Westinghouse Electric Corporation
Measurements and Control Division
Raleigh, North Carolina, U.S.A. 27611

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New Information
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EMF-2/EMF-2300 Program Ordering Information

EMF-2/EMF-2300 RATE DESIGN FORM

(Standard defaults are shown in parentheses. If a different value is used, cross out default and enter new value.)

RATE SCHEDULE ID: __

RATE FILE NAME: _____.EM _

ORIGINAL DATE: __/__/____

RATE DESCRIPTION _____

ORIGINAL SEASON: (0)

DEMAND CONFIGURATION

DEMAND INTERVAL: (_15) Min
DEMAND SUB-INTERVAL: (_15) Min
DECIMAL PLACES: (2)
CUMULATIVE DEMAND: (Mark II)
DEMAND RATE: (Tou)

DEMAND FORGIVENESS

DEMAND FORGIVENESS TIME: (__0 Min)
MIN. FORGIVENESS OUTAGE: (__1 Min)

DEMAND SURVEY

DEMAND SURVEY PERIOD: (__1 Min)
PEAK RATE DEMAND LIMIT: (No__)

KW ALERT LEVELS

PEAK KW: (__0__)
MID-PEAK KW: (__0__)
OFF-PEAK KW: (__0__)

LOAD CONTROL

THIS INTERVAL EXCEEDED: (No__)
LAST INTERVAL EXCEEDED: (No__)
BY RATE SCHEDULE: (No__)
END OF INTERVAL PULSE: (No__)

SPECIAL FUNCTIONS

MANUAL DMD RESET TIME: (3) SEC
DMD RESET LOCKOUT TIME: (0) INT
TWO SEASON RATE: (No__)
RESET DMD ON SEASON CHANGE: (No__)
AUTOREAD PERIOD: (_0) DAYS

SEASON SIMILARITY

SEASON 0 LOOKS LIKE SEASON: (0)
SEASON 1 LOOKS LIKE SEASON: (1)
SEASON 2 LOOKS LIKE SEASON: (2)
SEASON 3 LOOKS LIKE SEASON: (3)

DAY TYPE DEFINITION

SEASON 0 (WINTER)

		S	M	T	W	T	F	S	H
HOLIDAY	(A)	_	_	_	_	_	_	_	(x)
SUNDAY	(B)	(x)	_	_	_	_	_	_	_
SATURDAY	(C)	_	_	_	_	_	_	(x)	_
WEEKDAY	(D)	_	(x	x	x	x	x)	_	_

SEASON 1 (SPRING)

		S	M	T	W	T	F	S	H
HOLIDAY	(A)	_	_	_	_	_	_	_	(x)
SUNDAY	(B)	(x)	_	_	_	_	_	_	_
SATURDAY	(C)	_	_	_	_	_	_	(x)	_
WEEKDAY	(D)	_	(x	x	x	x	x)	_	_

SEASON 2 (SUMMER)

		S	M	T	W	T	F	S	H
HOLIDAY	(A)	_	_	_	_	_	_	_	(x)
SUNDAY	(B)	(x)	_	_	_	_	_	_	_
SATURDAY	(C)	_	_	_	_	_	_	(x)	_
WEEKDAY	(D)	_	(x	x	x	x	x)	_	_

SEASON 4 (FALL)

		S	M	T	W	T	F	S	H
HOLIDAY	(A)	_	_	_	_	_	_	_	(x)
SUNDAY	(B)	(x)	_	_	_	_	_	_	_
SATURDAY	(C)	_	_	_	_	_	_	(x)	_
WEEKDAY	(D)	_	(x	x	x	x	x)	_	_

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DISPLAY CONTROL

DISPLAY PRESENT DATE AS: (J U L)
DISPLAY OTHER DATES AS: (J U L)
*LEADING ZEROS SUPPRESSION: (N O)

