Illinois

Implementation Guide

For

Electronic

Data

Interchange

Transaction Set

Version 4010

650

Maintenance Service Order (MI-Meter Attributes/Information & MIRN-Meter Installation, Removal Notification)

Version 1.02 · October 18, 2000

650 Maintenance Service Order

Functional Group ID=MO

Introduction:

This Draft Standard for Trial Use contains the format and establishes then data contents of the Maintenance Service Order Transaction Set (650) for use within the context of an Electronic Data Interchange (EDI) environment. This transaction set provides a uniform, singular medium for the exchange of maintenance related information among organizations involved in the reporting, requesting, scheduling, planning, estimating, coordinating and performing of maintenance actions. It provides the structure to convey maintenance-related information, including maintenance action directives, maintenance actions, cost estimates, maintenance action assignments, maintenance action status, and completion reports. This transaction set can be used in a bi-directional environment alone or in conjunction with the Project Schedule Reporting Transaction Set (806) to link schedule and maintenance action information as well as with the Specifications/Technical Information Transaction Set (841) to link maintenance-related, media independent, technical data.

Notes:

The specifications for this transaction are defined here for the transfer of meter information between a Meter Service Provider (MSP) and a Delivery Service Provider (DSP). This document designed by the CPWG, a joint effort of Illinois electric servicers. It is a subset of the UIG guidelines for this transaction.

Updated: 8/23/00
When meter attributes are passed, all of the attributes passed are considered up-to-date by the sending party.

Heading:

	Pos. No.	Seg. ID	Name	Req. Des.	Max.Use	Loop Repeat	Notes and Comments
Must Use	010	ST	Transaction Set Header	M	1		
Must Use	020	BGN	Beginning Segment	M	1		
			LOOP ID - N1			>1	
	050	N1	Name	O	1		n1
	070	N3	Address Information	O	2		
	080	N4	Geographic Location	O	1		
	090	PER	Administrative Communications Contact	O	>1		
	100	REF	Reference Identification	O	>1		

Detail:

	Pos. No.	Seg. ID	Name	Req. Des.	Max.Use	Loop Repeat	Notes and Comments
			LOOP ID - HL			>1	
Must Use	010	HL	Hierarchical Level	M	1		n2
	030	REF	Reference Identification	O	>1		
	050	DTM	Date/Time Reference	O	>1		
	070	YNQ	Yes/No Question	O	>1		n3
	100	MEA	Measurements (Meter Readings)	O	>1		
	100	MEA	Measurements (Meter Attributes)	O	>1		
			LOOP ID - NM1			>1	
	190	NM1	Individual or Organizational Name	O	1		n4
	230	COM	Communication Contact Information	O	>1		
			LOOP ID - MTX			>1	

	250	MTX	Text	O	1
Must Use	290	SE	Transaction Set Trailer	M	1

Transaction Set Notes

1. The N1 segment identifies the organization originating and receiving the transaction set.
2. The HL levels are group work candidate and work candidate. Valid HL parent-child relationships are 1) group work candidate-group work candidate and 2) group work candidate-work candidate.
3. The YNQ segment identifies conditions related to a maintenance or repair requirement.
4. The NM1 segment identifies individuals and organizations involved in identifying, coordinating or performing maintenance.

Segment: **ST** **Transaction Set Header**
Position: 010
Loop:
Level: Heading
Usage: Mandatory
Max Use: 1
Purpose: To indicate the start of a transaction set and to assign a control number
Syntax Notes:
Semantic Notes: **1** The transaction set identifier (ST01) is used by the translation routines of the interchange partners to select the appropriate transaction set definition (e.g., 810 selects the Invoice Transaction Set).
Comments:
Notes: ST*650*0001~

Data Element Summary

	Ref. Des.	Data Element	Name	Attributes
Must Use	**ST01**	**143**	**Transaction Set Identifier Code** Code uniquely identifying a Transaction Set 650 Maintenance Service Order	**M ID 3/3**
Must Use	**ST02**	**329**	**Transaction Set Control Number** Identifying control number that must be unique within the transaction set functional group assigned by the originator for a transaction set	**M AN 4/9**

Segment: **BGN** **Beginning Segment**
Position: 020
Loop:
Level: Heading
Usage: Mandatory
Max Use: 1
Purpose: To indicate the beginning of a transaction set
Syntax Notes: **1** If BGN05 is present, then BGN04 is required.
Semantic Notes: **1** BGN02 is the transaction set reference number.
2 BGN03 is the transaction set date.
3 BGN04 is the transaction set time.
4 BGN05 is the transaction set time qualifier.
5 BGN06 is the transaction set reference number of a previously sent transaction affected by the current transaction.
Comments:
Example: MI(status only) example:
BGN*00*123456*2000531*1230*CT***RS~

MIRN(attribute change) example:
BGN*00*123456*2000531*1230*CT***51~

Data Element Summary

	Ref. Des.	Data Element	Name	Attributes	
Must Use	**BGN01**	**353**	**Transaction Set Purpose Code** Code identifying purpose of transaction set 00 Original CO Corrected When sending a corrected version of this transaction CPWG approved. Not yet approved by UIG.	**M**	**ID 2/2**
Must Use	**BGN02**	**127**	**Reference Identification** Reference information as defined for a particular Transaction Set or as specified by the Reference Identification Qualifier Unique number for this transaction generated by sender.	**M**	**AN 1/30**
Must Use	**BGN03**	**373**	**Date** Date expressed as CCYYMMDD	**M**	**DT 8/8**
	BGN04	**337**	**Time** Time expressed in 24-hour clock time as follows: HHMM, or HHMMSS, or HHMMSSD, or HHMMSSDD, where H = hours (00-23), M = minutes (00-59), S = integer seconds (00-59) and DD = decimal seconds; decimal seconds are expressed as follows: D = tenths (0-9) and DD = hundredths (00-99)	**X**	**TM 4/8**
	BGN05	**623**	**Time Code** Code identifying the time. In accordance with International Standards Organization standard 8601, time can be specified by a + or - and an indication in hours in relation to Universal Time Coordinate (UTC) time; since + is a restricted character, + and - are substituted by P and M in the codes that follow CT Central Time	**O**	**ID 2/2**
	BGN08	**306**	**Action Code** Code indicating type of action 51 Complete Meter Installation and/or Removal Notification (MIRN). RS Report Status	**O**	**ID 1/2**

Report Status of existing meter configuration (MI).

Segment: **N1** **Name**
Position: 050
Loop: N1 Optional
Level: Heading
Usage: Optional
Max Use: 1
Purpose: To identify a party by type of organization, name, and code
Syntax Notes: **1** At least one of N102 or N103 is required.
2 If either N103 or N104 is present, then the other is required.
Semantic Notes:
Comments: **1** This segment, used alone, provides the most efficient method of providing organizational identification. To obtain this efficiency the "ID Code" (N104) must provide a key to the table maintained by the transaction processing party.
2 N105 and N106 further define the type of entity in N101.
Notes: MSP, DSP, and Customer N1 required. Customer account number will be in Customer N1 loop.

