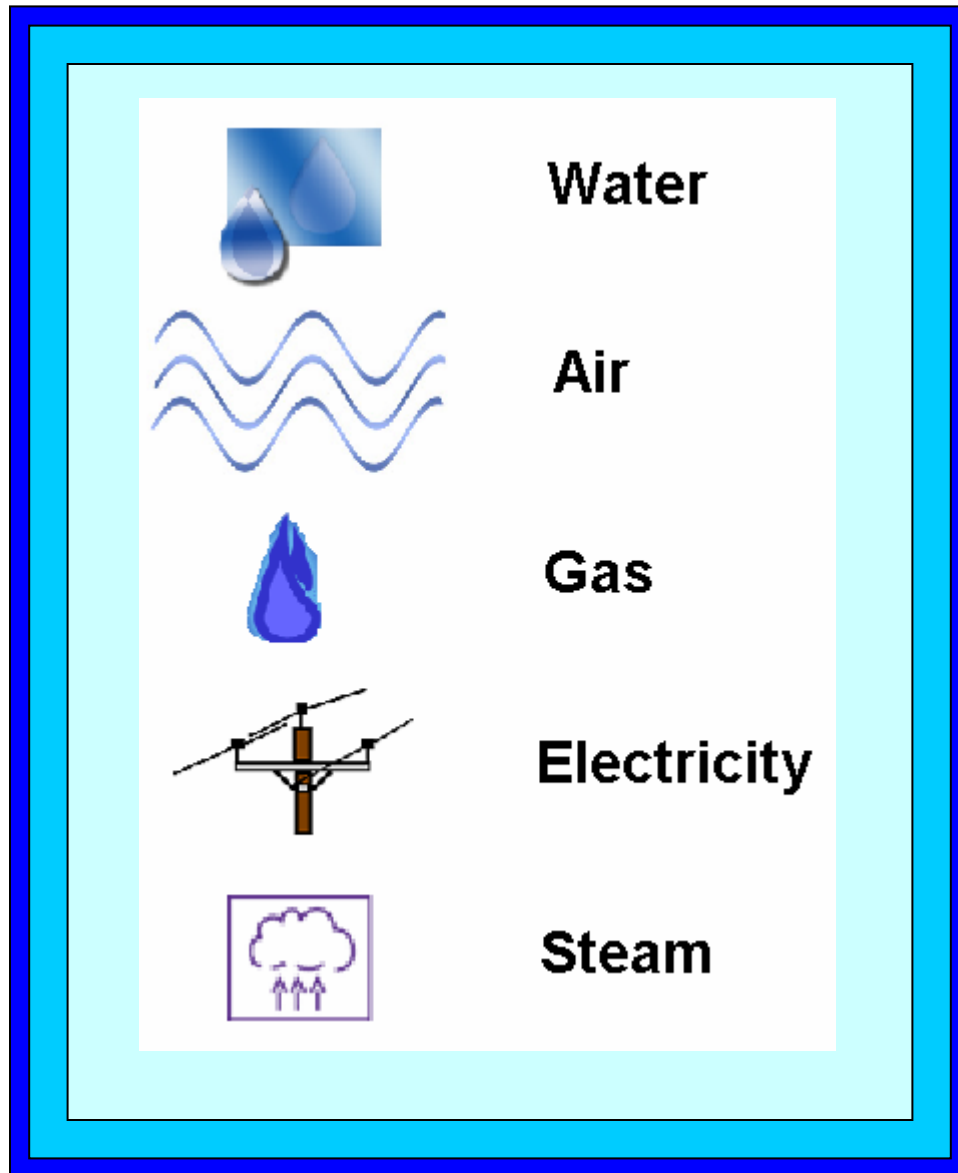


WAGESD10 Meter

Instruction Bulletin

[3070IB0702]



Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

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About this Manual

This instruction bulletin provides the features of the WAGESD10 Meter. It includes the necessary information to install the WAGESD10 Meter.

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Chapter 1 — Introduction

WHAT IS A WAGESD10 METER?

