5 YEAR WARRANTY

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User's Guide

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PLATINUM™ Series

CN32Pt, CN16Pt, CN16PtD, CN8Pt, CN8PtD

DP32Pt, DP16Pt, DP8Pt

Load & Save File Format

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1 Introduction

1.1 Purpose

The following document defines the file format used by the Platinum series Load and Save commands.

The Save command is intended to capture the configuration of a Platinum series controller and save it on removable media (ie: USB Stick memory).

The Load command is intended to read a configuration image from an external device (ie: USB memory stick) and store it on a Platinum device.

The file format used is an ASCII text file, with tab delimiters between each field. These files may be reviewed or modified using a simple text editor or application programs such as Microsoft Excel that support reading tab delimited files.

1.2 Definition of Terms and Acronyms

I2C	2 wire serial interface
Base Device	Device connected to slave device
Smart Input	Device supporting 1 or more Input sensors
Smart Output	Device supporting 1 or more Output Elements
Sensor Element	One of the physical sensing elements on a Smart Output
AC	Alternating Current
DC	Direct Current
CS	Chip Select
ADC	Analog to Digital Converter
DAC	Digital to Analog Converter
RS485	Electrical signals used for serial communications
RS232	Electrical signals used for serial communications
CSV	Comma Separated Values
COTS	Commercially-Off-The-Shelf
ESD	Electo Static Discharge
FW	Firmware
HW	Hardware
I/O	Input/Output
LED	Light Emitting Diode
Hexadecimal	Values expressed using base 16 (2^4)

1.3 Applicable Documents

Doc. #	Name / Description	Rev. #, Date
	Device Serialization and Version Information	Rev 0.1
	Omega Engineering Coding Standard	Rev 1.2.0

2 File Format

The file format uses multiple records with each record having one or more fields. The 'tab' character is used to separate fields within a record. All data information is represented by ASCII strings. Each record is terminated by a CR/LF (0xd/0xa) character sequence.

Records fall into three general categories:

1) Comment / blank records
2) Keyword records
3) Data records

Record Type	Tag character	Use	Example
Meta Record	%	Defines operations/information other than data records	%File <tab> Platinum_0000.txt
Comment	//	Allow users to insert comments to document files	// This is a comment
Blank Line		Allow separating blocks of information	
Data record	<any printable character>	Defines data to be read or written	INPUT_SENSOR <tab> 2

NOTE: The first record within the file must contain the Keyword %Platinum.

2.1 Meta records

The following Meta Records are defined:

Meta Record	Load Function	Save Function
%Platinum	**Must be first record in the file**	Generated as first record in the file
%File <tab> Platinum_xxxx.txt	Ignored	Generated based on file number entered by user
%Version <tab> yyy.yyyy.yyyy.yyy	Ignored	Records device F/W version information
%Date <tab> …	Ignored	Not generated
%Author <tab> …	Ignored	Not generated
%DeviceID <tab> xxxxxxxxx	Ignored	Generated based on internal DeviceID information

%Profile <tab> xx	Saves current Profile information and starts loading new R&S profile	Generated, xx = 00-99
%Segment <tab> xx	Saves current segment information and starts loading new R&S segment	Generated, xx = 1..8
%<user defined> <tab> ????	Ignored	Ignored

2.1.1 User Meta-records

Additional meta-records may be defined by the user. Upon loading, they will be ignored and the data will not be retained. User meta-records are not generated during the Save function.

Future versions of Platinum f/w may include support for Date Created, Date Loaded, Author and other meta-record information.

2.2 Comments

All text following a double slash (//) will be ignored. Users may add comment information on blocks of records on individual records following the data field.

Note that load function stops parsing the record after the data field has been captured. Extraneous characters following the data field will be ignored.

Blank records (lines) are ignored.

2.3 Data records

Data records consist of 2 fields, an ***item*** and a ***value***, separated by a tab character.

Item <tab> Value

2.3.1 Item Field

The item field provides a named field from the device data base.

During the load operation unrecognized items will be ignored. This allows configuration files to be maintained across versions that introduce expanded items.

2.3.2 Value Field

The value field will be generate as either a floating point value (xx.x) or an unsigned 32 bit integer (xx). The parser will process all characters up to the first non-numeric character.