If submitter is acting in more than one capacity, the combination of N101 and N106 will identify in which capacity the submitter is acting.
Example:
N1*8S*PLYMOUTH UTILITY*1*245678391**41~ (sender)
N1*H8*JOE'S METER READING SERVICE*1*123456789*40~ (receiver)
N1*SJ*BOB'S QUICK ENERGY~ (info only)
N1*8R*JOE CUSTOMER~ (customer)

Data Element Summary

	Ref. Des.	Data Element	Name	Attributes	
Must Use	**N101**	**98**	**Entity Identifier Code** Code identifying an organizational entity, a physical location, property or an individual 8R Consumer Service Provider (CSP) Customer Identifies the customer associated with the service account. 8S Consumer Service Provider (CSP) Distribution Service Provider (DSP) H8 Servicing Agent Meter Service Provider (MSP) SJ Service Provider Identifies name and address information as pertaining to a service provider for which billing is being rendered Retail Electric Supplier (RES)	**M**	**ID 2/3**
	N102	**93**	**Name** Free-form name Value based on N101.	**X**	**AN 1/60**
	N103	**66**	**Identification Code Qualifier** Code designating the system/method of code structure used for Identification Code (67) 1 D-U-N-S Number, Dun & Bradstreet 9 D-U-N-S+4, D-U-N-S Number with Four Character Suffix	**X**	**ID 1/2**
	N104	**67**	**Identification Code** Code identifying a party or other code DUNS or DUNS + 4. Not required for customer.	**X**	**AN 2/80**
	N106	**98**	**Entity Identifier Code** Code identifying an organizational entity, a physical location, property or an individual	**O**	**ID 2/3**

If the submitter of this transaction is licenced to act in more than one capacity, they should enter a "41" to desiginate the capacity in which they are acting here.

40	Receiver Entity to accept transmission
41	Submitter Entity transmitting transaction set

Segment: **N3** **Address Information**
Position: 070
Loop: N1 Optional
Level: Heading
Usage: Optional
Max Use: 2
Purpose: To specify the location of the named party
Syntax Notes:
Semantic Notes:
Comments:
Notes: Customer service address.
Example: N3*3245 POPE JOHN PAUL II DRIVE~

Data Element Summary

	Ref. Des.	Data Element	Name	Attributes	
Must Use	**N301**	**166**	**Address Information** Address information	**M**	**AN 1/55**
	N302	**166**	**Address Information** Address information	**O**	**AN 1/55**

Segment: **N4** **Geographic Location**
Position: 080
Loop: N1 Optional
Level: Heading
Usage: Optional
Max Use: 1
Purpose: To specify the geographic place of the named party
Syntax Notes: **1** If N406 is present, then N405 is required.
Semantic Notes:
Comments: **1** A combination of either N401 through N404, or N405 and N406 may be adequate to specify a location.
2 N402 is required only if city name (N401) is in the U.S. or Canada.
Notes: Mandatory if N3 used.
Example: N4*WISCONSIN DELLS*WI*02134~

Data Element Summary

Ref. Des.	Data Element	Name	Attributes	
N401	**19**	**City Name**	**O**	**AN 2/30**
		Free-form text for city name		
		Customer city.		
N402	**156**	**State or Province Code**	**O**	**ID 2/2**
		Code (Standard State/Province) as defined by appropriate government agency		
		Customer state.		
N403	**116**	**Postal Code**	**O**	**ID 3/15**
		Code defining international postal zone code excluding punctuation and blanks (zip code for United States)		
		Customer Zip.		

Segment: **PER** **Administrative Communications Contact**
Position: 090
Loop: N1 Optional
Level: Heading
Usage: Optional
Max Use: >1
Purpose: To identify a person or office to whom administrative communications should be directed
Syntax Notes: **1** If either PER03 or PER04 is present, then the other is required.

Notes: May be used to indicate who should be contacted if a joint meet is required or requested.
Example: PER*IC*JOE SMITH*TE*5551235643~

Data Element Summary

	Ref. Des.	Data Element	Name	Attributes	
Must Use	**PER01**	**366**	**Contact Function Code** Code identifying the major duty or responsibility of the person or group named IC Information Contact	**M**	**ID 2/2**
	PER02	**93**	**Name** Free-form name Submitter contact name.	**O**	**AN 1/60**
	PER03	**365**	**Communication Number Qualifier** Code identifying the type of communication number BN Beeper Number CP Cellular Phone EM Electronic Mail FX Facsimile TE Telephone	**X**	**ID 2/2**
	PER04	**364**	**Communication Number** Complete communications number including country or area code when applicable Submitter contact number.	**X**	**AN 1/80**

Segment: **REF** **Reference Identification**
Position: 100
Loop: N1 Optional
Level: Heading
Usage: Optional
Max Use: >1
Purpose: To specify identifying information
Syntax Notes: **1** At least one of REF02 or REF03 is required.

Notes: Required in Customer N1 loop.
Example: REF*12*324532562~

Data Element Summary

	Ref. Des.	Data Element	Name	Attributes
Must Use	**REF01**	**128**	**Reference Identification Qualifier** Code qualifying the Reference Identification 11 Account Number Number identifies a telecommunications industry account RES-assigned customer account number 12 Billing Account Account number under which billing is rendered DSP-assigned customer account number	**M ID 2/3**
	REF02	**127**	**Reference Identification** Reference information as defined for a particular Transaction Set or as specified by the Reference Identification Qualifier Account number as specified in REF01.	**X AN 1/30**

Segment: **HL** **Hierarchical Level**
Position: 010
Loop: HL Mandatory
Level: Detail
Usage: Mandatory
Max Use: 1
Purpose: To identify dependencies among and the content of hierarchically related groups of data segments
Syntax Notes:
Semantic Notes:
Comments:
1 The HL segment is used to identify levels of detail information using a hierarchical structure, such as relating line-item data to shipment data, and packaging data to line-item data.
The HL segment defines a top-down/left-right ordered structure.
2 HL01 shall contain a unique alphanumeric number for each occurrence of the HL segment in the transaction set. For example, HL01 could be used to indicate the number of occurrences of the HL segment, in which case the value of HL01 would be "1" for the initial HL segment and would be incremented by one in each subsequent HL segment within the transaction.
3 HL02 identifies the hierarchical ID number of the HL segment to which the current HL segment is subordinate.
4 HL03 indicates the context of the series of segments following the current HL segment up to the next occurrence of an HL segment in the transaction. For example, HL03 is used to indicate that subsequent segments in the HL loop form a logical grouping of data referring to shipment, order, or item-level information.
5 HL04 indicates whether or not there are subordinate (or child) HL segments related to the current HL segment.
Notes: For the purposes of this transaction, there is no parent / child relationship. Every HL loop is a parent. HL03 is used as an "action code"; contrary to the intended use by ANSI. This loop will repeat for each meter or meter pair (on an exchange) .

For the purpose an MSP replacing (2) DSP meters with (1) MSP meter, please show as: the first meter being removed in one HL loop and the second meter being replaced in another HL loop.
Example: HL*1**EV~

Data Element Summary

	Ref. Des.	Data Element	Name	Attributes
Must Use	**HL01**	**628**	**Hierarchical ID Number** A unique number assigned by the sender to identify a particular data segment in a hierarchical structure Iterative loop count.	**M AN 1/12**
Must Use	**HL03**	**735**	**Hierarchical Level Code** Code defining the characteristic of a level in a hierarchical structure EV Event Report of meter attributes or meter test results (MI) IN Interchange Reporting an exchange of meters (MIRN) O Order Reporting meter installation (MI) TI Technical Information Package Reporting change in meter attributes (MIRN) WB Work Breakdown Structure An individual element of work portrayed in tree structure stages of the total performance of a contract Reporting removal of meter (MIRN)	**M ID 1/2**

Segment: **REF** **Reference Identification**
Position: 030
Loop: HL Mandatory
Level: Detail
Usage: Optional
Max Use: >1
Purpose: To specify identifying information
Syntax Notes: **1** At least one of REF02 or REF03 is required.