WAGES stands for Water, Air, Gas, Electricity, & Steam. A WAGESD10 Meter monitors environmental sensors and compensated transducers, providing instantaneous, averaged, minimum, maximum, and accumulated readings through a Modbus remote interface. These readings provide valuable information about the environment, resource usage or waste outflow. The information monitored by WAGES Meter may be logged and used by utility companies, government agencies, institutions, and industrial complexes for analysis to best improve or enhance the management of or the knowledge about the environment, resource usage or waste outflow.

WAGES METER - WHAT IS AVAILABLE & WHO TO CONTACT

WAGES Meter devices are products offered by PowerLogic to monitor environmental sensors and compensated transducers. PowerLogic offers both standard and customized classes of WAGES Meters. The user may contact a Powerlogic sales representative for information and literature on WAGES Meters. A Powerlogic sales representative can assist on determining what type of WAGES Meters are necessary to best meet the requirements of the user. The table below listed the classes of WAGES Meter hardware and firmware available to the user.

Table 1A. Classes of WAGES Meter Equipment

WAGES Class	Functionality
(Standard Class) WAGESA8	This standard WAGES Meter monitors and logs readings from eight (8) analog input (AI) channels.
(Standard Class) WAGESD10	This standard WAGES Meter monitors and logs readings from ten (10) discrete pulse input (DI) channels.
Custom-specific WAGES Meter	A customized WAGES Meter may monitor and may log a variety of input channels as specified by the user. A custom meter can meet those requirements specified by a user that fall outside the standard functional scope of WAGESA8 and WAGESD10.

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AVAILABLE FEATURES

The table below identifies the overall available features that a WAGESD10 Meter possesses. The standard offering of WAGESD10 Meter equipment possesses all of the features listed in the table below.

Table 1B. Overall Available Features for WAGESD10 Meter

Overall Available Features
Ten (10) Isolated Discrete Pulse Input (DI) Channels <ul style="list-style-type: none">• Minimum/Maximum Readings• Average Readings• Cumulative Usage Readings
Configurable On-board Data Logging
Two-wire Terminal Block
RS-485 Communications
Modbus RTU Remote Interface
100 VAC – 240 VAC Operation

RS-485 COMMUNICATIONS

The WAGESD10 Meter has RS-485 communications for integration into a monitoring system. PowerLogic's System Manager™ Software (SMS) is the ideal monitoring system for supporting and making the most of the advanced features of the WAGES Series Meters.

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DISCRETE INPUT CHANNELS

A WAGESD10 Meter monitors ten (10) discrete input (DI) channels. The WAGESD10 Meter, in general, counts the number of pulses, in an input channel, over a given sample interval, and multiplies this number to a sample weight, to produce instantaneous meter readings. The readings can be internally logged. Using SMS, the logs may be uploaded into a database for generating reports. The table below provides a summary of the data values (or readings) provided in a single WAGESD10 Meter discrete input (DI) channel.

Table 1C. Summary of Data Values in a Single DI

Data Values per Input Channel
<ul style="list-style-type: none">• Instantaneous Value• 15-minute Average Value• 1-hour Average Value• 1-day Average Value• 1-week Average Value• 1-month Average Value• Minimum Value• Date & Time of Minimum Value Occurrence• Maximum Value• Date & Time of Maximum Value Occurrence• Accumulated Total• Total During Current Interval• Total During Previous Interval• Total During the Current Day• Total During the Previous Day

SHIPPING CONTENTS

The WAGES D10 panel, schematic drawings, and instruction bulletin are contained in the shipping container. If there are any discrepancies in shipping contents, then the user should immediately contact their PowerLogic sales representative to resolve any discrepancies.

The table on the next page identifies the shipping contents.

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Table 1D. Shipping Contents

10 Digital Inputs for Compensated Signals Panel, RS 485 [Part # WAGESD10]
WAGES D10 Schematic Drawings & Instruction Bulletin
<i>(Optional – Ordered as an Additional Item)</i> NEMA 12 Enclosure 16” H x 14” W x 8” D [Part WAGESNEMA12]

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Chapter 2 — Safety Precautions

 **DANGER**

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E.
- Only qualified workers should install and wire this unit.
- Turn off all power supplying this unit and the equipment in which it is installed before working on it.
- Always use a properly rated voltage sensing device to confirm that all power is off.
- After removing input power, wait a minimum of 30 seconds to allow energy to discharge.