DISPLAY TURN-ON TIME: (_6:0 0 A)M
DISPLAY TURN-OFF TIME: (_6:0 0 P)M
DISPLAY HOLD TIME: (_6) SEC

PRESENT DATA DISPLAY IDENTIFIERS

NO.	NAME	DSP-1 (AUTO)	DSP-2 (MAN)
(_ _ 0)	TIME OF DAY	(No)	(No)
(_ _ 0)	DAY OF WEEK	(No)	(No)
(_ _ 0)	DATE	(No)	(No)
(_ _ 0)	SEASON	(No)	(No)
(_ _ 0)	TOTAL KWH	(No)	(No)
(_ _ 0)	PEAK KWH	(No)	(No)
(_ _ 0)	PEAK IND KW	(No)	(No)
(_ _ 0)	PEAK CUM KW	(No)	(No)
(_ _ 0)	MID KWH	(No)	(No)
(_ _ 0)	MID IND KW	(No)	(No)
(_ _ 0)	MID CUM KW	(No)	(No)
(_ _ 0)	OFF KWH	(No)	(No)
(_ _ 0)	OFF IND KW	(No)	(No)
(_ _ 0)	OFF CUM KW	(No)	(No)
(_ _ 0)	PEAK KW TIME	(No)	(No)
(_ _ 0)	PEAK KW DATE	(No)	(No)
(_ _ 0)	MID KW TIME	(No)	(No)
(_ _ 0)	MID KW DATE	(No)	(No)
(_ _ 0)	OFF KW TIME	(No)	(No)
(_ _ 0)	OFF KW DATE	(No)	(No)
(_ _ 0)	PEAK KW THRESH	(No)	(No)
(_ _ 0)	MID KW THRESH	(No)	(No)
(_ _ 0)	OFF KW THRESH	(No)	(No)
(_ _ 0)	PRESENT INT KW	(No)	(No)
(_ _ 0)	*OUTAGE TIME	(No)	(No)
(_ _ 0)	1 KW VALUE	(No)	(No)
(_ _ 0)	1 KW TIME	(No)	(No)
(_ _ 0)	1 KW DATE	(No)	(No)
(_ _ 0)	2 KW VALUE	(No)	(No)
(_ _ 0)	2 KW TIME	(No)	(No)
(_ _ 0)	2 KW DATE	(No)	(No)
(_ _ 0)	3 KW VALUE	(No)	(No)
(_ _ 0)	3 KW TIME	(No)	(No)
(_ _ 0)	3 KW DATE	(No)	(No)
(_ _ 0)	4 KW VALUE	(No)	(No)
(_ _ 0)	4 KW TIME	(No)	(No)
(_ _ 0)	4 KW DATE	(No)	(No)
(_ _ 0)	5 KW VALUE	(No)	(No)
(_ _ 0)	5 KW TIME	(No)	(No)
(_ _ 0)	5 KW DATE	(No)	(No)
(_ _ 0)	METER ID (UPPER)	(No)	(No)
(_ _ 0)	METER ID (LOWER)	(No)	(No)
(_ _ 0)	KH CONSTANT ID	(No)	(No)
(_ _ 0)	RATE SCHEDULE ID	(No)	(No)
(_ _ 0)	INIT DATE CODE	(No)	(No)
(_ _ 0)	REPRO DATE CODE	(No)	(No)
(_ _ 0)	VT RATIO	(No)	(No)
(_ _ 0)	CT RATIO	(No)	(No)
(_ _ 0)	# KW RESETS	(No)	(No)
(_ _ 0)	KW RESET DATE	(No)	(No)
(_ _ 0)	AUTOREAD DATE	(No)	(No)
(_ _ 0)	*BATTERY LOG	(No)	(No)

PREVIOUS READING DATA DISPLAY

DISPLAY IDS

NO. NAME
(1 0 0) PEAK KWH
(1 0 0) PEAK KW TIME
(1 0 0) 1 KW VALUE

DISPLAY CONTROL FOR DSP-1 (AUTO)

DISPLAY DATA ALWAYS: (No)
DISPLAY DATA ONLY IF AUTOREAD: (No)

DISPLAY CONTROL FOR DSP-2 (MAN)

DISPLAY DATA ALWAYS: (No)

PREVIOUS SEASON DATA DISPLAY

DISPLAY IDS

NO. NAME
(2 0 0) PEAK KWH
(2 0 0) PEAK KW TIME
(2 0 0) 1 KW VALUE

DISPLAY CONTROL FOR DSP-1 (AUTO)

DISPLAY DATA ALWAYS: (No)
DISPLAY DATA ONLY IF SEASON CHANGE: (No)

DISPLAY CONTROL FOR DSP-2 (MAN)

DISPLAY DATA ALWAYS: (No)

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SWITCH TIMES

NOTICE
Load Control Relay is automatically reset to off at midnight.