Example: REF*MT*KHMON~

Data Element Summary

	Ref. Des.	Data Element	Name		Attributes
Must Use	**REF01**	**128**	**Reference Identification Qualifier**		**M ID 2/3**
			Code qualifying the Reference Identification		
			46	Old Meter Number	
				Identifies meters being removed	
				Old (DSP) meter number being removed	
			6W	Sequence Number	
				Channel number being reporting	
			89	Assembly Number	
				Identifies specific assemblies in the manufacturing process	
				Ratio of current transformer (CT) between primary and secondary voltage, (e.g. 200:5)	
			90	Subassembly Number	
				Components of assemblies	
				Ratio of voltage for potential transformer (PT) between primary and secondary voltage, (e.g. 4160:120).	
			BZ	Complaint Code	
				Number categorizing customer complaints	
				Meter test performed	
			EQ	Equipment Number	
				RES meter number	
			FQ	Form Number	
				Form (including base) configuration. Indicated on face of meter - contains condensed meter information.	
			JH	Tag	
				Meter role. (see REF02 for valid values)	
			LU	Location Number	
				Service Delivery Point (see REF03 for format)	
			MF	Manufacturers Part Number	
				American Electrical Power Standard Number (AEP serial number). On MSP to MSP switch, this is the meter being removed.	
			MG	Meter Number	
				DSP meter number	
			MJ	Model Number	
				Manufacturer's Meter Model number.	
			MT	Meter Ticket Number	
				Meter type. (see REF02 for valid values)	
			NH	Rate Card Number	

	DSP's customer rate class.
PR	Price Quote Number
	DSP's customer rate sub class.
QB	Press Form Identifier
	Power transformer configuration. (see REF02 for valid values)
QH	Replacement Assembly Serial Number
	Serial number of replacement component
	American Electric Power Standard number. AEP meter number of the meter being installed. (see REF02 for format)
S3	Specification Number
	Progam ID or software name meter is programed by.
SU	Special Processing Code
	Unique code identifying the special handling requirements for the claim
	Life support equiptment verification. (see REF02 for valid values)
V9	Subservicer
	Meter owner. (see REF02 for valid values)
Y7	Processing Area
	Meter Manufacturer

REF02 127 Reference Identification X AN 1/30

Reference information as defined for a particular Transaction Set or as specified by the Reference Identification Qualifier

Enter the value indicated by REF01.

"JH" = Meter role: "A"dditive (this meter's consumption contributes to the total for the account), "S"ubtractive (this meter's consumption must be subtracted from the total for the account), "B"i-directional (this meter records both positive and negative consumption), or "I"gnore (this meter's consumption does not contribute to the total for the account).

"MT" = Meter type.
The meter type is expressed as a 5-character field. The first 2 characters are the type of consumption; the last 3 characters are the metering interval reported for billing purposes.
Valid types of consumption are:
EA Each
K1 Kilowatt demand (kW)
K2 Kilovolt Amperes Reactive Demand (kVAR)
K3 Kilovolt Amperes Reactive Hour (kVARH)
K4 Kilovolt Amperes (kVA)
K5 Kilovolt Amperes Reactive (kVAR)
KH Kilowatt Hour (kWh)
Examples:
KHMON: Monthly Kilo-watt hours
K1015: 15 minute intervals of KW demands.
K3060: Hourly intervals of KVAR-Hours

"QH" = AEP meter number
Format of AEP meter number: AABCCCCCCCCCZZZZZ
where AA is the test codes,
B is the meter manufacturer code,
CCCCCCCCC is the 9-digit meter number
and ZZZZZ is 3-digit MSP id, followed by 2 undefined characters.

"SU" = Life support; "Y"es (default is no)

"QB" = Transformer configuration. Valid values are "D"elta and "W"ye.

"V9" = Meter owner. Valid values are "MSP" or "DSP".

Meter Number Usage Clarification:
- On response to 814-MI, DSP to use REF*MG for existing meter number.
- On MSP replaces DSP meter: use REF*46 for DSP meter being removed and REF*QH for MSP meter being installed.
- On MSP exchanges MSP meter: use REF*MF for MSP meter being removed and REF*QH for MSP meter being installed.
- On MSP changes MSP meter attributes: use only REF*QH for existing MSP meter.
- On MSP adds meter to account: use REF*QH for new MSP meter.

REF03	**352**	**Description**	**X**	**AN 1/80**

A free-form description to clarify the related data elements and their content

If REF01 = "MT", ComEd will be inserting the word "PRIME" or "SUBTRACTIVE" to indicate the meter relationship.

"LU" = Service delivery point
SDP format: 1-0-xxxxx-yyyyyyyyyyyyyyyyyyyyyyyyyyyyy
(5 x's and 29 y's - total field length of 39)
where "1-0" is reserved for future use,
5 x's are the DSP's US Dept. of Energy id,
29 y's is DSP defined number, permanent and unique to each meter-base physical location.

Segment: **DTM** **Date/Time Reference**
Position: 050
Loop: HL Mandatory
Level: Detail
Usage: Optional
Max Use: >1
Purpose: To specify pertinent dates and times
Syntax Notes: **1** At least one of DTM02 DTM03 or DTM05 is required.
2 If DTM04 is present, then DTM03 is required.

Example: DTM*MRR*2000531~

Data Element Summary

	Ref. Des.	Data Element	Name	Attributes
Must Use	**DTM01**	**374**	**Date/Time Qualifier** Code specifying type of date or time, or both date and time 105 Quality Rating Device test date 230 Installation Installation date. 321 Purchased Date product/extended coverage was purchased Purchase date. MRR Meter Reading Meter read date and/or meter removal date.	**M ID 3/3**
	DTM02	**373**	**Date** Date expressed as CCYYMMDD Value indicated by DTM01.	**X DT 8/8**
	DTM03	**337**	**Time** Time expressed in 24-hour clock time as follows: HHMM, or HHMMSS, or HHMMSSD, or HHMMSSDD, where H = hours (00-23), M = minutes (00-59), S = integer seconds (00-59) and DD = decimal seconds; decimal seconds are expressed as follows: D = tenths (0-9) and DD = hundredths (00-99)	**X TM 4/8**
	DTM04	**623**	**Time Code** Code identifying the time. In accordance with International Standards Organization standard 8601, time can be specified by a + or - and an indication in hours in relation to Universal Time Coordinate (UTC) time; since + is a restricted character, + and - are substituted by P and M in the codes that follow Refer to 004010 Data Element Dictionary for acceptable code values.	**O ID 2/2**

Segment: **YNQ** **Yes/No Question**
Position: 070
Loop: HL Mandatory
Level: Detail
Usage: Optional
Max Use: >1
Purpose: To identify and answer yes and no questions, including the date, time, and comments further qualifying the condition
Syntax Notes:
1 Only one of YNQ01 YNQ09 or YNQ10 may be present.
2 If either YNQ03 or YNQ04 is present, then the other is required.
3 If YNQ09 is present, then YNQ08 is required.
Semantic Notes:
1 YNQ02 confirms or denies the statement made in YNQ01, YNQ09 or YNQ10. A "Y" indicates the statement is confirmed; an "N" indicates the statement is denied.
2 YNQ10 contains a free-form question when codified questions are not available.
Comments:
Notes: On meter exchanges, this segment is used to indicate that a joint meet is requested or required. Also, this segment can be use to report additional information on meter attributes.
Example: YNQ**Y******9*JM1~

Data Element Summary

	Ref. Des.	Data Element	Name	Attributes	
Must Use	**YNQ02**	**1073**	**Yes/No Condition or Response Code**	**M**	**ID 1/1**
			Code indicating a Yes or No condition or response		
			Enter "Y"es or "N" to value specified in YNQ09 (default is no).		
			N No		
			Y Yes		
	YNQ08	**1270**	**Code List Qualifier Code**	**X**	**ID 1/3**
			Code identifying a specific industry code list		
			Enter "9".		
			9 Indicator Code A specific condition applies to the contract		
	YNQ09	**1271**	**Industry Code**	**X**	**AN 1/30**
			Code indicating a code from a specific industry code list		
			"JM1" = joint meet requested. "JM2" = joint meet required. "KWHC" = customer accessible pulse output provided. "PHD" = meter is remotely readable via telephone.		