Failure to follow these instructions will result in death or serious injury.

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Chapter 3 — Installation

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

HARDWARE

A qualified electrician must install the WAGESD10 Meter, meeting all electrical codes and standards established by local governmental and institutional authorities, such as the NEC, state/provincial organizations, and county/city organizations.

The table below provides a list of schematic drawings. The drawings are in the form of a PDF file stored on the “WAGES Device Configuration Utility” compact disc (CD). The PDF filename is “WAGESD10_BP_1311.pdf”. The technician or engineer is to use the schematic drawings for hardware installation.

Table 3A. Drawings Pertinent to Installing WAGESD10

Drawings
• [Optional, Ordered as an Additional Item] Saginaw Panel Enclosure (SCE-16EL1408LP)
• Panel Component Layout on Mounting Plate
• Power & Communications Wiring
• I/O Wiring

COMMUNICATION CONNECTORS

The WAGESD10 Meter requires a qualified electrician to connect the communication wiring between the WAGESD10 Meter and the environmental sensors and compensated transducers via the communication connectors.

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Chapter 4 — Metering Capabilities

CALCULATION OF INSTANTANEOUS VALUE

WAGESD10 Meter monitors discrete pulses from ten (10) discrete input (DI) channels and uses the pulses to cyclically calculate an instantaneous reading or live reading. The algorithm for calculating the instantaneous value is the following.

V = instantaneous value

W = pulse weight

N = number of pulse edges (2 edges per every pulse)

S = sample interval (the amount of time to sample pulse edges)

T = time base (in seconds, where 1 = 1 second, 60 = 1 minute, and 3600 = 1 hour)

$$V = (W / 2) \times (N / S) \times T$$

Each parameter, pulse weight, number of pulse edges, sample interval, time base, or instantaneous value, resides in a 2-byte register, represented in IEEE Standard 754 Single Precision Floating Point format.

AVERAGE READINGS

Average readings are usually associated with resource demand. Each average reading is a two-byte register, represented in IEEE Standard 754 Single Precision Floating Point format. The calculation of average readings, with “calculation inputs” and “update rates”, are in the table, provided below:

Table 4A. Calculations for Average Readings

Calculation	Calculation Input	Update Rate
15 Min Average	Number of Pulses x Pulse Weight	Once per Min on the Min
1 Hr Average	15 Min Average	Every 15 Min on the Quarter Hr
1 Day Average	1 Hr Average	Every Hour on the Hour
1 Week Average	1 Day Average	Every Day at Midnight
1 Month Average	1 Day Average	Every Day at Midnight

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ACCUMULATED READINGS

Accumulated readings are usually associated with resource usage. The readings, calculated by the processor, are current interval, previous interval, the current day's total, the previous day's total, and accumulative total.

The number of pulses, multiplied by the pulse weight, for each channel, is totaled or accumulated into a current interval. An interval value indicates the number of minutes that the WAGESA8 Meter processor is to total or accumulate the current interval before resetting to zero. In other words, the interval value represents the maximum time span for current interval accumulation. The interval value must be a factor of 60 minutes, being 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, or 60 minutes. The current interval, initially set to zero, accumulates. When the time duration of accumulating the current interval reaches the defined interval value or defined maximum time span, then the processor assigns the previous interval to the value of the current interval, resets the current interval to zero and restarts accumulation of the current interval. The processor cyclically repeats this process described above at the defined interval value or defined time span until the interval value changes or the processor de-activates.

The accumulated readings are four 2-byte registers, represented in Modulo 10k format. The table, on the next page, lists the calculations for average readings, providing "calculation input" and "update rate". Accumulation readings may be modified, by writing the new values into the registers and using the pre-set function.

Table 4B. Calculations for Accumulated Readings

Calculation	Calculation Input	Update Rate
Current Interval	Number of Pulses x Pulse Weight	Once per Sec on the Sec
Previous Interval	Current Interval	Interval Value
Current Day's Total	Number of Pulses x Pulse Weight	Once per Sec on the Sec
Previous Day's Total	Current Day's Total	Every Day at Midnight
Accumulative Total	Number of Pulses x Pulse Weight	Once Per Sec on the Sec

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MINIMUM AND MAXIMUM READINGS

The instantaneous values, accessed from the input channels, are monitored against the previously recorded minimum or maximum values retained in the minimum-value registers or maximum-value registers. The minimum values and the maximum values may be reset. This is accomplished by writing to the corresponding "reset function" in the meter. In addition, the minimum values and maximum values have date and time stamps associated with them. Each reading, minimum or maximum, resides in a 2-byte register, represented in IEEE Standard 754 Single Precision Floating Point format.