SEASON	DAY TYPE	TIME	RATE TYPE	LOAD CONTROL RELAY

RECURRING DATES

DATE	DAY TYPE	DAY OF WEEK
/		

NON-RECURRING DATES

DATE	DAY TYPE
/ /	

For additional RECURRING DATES or NON-RECURRING DATES, use another sheet.

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EMF-2 Rate Definitions

The following notes define the entries made in the Rate Design Form for EMF-2 registers. The information on the Rate Design Form programs the EPR-500 with EMF-2 rates. In the following definitions, the entries in the blanks are examples.

RATE SCHEDULE ID: **1 3**

A number from 00 through 99 identifies the rate listed under a RATE FILE NAME. The user assigns this ID number.

ORIGINAL DATE: **0 7/1 5/1 9 8 6**

The date, in mm/dd/yyyy format, on which this rate table is generated.

ORIGINAL SEASON: (**2**)

The season in which this rate schedule is generated. The original date and season provide a reference time for the EMF-2 register. Normally, Winter = 0, Spring = 1, Summer = 2, and Fall = 3, but the user may reassign the numbers. The default is 0.

RATE FILE NAME: **1 S T - R A T E**

The user defined name for this rate table must be unique and can contain up to eight letters, numbers, and some special characters. The rate file contains up to 14 rates which are identified by the RATE SCHEDULE ID. EMF-2s require the filename extension .EM2. EMF-2300s require the extension .EM3. If you specify no extension, the system will supply .EM3.

RATE DESCRIPTION: **COMMERCIAL**

This up-to-15 character description field identifies individual rates. The information is stored on disk; it does not go to the register.

Demand Configuration

DEMAND INTERVAL: (**0 3 0**) Min

The allowed intervals are: 5, 10, 15, 30, 60, 120, and 240. During an interval, average demand quantity is calculated. The default is 15 minutes.

DEMAND SUB-INTERVAL: (**0 0 5**) Min

A group of sub-intervals make up the interval used in rolling demand calculations. The number of sub-intervals must divide evenly into an interval. An interval may have a maximum of 15 sub-intervals. If sub-interval length equals interval length, block interval demand is calculated. Sub-intervals may be from 1 to 240 minutes. The default is 15 minutes.

$$\text{Number of sub-intervals} = \frac{\text{Interval time length}}{\text{Sub-interval time length}}$$

DECIMAL PLACES: (**3**)

The decimal point place may be shifted zero to three digits from the right of all demand quantities. The default is two digits from the right.

CUMULATIVE DEMAND: (**Cont**)

Continuous cumulative or Mark II cumulative demand is available.

Cont — Continuous Cumulative. Cumulative quantity changes when a higher indicating demand occurs between demand resets, but remains unchanged upon demand reset.

Mark II — Mark II cumulative. Cumulative quantity changes each time indicating demand is reset, but remains constant between resets.

The default is Mark II cumulative.

DEMAND RATE: (**TOU**)

The options are TOU (time-of-use) or non-TOU.

TOU — Demand quantities are classified by their rate period (PEAK, MID-PEAK, and OFF-PEAK).

non-TOU — Demand is calculated and stored in PEAK kW register regardless of time or rate when quantities are calculated.

The default is TOU.

Demand Forgiveness

The specified length of time during which an electricity user is not penalized for power use following a power outage.

DEMAND FORGIVENESS TIME: (**0 1 5 Min**)

The time after a power outage during which demand is not calculated. The time period can be programmed from 1 to 255, in units of interval (Int) or minutes (Min). Zero may be used, but will disable this function.

MIN. FORGIVENESS OUTAGE: (**0 3 0 Min**)

The minimum outage duration before forgiveness is activated. The time period can be from 1 to 255 in units of intervals (Int) or minutes (Min).

Demand Survey

This feature provides the value, time, and date of the five highest indicating demands during a consumer billing period.

DEMAND SURVEY PERIOD: (**4 5 Int**)

The window in time during which only one maximum indicating demand can be recorded as one of the five highest demands for the billing period. The demand survey period ranges from 1 to 255 in units of minutes (Min) or intervals (Int). A new survey period begins at midnight, rate switchpoints, and after any demand reset, regardless of previous survey period length. This feature eliminates the possibility of all the highest demands occurring together. The default is 1 minute.

