

Bulletin 284 ArmorStart[®] Fault Troubleshooting Guide—VFD Specific Faults

This document will focus more on the F11 fault than any of the other 15 faults. Refer to the User Manual, Publication [280-UM002](#) or [280G-UM001](#) for additional details.

- There are 2 major components that make up the Bulletin 284 ArmorStart, as it pertains to faults; the Main Control Board (MCB) and the PowerFlex[®] VFD. Each section depends on the other and each section has its own fault list.
 - Main Control Board (MCB) Faults
 - The MCB is powered by the Control Voltage
 - MCB faults are indicated by the blink pattern of the Fault LED. Reference the User Manual for the blink pattern definitions
 - Parameter 4 displays a bit enumeration of the fault
 - PowerFlex VFD Faults
 - The PowerFlex drive is powered by the 3-Phase Line Voltage
 - Parameters 107...109 contain the last 3-fault codes
- Parameter 61 brings the Main Control Board faults and VFD faults together and provides a more granular description of the faults that occur. (PF Fault Code __) refers to a fault as seen by the VFD; all other faults are seen by the Main Control Board.
- F11 fault: Internal Communications fault
 - An F11 protection fault indicates that the internal communication has stopped
 - There is a 10 second delay before an F11 Internal Comm. fault is present
 - Common causes of an Internal Comm. fault:
 - The local ArmorStart Disconnect switch is in the OFF position.
 - 3-Phase line power feeding the ArmorStart is not connected or is turned OFF.
 - Control Power is not connected or is turned OFF.
 - The network power is not connected or is turned OFF? (DeviceNet[™] Units)
 - Poor power quality (Brown Out)
 - First things to check:
 - Verify that the local disconnect is in the ON position.
 - Verify that the unit has 3-Phase Line Voltage present and it is within specified tolerances.
 - Verify that the ArmorStart unit has Control Voltage present and it is within specified tolerances.
 - Verify that the network power is present and within specified tolerances (DeviceNet Units).
 - Attempt to clear the fault by pressing the local reset or sending the ArmorStart a network reset.
 - Cycle power to the ArmorStart unit and try to clear the fault again.
 - If an Internal Comm. fault persists, refer to Parameter 61 – LastPR Fault for additional details on the last protection fault. Refer to the following table for troubleshooting information based on what Parameter 61 returns. Also refer to Parameters 107...109 to get the VFD fault code that can be referenced below.

Parameter 61 Fault Code	Description	Recommended Action
13 = Control Power Loss	Control power was lost or dipped below the lower threshold long enough to cause the Internal Comm. fault.	<ul style="list-style-type: none"> • Check that control power is turned on and within specified tolerances. • Check the Control Power fuse, replace if necessary. • Press the local reset or send the unit a network reset once control power is restored.
14 = Control Power Fuse	The control power fuse has blown and the control power circuit no longer is a closed circuit.	<ul style="list-style-type: none"> • Additional investigation as to why the fuse blew is needed. Take corrective action accordingly. • Replace the fuse and reset the ArmorStart either locally or over the network.
21 = A3 Power Loss (ENet) 21 = DNet Power Loss	<ul style="list-style-type: none"> • Unswitched (A3/A2) control power was lost or dipped below the lower threshold long enough to cause the Internal Comm. fault. • DeviceNet power loss 	<ul style="list-style-type: none"> • Check that the A3 or DNet power terminal does not have any loose connections. • Press the local reset or send the unit a network reset once the unswitched control power is restored
22 = Internal Comm 24 = Power Loss (3-Phase) 25 = Under Voltage (3-Phase)	<ul style="list-style-type: none"> • The ArmorStart's MCB lost communications with the VFD. This is most likely due to a loss of 3-phase power. • PF Fault Code 3 or 4 	<ul style="list-style-type: none"> • Check that the local disconnect is in the ON position. • Check for a power quality issue, take appropriate corrective actions. • Check that 3-phase power is present. • Press the local reset or send the unit a network reset
23 = Drive Comm Loss (PF Fault Code 81)	The PowerFlex VFD lost communications with the MCB. This is most likely due to a loss of control power or network power.	<ul style="list-style-type: none"> • Check that control power and the network power are both present. • Press the local reset or send the unit a network reset.
28 = Base EEPROM	The MCB can't read the base module's EEPROM or isn't communicating correctly with the base module. In the EtherNet/IP units, Parameter 63 – Base Trip provides more detail as to why the base module may not be communicating properly with the control module	<ul style="list-style-type: none"> • Cycle power to the ArmorStart unit. • Ensure that the control module is seated correctly in the base module • Check the connector on the control module for bent or broken pins
41 = DB1 Comm	The MCB has lost communications with the Dynamic Brake (DB1) board or the EEPROM on the DB1 board may be corrupt.	<ul style="list-style-type: none"> • Press the local reset or send the unit a network reset • Cycle power to the ArmorStart unit.

- If the above steps do not resolve the issue, please contact Rockwell Automation Customer Care at 440-646-3434, or visit the Technical Support website at www.rockwellautomation.com/support