POWERLOGIC'S THREE-REGISTER DATE/TIME FORMAT

The date and time stamps are represented in PowerLogic's Three-register Date/Time format. The format is defined in the table below:

Table 4C. PowerLogic's Three-register Date/Time Format

Location		Description
Register n	Byte 1	Month, Values 1 through 12
Register n	Byte 2	Day, Values 1 through 31
Register n + 1	Byte 1	Year, Values 0 through 199, where the value plus 1900 equates to the current year
Register n + 1	Byte 2	Hour, Values 0 through 23
Register n + 2	Byte 1	Minutes, Values 0 through 59
Register n + 2	Byte 2	Seconds, Values 0 through 59

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Chapter 5 — Logging Readings

INTRODUCTION

For WAGESD10 Meter, each of the readings from the input channels can be configured to log information on-board. The information logged on-board come in the form of data values. Each log can record data values at a different frequency. The logs operate in a First-In-First-Out (FIFO) manner so that the oldest information is overwritten when the log gets full. Provided the log has been read before overflowing, no data will be lost by the application reading the logs, even if communications were interrupted for a period of time.

MEMORY FOR LOGGING

The processor address, where logging occurs, is 700. This address is known as either "Starting Register for Header Files" or "File Header Base Register".

The meter has 49,600 bytes (24,800 two-byte registers) reserved for logging. This memory is shared amongst the channels. There are 10 data logs that can be configured. Each log entry requires an overhead of 6 bytes (3 two-byte registers) to store the date and time for the entry. Each data value, being logged, requires 4 bytes (2 two-byte registers), except for accumulated values, which require 8 bytes (4 two-byte registers).

The algorithm for calculating how much data to log before uploading from the WAGES device to SMS is as followed:

T = total available bytes for all logged entries

$L(n)$ = the function to calculate the number of bytes for data log "n", where "n" is an integer, and $n = 1, 2, 3, \dots, 10$.

$E(n)$ = the function to calculate the number of bytes for each data log entry in data log "n", where "n" is an integer, and $n = 1, 2, 3, \dots, 10$.

To calculate $E(n)$, the following is necessary.

- Add 6 bytes for a single date/time stamp for the entry
- Add 4 bytes per non-accumulative value
- Add 8 bytes per accumulative value
- Add quantity of data values in entry multiplied by 2 bytes per data value in entry

X = total number of minutes required for data logging

Y = number of minutes for every entry recorded in the data log

$L(n) = E(n) * (X / Y)$, where X / Y equates to the number of records in the data log

T = summation of one or more $L(n)$ functions, representing data logs

USING SMS FOR LOGGING

PowerLogic's System Management Software and DEVCON provide full capability to configure WAGESD10 Meter logging. The user can configure the logging of data values assigned to the various WAGESD10 Meter input channels.

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Appendix C — Format ID Codes / Register Assignment / Assigning Register Values

WHAT ARE FORMAT ID CODES?

Format Identification (ID) Codes identify the data format of the register values. A “Format ID Code Table” matches each “input channel” data value to a Format ID Code and the data format that it represents. The “Format ID Code Table” is in this appendix.

WHAT IS A REGISTER ASSIGNMENT TABLE?

A “Register Assignment Table” identifies the register values assigned for each “input channel” data value. The register values are associated with the processor located in a WAGESD10 Meter. A sequential register only identifies the address of the first register and indicates the total number of registers required for storing a data value. A non-sequential register identifies the quantity of registers for storing a data value and the address of each register in use. The “Register Assignment Tables” are in this appendix.

