

1 ENHANCEMENTS

The enhancements and features which were added in each revision are as follows:

<u>Revision</u>	<u>Enhancement</u>
REV. 1.00	Initial release
REV. 1.01	No enhancements
REV. 1.02	No enhancements
REV. 2.02	<ol style="list-style-type: none">1. Added support for data storage and enhance alarming and events2. Replace test mode with a more useful off-line mode3. Added 16 loops as an option4. Enhanced performance to allow 16 loops to run with an acceptable cycle time
REV 3.01	<ol style="list-style-type: none">1. Support field upgrade via code download2. Additional function blocks3. Modbus communications
REV 3.02	Add language selection to the system configuration table and allow this table to be written in any mode.
REV 3.03	<ol style="list-style-type: none">1. Shortened the startup RAM diagnostic to prevent relay toggling2. Created a version of code that allows boot sector code download to support upgrading to this version in the field.
REV 3.10	Added support for up to 16 analog input modules.
REV 3.21	<ol style="list-style-type: none">1. Communication with the LCB and User Utilities are supported using a modem.2. A Modbus master port has been added.3. Support for a high density (16 input) DI card has been added along with high density digital input and output blocs (each containing up to 8 points).4. Two platinel thermocouple ranges have been added.

5. The controller now supports configuring a digital output to be used as a data storage full indicator.
6. A continuous averaging function block has been added. This block can be configured to average over periods ranging from 6 seconds to 24 hours.

REV 3.11	This is a maintenance release to version 3.10 and includes no new features or enhancements.
REV 3.22	This is a maintenance release to version 3.21 and includes no new features or enhancements.
REV 3.12	This is a maintenance release to version 3.10 and includes no new features or enhancements.
REV 3.23	This is a maintenance release to version 3.21 and includes no new features or enhancements.
REV 3.13	This is a maintenance release to version 3.10 and includes no new features or enhancements.
REV 3.24	This is a maintenance release to version 3.21 and includes no new features or enhancements.
REV 3.14	This is a maintenance release to version 3.10 and includes no new features or enhancements.
REV 3.25	This is a maintenance release to version 3.21 and includes no new features or enhancements.
REV 3.15	This is a maintenance release to version 3.10 and includes no new features or enhancements.
REV 5.00	This release includes PAR fixes and new features for USF. The new features are Alternator, Ramp, Stage, Device Control, and HOA.
REV 3.26	This is a maintenance release to version 3.21 and includes no new features or enhancements.
REV 3.16	This is a maintenance release to version 3.10 and includes no new features or enhancements.

2 PROBLEMS FIXED

The problems that were fixed in each revision are as follows:

<u>Revision</u>	<u>Problems Fixed</u>
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- REV. 1.00 Initial release, therefore no problem fixes are included in this revision.
- REV. 1.01
1. Update recipe count (recipe header table) when previously unused recipe numbers are downloaded.
 2. Corrected calibration procedure for three T/C ranges
 3. Fixed missed TPO period bug
- REV. 1.02 Two problems were fixed:
1. Fast processor load counted double when calculating amount remaining for loops.
 2. ON/OFF block output was always zero when track command (TRC) was on, regardless of the track value.
- REV. 2.02 When fuzzy overshoot is active, the target setpoint is what is displayed on the OI, not the modified setpoint.
- REV 3.01 This was primarily a new functionality release. Some mostly cosmetic PAR fixes were included.
- REV 3.02 Fixed the following PARs:
- 840 – Comm board failure status
 - 859 - SPS current segment setpoint write via Modbus
 - 865 – Missing Modbus board failure diagnostic
 - 868 - SPS/Modbus segment data reads
- REV 3.03 When additional RAM was added, the startup time exceeded the time constant on digital output cards that held the outputs in the reset state. As a result, the outputs could toggle. This code reduces the amount of RAM testing to get the startup time back in line.
- REV 3.10 Fixed the following PARs
- 891 - Carbon block output should be 50% when low temperature cutoff is active in duplex control
 - 892 - Feed forward bump when switching from manual to auto
 - 899 - On/Off delay timer inaccuracy
- REV 3.21 Fixed the following PARs
- 762 - Modbus COMM board firmware version is not displayed
 - 833 - The cold junction characterization data for the MoCo thermocouple is missing.
 - 876 - Function generator block will not accept a write constant to the index numbers 18, 19, 20, 21.
 - 901 - Rotary switch would not operate properly for non-integer input values.
 - 904 - All digital outputs should be turned off and analogs set to 0