PEAK RATE DEMAND LIMIT: (**No**)

The options are Yes or No. This feature allows the accumulation of survey data only during the peak rate period. The default is No.

KW Alert Levels

PEAK KW: (**8 0.0 0 0**)
MID-PEAK KW: (**4 0.0 0 0**)
OFF-PEAK KW: (**2 0.0 0 0**)

The alert level defines a demand quantity for load control action. Each level is limited to five digits and must have the decimal placed as defined in # DECIMAL PLACES. (In the example, PEAK KW is 80.000 since the # DECIMAL PLACES was defined as 3.) Different levels may be specified for each rate period. The defaults are 0.

Load Control

Load control relay functions are defined using the following options.

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THIS INTERVAL EXCEEDED: (**Yes**)
The options are Yes or No. This feature determines whether or not the relay should activate when the demand reaches or exceeds the KW alert level. If the demand level is met or exceeded, the relay activates for the balance of the present demand interval. The default is No.

LAST INTERVAL EXCEEDED: (**Yes**)
The options are Yes or No. This feature determines whether or not the relay should be active for the complete interval following an interval whose demand was reached or exceeded. The default is No.

Notice
If both THIS INTERVAL EXCEEDED and LAST INTERVAL EXCEEDED are defined as active, the load control turns on from the time the limit is exceeded until one complete interval has not exceeded the threshold.

BY RATE SCHEDULE: (**Yes**)
The options are Yes or No. This feature determines whether or not the relay operation is controlled by the rate schedule. If the rate schedule calls for any load control activity, this selected option must be Yes. The default is No.

END OF INTERVAL PULSE: (**No**)
The options are Yes or No. This feature determines whether or not the relay is active for approximately 1 second at the end of each demand interval. The default is No.

Special Functions

MANUAL DMD RESET TIME: (**3**) SEC
This function defines the amount of time that the reset switch must be pressed for a manual demand reset. The defined time must be from 0 to 15 seconds. Selecting 0 seconds eliminates manual scroll. If the reset button is pressed for any time less than programmed, a manual scroll starts. The default is 3 seconds.

DMD RESET LOCKOUT TIME: (**1**) Int
Defines the time interval required after a manual demand reset before another will be allowed (does not include EPR device resets). The time period may be from 0 to 15 demand intervals long. (Selecting 0 intervals defeats the demand reset lockout.) The default is 0.

TWO SEASON RATE: (**No**)
The options are Yes or No. The billing rate may be defined as a two season rate instead of a four season rate. This feature reduces the number of date-defined season changes required in the recurring and non-recurring dates. The default is No.

RESET DMD ON SEASON CHANGE: (**Yes**)
The options are Yes or No. This feature allows the register to reset demand at a season change. During reset, the present register data moves to the previous season memory location, and the stored demand quantities are reset. When this option is selected, the automatic read/demand reset occurs at 00:00 (midnight) on the season change day. The default is No.

AUTOREAD PERIOD: (**30**) DAYS
This function defines the time interval between the last demand reset and the autoread operation (meter reads itself and performs a demand reset). This autoread operation (read/demand reset) occurs at 00:00, from 1 to 127 days following the last demand reset other than a RESET DMD ON SEASON CHANGE. To initiate the autoread operation on the same day of each month, specify an autoread period in the range 129-156 where 129 requests autoread on the 1st day of each month and 156 requests autoread on the 28th day of each month. Selecting 0 disables this function. To initiate the autoread function after the register is initialized or reprogrammed, press the manual demand reset. The default is 0.

Season Similarity Definition

SEASON 0 LOOKS LIKE SEASON: (**0**)
SEASON 1 LOOKS LIKE SEASON: (**1**)
SEASON 2 LOOKS LIKE SEASON: (**0**)
SEASON 3 LOOKS LIKE SEASON: (**1**)

Two or more seasons may be defined with identical rate switch times. If the rate switch times are identical for 2 or more seasons, then only one season needs to be defined. In this example, SEASON 3 is identical to SEASON 1. The default on the rate form defines each season as unique.