2.4 Device Configuration Records

Device Configuration records allow loading data that enable / disable specific device features.

Device Configuration records may only be written when the device serialization mechanism is in the **write enable** state. During a Load operation these records are ignored device serialization mechanism is not in the **write enable** state.

During the Save operation all Device Configuration records as written to the file.

2.5 Example File (Partial Excel)

1	%Platinum		
2	%File	c:Platinum_0001.txt	
3	%Device_ID	0	
4	%Version	0.9.6.6	
5	INPUT_SENSOR	0	
6	TC_TYPE	1	
7	RTD_WIRES	1	
8	RTD_ACRV_OHM_TYPE	0	
9	THERMISTOR_TYPE	0	
10	PROCESS_RANGE	0	
11	DB_4_20_MANUAL_LIVE	0	
12	DB_4_20_MANUAL_READING_1	4	

3 Parameter Name List

The following table summarizes all parameter names supported by the LOAD and SAVE file commands.

The data TYPE column key is:

L – long (32 bit) integer

R – short (16 bit) integer

F – floating point value

Mnemonic	Type	Description
DEVICE_ID	L	Device Identifier
VERSION_NUMBER	L	Device Version (xxx.xxx.xxx.xxx)
INPUT_SENSOR	R	Enumerated sensor (input) type
TC_TYPE	R	Enumerated Thermocouple type
RTD_WIRE	R	Enumerated RTD wire type
RTD_ACRV_OHM_TYPE	R	Enumerated RTD Curve
THERMISTOR_VALUE	R	Enumerated Thermistor type
PROCESS_RANGE	R	Enumerated process input range
INPUT_SENSOR	R	Enumerated sensor (input) type
TC_TYPE	R	Enumerated Thermocouple type
RTD_WIRE	R	Enumerated RTD wire type
DB_4_20_MANUAL_LIVE	R	Enumerated Input Process mode
DB_4_20_MANUAL_READING_1	F	Manual Scale reading value 1
DB_4_20_MANUAL_INPUT_1	F	Manual Scale input value 1
DB_4_20_MANUAL_READING_2	F	Manual Scale reading value 2
DB_4_20_MANUAL_INPUT_2	F	Manual Scale input value 2
DB_4_20_LIVE_READING_1	F	Live Scale reading value 1
DB_4_20_LIVE_INPUT_1	F	Live Scale input value 1
DB_4_20_LIVE_READING_2	F	Live Scale reading value 2
DB_4_20_LIVE_INPUT_2	F	Live Scale input value 2
DB_0_24_MANUAL_LIVE	R	
DB_0_24_MANUAL_READING_1	F	
DB_0_24_MANUAL_INPUT_1	F	
DB_0_24_MANUAL_READING_2	F	
DB_0_24_MANUAL_INPUT_2	F	
DB_0_24_LIVE_READING_1	F	

DB_0_24_LIVE_INPUT_1	F	
DB_0_24_LIVE_READING_2	F	
DB_0_24_LIVE_INPUT_2	F	
DB_10_MANUAL_LIVE	R	
DB_10_MANUAL_READING_1	F	
DB_10_MANUAL_INPUT_1	F	
DB_10_MANUAL_READING_2	F	
DB_10_MANUAL_INPUT_2	F	
DB_10_LIVE_READING_1	F	
DB_10_LIVE_INPUT_1	F	
DB_10_LIVE_READING_2	F	
DB_10_LIVE_INPUT_2	F	
DB_1_MANUAL_LIVE	R	
DB_1_MANUAL_READING_1	F	
DB_1_MANUAL_INPUT_1	F	
DB_1_MANUAL_READING_2	F	
DB_1_MANUAL_INPUT_2	F	
DB_1_LIVE_READING_1	F	
DB_1_LIVE_INPUT_1	F	
DB_1_LIVE_READING_2	F	
DB_1_LIVE_INPUT_2	F	
DB_POINT_1_MANUAL_LIVE	R	
DB_POINT_1_MANUAL_READING_1	F	
DB_POINT_1_MANUAL_INPUT_1	F	
DB_POINT_1_MANUAL_READING_2	F	
DB_POINT_1_MANUAL_INPUT_2	F	
DB_POINT_1_LIVE_READING_1	F	
DB_POINT_1_LIVE_INPUT_1	F	
DB_POINT_1_LIVE_READING_2	F	
DB_POINT_1_LIVE_INPUT_2	F	
READING_DECIMAL_POSITION	R	Enumerated value – number of dec. points
DISPLAY_UNITS	R	Enumerated value – units of measure