Segment: **MEA** **Measurements (Meter Readings)**
Position: 100
Loop: HL Mandatory
Level: Detail
Usage: Optional
Max Use: >1
Purpose: To specify physical measurements or counts, including dimensions, tolerances, variances, and weights (See Figures Appendix for example of use of C001)
Syntax Notes:
1 At least one of MEA03 MEA05 MEA06 or MEA08 is required.
2 If MEA05 is present, then MEA04 is required.
3 If MEA06 is present, then MEA04 is required.
4 If MEA07 is present, then at least one of MEA03 MEA05 or MEA06 is required.
5 Only one of MEA08 or MEA03 may be present.
Semantic Notes:
1 MEA04 defines the unit of measure for MEA03, MEA05, and MEA06.
Comments:
1 When citing dimensional tolerances, any measurement requiring a sign (+ or -), or any measurement where a positive (+) value cannot be assumed, use MEA05 as the negative (-) value and MEA06 as the positive (+) value.
Examples:
MEA*R1***KH**45867*42~ (start read, on peak, energy index)
MEA*R2*RD*4*EA**3~ (end read, programmable or TOU meter, 4th display of sequence, value of 3, UOM is unknown)

Data Element Summary

	Ref. Des.	Data Element	Name	Attributes
	MEA01	**737**	**Measurement Reference ID Code** Code identifying the broad category to which a measurement applies R1 Opening Reading Reading of installed meter. R2 Closing Reading Reading of meter being removed.	**O ID 2/2**
	MEA02	**738**	**Measurement Qualifier** Code identifying a specific product or process characteristic to which a measurement applies RD Readpoint Programmable or Time-of-use meter.	**O ID 1/3**
	MEA03	**739**	**Measurement Value** The value of the measurement The register number on a programmable meter (required if MEA02 = "RD").	**X R 1/20**
	MEA04	**C001**	**Composite Unit of Measure** To identify a composite unit of measure (See Figures Appendix for examples of use)	**X**
Must Use	**C00101**	**355**	**Unit or Basis for Measurement Code** Code specifying the units in which a value is being expressed, or manner in which a measurement has been taken EA Each Unknown UOM for programmable meters. K1 Kilowatt Demand Represents potential power load measured at predetermined intervals KH Kilowatt Hour	**M ID 2/2**
	MEA06	**741**	**Range Maximum** The value specifying the maximum of the measurement range If MEA01 = "R1" - enter reading on new meter. If MEA01 = "R2" - enter reading on removed meter. If MEA02 = "RD" - enter the value of the register specified in MEA03.	**X R 1/20**
	MEA07	**935**	**Measurement Significance Code**	**O ID 2/2**

Code used to benchmark, qualify or further define a measurement value

22	Actual
41	Off Peak
42	On Peak

Segment: **MEA** **Measurements (Meter Attributes)**
Position: 100
Loop: HL Mandatory
Level: Detail
Usage: Optional
Max Use: >1
Purpose: To specify physical measurements or counts, including dimensions, tolerances, variances, and weights (See Figures Appendix for example of use of C001)
Syntax Notes:
1 At least one of MEA03 MEA05 MEA06 or MEA08 is required.
2 If MEA05 is present, then MEA04 is required.
3 If MEA06 is present, then MEA04 is required.
4 If MEA07 is present, then at least one of MEA03 MEA05 or MEA06 is required.
5 Only one of MEA08 or MEA03 may be present.
Semantic Notes:
1 MEA04 defines the unit of measure for MEA03, MEA05, and MEA06.
Comments:
1 When citing dimensional tolerances, any measurement requiring a sign (+ or -), or any measurement where a positive (+) value cannot be assumed, use MEA05 as the negative (-) value and MEA06 as the positive (+) value.
Examples:
MEA**35*4~ (4 wire meter)
MEA**MEF*20~ (tested at 20 amps)
MEA**QUR*5.3~ (meter has 8 total dials, 5 read integer values, last 3 read decimals)

Data Element Summary

Ref. Des.	Data Element	Name	Attributes
MEA02	**738**	**Measurement Qualifier** Code identifying a specific product or process characteristic to which a measurement applies	**O ID 1/3**
		35 Number of Living Units Number of wires in an electric circuit that the meter is designed to measure.	
		36 Number of Phases Number of phases. Valid values for MEA03 are: 1 = single phase (one fed phase) 2 = two phase (two fed phases) 3 = three or poly phase	
		MEF Meter Factor Meter test amps at which the meter is calibrated.	
		MU Multiplier Meter constant or meter multiplier.	
		NA Number per Package Number of channels on the recorder.	
		NB Number per Bundle PT Quantity. Number of voltage or potential transformers associated with the meter.	
		NC Number per Coil Group CT Quantity. Number of current transformers associated with the meter.	
		PJ Pulse Width The time between the specified reference points on the leading and trailing edges of a pulse Pulse (demand) multiplier.	
		QC Quantity or Loading Maximum Meter class (maximum amps).	
		QUR Reportable Quantity Number of dials on meter. Displayed as "x.y", where x is integer and y is decimal.	
		RB Range Value	

			Customer's maximum demand (kW). Actual value is in MEA03.		
		RR	Reduction Ratio		
			Register constant. A multiplier applied to meter display to obtain total registration.		
		UG	Usage		
			Meter Kh. Disk constant. Watt hours per disk revolution.		
		VO	Voltage		
			Meter voltage.		
		VSO	Volume Split to Others		
			Service voltage. Voltage of the meter site.		
MEA03	**739**	**Measurement Value**		**X**	**R 1/20**
		The value of the measurement			
		Value of attribute identified in MEA02.			

Segment: **NM1** **Individual or Organizational Name**
Position: 190
Loop: NM1 Optional
Level: Detail
Usage: Optional
Max Use: 1
Purpose: To supply the full name of an individual or organizational entity
Semantic Notes: **1** NM102 qualifies NM103.

Notes: This segment is necessary if using the following COM segment.
Example: NM1*MQ*JOE CUSTOMER~

Data Element Summary

	Ref. Des.	Data Element	Name	Attributes	
Must Use	**NM101**	**98**	**Entity Identifier Code** Code identifying an organizational entity, a physical location, property or an individual MQ Metering Location	**M**	**ID 2/3**
Must Use	**NM102**	**1065**	**Entity Type Qualifier** Code qualifying the type of entity 3 Unknown	**M**	**ID 1/1**
	NM103	**1035**	**Name Last or Organization Name** Individual last name or organizational name	**O**	**AN 1/35**

Segment: **COM** **Communication Contact Information**
Position: 230
Loop: NM1 Optional
Level: Detail
Usage: Optional
Max Use: >1
Purpose: To specify a communication contact number
Syntax Notes:
Semantic Notes:
Comments:
Example: COM*TE*5555821234~

Data Element Summary

	Ref. Des.	Data Element	Name	Attributes
Must Use	**COM01**	**365**	**Communication Number Qualifier** Code identifying the type of communication number TE Telephone Meter communication telephone number.	**M ID 2/2**
Must Use	**COM02**	**364**	**Communication Number** Complete communications number including country or area code when applicable Phone number.	**M AN 1/80**

Segment: **MTX** **Text**
Position: 250
Loop: MTX Optional
Level: Detail
Usage: Optional
Max Use: 1
Purpose: To specify textual data
Syntax Notes: **1** If MTX01 is present, then MTX02 is required.
2 If MTX03 is present, then MTX02 is required.
Semantic Notes:
Comments:
Notes: Used for adding notes specific to the meter site.
Example: MTX*ADD*THERE ARE RATS IN THE BASEMENT GARDING THE METER~

Data Element Summary

Ref. Des.	Data Element	Name	Attributes
MTX01	**363**	**Note Reference Code** Code identifying the functional area or purpose for which the note applies ADD Additional Information Additional text message used for informational purposes. LOC Location Description Information A free-form description of a location, helpful in trying to locate a specific facility Physical location of meter. RPT Report Remarks General remarks about the condition of the meter, meter site, or account.	**O ID 3/3**
MTX02	**1551**	**Message Text** To transmit large volumes of message text additional comments	**X AN 1/4096**

Segment: **SE** **Transaction Set Trailer**
Position: 290
Loop:
Level: Detail
Usage: Mandatory
Max Use: 1
Purpose: To indicate the end of the transaction set and provide the count of the transmitted segments (including the beginning (ST) and ending (SE) segments)
Syntax Notes:
Semantic Notes:
Comments: **1** SE is the last segment of each transaction set.