PROCEDURE FOR ASSIGNING REGISTER VALUES TO LINK INPUT CHANNEL DATA VALUE TO TOPIC DESCRIPTOR

This procedure instructs the user on how to define the register values in the “Setup Registers for Quantity” dialog box when assigning a data value of an input channel device to a topic descriptor using the System Management Software (SMS). (The reader may refer to “WAGES Device Configuration (DEVCON) Utility” Instruction Bulletin, Chapter 5, Procedure 6, “Assigning Input Channel Data Value to Topic Descriptor”, for further information on the procedure identified above.) Ordinarily, the user would not have to perform this procedure, given that the SMS automatically fills the dialog box with the appropriate information. The figure illustrates the “Setup Registers for Quantity” dialog box.

Figure C. Setup Registers for Quantity

The screenshot shows a dialog box titled "Setup Registers for Quantity". It features a section for "Non-Sequential Register Numbers" with four input fields labeled 1, 2, 3, and 4, each containing the value 0. Below this are checkboxes for "In Sequence" and "Override Format Code", both unchecked. A "Number of Registers" field contains 0. The "Data Type" dropdown is set to "Holding Register (R03/W16/W06)". The "Scale (Multiplier)" dropdown is empty. "OK" and "Cancel" buttons are at the bottom right.

1. Match the selected topic descriptor with the appropriate input channel data value.

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2. Take the selected input channel data value and find its entry in one of the "Register Assignment Tables" in this appendix.
3. Check the "**In Sequence**" checkbox if the "In Sequence" answer in the selected table entry is "Yes". Otherwise, make sure that the "**In Sequence**" checkbox is not marked. Checking the "**In Sequence**" checkbox indicate the sequential entry of registers.

Note 2: steps 4 and 5A are only valid for sequential entry of registers. Step 5B is only valid for non-sequential entry of registers.

4. (Valid only for sequential entry of registers) Enter the number of registers in the "Number of Registers" text edit box using the information from the selected table entry.

5A. For "In-Sequence" or sequential registers, enter the address of the first register in the "register 1" text-edit box using the selected table entry in this appendix.

5B. For non-sequential registers, enter the register values (or register addresses) in the register text-edit boxes as identified in the selected table entry. Depending on the selected table entry, the number of register addresses may range from a quantity of one to four addresses.

6. Select "Holding Register (R03/w16/w06)" in the "Data Type" menu.
7. Press the "**OK**" button in the "Setup for Register Quantity" dialog box

This ends this procedure.

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Format ID Code Table		
DI Channel Data Value	Format ID Code	Data Format
Channel n Pulse Weight	1	IEEE Standard 754 Format
Channel n Minutes for Interval Consumption	1	IEEE Standard 754 Format
Channel n Seconds in Rate Time Base	0	Generic 16-bit Word (No Format)
Channel n Seconds to Update Instantaneous	0	Generic 16-bit Word (No Format)
Channel n Live Data	1	IEEE Standard 754 Format
Channel n 15 Minute Average	1	IEEE Standard 754 Format
Channel n One Hour Average	1	IEEE Standard 754 Format
Channel n One Day Average	1	IEEE Standard 754 Format
Channel n One Week Average	1	IEEE Standard 754 Format
Channel n One Month Average	1	IEEE Standard 754 Format
Channel n Minimum Value	1	IEEE Standard 754 Format
Channel n Minimum Date & Time	7	PowerLogic's Three-register Date/Time Format
Channel n Maximum Value	1	IEEE Standard 754 Format
Channel n Maximum Date & Time	7	PowerLogic's Three-register Date/Time Format
Channel n Cumulative Total	5	Modulo 10k
Channel n Total for Current Interval	5	Modulo 10k
Channel n Total for Previous Interval	5	Modulo 10k
Channel n Total for Current Day	5	Modulo 10k
Channel n Total for Previous Day	5	Modulo 10k

