#### Remedies

Loose Or Damaged Wiring

Verify that the wiring from the SINGLE / DUAL / OPTIMIZE switch is good.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Defective DSP Control Module

Replace the DSP Control Module and load a valid Archive into the drive.

### gate driver dsat

Indicates that an excessive on-state voltage was detected across the associated power transistors within inverter. This fault could be caused by a short circuit or ground fault within the motor or associated connections.

#### Possible Causes

#### Remedies

Defective Motor Or Wiring

Check for shorts in the motor and the wiring out to the motor.

Shorted IGBT Transistor

Go through the Transistor Checking Procedure to verify that the IGBT's are not shorted. If one is found to be shorted replace the Drive.

Loose Or Damaged Cable

Check the cable connections to the Gate Driver Module and the DSP Control Module.

Defective Gate Driver Module

Replace the Gate Driver Module.

Defective DSP Control Module

Replace the DSP Control Module and load a valid Archive into the drive.

Defective Drive

Replace the Drive.

**gate driver U-**

**gate driver U+**

**gate driver V-**

**gate driver V+**

**gate driver W-**

**gate driver W+**

This fault indicates that an excessive on-state voltage was detected across the associated power transistors within the inverter. This fault can be caused by a short circuit or ground fault within the motor or associated connections.

**Possible Causes**

**Remedies**

Defective Motor Or Wiring

Check for shorts in the motor and the wiring out to the motor.

Shorted IGBT Transistor

Go through the Transistor Checking Procedure to verify that the IGBT's are not shorted. If one is found to be shorted Replace the Drive..

Loose Or Damaged Cable

Check the cable connections to the Gate Driver Module and the DSP Control Module.

Defective Gate Driver Module

Replace the Gate Driver Module.

Defective DSP Control Module

Replace the DSP Control Module and load a valid Archive into the drive.

Defective Drive

Replace the Drive.

## **generator**

This fault indicates that the ECU is reporting an engine warning, engine fault or the engine did not start in the expected time.

### **Possible Causes**

Loose Or Damaged Cable

Engine Problem

### **Remedies**

Check the wiring from the ECU on the engine to the DSP Control Module.

Check engine operation, wiring, spark plugs, spark plug wires, gas, gas detector, gas pressure, oil level, starter, battery

## ground fault

This fault indicates that ground fault has occurred on the drive.

### Possible Causes

Loose Or Damaged Wiring

Defective Gate Driver Module

Defective DSP Control Module

Defective Drive

### Remedies

Check all ground connections to the Drive. Check all connections to the Gate Driver Module and the DSP Control Module.

Replace the Gate Driver Module.

Replace the DSP Control Module and load a valid Archive into the drive.

Replace the Drive.

### hand mode event

The HAND / OFF / AUTO switch has been moved to the hand position. If the operator changed the switch there is no problem. If not follow the list below.

#### Possible Causes

#### Remedies

Loose Or Damaged Wiring

Verify that the wiring from the HAND / OFF / AUTO switch is good.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Defective DSP Control Module

Replace the DSP Control Module and load a valid Archive into the drive.

## high prs

This fault indicates that the High Pressure input has returned TRUE as defined in the Digital I/O Menu. If one of the digital inputs is set to HIGH PRS then this fault indicator is based on that input value.

### Possible Causes

Input Became TRUE

Setup Values Changed Or Corrupted

Defective DSP Control Module

### Remedies

If this Input is being used check the wiring and the device sending this signal to the Drive to verify that it did send the Input.

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Replace the DSP Control Module and load a valid Archive into the drive.

## high speed

If high speed masks is not set to NONE this fault is based on motor speed. Set up detection level, fault detection delay and restart delay in the Fault/Event Menu. This fault is disabled during the Well ID and Valve Check Test.

### Possible Causes

Setup Values Changed Or Corrupted

Defective DSP Control Module

### Remedies

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Replace the DSP Control Module and load a valid Archive into the drive.



## high torque

If high torque mask is not set to NONE this fault is based on crank torque. Set up detection level, fault detection delay and restart delay in the Fault/Event Menu. This fault is also disabled during the Well ID and Valve Check Test.

### Possible Causes

### Remedies

Possible Mechanical Problem

Mechanical drag or a stuck pump can trigger this fault. Check the Torque charts to look for a mechanical problem.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Defective DSP Control Module

Replace the DSP Control Module and load a valid Archive into the drive.