Data Element Summary

	Ref. Des.	Data Element	Name	Attributes
Must Use	**SE01**	**96**	**Number of Included Segments** Total number of segments included in a transaction set including ST and SE segments	**M N0 1/10**
Must Use	**SE02**	**329**	**Transaction Set Control Number** Identifying control number that must be unique within the transaction set functional group assigned by the originator for a transaction set	**M AN 4/9**

Updated 10/17/00

PURPOSE:
The purpose of the 650 is to send meter attributes to & from DSP & MSP.

SCENARIO (#1 - MI):
DSP sends meter attributes to prospective MSP, in response to 814-MI request. (Pre-enroll)

TRANSACTION:

ST*650*0001!	
BGN*00*3920394930203*20000522*1615*CT***RS!	(EVENT - MI)
N1*8R*JOE CUSTOMER!	Customer qualifier, Customer name (no DUNS for customer)
N3*SERVICE ADDRESS!	Service Address - street address
N4*CINCINNATI*OH*43017!	Service Address - city address
REF*12*ACCOUNTNUMBER!	DSP assigned customer account number (Service Address and Account Number in CUSTOMER - N1 loop)
N1*8S*DSP NAME*9*9999999994444**41!	DSP qualifier, DSP name, DUNS+4 indicator, DUNS+4 number, SENDER code
PER*IC*TOM JOHNSON*TE*(624)555-4321!	Contact qualifier, contact name, telephone qualifier, contact phone number (PER in SENDER - N1 loop)
N1*H8*MSP NAME*1*333666666**40!	MSP qualifier, MSP name, DUNS indicator, DUNS number, RECEIVER code
N1*SJ*RES NAME*9*3336666664444!	RES qualifier, RES name, DUNS+4 indicator, DUNS+4 number
HL*1**EV!	Meter Loop #1(Attributes)
REF*89*500:5!	CT qualifier, CT Ratio (only sent by DSP)
REF*90*277:120!	PT qualifier, PT Ratio (only sent by DSP)
REF*FQ*6S!	Form number qualifier, form number, including the base type descriptor
REF*JH*A*PRIME!	Meter roll qualifier, Meter Role (additive, prime)
REF*MG*meternum!	Meter qualifier, Meter ("current" DSP meter)
REF*MT*K1030!	Meter type qualifier, Meter Type (30 minute KW demand)
REF*NH*rate class!	Rate class qualifier, DSP's customer rate class
DTM*94*19970522!	Date of meter manufacture
YNQ**Y******9*JM1!	'Y" = yes, joint meet qualifier, joint meet requested
MEA**35*4!	Number of wires qualifier, number of wires = 4
MEA**36*3!	Number of Phases qualifier, number of phases = 3

MEA**NA*1!	Number of channels qualifier, number of channels = 1
MEA**NB*3!	PT quantity qualifier, PT quantity = 3
MEA**NC*3!	CT quantity qualifier, CT quantity = 3
MEA**QUR*5!	Number of dials qualifier, number of dials = 5
MEA**RB*10.2!	Demand qualifier, maximum demand = 10.2 KW
MEA**VO*277!	Voltage qualifier, meter voltage = 277 volts
NM1*MQ*3*METER COMM NUMBER!	A COM record is to be sent, so this NM1 segment must be sent to initialize the NM1 loop. Type qualifier is 3 = "unknown". NM103 is required, so literal "METER COMM NUMBER" is sent.
COM*TE*(614)555-1212!	Phone number of remotely readable meter. Used by MDMA to poll the meter.
MTX*LOC*METER IS IN THE BASEMENT CELLAR!	Meter location qualifier, actual meter location
MTX*ADD*CUSTOMER HAS GHOSTS IN THE BASEMENT!	Additional meter information qualifier, additional information
HL*2**EV! Next meter, etc.	Start electric meter loop #2
| | | V SE*nn*0001!	The next Meter attribute will loop same as above, until end of attributes.

PURPOSE:
The purpose of the 650 is to send meter attributes to & from DSP & MSP.

SCENARIO (#2 - MIRN):
MSP Exchanges DSP meter and replaces it with new MSP meter (Enroll MSP)
(Removed DSP meter was simple KWH, combo type, or interval-recording)

TRANSACTION:

ST*650*0002!	
BGN*00*3920394930203*20000522*1615*CT***51!	(Change - MIRN)
N1*8R*JOE CUSTOMER!	Customer qualifier, Customer name (no DUNS for customer)
N3*SERVICE ADDRESS!	Service Address - street address
N4*CINCINNATI*OH*43017!	Service Address - city address
REF*12*ACCOUNTNUMBER!	DSP assigned customer account number (Service Address and Account Number in CUSTOMER - N1 loop)
N1*8S*DSP NAME*9*9999999994444**40!	DSP qualifier, DSP name, DUNS+4 indicator, DUNS+4 number, RECEIVER code
N1*H8*MSP NAME*1*333666666**41!	MSP qualifier, MSP name, DUNS indicator, DUNS number, SENDER code
PER*IC*DICK JOHNSON*TE*(614)555-1212!	Contact qualifier, contact name, telephone qualifier, contact phone number (PER in SENDER - N1 loop)
N1*SJ*RES NAME*9*3336666664444!	RES qualifier, RES name, DUNS+4 indicator, DUNS+4 number
HL*1**IN!	Start Loop #1 (Exchange)
REF*FQ*6S!	Form number qualifier, form number, including the base type descriptor
REF*JH*B!	bi-directional meter
REF*46*DSP meternum!	Removed meter ("old" DSP meter)
REF*QH*AEP meternum!	Installed meter (MSP - 17 digit)
NOTE: All following attributes are for NEW Installed MSP Meters	
REF*MT*KHTOU!	KWH time of use meter installed
REF*Y7*ACME METER COMPANY!	Meter manufacturer
DTM*230*20000522!	Meter install date
DTM*MRR*20000522*0030!	Meter read date and time
MEA**35*4!	Number of wires = 4
MEA**36*3*!	Number of phases = 3
MEA**NA*1!	Number of channels = 1
MEA**NB*3!	PT quantity = 3
MEA**NC*3!	CT quantity = 3
MEA**QUR*5!	number of dials = 5
MEA**RB*10.2!	Demand qualifier, maximum demand = 10.2 KW
MEA**VO*277!	meter voltage = 277 volts
MEA*R2***KH**435503!	final reading of removed meter *

MEA*R1***KH**000000!	opening reading of new MSP meter
NM1*MQ*3*METER COMM NUMBER!	A COM record is to be sent, so this NM1 segment must be sent to initialize the NM1 loop. Type qualifier is 3 = "unknown". NM103 is required, so literal "METER COMM NUMBER" is sent.
COM*TE*(614)555-1212!	Phone number of remotely readable meter. Used by MDMA to poll the meter.
MTX*LOC*WE HID THE METER BEHIND THE FURNACE!	
SE*nn*0002~	

NOTES:

- If exchange is done as Joint-Meet, no final read is sent.