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Register Assignment Table – Pulse Weight, Minutes for Interval Consumption, Seconds in Rate Time Base & Seconds to Update Instantaneous						
Discrete Input (DI) Data Value	In Sequence	Number of Registers	Registers			
			R1	R2	R3	R4
Channel 1 Pulse Weight	No	2	41	40	0	0
Channel 1 Minutes for Interval Consumption	No	1	42	0	0	0
Channel 1 Seconds in Rate Time Base	No	1	43	0	0	0
Channel 1 Seconds to Update Instantaneous	No	1	44	0	0	0
Channel 2 Pulse Weight	No	2	51	50	0	0
Channel 2 Minutes for Interval Consumption	No	1	52	0	0	0
Channel 2 Seconds in Rate Time Base	No	1	53	0	0	0
Channel 2 Seconds to Update Instantaneous	No	1	54	0	0	0
Channel 3 Pulse Weight	No	2	61	60	0	0
Channel 3 Minutes for Interval Consumption	No	1	62	0	0	0
Channel 3 Seconds in Rate Time Base	No	1	63	0	0	0
Channel 3 Seconds to Update Instantaneous	No	1	64	0	0	0
Channel 4 Pulse Weight	No	2	71	70	0	0
Channel 4 Minutes for Interval Consumption	No	1	72	0	0	0
Channel 4 Seconds in Rate Time Base	No	1	73	0	0	0
Channel 4 Seconds to Update Instantaneous	No	1	74	0	0	0
Channel 5 Pulse Weight	No	2	81	80	0	0
Channel 5 Minutes for Interval Consumption	No	1	82	0	0	0
Channel 5 Seconds in Rate Time Base	No	1	83	0	0	0
Channel 5 Seconds to Update Instantaneous	No	1	84	0	0	0
Channel 6 Pulse Weight	No	2	91	90	0	0
Channel 6 Minutes for Interval Consumption	No	2	92	0	0	0
Channel 6 Seconds in Rate Time Base	No	1	93	0	0	0
Channel 6 Seconds to Update Instantaneous	No	1	94	0	0	0
Channel 7 Pulse Weight	No	2	101	100	0	0
Channel 7 Minutes for Interval Consumption	No	1	102	0	0	0
Channel 7 Seconds in Rate Time Base	No	1	103	0	0	0
Channel 7 Seconds to Update Instantaneous	No	1	104	0	0	0
Channel 8 Pulse Weight	No	2	111	110	0	0
Channel 8 Minutes for Interval Consumption	No	1	112	0	0	0
Channel 8 Seconds in Rate Time Base	No	1	113	0	0	0
Channel 8 Seconds to Update Instantaneous	No	1	114	0	0	0
Channel 9 Pulse Weight	No	2	121	120	0	0
Channel 9 Minutes for Interval Consumption	No	1	122	0	0	0
Channel 9 Seconds in Rate Time Base	No	1	123	0	0	0
Channel 9 Seconds to Update Instantaneous	No	1	124	0	0	0
Channel 10 Pulse Weight	No	2	131	130	0	0
Channel 10 Minutes for Interval Consumption	No	1	132	0	0	0
Channel 10 Seconds in Rate Time Base	No	1	133	0	0	0
Channel 10 Seconds to Update Instantaneous	No	1	134	0	0	0

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Register Assignment Table – Discrete Input (DI) Channels 1 & 2 Minimum Value, Maximum Value, Accumulation, and Other Values						
Discrete Input (DI) Data Value	In Sequence	Number of Registers	Registers			
			R1	R2	R3	R4
Channel 1 Live Data	No	2	201	200	0	0
Channel 1 15 Minute Average	No	2	203	202	0	0
Channel 1 One Hour Average	No	2	205	204	0	0
Channel 1 One Day Average	No	2	207	206	0	0
Channel 1 One Week Average	No	2	209	208	0	0
Channel 1 One Month Average	No	2	211	210	0	0
Channel 1 Minimum Value	No	2	213	212	0	0
Channel 1 Minimum Date & Time	Yes	3	214	0	0	0
Channel 1 Maximum Value	No	2	218	217	0	0
Channel 1 Maximum Date & Time	Yes	3	219	0	0	0
Channel 1 Cumulative Total	Yes	4	222	0	0	0
Channel 1 Total for Current Interval	Yes	4	226	0	0	0
Channel 1 Total for Previous Interval	Yes	4	230	0	0	0
Channel 1 Total for Current Day	Yes	4	234	0	0	0
Channel 1 Total for Previous Day	Yes	4	238	0	0	0
Channel 2 Live Data	No	2	251	250	0	0
Channel 2 15 Minute Average	No	2	253	252	0	0
Channel 2 One Hour Average	No	2	255	254	0	0
Channel 2 One Day Average	No	2	257	256	0	0
Channel 2 One Week Average	No	2	259	258	0	0
Channel 2 One Month Average	No	2	261	260	0	0
Channel 2 Minimum Value	No	2	263	262	0	0
Channel 2 Minimum Date & Time	Yes	3	264	0	0	0
Channel 2 Maximum Value	No	2	268	267	0	0
Channel 2 Maximum Date & Time	Yes	3	269	0	0	0
Channel 2 Cumulative Total	Yes	4	272	0	0	0
Channel 2 Total for Current Interval	Yes	4	276	0	0	0
Channel 2 Total for Previous Interval	Yes	4	280	0	0	0
Channel 2 Total for Current Day	Yes	4	284	0	0	0
Channel 2 Total for Previous Day	Yes	4	288	0	0	0