DISPLAY_COLOR_NORMAL	R	Enumerated value to set display color
DISPLAY_BRIGHTNESS	R	Enumerated value to set display brightness
DB_ANNUNCIATOR_1_MODE	R	
DB_ANNUNCIATOR_2_MODE	R	
READING_FILTER_CONSTANT	R	Enumerated input filtering constant
EXCITATION_VOLTAGE	R	Enumerated excitation control value
USB_PROTOCOL	R	
USB_RECOGNITION_CHARACTER	R	
USB_DATA_FLOW	R	
USB_ECHO_MODE	R	
USB_CONTINUOUS_DATA_PERIOD	F	
USB_DATA_FORMAT_STATUS	R	
USB_DATA_FORMAT_READING	R	
USB_DATA_FORMAT_PEAK	R	
USB_DATA_FORMAT_VALLEY	R	
USB_DATA_FORMAT_UNIT	R	
USB_SEPARATION_CHAR	R	
USB_LINE_FEED	R	
USB_DEVICE_ADDRESS	R	
USB_MODBUS_MODE	R	
USB_MODBUS_EOF	R	
ETH_PROTOCOL	R	
ETH_RECOGNITION_CHARACTER	R	
ETH_DATA_FLOW	R	
ETH_ECHO_MODE	R	
ETH_CONTINUOUS_DATA_PERIO	F	
ETH_DATA_FORMAT_STATUS	R	
ETH_DATA_FORMAT_READING	R	
ETH_DATA_FORMAT_PEAK	R	
ETH_DATA_FORMAT_VALLEY	R	
ETH_DATA_FORMAT_UNIT	R	
ETH_LINE_FEED	R	

ETH_SEPARATION_CHAR	R	
ETH_DEVICE_ADDRESS	R	
ETH_MODBUS_MODE	R	
ETH_MODBUS_EOF	R	
SERIAL_PROTOCOL	R	
SERIAL_RECOGNITION_CHARAC	R	
SERIAL_DATA_FLOW	R	
SERIAL_ECHO_MODE	R	
SERIAL_CONTINUOUS_DATA_PE	R	
SERIAL_DATA_FORMAT_STATUS	F	
SERIAL_DATA_FORMAT_READIN	R	
SERIAL_DATA_FORMAT_PEAK	R	
SERIAL_DATA_FORMAT_VALLEY	R	
SERIAL_DATA_FORMAT_UNIT	R	
SERIAL_LINE_FEED	R	
SERIAL_SEPARATION_CHAR	R	
SERIAL_DEVICE_ADDRESS	R	
SERIAL_MODBUS_MODE	R	
SERIAL_MODBUS_EOF	R	
SERIAL_232_485	R	
SERIAL_BAUD_RATE	R	
SERIAL_PARITY	R	
SERIAL_DATABITS	R	
SERIAL_STOPBITS	R	
Safety Parameters		
TIME_FORMAT	R	Enumerated value to indicate time format
SAFETY_DELAYED_POWER_ON_RUN	R	Write 1 to DISABLE auto RUN on power up
SAFETY_DELAYED_OPER_RUN	R	Write 1 to DISABLE return to RUN in OPER
SAFETY_SETPOINT_LIMIT_LOW	F	Minimum allowed setpoint value
SAFETY_SETPOINT_LIMIT_HIGH	F	Maximum allowed setpoint value
LOOP_BREAK_ENABLE	R	Write 1 to enable loop break test
LOOP_BREAK_TIME	L	Time (msec) for break test
OPEN_CIRCUIT_ENABLE	R	Write 1 to enable open circuit test
Passwords		
PASSWORD_INIT_ENABLE	R	Write 1 to enable INIT menu password

