



UDC 2500 Application Note

Status Tests

Introduction

When required, the results of these tests can be checked to determine the reason the controller has gone to Failsafe.

How to check the status tests

The procedure in Table 1 tells you how to display the results of the status tests.

Table 1 Procedure for Displaying the Status Test (Numeric Code 1200) Results

Step	Operation	Press	Result
1	Select STATUS Set Up Group	SET UP	Upper Display = READ Lower Display = STATUS
2	Read the test results	FUNCTION	You will see: Upper Display = NO or YES YES indicates a failure Lower Display = FAILSAFE
		FUNCTION	Upper Display = PASS or FAIL Lower Display = TEST

Background Tests

Introduction

The UDC2500 performs ongoing background tests to verify data and memory integrity. If there is a malfunction, a diagnostic message will be displayed (blinking) in the lower display.

In the case of simultaneous malfunctions, the messages will appear in sequence in the lower display. Table 2 lists these background tests, the reason for their failure, and how to correct the problem.

Diagnostic messages may be suppressed (stop the blinking) by pressing the RUN/HOLD key. The messages will still be available for viewing by pressing the LOWER DISPLAY key.

Table 2 Background Tests

Lower Display	Reason for Failure	How to Correct the Problem
E FAIL	Unable to write to non-volatile memory. Anytime you change a parameter and it is not accepted, you will see E FAIL.	<ol style="list-style-type: none"> 1. Check the accuracy of the parameter and re-enter. 2. Try to change something in configuration. 3. Run through Read STATUS tests to re-write to EEPROM.



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Lower Display	Reason for Failure	How to Correct the Problem
FAILSF	<p>This error message shows whenever the controller goes into a failsafe mode of operation. This will happen if:</p> <ul style="list-style-type: none"> • RAM test failed • Configuration test failed • Calibration test failed • Burnout configured for none and the input failed. 	<ol style="list-style-type: none"> 1. Run through STATUS check to determine the reason for the failure. 2. Press the SET UP key until STATUS appears in the lower display. 3. Press the FUNCTION key to see whether the tests pass or fail, then run through the STATUS codes a second time to see if the error cleared.
IN1RNG	<p>Input 1 out of range. The process input is outside the range limits.</p>	<ol style="list-style-type: none"> 1. Make sure the range and actuation are configured properly. 2. Check the input source. 3. Restore the factory calibration. 4. Field calibrate. See <i>Input Calibration Section</i> - .
IN1_FL	<p>Two consecutive failures of input 1 integration; i.e., cannot make analog to digital conversion. This will happen if:</p> <ul style="list-style-type: none"> • Upscale or Downscale burnout is selected and the input is open • Input not configured correctly for the sensor being used 	<ol style="list-style-type: none"> 1. Make sure the actuation is configured correctly. See <i>Configuration Section</i> - . 2. Make sure the input is correct and that it has not burned-out (opened). 3. Check for gross over-ranging with a multimeter. 4. Restore factory calibration.
IN2RNG	<p>Input 2 out of range. The remote input is outside the range limits.</p>	<p>Same as IN1RNG above.</p>
IN2_FL	<p>Two consecutive failures of input 2 integration. i.e., cannot make analog to digital conversion.</p>	<p>Same as IN1FL above.</p>
CNFERR	<ul style="list-style-type: none"> • PV low limit is > PV high limit • SP low limit is > SP high limit • Output low limit > Output high limit 	<ol style="list-style-type: none"> 1. Check the configuration for each item and reconfigure if necessary.
PV LIM	<p>PV out of range. $PV = INP1 \times RATIO1 + INP1 \text{ BIAS}$</p>	<ol style="list-style-type: none"> 1. Make sure the input signal is correct. 2. Make sure the Ratio and Bias settings are correct. 3. Recheck the calibration. Use Bias of 0.0
RV LIM	<p>The result of the formula shown below is beyond the range of the remote variable. $RV = INP2 \times RATIO + BIAS$</p>	<ol style="list-style-type: none"> 1. Make sure the input signal is correct. 2. Make sure the Ratio2 and Bias2 settings are correct. 3. Recheck the calibration. Use a Ratio2 of 1.0 and a Bias2 of 0.0.



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SEGERR	Setpoint Program start segment number is less than ending segment number.	Check SP Program configuration. Set up Group SPPROG function prompts "STRSEG" and "ENDSEG".
TCWARN	The Thermocouple is starting to burnout.	This is a warning message that the controller has detected that the thermocouple is starting to burnout. This error message may also be created if the resistances of the wires used to connect the thermocouple to the instrument are above 100 ohms.
TCFAIL	The Thermocouple is in imminent danger of burning out.	This is a warning message that the controller has detected that the thermocouple will soon fail. User should consider replacing the thermocouple as soon as possible.
CRFAIL	Current Output is less than 3.5 mA.	The current output is open circuit. Check the field wiring. See Procedure #2.
AXFAIL	Auxiliary Output is less than 3.5 mA.	The auxiliary output is open circuit. Check the field wiring. See Procedure #9.