- when in program mode.
 - 905 - TPO outputs should maintain their output duty cycle while in the Off-line mode.
 - 931 - Modbus read of half a float should return one register instead of two.
 - 981 - "Old" historic event/alarm data is re-reported following a Warm Start
 - 997 - Schedule ends immediately after Start after it is downloaded using the Modbus slave port.
- REV 3.11 This maintenance release adds all of the PAR fixes from REV 3.21 to the REV 3.10 base.
- REV 3.22 Fixed the following PARs
- 1001 - Analog input readings lock-up under certain conditions
 - 1006 - Dewpoint block gives a constant zero out when degrees C is selected for furnace properties
 - 1011 - Cannot access SPP number of recycles via Modbus
 - 1012 - If you use the SWI input to change the direct/reverse action on a PID, TPSC, ON/OFF, and CARBON block, it will change back to the configured setting when you change from Auto to Manual and back to Auto.
- REV 3.12 This maintenance release adds all of the PAR fixes from REV 3.22 to the REV 3.10 base.
- REV 3.23 Fixed the following PARs
- 1020 - Accidental code download mode
- REV 3.13 This maintenance release adds all of the PAR fixes from REV 3.23 to the REV 3.10 base.
- REV 3.24 Fixed the following PARs
- 1029 - Output board goes to 100% unintentionally
- REV 3.14 This maintenance release adds all of the PAR fixes from REV 3.24 to the REV 3.10 base.
- REV 3.25 Fixed the following PARs
- 1031 - Modbus byte swap on the MB Slave Port is set to default after a config download
 - 1056 - Common mode noise susceptibility
- REV 3.15 Fixed the following PARs
- 1056 - Common mode noise susceptibility
- REV 3.26 Fixed the following PARs
- 1). Control Action Work around does not reliably follow the controlling

program.

2). A/D conversions are susceptible to common mode noise, particularly

the noise generated by devices such as variable frequency drives.

3). DR4500 not packing Modbus requests correctly.

4). PID / FFV output lock up.

5). Auto bias block generates its own bias when switching from Auto to Man.

6). Excessive cycle time on Modbus Master Port.

7). On/off delay blocks do not time accurately.

8). When fuzzy logic is selected the DEV field on the loop trend is modified

to show the deviation of the actual (modified) SP.

9). Periodic Timer Stops.

10). Modbus byte swap on the MB Slave Port goes to zero after a config

download.

11). Modbus RTU Master FC17 ID support for DPR180/250 and VRX.

12). Unable to set the guarantee soak type for a schedule's segment using

Modbus.

13). If the UMC800 identifies a UDC6300 on the Modbus link, it doesn't use the optimized packet size values.

14). When PID mode is changed from Man to Auto, tuning set 1 becomes

the active tuning set for the PID Blk even if tuning set 2 was currently

the active set.

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- 6). When fuzzy logic is selected the DEV field on the loop trend is modified
to show the deviation of the actual (modified) SP.
- 7). Periodic Timer Stops..
- 8). When PID mode is changed from Man to Auto, tuning set 1 becomes
the active tuning set for the PID Blk even if tuning set 2 was currently
the active set.

REV 5.00

This was an enhancement release and it also added PAR fixes for 3.26.

3 SOURCE MODULES REVISION LEVEL

For the 1st release (Phase I), revision