PASSWORD_INIT	L	INIT menu password
PASSWORD_PROGRAM_ENABLE	R	Write 1 to enable PROG menu password
PASSWORD_PROGRAM	L	PROG menu password
Setpoint Control		
SETPOINT_1_MODE	R	Enumerated Setpoint 1 mode
SETPOINT_1	F	Setpoint 1 value
SETPOINT_2_MODE	R	Enumerated Setpoint 2 mode
ABSOLUTE_SETPOINT_2	F	Setpoint 2 value (absolute mode)
DEVIATION_SETPOINT_2	F	Setpoint 2 value (derivative mode)
Output Configuration		
OUTPUT_1_HW_TYPE	R	
OUTPUT_1_MODE	R	
OUTPUT_1_ON_OFF_ACTION	R	
OUTPUT_1_SETPOINT	R	
OUTPUT_1_PULSE_LENGTH	F	
OUTPUT_1_ON_OFF_DEADBAND	F	
OUTPUT_1_OUTPUT_RANGE	R	
OUTPUT_1_RETRAN_READING_1	F	
OUTPUT_1_RETRAN_OUTPUT_1	F	
OUTPUT_1_RETRAN_READING_2	F	
OUTPUT_1_RETRAN_OUTPUT_2	F	
OUTPUT_2_HW_TYPE	R	
OUTPUT_2_MODE	R	
OUTPUT_2_ON_OFF_ACTION	R	
OUTPUT_2_SETPOINT	R	
OUTPUT_2_PULSE_LENGTH	F	
OUTPUT_2_ON_OFF_DEADBAND	F	
OUTPUT_2_OUTPUT_RANGE	R	
OUTPUT_2_RETRAN_READING_1	F	
OUTPUT_2_RETRAN_OUTPUT_1	F	
OUTPUT_2_RETRAN_READING_2	F	
OUTPUT_2_RETRAN_OUTPUT_2	F	
OUTPUT_3_HW_TYPE	R	
OUTPUT_3_MODE	R	

OUTPUT_3_ON_OFF_ACTION	R	
OUTPUT_3_SETPOINT	R	
OUTPUT_3_PULSE_LENGTH	F	
OUTPUT_3_ON_OFF_DEADBAND	F	
OUTPUT_3_OUTPUT_RANGE	R	
OUTPUT_3_RETRAN_READING_1	F	
OUTPUT_3_RETRAN_OUTPUT_1	F	
OUTPUT_3_RETRAN_READING_2	F	
OUTPUT_3_RETRAN_OUTPUT_2	F	
OUTPUT_4_HW_TYPE	R	
OUTPUT_4_MODE	R	
OUTPUT_4_ON_OFF_ACTION	R	
OUTPUT_4_SETPOINT	R	
OUTPUT_4_PULSE_LENGTH	F	
OUTPUT_4_ON_OFF_DEADBAND	F	
OUTPUT_4_OUTPUT_RANGE	R	
OUTPUT_4_RETRAN_READING_1	F	
OUTPUT_4_RETRAN_OUTPUT_1	F	
OUTPUT_4_RETRAN_READING_2	F	
OUTPUT_4_RETRAN_OUTPUT_2	F	
Alarm Control		
ALARM_1_TYPE	R	
ALARM_1_MODE	R	
ALARM_1_DISPLAY_COLOR	R	
ALARM_1_HIGH_HIGH_MODE	R	
ALARM_1_LATCH_TYPE	R	
ALARM_1_CONTACT_CLOSURE_T	R	
ALARM_1_POWER_ON_STATE	R	
ABSOLUTE_ALARM_1_LOW	F	
ABSOLUTE_ALARM_1_HIGH	F	
DEVIATION_ALARM_1_LOW	F	
DEVIATION_ALARM_1_HIGH	F	
ALARM_1_HIGH_HIGH_OFFSET	F	
ALARM_1_ON_DELAY	F	
ALARM_1_OFF_DELAY	F	