### HS thermal switch

This fault indicates that a thermal switch on the inverter heat sink has opened due to elevated temperature. This is normally the result of excessive ambient air temperature or restricted air flow through the heat sink. The detector switch has a non-adjustable set point of 85C.

#### Possible Causes

#### Remedies

Debris Or Contamination Restricting Airflow

Verify that the fans are running, if used, and check for proper airflow through the heatsink.

Loose Or Damaged Cable

Verify that the cable for the Thermal Switch is properly attached at the top right corner of the DSP Control Module.

Possible Mechanical Problem

If the drive is using more current due to a mechanical drag this can produce more heat. Check the Torque charts to look for a mechanical problem.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Defective Thermal Switch

Replace the Drive.

### identification error

This fault indicates that the controller has read a different ID (horsepower rating) since the previous power up. It might imply the controller has been moved to a different drive or the cable that reads the ID is not connected. This fault can only be reset if the controller reads the original corresponding ID or the non-volatile memory is defaulted or the Reset ID utility is used from the Archive Menu.

#### Possible Causes

#### Remedies

DSP Control Module Replaced

If the DSP Control Module has been replaced go to the Setup Menu and to the Archive Menu and select the Reset ID option.

Loose Or Damaged Wiring

Verify that all wiring connections in the drive are secure.

Defective Gate Driver Module

Replace the Gate Driver Module.

Defective Or Damaged DSP Interface

Replace the DSP interface board (above 150HP)

Defective DSP Control Module

Replace the DSP Control Module and load a valid Archive into the drive.

### **input/matrix overload**

This fault indicates that the Input Matrix input has returned TRUE as defined in the Digital I/O Menu. If one of the digital inputs is set to HIGH PRS then this fault indicator is based on that input value.

#### **Possible Causes**

#### **Remedies**

Input Became TRUE

If this Input is being used check the wiring and the device sending this signal to the Drive to verify that it did send the Input.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Defective DSP Control Module

Replace the DSP Control Module and load a valid Archive into the drive.

## intake prs

If intake prs source is not ESTIMATE, fault indicator based on input value. Set up warning and fault detection ranges, fault detection delay and restart delay in the Signal In Menu.

### Possible Causes

### Remedies

Loose Or Damaged Cable

Verify that the wiring for the Intake Pressure sensor is secure.

Defective Sensor

Verify that the Intake Pressure sensor is operating properly.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Defective DSP Control Module

Replace the DSP Control Module and load a valid Archive into the drive.

## inverter rms

This fault indicates that the RMS output current has exceeded the level specified by the maximum current parameter.

### Possible Causes

Possible Mechanical Problem

Setup Values Changed Or Corrupted

### Remedies

If the drive is using more current due to a mechanical drag it can trigger this fault. Check the Torque charts to look for a mechanical problem.

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

## **ireg shutoff**

This fault indicates that the current regulator gate array stopped functioning and the DSP did not detect a fault signal. This may be caused by the gate array detecting faults that were not latched. These faults most likely are caused by noise on signals to the current regulator gate array. This may be corrected by re-wiring the grounding of the drive or by replacing the module with the current regulator gate array.

### **Possible Causes**

### **Remedies**

Power Supply Problem

Verify all Power Supply voltages on the DSP Control Module.

Loose Or Damaged Cable

Verify that all cable and wiring connections to the Gate Driver, Power Board and DSP Control Module are secure.

Damaged Ribbon Cable

Replace the ribbon cable between the DSP Control Module and the Gate Driver Module.

Defective DSP Control Module

Replace the DSP Control Module and load a valid Archive into the drive.

## load defaults

This event indicates that default setups were loaded. This is usually a result of a problem with the Smart RAM chip on the module but can also be caused by a noise spike. Subsequent fault may indicate a defective Smart RAM Chip or DSP Control Module. Storing data parameter values to flash memory in the Archive Menu, choosing no to Default and yes to Recall provides automatic recovery from this event.

### Possible Causes

### Remedies

Loose Or Damaged Wiring

Check all ground connections to the Drive. Check all connections to the Gate Driver Module and the DSP Control Module.

Setup Values Changed Or Corrupted

If the Archive functions were set correctly a valid Archive should have been loaded as the default. If you are not sure then load a valid Archive into the drive.

Defective Smart RAM Chip

Replace the Smart RAM Chip on the DSP Control Module.

Defective DSP Control Module

Replace the DSP Control Module and load a valid Archive into the drive.