Day Type Definition

SEASON 0 (WINTER)

		S	M	T	W	T	F	S	H
HOLIDAY	(A)								(x)
SUNDAY	(B)	(x)							
SATURDAY	(C)							(x)	
WEEKDAY	(D)		(x	x	x	x	x)		

Defines which days of the week and/or holidays have the same rate switch times within a given season. Four day-types are allowed, and each day of the week and holiday must be defined as one of the four day-types. The day-type definitions can change for each season. Winter is defined as Season 0, and day types A, B, C, and D are typically used for holidays, Sundays, Saturdays, and weekdays; however, they may be redefined by the user.

Display Control
Defines the date format and automatic display scroll characteristics.

DISPLAY PRESENT DAY AS: (**M/D**)
Present day format may be month/day (M/D) or Julian (JUL). The default is JUL.

DISPLAY OTHER DATES AS: (**JUL**)
All other dates in register memory (dates of TOU indicating demand and of five highest demands) may be formatted as month/day (M/D) or Julian (JUL). The default is JUL.

Notice
Initialization, reprogram, kW reset, and autoread date codes do not fall under the category of other dates.

Leading Zeros (EMF-2300 ONLY)
This feature allows the reading zeros of all metered quantities to be suppressed in the display. Options are yes and no.

DISPLAY TURN-ON TIME: (**0 7:0 0 A**)M (EMF-2 ONLY)
The automatic display scroll may be turned on from 01:00 AM to 10:00 PM. The time is given to the nearest hour on a 12-hour AM/PM clock. The default is 6:00 AM.

DISPLAY TURN-OFF TIME: (**0 8:0 0 P**)M (EMF-2 ONLY)
The automatic display scroll may be turned off from 2:00 AM to 11:00 PM. The time is given to the nearest hour on a 12-hour AM/PM clock. The turn-off time must always be at least one hour later than the turn-on time. The default is 6:00 PM.

Notice
The EMF-2 display can be turned on during off-time hours by shining a light into the register optical port or by entering the manual scroll mode. The display will be on from the time that the source is applied until 4 minutes and 15 seconds after the source is removed.

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DISPLAY HOLD TIME: (1 4) SEC
The display hold time during automatic scroll may be set from 5 to 20 seconds. The default is 6 seconds.

Present Data Display Identifiers

NO.	NAME	DSP-1 (AUTO)	DSP-2 (MAN)
(_ _ 6)	PEAK KWH	(Yes)	(No)

In this section, an identifier and a scroll mode (automatic and manual) must be chosen for each display quantity. The register sorts and scrolls information by ascending identifiers. Automatic scroll is a continuously scrolling display that is defined in DISPLAY TURN-ON TIME and DISPLAY TURN-OFF TIME, and DISPLAY HOLD TIME. Manual scroll is activated by momentarily pressing the reset button to advance each display.

NO.
(_ _ 6)
Identifiers define, in ascending order, the display sequence. All quantities that are to be displayed must have identifiers. Identifiers must be numbered from 0 to 253; the default is 0. There are three restrictions:

A) Identifiers must not be duplicated.

B) The range for identifiers within a physical grouping must be within 63 numbers, from lowest to highest identifier.

C) Offset must not force the EPR-500 to calculate second and third time frame identifiers that go out of bounds (1 to 253), or duplicate other identifiers. The following paragraphs explain second and third time-frame identifiers and their selection.

The data for display quantity groups that begin with PEAK KWH, PEAK KW TIME, and 1 KW VALUE are stored in three different time frames. The first time frame is PRESENT DATA DISPLAY IDENTIFIERS; the second time frame is PREVIOUS READING DATA DISPLAY; and the third time frame is PREVIOUS SEASON DATA DISPLAY. (The second and third time frame identifiers are selected in the next two sections of the form.) In the second and third time frames, each physical group is represented by the first display quantity in the group. For example, the display quantity PEAK KWH represents PEAK IND KW, PEAK CUM KW, MID KWH, and so on.

An identifier is assigned to each of the three display quantity groups in the first time frame; then, an identifier of a higher number is assigned to each of the three display quantities in the second time frame. The EPR-500 calculates the difference between the second and first time frame display quantities to produce a positive offset. The positive offset is added to each identifier of the first time frame grouping; this produces identifiers for all the data represented by data identifiers in the second time frame. After specifying PEAK KWH for the first time frame and PEAK KWH for the second time frame, all the data represented by PEAK KWH of the second time frame is assigned an identifier by the EPR-500.