ALARM_2_TYPE	R	
ALARM_2_MODE	R	
ALARM_2_DISPLAY_COLOR	R	
ALARM_2_HIGH_HIGH_MODE	R	
ALARM_2_LATCH_TYPE	R	
ALARM_2_CONTACT_CLOSURE_T	R	
ALARM_2_POWER_ON_STATE	R	
ABSOLUTE_ALARM_2_LOW	F	
ABSOLUTE_ALARM_2_HIGH	F	
DEVIATION_ALARM_2_LOW	F	
DEVIATION_ALARM_2_HIGH	F	
ALARM_2_HIGH_HIGH_OFFSET	F	
ALARM_2_ON_DELAY	F	
ALARM_2_OFF_DELAY	F	
PID Parameters		
PID_ACTION	R	Enumerated PID control action
PID_MAX_RATE	F	PID maximum rate of change
PID_PERCENT_LOW	F	Minimum PID Control output value
PID_PERCENT_HIGH	F	Maximum PID Control output value
PID_ADAPTIVE_CONTROL_ENABLE	R	Write 1 to enable Adaptive Control
PID_AUTOTUNE_TIMEOUT	L	Timeout (msec) for autotuning
PID_ STABILITY_TIMEOUT	L	Autotune stability test timeout
PID_ STABILITY_RATE	F	Autotune maximum rate of change stability test
Remote Setpoint Group		
RSP_ENABLE	R	
RSP_PROCESS_RANGE	R	
RSP_4_20_SETPOINT_MIN	F	
RSP_4_20_INPUT_MIN	F	
RSP_4_20_SETPPOINT_MAX	F	
RSP_4_20_INPUT_MAX	F	
RSP_0_24_SETPOINT_MIN	F	
RSP_0_24_INPUT_MIN	F	
RSP_0_24_SETPPOINT_MAX	F	
RSP_0_24_INPUT_MAX	F	
RSP_0_10_SETPOINT_MIN	F	
RSP_0_10_INPUT_MIN	F	

RSP_0_10_SETPOINT_MAX	F	
RSP_0_10_INPUT_MAX	F	
RSP_0_1_SETPOINT_MIN	F	
RSP_0_1_INPUT_MIN	F	
RSP_0_1_SETPOINT_MAX	F	
RSP_0_1_INPUT_MAX	F	
Ramp & Soak Control		
RAMP_SOAK_PROFILE_SELECT	R	Starting Profile for Ramp and Soak
RAMP_SOAK_MODE	R	Enumerated – Ramp and Soak mode
Calibration Group		
TCAL_TYPE	R	Enumerated TCAL type
TCAL_ICE_POINT_OFFSET	F	Stored ICE POINT offset
TCAL_1_POINT_OFFSET	F	Stored 1 point CAL offset
TCAL_2_POINT_OFFSET	F	Stored 2 point CAL offset
TCAL_2_POINT_GAIN	F	Stored 2 point CAL gain
PID Tuning		
PID_P_	F	Proportional Gain value
PID_I_	F	Integral Gain value
PID_D_	F	Derivative Gain value
Simulation Group		
SIM_INPUT_MODE	R	
SIM_INPUT_RATE	R	
SIM_INPUT_ADJ	F	
SIM_INPUT_MAX	F	
SIM_INPUT_MIN	F	
SIM_INPUT_C0	F	
SIM_INPUT_C1	F	
SIM_INPUT_C2	F	
SIM_INPUT_C3	F	
SIM_AUX_INPUT_MODE	R	
SIM_AUX_INPUT_RATE	R	
SIM_AUX_INPUT_ADJ	F	
SIM_AUX_INPUT_MAX	F	
SIM_AUX_INPUT_MIN	F	
SIM_AUX_INPUT_C0	F	

SIM_AUX_INPUT_C1	F	
SIM_AUX_INPUT_C2	F	
SIM_AUX_INPUT_C3	F	
Ramp & Soak Profile Info (repeated for profiles 1..99)		
SEGMENTS_PER_PROFILE	R	Number of segments in current profile
SOAK_ACTION	R	Enumerated – Soak Action
SOAK_LINK	R	Profile to link to after current profile
TRACKING_TYPE	R	Enumerated – R&S tracking type
Ramp & Soak Segment Info (repeated 8 times / profile)		
RAMP_EVENT	R	RE.ON flag set for current segment
SOAK_EVENT	R	SE.ON flag set for current segment
SOAK_PROCESS_VALUE	F	Target SOAK setpoint for current segment
RAMP_TIME	L	Time (msec) to reach target SOAK setpoint
SOAK_TIME	L	Time (msec) to hold at SOAK setpoint

WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **61 months** from date of purchase. OMEGA's WARRANTY adds an additional one (1) month grace period to the normal **five (5) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

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RETURN REQUESTS/INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

1. Purchase Order number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

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