### low prs flow

This fault indicates that the low pressure flow input has returned TRUE as defined in the Digital I/O Menu. If one of the digital inputs is set to LOW PRS FLOW this fault is based on that input. Set up logic polarity, fault detection delay and restart delay in the Digital I/O Menu.

#### Possible Causes

#### Remedies

Input Became TRUE

If this Input is being used check the wiring and the device sending this signal to the Drive to verify that it did send the Input.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Defective DSP Control Module

Replace the DSP Control Module and load a valid Archive into the drive.

## low speed

If low speed mask is not set to NONE this fault is based on motor speed. Set up detection level, fault detection delay and restart delay in the Fault/Event Menu. This fault is also disabled during the Well ID and Valve Check Test.

### Possible Causes

### Remedies

Drive Problem

If there is another Drive fault shown with this one correct that issue first.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

## low torque

If low torq mask is not set to NONE, indicator based on rod load monitor. Set up detection level, fault detection delay and restart delay in the Fault/Event Menu. This fault is also disabled during the Well ID and level test.

### Possible Causes

### Remedies

Drive Problem

If there is another Drive fault shown with this one correct that issue first.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

### low voltage supply

This fault indicates that an unacceptable voltage level was detected on either the +15 or -15 DC power supplies within the inverter. Check the operating DC power supply levels. Often associated with a power up event and was latched as the power was lost. Voltages may be measured on test points located on the DSP board. Ensure that the power supply voltages are correct on the DSP.

#### Possible Causes

#### Remedies

External issue

Accessories, such as external transducers get their power off of the +24VDC unregulated circuit. A short in those circuits can adversely affect the + and -15 VDC power supplies.

Power Supply Problem

Verify all Power Supply voltages on the DSP Control Module.

Loose Or Damaged Cable

Verify that all cable and wiring connections to the Gate Driver, Power Board and DSP Control Module are secure.

Damaged Ribbon Cable

Replace the ribbon cable between the DSP Control Module and the Gate Driver Module.

Defective module

Disconnect power from each module, one at a time, to determine which module is loading down the supply.

## modbus comm error

This fault indicates that the Modbus communication has a problem.

### Possible Causes

### Remedies

Loose Or Defective Wiring

Check the communication wiring to the DSP Control Module. Verify that all connections are tight.

Defective Communication Device

Verify that the device communicating to the DSP Control Module is operating properly.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Defective DSP Control Module

Replace the DSP Control Module and load a valid Archive into the drive.

### **modbus rtu comm loss**

The drive has lost the Modbus Communication link.

#### **Possible Causes**

#### **Remedies**

Loose Or Defective Wiring

Check the communication wiring to the DSP Control Module. Verify that all connections are tight.

Defective Communication Device

Verify that the device communicating to the DSP Control Module is operating properly.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Defective DSP Control Module

Replace the DSP Control Module and load a valid Archive into the drive.

### **motor rms limit**

This fault indicates that the RMS output current has exceeded the level specified by the *motor rms limit* parameter.

#### **Possible Causes**

#### **Remedies**

Possible Mechanical Problem

If the drive is using more current due to a mechanical drag it can trigger this fault. Check the Torque charts to look for a mechanical problem.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

### **motor runaway**

This fault indicates that after command velocity has been set to zero, the motor feedback velocity has either not stopped rotating within one second or has continued to rotate a distance of one revolution. A runaway fault is almost always caused by a loss of feedback.

#### **Possible Causes**

#### **Remedies**

Loose Or Damaged Wiring

Check all connections to the Gate Driver Module and the DSP Control Module.

Defective Gate Driver Module

Replace the Gate Driver Module.

Defective Or Damaged DSP Interface

Replace the DSP interface board (above 150HP)

Damaged Ribbon Cable

Replace the ribbon cable between the DSP Control Module and the Gate Driver Module.

Defective DSP Control Module

Replace the DSP Control Module and load a valid Archive into the drive.



## motor temp

If an analog Motor Temperature sensor is used this fault indicates that the sensor reading has exceeded the fault or warning limits set in the Signals In Menu.

### Possible Causes

### Remedies

Defective Motor Temperature Sensor

If this analog input is being used check the wiring and the Motor Temperature sensor to verify that it is operating properly.

Possible Mechanical Problem

If the drive is using more current due to a mechanical drag it can trigger this fault. Check the Torque charts to look for a mechanical problem.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Defective DSP Control Module

Replace the DSP Control Module and load a valid Archive into the drive.

## **mtr ovid**

### **mtr ovid latched**

Indicator based on mtr current monitor. Set up detection level, fault detection delay and restart delay in the Fault/Event Menu. This fault is also disabled during the Well ID and level test.