The process is the same for identifiers in the third time frame. A higher number identifier than is used in the first time frame is assigned to each of the three display quantities in the third time frame. The EPR-500 assigns identifiers to the data represented by the data identifiers.

In the following example, the display quantity group that begins with PEAK KW TIME shows how identifiers are chosen and an offset calculated.

PRESENT DATA DISPLAY IDENTIFIERS

PEAK DATA DISPLAY IDENTIFIERS

NO.	NAME	DSP-1 (AUTO)	DSP-2 (MAN)
(_ 3 1)	PEAK KW TIME	(Yes)	(No)
(_ 3 2)	PEAK KW DATE	(Yes)	(No)
(_ 3 3)	MID KW TIME	(Yes)	(No)
(_ 3 4)	MID KW DATE	(Yes)	(No)
(_ 3 5)	OFF KW TIME	(Yes)	(No)
(_ 3 6)	OFF KW DATE	(Yes)	(No)

PREVIOUS READING DATA DISPLAY

DISPLAY IDS

NO.	NAME
(1 0 2)	PEAK KWH
(1 1 2)	PEAK KW TIME
(1 2 2)	1 KW VALUE

DISPLAY CONTROL FOR DSP-1 (AUTO)

DISPLAY DATA ALWAYS: (Yes)
DISPLAY DATA ONLY IF AUTOREAD: (No)

DISPLAY CONTROL FOR DSP-2 (MAN)

DISPLAY DATA ALWAYS: (No)

NO.	NAME
(1 1 2)	PEAK KW TIME
(1 1 3)	PEAK KW DATE
(1 1 4)	MID KW TIME
(1 1 5)	MID KW DATE
(1 1 6)	OFF KW TIME
(1 1 7)	OFF KW DATE

Not shown on EPR-500. The EPR-500 calculates the offset for this group (112 minus 31, or 81), and adds the offset to the identifiers selected in PRESENT DATA DISPLAY IDENTIFIERS. This sum produces the identifiers for PREVIOUS READING DATA DISPLAY.

Notice
If a three-digit identifier is used, the rate period indicator in the leftmost digit of the display is not displayed on the register.

DSP-1
(AUTO)
(Yes)
The options are Yes or No. Yes displays information during automatic scroll. The default is No.

DSP-2
(MAN)
(No)
The options are Yes or No. Yes displays information during manual scroll. The default is No.

Outage Log (EMF-2300 Only)
The outage log maintains a cumulative record of the amount of time the meter is without A.C. power since the outage log was initialized.

Battery Log
The battery log maintains a conservative record of the cumulative amount of time the meter operates on the battery. (Single outage time less two hours)

Previous Reading Data Display

Data from the previous reading consists of standard TOU data, time and date of TOU maximum demand, and survey data at the time of any demand reset other than during a season change. The next three display categories determine the display options.

Notice
All displayed and undisplayed DISPLAY IDS identifiers must be uniquely specified. The rate verification program will identify duplicate identifiers, and not verify the rate.

If data is displayed in PREVIOUS READING DATA DISPLAY, it must also be displayed in PRESENT DATA DISPLAY IDENTIFIERS using the same mode (MAN or AUTO).

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DISPLAY IDS
Refer to PRESENT DATA DISPLAY IDENTIFIERS for selecting the identifiers in this section. All defaults are 100. All ranges are 0 to 253.

NO. NAME
(**1 0 2**) PEAK KWH
This display quantity includes standard TOU data: PEAK KWH, PEAK IND KW, PEAK CUM KW, MID KWH, MID IND KW, MID CUM KW, OFF KWH, OFF IND KW, OFF CUM KW. The default is 100. In this example, the offset applied to this grouping is 102 minus 6 (identifier from PRESENT DATA DISPLAY IDENTIFIERS), or 96.

NO. NAME
(**1 1 2**) PEAK KWH TIME
This display quantity includes the time and date of TOU demand data: PEAK KW TIME, PEAK KW DATE, MID KW TIME, MID KW DATE, OFF KW TIME, OFF KW DATE.

NO. NAME
(**1 2 2**) 1 KW VALUE
This display quantity includes the survey data group (value, time, date), which includes the five highest demand values.

DISPLAY CONTROL FOR DSP-1 (AUTO)
Defines when data from the previous reading is shown during an automatic scroll.

DISPLAY DATA ALWAYS: (**Yes**)
The options are Yes or No. Defines if data from the previous reading is always displayed during automatic scroll. The default is No.