PURPOSE:
The purpose of the 650 is to send meter attributes to & from DSP & MSP.

SCENARIO (#2B - MIRN):
MSP Exchanges DSP meter and replaces it with new MSP meter (Exchange)
(Removed meter is multiple display programmable -TOU- type Non-Joint-Meet)

TRANSACTION:

ST*650*0002B!	
BGN*00*3920394930203*20000522*1615*CT***51!	(Change - MIRN)
N1*8R*JOE CUSTOMER!	Customer qualifier, Customer name (no DUNS for customer)
N3*SERVICE ADDRESS!	Service Address - street address
N4*CINCINNATI*OH*43017!	Service Address - city address
REF*12*ACCOUNTNUMBER!	DSP assigned customer account number (Service Address and Account Number in CUSTOMER - N1 loop)
N1*8S*DSP NAME*9*9999999994444**40!	DSP qualifier, DSP name, DUNS+4 indicator, DUNS+4 number, RECEIVER code
N1*H8*MSP NAME*1*333666666**41!	MSP qualifier, MSP name, DUNS indicator, DUNS number, SENDER code
PER*IC*DICK JOHNSON*TE*(614)555-1212!	Contact qualifier, contact name, telephone qualifier, contact phone number
N1*SJ*RES NAME*9*3336666664444!	RES qualifier, RES name, DUNS+4 indicator, DUNS+4 number
HL*1**IN!	Start Loop #1 (Exchange)
REF*FQ*6S!	Form number qualifier, form number, including the base type descriptor
REF*JH*B!	bi-directional meter
REF*46*DSP meternum!	Removed meter ("old" DSP meter)
REF*QH*AEP meternum!	Installed meter (MSP - 17 digit)
NOTE: All following attributes are for NEW Installed Meters	
REF*MT*KHTOU!	KWH time of use meter installed
REF*Y7*ACME METER COMPANY!	meter manufacturer
DTM*230*20000522!	meter install date
DTM*MRR*20000522*0030!	meter read date and time
MEA**35*4!	number of wires = 4
MEA**36*3!	number of phases = 3
MEA**NA*1!	number of channels = 1
MEA**NB*3!	PT quantity = 3
MEA**NC*3!	CT quantity = 3
MEA**QUR*5!	number of dials = 5
MEA**RB*10.2!	Demand qualifier, maximum demand = 10.2 KW
MEA**VO*277!	meter voltage = 277 volts
NOTE: Final readings of removed meter, multiple display type programmable meter (example = 6 display program sequence) MSP has no knowledge of meaning of displays, so all coded with UOM = "EA"	

MEA*R2*RD*1*EA**1234!	1st display of sequence
MEA*R2*RD*2*EA**5678!	2nd display of sequence
MEA*R2*RD*3*EA**90!	3rd display of sequence
MEA*R2*RD*4*EA**3!	4th display of sequence
MEA*R2*RD*5*EA**2400!	5th display of sequence
MEA*R2*RD*6*EA**123199!	6th display of sequence
MEA*R1***KH**000000!	opening reading of new MSP meter
NM1*MQ*3*METER COMM NUMBER!	A COM record is to be sent, so this NM1 segment must be sent to initialize the NM1 loop. Type qualifier is 3 = "unknown". NM103 is required, so literal "METER COMM NUMBER" is sent.
COM*TE*(614)555-1212!	Phone number of remotely readable meter. Used by MDMA to poll the meter.
MTX*LOC*WE FOUND THE METER UNDER THE WATER HEATER!	
MTX*LOC*WE HID THE METER BEHIND THE FURNACE!	
SE*nn*0002B!	

PURPOSE:
The purpose of the 650 is to send meter attributes to & from DSP & MSP.

SCENARIO (#3 MIRN):
MSP Exchanges old MSP meter with a new MSP meter (Exchange)
OR: meter dial change, or other change affecting billing determinants

TRANSACTION:

ST*650*0003!	
BGN*00*3920394930203*20000522*1615*CT***51!	(Change - MIRN)
N1*8R*JOE CUSTOMER!	Customer qualifier, Customer name (no DUNS for customer)
N3*SERVICE ADDRESS!	Service Address - street address
N4*CINCINNATI*OH*43017!	Service Address - city address
REF*12*ACCOUNTNUMBER!	DSP assigned customer account number (Service Address and Account Number in CUSTOMER - N1 loop)
N1*8S*DSP NAME*9*9999999994444**40!	DSP qualifier, DSP name, DUNS+4 indicator, DUNS+4 number, RECEIVER code
N1*H8*MSP NAME*1*333666666**41!	MSP qualifier, MSP name, DUNS indicator, DUNS number, SENDER code
PER*IC*DICK JOHNSON*TE*(614)555-1212!	Contact qualifier, contact name, telephone qualifier, contact phone number
N1*SJ*RES NAME*9*3336666664444!	RES qualifier, RES name, DUNS+4 indicator, DUNS+4 number
HL*1**IN!	Meter Loop #1 (Exchange)
REF*FQ*6S!	Form number qualifier, form number, including the base type descriptor
REF*JH*B!	Role = bi-directional meter meter (17 digit)
REF*MF*AEP old_meternum!	MSP removed meter (17 digit)
REF*QH*AEP new_meternum!	MSP installed
(Note: all following attributes are for NEW-Installed meter)	
REF*MT*KHTOU!	KWH time of use meter installed
REF*Y7*ACME METER COMPANY!	meter manufacturer
DTM*230*20000522!	meter install date
DTM*MRR*20000522*0030!	meter read date and time
MEA**35*4!	number of wires = 4
MEA**36*3!	number of phases = 3
MEA**NA*1!	number of channels = 1
MEA**NB*3!	PT quantity = 3
MEA**NC*3!	CT quantity = 3
MEA**QUR*5!	number of dials = 5
MEA**RB*10.2!	Demand qualifier, maximum demand = 10.2 KW
MEA**VO*277!	meter voltage = 277 volts
MEA*R2***KH**546330!	Final reading of removed meter *
MEA*R1***KH**000000!	open reading of new MSP meter ****

NM1*MQ*3*METER COMM NUMBER!	A COM record is to be sent, so this NM1 segment must be sent to initialize the NM1 loop. Type qualifier is 3 = "unknown". NM103 is required, so literal "METER COMM NUMBER" is sent.
COM*TE*(614) 555-1212!	Phone number of remotely readable meter. Used by MDMA to poll the meter.
MTX*LOC*WE HID THIS METER IN THE ATTIC!	
SE*nn*0003!	

Notes:

- MSP sends final (partial month) meter reads (usage) on EDI-867

PURPOSE:
The purpose of the 650 is to send meter attributes to & from DSP & MSP.