#### **Possible Causes**

#### **Remedies**

Possible Mechanical Problem

If the motor is not able to respond properly due to a mechanical drag it can trigger this fault. Check the Torque charts to look for a mechanical problem.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

## **mtr uld**

### **mtr uld latched**

Indicator based on mtr current monitor. Set up detection level, fault detection delay and restart delay in the Fault/Event Menu. This fault is also disabled during the Well ID and level test.

#### **Possible Causes**

Broken Rod String

Setup Values Changed Or Corrupted

#### **Remedies**

Verify that the Rod String is good.

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

## negative torque

If negative torq mask is not set to NONE this fault is based on motor torque. Set up detection level, fault detection delay and restart delay in the Fault/Event Menu. This fault is also disabled during the Well ID and Valve Check Test.

### Possible Causes

### Remedies

Parted Rod

Verify that the Rod String is good.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Defective DSP Control Module

Replace the DSP Control Module and load a valid Archive into the drive.

## non volatile mem

A circular redundancy check (CRC) is done on all setup parameters and other data stored in non volatile memory during the power-up sequence. This fault indicates that check has detected corrupted data the drive's default setup parameters were loaded. It is possible for this fault to occur the first time that power is applied to the drive after upgrading the program to a newer version. Subsequent fault may indicate a defective Smart RAM Chip or DSP Control Module. Storing data parameter values to flash memory in the Archive Menu, choosing no to Default and yes to Recall provides automatic recovery from this event.

### Possible Causes

### Remedies

Defective Smart RAM Chip

Replace the Smart RAM Chip on the DSP Control Module and load a valid Archive into the drive.

Defective DSP Control Module

Replace the DSP Control Module and load a valid Archive into the drive.

### **nvmem battery**

This fault indicates the Non Volatile Memory chip battery is low and the chip needs to be replaced.

#### **Possible Causes**

Defective Smart RAM Chip

Defective DSP Control Module

#### **Remedies**

Replace the Smart RAM Chip on the DSP Control Module and load a valid Archive into the drive.

Replace the DSP Control Module and load a valid Archive into the drive.

## operator reset event

This event indicates that one of several things has happened.

The STANDBY/RUN switch has been switched to a new position.

The controller has issued a fault-reset request.

TB1-21--Hand Mode Enable has changed state.

TB1-22--Auto Mode Enable has changed state.

TB1-23--Run Enable has changed state.

If the operator performed one of these operations there is no problem. If not follow the list below.

### Possible Causes

### Remedies

Loose Or Damaged Wiring

Verify that the wiring from the STANDBY / RUN switch or the HAND / AUTO switch is good.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Defective DSP Control Module

Replace the DSP Control Module and load a valid Archive into the drive.

## output phase loss

This fault detects phase imbalance in the output to the motor.

### Possible Causes

Loose Or Defective Wiring

Defective IGBT Transistor

Defective Drive

Defective Motor

### Remedies

Check the wiring out to the motor.

Go through the Transistor Checking Procedure to verify that the IGBT's are good. If one is found to be defective replace the Drive.

Replace the Drive.

Replace the motor.



### output/sin overload

This fault indicates that the Output Sine Overload input has returned TRUE as defined in the Digital I/O Menu. If one of the digital inputs is set to HIGH PRS then this fault indicator is based on that input value.

#### Possible Causes

#### Remedies

Input Became TRUE

If this Input is being used check the wiring and the device sending this signal to the Drive to verify that it did send the Input.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Defective DSP Control Module

Replace the DSP Control Module and load a valid Archive into the drive.

## Overrun

This fault indicates the dsp microprocessor did not complete all the time critical tasks in their allotted time.

### Possible Causes

Setup Values Changed Or Corrupted

Defective DSP Control Module

### Remedies

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Replace the DSP Control Module and load a valid Archive into the drive.

## pos error

This fault indicates that position error has exceeded 1.25 times the maximum expected value. The maximum expected position error is automatically calculated as a function of the maximum velocity limit and drive tuning parameters. If there are other faults present correct those first.

### Possible Causes

### Remedies

Possible Mechanical Problem

If the drive is unable to respond properly due to a mechanical drag it can trigger this fault. Check the Torque charts to look for a mechanical problem.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Defective DSP Control Module

Replace the DSP Control Module and load a valid Archive into the drive.

Defective Drive

Replace the Drive.