DISPLAY DATA ONLY IF AUTOREAD: (**No**)
The options are Yes or No. Defines if data from the previous reading is displayed only after an autoread has occurred since the last demand reset (not including kW reset on season change). The default is No.

Notice
DISPLAY DATA ALWAYS and DISPLAY DATA ONLY IF AUTOREAD may both be defined as No, but both cannot be Yes.

DISPLAY CONTROL FOR DSP-2 (MAN)
Defines when data from the previous reading is shown during a manual scroll.

DISPLAY DATA ALWAYS: (**No**)
The options are Yes or No. Defines if data from the previous reading is always displayed during manual scroll. The default is No.

Previous Season Data Display
Data from the previous season consists of standard TOU data, time and date of TOU maximum demand, and survey data at 00:00 (midnight) of the last season change day. The next three display groupings determine the display options.

Notice
All displayed and undisplayed DISPLAY IDS identifiers must be uniquely specified. The rate verification program will identify duplicate identifiers, and not verify the rate.

If data is displayed in PREVIOUS SEASON DATA DISPLAY, it must also be displayed in PRESENT DATA DISPLAY IDENTIFIERS using the same mode (MAN or AUTO).

DISPLAY IDS
Refer to PRESENT DATA DISPLAY IDENTIFIERS for selecting the identifier in this section. All defaults are 200. All ranges are 0 to 253.

NO. NAME
(**2 0 3**) PEAK KWH
This display quantity includes standard TOU data: PEAK KWH, PEAK IND KW, PEAK CUM KW, MID KWH, MID IND KW, MID CUM KW, OFF KWH, OFF IND KW, OFF CUM KW. In this example, the offset is 203 minus 6 (identifier from PRESENT DATA DISPLAY IDENTIFIERS), or 197.

NO. NAME
(**2 1 3**) PEAK KWH TIME
This display quantity includes the time and date of TOU demand data: PEAK KW TIME, PEAK KW DATE, MID KW TIME, MID KW DATE, OFF KW TIME, OFF KW DATE.

NO. NAME
(**2 2 3**) 1 KW VALUE
This display quantity includes the survey data group (value, time, date), which includes the five highest demand values.

DISPLAY CONTROL FOR DSP-1 (AUTO)
Defines when data from the previous season is shown during an automatic scroll.

DISPLAY DATA ALWAYS: (**Yes**)
The options are Yes or No. Defines if data from the previous season is always displayed during automatic scroll. The default is No.

DISPLAY DATA ONLY IF SEASON CHANGE: (**No**)
The options are Yes or No. Defines if data from the previous season is displayed only after a season change has occurred since the last demand reset. The default is No.

Notice
DISPLAY DATA ALWAYS and DISPLAY DATA ONLY IF AUTOREAD may both be defined as No, but both cannot be Yes.

DISPLAY CONTROL FOR DSP-2 (MAN)
Defines when data from the previous season is shown during a manual scroll.

DISPLAY DATA ALWAYS: (**No**)
The options are Yes or No. Defines if data from the previous season is always displayed during manual scroll. The default is No.

Switch Times

SEASON	DAY TYPE	TIME	RATE TYPE	LOAD CONTROL RELAY
1	Weekday (D)	02:45	Off	Off

The switch time defines the beginning of a new rate period or load control activity. At 00:00 (midnight) each day, the rate period is set to off-peak and the load control relay is off, unless otherwise defined. At least one switch time must be entered. The EPR-500 sorts SWITCH TIMES.

SEASON:
Defines the season for a new switch time. Usually, Winter = 0, Spring = 1, Summer = 2, and Fall = 3, but the user may redefine the numbers.

DAY TYPE:
Day types identify a specific day when switch times occur. Day types A, B, C, and D identify holidays, Sundays, Saturdays, and weekdays. See DAY TYPE DEFINITION.

TIME:
Defines the time when a new switch time occurs. A 24-hour clock is used and the switch times are defined in 5-minute multiples (for example, 0, 5, and 10).

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RATE TYPE:
Defines the rate that is in effect after the switch occurs. The rate types are: Peak for peak period, Mid for mid-peak, Off for off-peak.

LOAD CONTROL RELAY:
The load control relay must be defined as active or inactive: On for active, and Off for inactive. If On is chosen, BY RATE SCHEDULE in the LOAD CONTROL section must be Yes. (The relay is type Form C.)