SCENARIO (#4 - MIRN):
MSP changes meter attributes, same MSP meter remains in service. (Change)

TRANSACTION:

ST*650*0004!	
BGN*00*3920394930203*20000522*1615*CT***51!	(Change - MIRN)
N1*8R*JOE CUSTOMER!	Customer qualifier, Customer name (no DUNS for customer)
N3*SERVICE ADDRESS!	Service Address - street address
N4*CINCINNATI*OH*43017!	Service Address - city address
REF*12*ACCOUNTNUMBER!	DSP assigned customer account number (Service Address and Account Number in CUSTOMER - N1 loop)
N1*8S*DSP NAME*9*9999999994444**40!	DSP qualifier, DSP name, DUNS+4 indicator, DUNS+4 number, RECEIVER code
N1*H8*MSP NAME*1*333666666**41!	MSP qualifier, MSP name, DUNS indicator, DUNS number, SENDER code
PER*IC*DICK JOHNSON*TE*(614)555-1212!	Contact qualifier, contact name, telephone qualifier, contact phone number (PER in SENDER - N1 loop)
N1*SJ*RES NAME*9*3336666664444!	RES qualifier, RES name, DUNS+4 indicator, DUNS+4 number
HL*1**TI!	Meter Loop #1 (Change Attributes) (Receiver: Assume that any attribute sent has Changed Assume that any attribute not sent stays as-is) If Receiver "owns" the attribute, ignore any changes.) (Sender: Must send attribute(s) being changed. May optionally send any/all other attributes it "owns".)
REF*FQ*6S!	Form number qualifier, form number, including the base type descriptor
REF*JH*B!	Role = bi-directional meter
REF*QH*AEP meternum!	MSP meter (current meter)
REF*MT*KHTOU!	KWH time of use meter installed
REF*Y7*ACME METER COMPANY!	meter manufacturer
MEA**35*4!	number of wires = 4
MEA**36*3!	number of phases = 3
MEA**NA*2!	number of channels = 2
MEA**NB*3!	PT quantity = 3

MEA**NC*3!	CT quantity = 3
MEA**QUR*5!	number of dials = 5
MEA**RB*10.2!	Demand qualifier, maximum demand = 10.2 KW
MEA**VO*277!	meter voltage = 277 volts
SE*nn*0004!	

NOTE: On an attribute update, sender is expected to send all attributes they know, changed or not. Receiver is expected to interpret these as all being the "latest and greatest" attributes, overwriting receiver's database with all attributes sent. If no value is sent for an attribute, receiver should leave it as-is in receiver's database, not zero it or blank it out.

NOTE: DSP always "owns" the PT and CT attributes, so MSP should not be sending them. If sent by MSP, DSP should ignore then, not revising the DSP database per MSP PT/CT information. Optionally, DSP may compare any PT/CT attributes sent by MSP and inform MSP of any discrepancies.

PURPOSE:
The purpose of the 650 is to send meter attributes to & from DSP & MSP.

SCENARIO (#5 - MI):
MSP reports having tested their MSP owned meter. (Event)

TRANSACTION:

ST*650*0005!	
BGN*CO*3920394930203*20000522*1615*CT***51!	(EVENT - MI) BGN01 = "CO" indicates that this is a CORRECTION to a previously sent transaction, for this meter. Drop previous information and replace it with this new information.
N1*8R*JOE CUSTOMER!	Customer qualifier, Customer name (no DUNS for customer)
N3*SERVICE ADDRESS!	Service Address - street address
N4*CINCINNATI*OH*43017!	Service Address - city address
REF*12*ACCOUNTNUMBER!	DSP assigned customer account number (Service Address and Account Number in CUSTOMER - N1 loop)
N1*8S*DSP NAME*9*9999999994444**40!	DSP qualifier, DSP name, DUNS+4 indicator, DUNS+4 number, RECEIVER code
N1*H8*MSP NAME*1*333666666**41!	MSP qualifier, MSP name, DUNS indicator, DUNS number, SENDER code
PER*IC*DICK JOHNSON*TE*(614)555-1212!	Contact qualifier, contact name, telephone qualifier, contact phone number (PER in SENDER - N1 loop)
N1*SJ*RES NAME*9*3336666664444!	RES qualifier, RES name, DUNS+4 indicator, DUNS+4 number
HL*1**EV!	Meter Loop #1 (Event)
REF*QH*AEP meternum!	MSP meter (current meter)
REF*BZ*E!	Indicates a meter-test was done
DTM*105*20000515!	Meter test date
SE*nn*0005!	

Note: this transaction only conveys the information that a certain meter was tested on a certain date. No specific test results are sent. Receiver may assume that the test results were satisfactory, unless sender subsequently sends a meter replacement transaction.

PURPOSE:
The purpose of the 650 is to send meter attributes to & from DSP & MSP.

SCENARIO (#6 - MIRN):
MSP adds new meter to existing MSP account, keeps existing meter(s) (Add)

TRANSACTION:

ST*650*0006!	
BGN*00*3920394930203*20000522*1615*CT***51!	(Change - MIRN)
N1*8R*JOE CUSTOMER!	Customer qualifier, Customer name (no DUNS for customer)
N3*SERVICE ADDRESS!	Service Address - street address
N4*CINCINNATI*OH*43017!	Service Address - city address
REF*12*ACCOUNTNUMBER!	DSP assigned customer account number (Service Address and Account Number in CUSTOMER - N1 loop)
N1*8S*DSP NAME*9*9999999994444**40!	DSP qualifier, DSP name, DUNS+4 indicator, DUNS+4 number, RECEIVER code
N1*H8*MSP NAME*1*333666666**41!	MSP qualifier, MSP name, DUNS indicator, DUNS number, SENDER code
PER*IC*DICK JOHNSON*TE*(614)555-1212!	Contact qualifier, contact name, telephone qualifier, contact phone number (PER in SENDER - N1 loop)
N1*SJ*RES NAME*9*3336666664444!	RES qualifier, RES name, DUNS+4 indicator, DUNS+4 number
HL*1**O!	Start Loop #1 (NET INSTALL)
REF*FQ*6S!	Form number qualifier, form number, including the base type descriptor
REF*JH*S!	Role = Subtractive meter
REF*QH*AEP meternum!	Installed meter (MSP - 17 digit)
(Note: all following attributes are for NEW - Installed meter)	
REF*MT*KH015!	15 minute interval KWH meter
REF*Y7*ACME METER COMPANY!	meter manufacturer
DTM*230*20000522!	meter install date
DTM*MRR*20000522*0030!	meter read date and time
MEA**35*4!	number of wires = 4
MEA**36*3!	number of phases = 3
MEA**NA*1!	number of channels = 1
MEA**NB*3!	PT quantity = 3
MEA**NC*3!	CT quantity = 3
MEA**QUR*5!	number of dials = 5
MEA**RB*10.2!	Demand qualifier, maximum demand = 10.2 KW
MEA**VO*277!	meter voltage = 277 volts
MEA*R1***KH**000000!	opening reading of new MSP meter

NM1*MQ*3*METER COMM NUMBER!	A COM record is to be sent, so this NM1 segment must be sent to initialize the NM1 loop. Type qualifier is 3 = "unknown". NM103 is required, so literal "METER COMM NUMBER" is sent.
COM*TE*(614)555-1212!	Phone number of remotely readable meter. Used by MDMA to poll the meter.
MTX*LOC*WE HID THE METER BEHIND THE FURNACE!	
SE*nn*0006!	

Updated 01/09/01

PURPOSE:
The purpose of the 650 is to send meter attributes to & from DSP & MSP.