## Process Wdt

This fault indicates that a process within the drive was executing for longer than a specified time (typically 2 seconds) without allowing other processes to run.

### Possible Causes

Setup Values Changed Or Corrupted

Defective DSP Control Module

### Remedies

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Replace the DSP Control Module and load a valid Archive into the drive.

### **pump diff1 prs**

This fault occurs if pump differential pressure exceeded the fault or warning limits set in the Signals In Menu.

#### **Possible Causes**

#### **Remedies**

Loose Or Damaged Wiring

Verify that the wiring from the Intake Pressure and Discharge Pressure Sensors are good.

Defective Intake Pressure Sensor

Verify that the Intake Pressure sensor is operating properly.

Defective Discharge Pressure Sensor

Verify that the Discharge Pressure sensor is operating properly.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Defective DSP Control Module

Replace the DSP Control Module and load a valid Archive into the drive.

### remote event

The remote run enable parameter has changed states. If the motor is on, as soon as the remote run enable parameter is ENABLE, the drive will start if both motor on-- Digital Input 11 in TB1-23 and run enable—Digital Input 10 in TB1-22 are asserted (STANDBY/RUN switch is in the RUN position). If the motor is on and remote run enable is disabled, drive will STOP and running status will display REMOTE STOP. Not a part of the auto-restart function.

#### Possible Causes

#### Remedies

Input Turned Off

If this Input is being used check the wiring and the device sending this signal to the Drive to verify that it is working properly.

Defective DSP Control Module

Replace the DSP Control Module and load a valid Archive into the drive.

### **rtu master error**

This fault indicates that the RTU Master Protocol has reported an error in communication with the slave device.

#### **Possible Causes**

Loose Or Damaged Cable

Setup Values Changed Or Corrupted

Defective DSP Control Module

#### **Remedies**

Verify that the communication cable from the Master device to the Slave device is secure and undamaged..

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Replace the DSP Control Module and load a valid Archive into the drive.

### rtu slave error

This fault indicates that the RTU Master Protocol slave device has reported an error in communication and/or operation.

#### Possible Causes

Loose Or Damaged Cable

Setup Values Changed Or Corrupted

Defective DSP Control Module

#### Remedies

Verify that the communication cable from the Master device to the Slave device is secure and undamaged.

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Replace the DSP Control Module and load a valid Archive into the drive.



## security breach

This fault indicates that the security breach input has returned TRUE as defined in the Digital I/O Menu.

### Possible Causes

Input Became TRUE

Setup Values Changed Or Corrupted

Defective DSP Control Module

### Remedies

If this Input is being used check the wiring and the device sending this signal to the Drive to verify that it did send the Input.

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Replace the DSP Control Module and load a valid Archive into the drive.

## **tank level**

This fault indicates that the tank level sensor reading has exceeded the fault or warning limits set in the Signals In Menu.

### **Possible Causes**

### **Remedies**

Loose Or Damaged Wiring

Verify that the wiring from the Tank Level Sensor is good.

Defective Tank Level Sensor

Verify that the Tank Level sensor is operating properly.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Defective DSP Control Module

Replace the DSP Control Module and load a valid Archive into the drive.

## **tank lvl input**

This fault indicates that the tank level input has returned TRUE as defined in the Digital I/O Menu.

### **Possible Causes**

### **Remedies**

Loose Or Damaged Wiring

Verify that the wiring from the device sending the Tank Level input is good.

Defective Tank Level Sensor

Verify that the Tank Level sensor is operating properly.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Defective DSP Control Module

Replace the DSP Control Module and load a valid Archive into the drive.

### torque reg error

Torque regulator error. This fault indicates that the torque regulator output torque has exceeded the torque regulator error limit. This fault may not be used if setups for the fault do not exist.

#### Possible Causes

#### Remedies

Loose Or Damaged Cable

Verify that all cable and wiring connections to the Gate Driver, Power Board and DSP Control Module are secure.

Damaged Ribbon Cable

Replace the ribbon cable between the DSP Control Module and the Gate Driver Module.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Defective DSP Control Module

Replace the DSP Control Module and load a valid Archive into the drive.

## tubing prs

This fault indicates that the tubing pressure sensor reading has exceeded the fault or warning limits set in the Signals In Menu.

### Possible Causes

### Remedies

Loose Or Damaged Wiring

Verify that the wiring from the device sending the tubing pressure signal is good.

Defective Pressure Sensor

Verify operation of the pressure sensor and replace if needed.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Defective DSP Control Module

Replace the DSP Control Module and load a valid Archive into the drive.