Notice
Switch times are not allowed for seasons not defined in SEASON SIMILARITY. Example: if Seasons 0 and 2 look like 0 and Seasons 1 and 3 look like 1, no switch times will be defined for Seasons 2 and 3 in the switch time table.

Recurring Dates

DATE	DAY TYPE	DAY OF WEEK
07/15	Holiday	Wed

Defines cyclic special action days that recur each year and have an easily definable pattern. These days include most holidays, daylight savings time adjust days, and season change days. Special action days that do not fall into this category are Easter, Good Friday, and sometimes season change days. If a special action day always occurs on a particular day of the year, or if it always falls on a particular day of the week in relation to a particular day of the year, it is a candidate for being a recurring date. The register automatically adjusts for leap year; in some cases, a perpetual calendar may be available. The EPR-500 sorts RECURRING DATES.

DATE:
Entering the month/date when defining the rate schedule triggers the need for some action from zero to six days after this date. When used with a particular day of the week, this date must be the earliest possible date of occurrence. An example of this date type is Labor Day (the first Monday in September), having 9/1 as the earliest possible date of occurrence.

DAY TYPE:
One of four choices must be made. The choices are:

Holiday — The register operates on a group of switchpoints (A, B, C, or D) as defined for holidays in the DAY TYPE DEFINITIONS for the current season. The holiday switch times are used only during the specified day.

Begin dst — At 02:00, time jumps forward to 03:00.

End dst — At 02:00, time jumps back to 01:00.

Season chng — The current season increases by two in a two-season rate, or by one in a four-season rate. (When the season is 3, EMF-2 cycles back to season 0.) More than one season change may be specified for the same day; if this occurs, the current season increases by the number of season changes specified. An example would be a two-season rate defining Winter and Summer only. When the season rate changes from Winter to Summer, the current season increases by two.

DAY OF WEEK:
Defines the day of the week (on or following the specified DATE) on which the action is taken. If the DAY OF WEEK is Any, the action occurs on the day of the year defined regardless of the day of the week. DAY OF WEEK definitions are as follows: Sun, Mon, Tue, Wed, Thu, Fri, Sat, and Any. In the Labor Day example, the DAY OF WEEK would be defined as Monday.

Non-Recurring Dates

DATE	DAY TYPE
01/01/1988	Holiday

Defines special action days that do not have an easily definable pattern and, in some cases, negate cyclic date activity (RECURRING DATES). For example, a holiday that is always celebrated on the same day of the year may be moved to a Friday or Monday if it falls on a weekend. NON-RECURRING DATES specify when the action is to take place. If two holidays are defined for the same day in a given year in both the RECURRING and NON-RECURRING DATES, the net effect is to negate the holiday. The EPR-500 sorts NON-RECURRING DATES.

DATE:
A month/day/year format is specified for the dates in the NON-RECURRING DATES table. When there is more than one year between two consecutive dates, the EPR-500 enters a date on 1-00-XXXX. This date specifies to the register that a year change has taken place.

DAY TYPE:
One of four choices must be made. The choices are:

Holiday — The register operates on a group of switchpoints (A, B, C, or D) as defined for holidays in the DAY TYPE DEFINITIONS for the current season. The holiday switch times are used only during the specified day.

Begin dst — At 02:00, time jumps forward to 03:00.

End dst — At 02:00, time jumps back to 01:00.

Season chng — The current season increases by two in a two-season rate, or by one in a four-season rate. (When the season is 3, EMF-2 cycles back to season 0.) More than one season change may be specified for the same day; if this occurs, the current season increases by the number of season changes specified. An example would be a two-season rate defining Winter and Summer only. When the season rate changes from Winter to Summer, the current season increases by two.

CALENDAR LENGTH
The ORIGINAL DATE may be used to determine the calendar length of the rate schedule as follows:

208 ≥ 4(no. SWITCH TIMES) + 4(no. RECURRING DATES) + 3(no. NON-RECURRING DATES)

Since SWITCH TIMES and RECURRING DATES determine regular day-to-day activity and most standard holidays, SWITCH TIMES and RECURRING DATES are entered before NON-RECURRING DATES. A combination of up to 52 of the two quantities may be used (208 ≥ 4(26) + 4(26)).

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