SCENARIO (#7 - MIRN):
DSP removes MSP meter and replaces it with new DSP meter
(revert to bundled, or, customer no longer wants service at this premise)

TRANSACTION:

ST*650*0007!	
BGN*00*3920394930203*20000522*1615*CT***51!	(Change - MIRN)
N1*8R*JOE CUSTOMER!	Customer qualifier, Customer name (no DUNS for customer)
N3*SERVICE ADDRESS!	Service Address - street address
N4*CINCINNATI*OH*43017!	Service Address - city address
REF*12*ACCOUNTNUMBER!	DSP assigned customer account number (Service Address and Account Number in CUSTOMER - N1 loop)
N1*8S*DSP NAME*9*9999999994444**41!	DSP qualifier, DSP name, DUNS+4 indicator, DUNS+4 number, SENDER code
PER*IC*TOM JOHNSON*TE*(333)555-4444!	Contact qualifier, contact name, telephone qualifier, contact phone number (PER in SENDER - N1 loop)
N1*H8*MSP NAME*1*333666666**40!	MSP qualifier, MSP name, DUNS indicator, DUNS number, RECEIVER code
N1*SJ*RES NAME*9*3336666664444!	RES qualifier, RES name, DUNS+4 indicator, DUNS+4 number
HL*1**IN!	Meter Loop #1(Exchange)
REF*MF*AEP old_meternum!	Removed MSP meter (17 digit)
REF*MG*meternum!	Installed DSP meter

(Note: all following attributes are for NEW (Installed) DSP meter OPTIONAL, if DSP chooses to send any or all of this to MSP or RES)	
REF*MT*K1015!	Meter Type (15 minute KW demand)
~~REF*89*500:5!~~	~~CT Ratio (*only sent by DSP*)~~
~~REF*90*277:120!~~	~~PT Ratio (*only sent by DSP*)~~
~~REF*FQ*6S!~~	~~Form number qualifier, form number, including the base type descriptor~~
REF*JH*A!	Meter Role (additive)
REF*NH*rate class!	
DTM*230*20000522!	meter install date
YNQ**N******9*JM1!	joint meet NOT requested
~~MEA**35*4!~~	~~number of wires = 4~~
~~MEA**36*3!~~	~~number of phases = 3~~
~~MEA**NA*1!~~	~~number of channels = 1~~

~~MEA**NB*3!~~	~~PT quantity = 3~~
~~MEA**NC*3!~~	~~CT quantity = 3~~
~~MEA**QUR*5!~~	~~number of dials = 5~~
~~MEA**RB*10.2!~~	~~Demand qualifier, maximum demand = 10.2 KW~~
~~MEA**VO*277!~~	~~meter voltage = 277 volts~~
~~NM1*MQ*3*METER COMM NUMBER!~~	~~A COM record is to be sent, so this NM1 segment must be sent to initialize the NM1 loop. Type qualifier is 3 = "unknown". NM103 is required, so literal "METER COMM NUMBER" is sent.~~
~~COM*TE*(614)555-1212!~~	~~Phone number of remotely readable meter. Used by MDMA to poll the meter.~~
MTX*LOC*METER IS IN THE WINE CELLAR!	
MTX*ADD*CUSTOMER HAS BOOZE IN THE BASEMENT!	
SE*nn*0007!	

This example assumes that old MSP meter was telephone readable, and that the MSP did the final read remotely, prior to DSP physically removing the MSP owned meter.

PURPOSE:
The purpose of the 650 is to send meter attributes to & from DSP & MSP.

SCENARIO (#8 - MIRN):
DSP changes metering transformers on MSP owned meter. (Change)

TRANSACTION:

ST*650*0008!	
BGN*00*3920394930203*20000522*1615*CT***51!	(Change - MIRN)
N1*8R*JOE CUSTOMER!	Customer qualifier, Customer name (no DUNS for customer)
N3*SERVICE ADDRESS!	Service Address - street address
N4*CINCINNATI*OH*43017!	Service Address - city address
REF*12*ACCOUNTNUMBER!	DSP assigned customer account number (Service Address and Account Number in CUSTOMER - N1 loop)
N1*8S*DSP NAME*9*9999999994444**41!	DSP qualifier, DSP name, DUNS+4 indicator, DUNS+4 number, SENDER code
PER*IC*TOM JOHNSON*TE*(333)555-4444!	Contact qualifier, contact name, telephone qualifier, contact phone number (PER in SENDER - N1 loop)
N1*H8*MSP NAME*1*333666666**40!	MSP qualifier, MSP name, DUNS indicator, DUNS number, RECEIVER code
N1*SJ*RES NAME*9*3336666664444!	RES qualifier, RES name, DUNS+4 indicator, DUNS+4 number
HL*1**TI!	Meter Loop #1(Change Attributes)
REF*89*1000:5!	CT Ratio (only sent by DSP)
REF*90*480:120!	PT Ratio (only sent by DSP)
REF*MG*meternum!	DSP's number for MSP owned meter (REF*MG indicates DSP's meter cross reference number to MSP owned meter - OPTIONAL)
REF*QH*AEP meternum!	MSP's meter number (suggested) (Both REF*MG and REF*QH refer to same MSP owned meter.)
SE*nn*0008!	

PURPOSE:
The purpose of the 650 is to send meter attributes to & from DSP & MSP.

SCENARIO (#9 - MIRN):
MSP Exchanges 2-DSP meters and replace them with 1-new MSP meter (Enroll MSP)
(Removed DSP meters were KWH and KW, replaced with multi-function MSP meter)
(1st DSP meter is Exchanged, 2nd DSP meter is Removed)

TRANSACTION:

ST*650*0009!	
BGN*00*3920394930203*20000522*1615*CT***51!	(Change - MIRN)
N1*8R*BILLI BOB CUSTOMER!	Customer qualifier, Customer name (no DUNS for customer)
N3*HIS SERVICE ADDRESS!	Service Address - street address
N4*COLUMBUS*OH*43017!	Service Address - city address
REF*12*ACCOUNTNUMBER!	DSP assigned customer account number (Service Address and Account Number in CUSTOMER - N1 loop)
N1*8S*DSP NAME*9*9999999994444**40!	DSP qualifier, DSP name, DUNS+4 indicator, DUNS+4 number, RECEIVER code
N1*H8*MSP NAME*1*333666666**41!	MSP qualifier, MSP name, DUNS indicator, DUNS number, SENDER code
PER*IC*DICK JOHNSON*TE*(614)555-1212!	Contact qualifier, contact name, telephone qualifier, contact phone number (PER in SENDER - N1 loop)
N1*SJ*RES NAME*9*3336666664444!	RES qualifier, RES name, DUNS+4 indicator, DUNS+4 number
HL*1**IN!	**Start HL Loop #1 (Exchange)**
REF*FQ*6S!	Form number qualifier, form number, including the base type descriptor
REF*46*DSP meternum1!	Removed meter ("old" DSP meter)
REF*QH*AEP meternum2!	Installed meter (MSP - 17 digit)
REF*MT*KHTOU!	KWH time of use meter installed
REF*Y7*ACME METER COMPANY!	Meter manufacturer
DTM*230*20000522!	Meter install date
DTM*MRR*20000522*0030!	Meter read date and time
MEA**35*4!	Number of wires = 4
MEA**36*3*!	Number of phases = 3
MEA**NA*1!	Number of channels = 1
MEA**NB*3!	PT quantity = 3
MEA**NC*3!	CT quantity = 3
MEA**QUR*5!	number of dials = 5
MEA**RB*10.2!	Demand qualifier, maximum demand = 10.2 KW
MEA**VO*277!	meter voltage = 277 volts
MEA*R2***KH**435503!	final reading of removed watt-hour meter *
MEA*R1***KH**000000!	opening reading of new MSP meter

NM1*MQ*3*METER COMM NUMBER!	**Start of NM1 Loop** A COM record is to be sent, so this NM1 segment must be sent to initialize the NM1 loop. Type qualifier is 3 = "unknown". NM103 is required, so literal "METER COMM NUMBER" is sent.
COM*TE*(614)555-1212!	Phone number of remotely readable meter. Used by MDMA to poll the meter.
MTX*LOC*WE HID THE METER BEHIND THE FURNACE!	
HL*2**WB!	**Start HL Loop #2 (Remove)**
REF*46*DSP meternum3!	Removed meter ("old" DSP meter)
MEA*R2***K1**123!	final reading of removed demand meter *
SE*nn*0009!	

NOTES:

- If exchange is done as Joint-Meet, no final read is sent.