## tubing temp

This fault indicates that the tubing temp sensor reading has exceeded the fault or warning limits set in the Signals In menu.

### Possible Causes

Loose Or Damaged Wiring

Defective Pressure Sensor

Setup Values Changed Or Corrupted

Defective DSP Control Module

### Remedies

Verify that the wiring from the device sending the tubing temperature signal is good.

Verify operation of the temperature sensor and replace if needed.

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Replace the DSP Control Module and load a valid Archive into the drive.

## **UEDIT® Fault**

This fault means that the Uedit Project in the software has stopped functioning.

### **Possible Causes**

Software Corrupted

Defective DSP Control Module

### **Remedies**

Reload the Application Program and a valid archive into the drive.

Replace the DSP Control Module and load a valid Archive into the drive.

**user 1**

**user 2**

**user 3**

This fault indicates that the user 1, 2 or 3 input has returned TRUE as defined in the Digital I/O Menu. If one of the digital inputs is set to USER FLT 1, 2 or 3 this fault indicator is based on that input value. Set up logic polarity, fault detection delay and restart delay in the Digital I/O Menu. User 1, 2 and 3 are used to set-up special inputs that may not be defined in the default dictionary.

**Possible Causes**

**Remedies**

Loose Or Damaged Wiring

Verify that the wiring from the device sending this input is good and the device is operating properly.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Defective DSP Control Module

Replace the DSP Control Module and load a valid Archive into the drive.



**user A**  
**user B**

If user A or B source is not ESTIMATE this fault indicator is based on an analog input value. Set up warning and fault detection ranges, fault detection delay and restart delay in the Signal In Menu. User A and B are used to set-up special analog inputs that may not be defined in the default dictionary.

**Possible Causes**

**Remedies**

Loose Or Damaged Wiring

Verify that the wiring from the device sending this signal is good and the device is operating properly.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Defective DSP Control Module

Replace the DSP Control Module and load a valid Archive into the drive.

## user event 1

## user event 2

This fault indicates that user event 1 or 2 input has returned TRUE as defined in the Digital I/O Menu. If one of the digital inputs is set to USER EVENT 1 or 2 this fault indicator is based on that input value. Set up logic polarity, fault detection delay and restart delay in the Digital I/O Menu. User event 1 and 2 are used to set-up special inputs that may not be defined in the default dictionary.

### Possible Causes

### Remedies

Loose Or Damaged Wiring

Verify that the wiring from the device sending this input is good and the device is operating properly.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Defective DSP Control Module

Replace the DSP Control Module and load a valid Archive into the drive.

### **vibration fault**

This fault indicates that the vibration sensor input has returned TRUE as defined in the Digital I/O Menu. This means that excessive vibration has been detected by the sensor. If one of the digital inputs is set to VIBRATION this fault indicator is based on that input value. Set up logic polarity, fault detection delay and restart delay in the Digital I/O Menu.

#### **Possible Causes**

#### **Remedies**

Loose Or Damaged Wiring

Verify that the wiring from the device sending this input is good and the device is operating properly.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Defective DSP Control Module

Replace the DSP Control Module and load a valid Archive into the drive.

**vibrtn x**

**vibrtn y**

If vibrtn y source is not DISABLED, fault indicator based on input value. Set up warning and fault detection ranges, fault detection delay and restart delay in the Signal In Menu.

**Possible Causes**

**Remedies**

Loose Or Damaged Wiring

Verify that the wiring from the device sending this signal is good and the device is operating properly.

Setup Values Changed Or Corrupted

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Defective DSP Control Module

Replace the DSP Control Module and load a valid Archive into the drive.

### **watchdog timer**

This fault indicates that the software did not execute the proper instruction sequence. A defective inverter control module is a possible cause of repeated watchdog timer faults.

#### **Possible Causes**

Setup Values Changed Or Corrupted

Defective DSP Control Module

#### **Remedies**

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Replace the DSP Control Module and load a valid Archive into the drive.

## **water cut**

This fault indicates that the analog input from the water cut sensor reading has exceeded the fault or warning limits set in the Signals In Menu.

### **Possible Causes**

Loose Or Damaged Wiring

Setup Values Changed Or Corrupted

Defective DSP Control Module

### **Remedies**

Verify that the wiring from the device sending this input is good and the device is operating properly.

Changing certain Setup Values can cause this fault to be displayed. Load a valid Archive into the drive.

Replace the DSP Control Module and load a valid Archive into the drive.