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Register Assignment Table – Discrete Input Channels 3 & 4 Minimum Value, Maximum Value, Accumulation, and Other Values						
Discrete Input (DI) Data Value	In Sequence	Number of Registers	Registers			
			R1	R2	R3	R4
Channel 3 Live Data	No	2	301	300	0	0
Channel 3 15 Minute Average	No	2	303	302	0	0
Channel 3 One Hour Average	No	2	305	304	0	0
Channel 3 One Day Average	No	2	307	306	0	0
Channel 3 One Week Average	No	2	309	308	0	0
Channel 3 One Month Average	No	2	311	310	0	0
Channel 3 Minimum Value	No	2	313	312	0	0
Channel 3 Minimum Date & Time	Yes	3	314	0	0	0
Channel 3 Maximum Value	No	2	318	317	0	0
Channel 3 Maximum Date & Time	Yes	3	319	0	0	0
Channel 3 Cumulative Total	Yes	4	322	0	0	0
Channel 3 Total for Current Interval	Yes	4	326	0	0	0
Channel 3 Total for Previous Interval	Yes	4	330	0	0	0
Channel 3 Total for Current Day	Yes	4	334	0	0	0
Channel 3 Total for Previous Day	Yes	4	338	0	0	0
Channel 4 Live Data	No	2	351	350	0	0
Channel 4 15 Minute Average	No	2	353	352	0	0
Channel 4 One Hour Average	No	2	355	354	0	0
Channel 4 One Day Average	No	2	357	356	0	0
Channel 4 One Week Average	No	2	359	358	0	0
Channel 4 One Month Average	No	2	361	360	0	0
Channel 4 Minimum Value	No	2	363	362	0	0
Channel 4 Minimum Date & Time	Yes	3	364	0	0	0
Channel 4 Maximum Value	No	2	368	367	0	0
Channel 4 Maximum Date & Time	Yes	3	369	0	0	0
Channel 4 Cumulative Total	Yes	4	372	0	0	0
Channel 4 Total for Current Interval	Yes	4	376	0	0	0
Channel 4 Total for Previous Interval	Yes	4	380	0	0	0
Channel 4 Total for Current Day	Yes	4	384	0	0	0
Channel 4 Total for Previous Day	Yes	4	388	0	0	0

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Register Assignment Table – Discrete Input Channels 5 & 6 Minimum Value, Maximum Value, Accumulation, and Other Values						
Discrete Input (DI) Data Value	In Sequence	Number of Registers	Registers			
			R1	R2	R3	R4
Channel 5 Live Data	No	2	401	400	0	0
Channel 5 15 Minute Average	No	2	403	402	0	0
Channel 5 One Hour Average	No	2	405	404	0	0
Channel 5 One Day Average	No	2	407	406	0	0
Channel 5 One Week Average	No	2	409	408	0	0
Channel 5 One Month Average	No	2	411	410	0	0
Channel 5 Minimum Value	No	2	413	412	0	0
Channel 5 Minimum Date & Time	Yes	3	414	0	0	0
Channel 5 Maximum Value	No	2	418	417	0	0
Channel 5 Maximum Date & Time	Yes	3	419	0	0	0
Channel 5 Cumulative Total	Yes	4	422	0	0	0
Channel 5 Total for Current Interval	Yes	4	426	0	0	0
Channel 5 Total for Previous Interval	Yes	4	430	0	0	0
Channel 5 Total for Current Day	Yes	4	434	0	0	0
Channel 5 Total for Previous Day	Yes	4	438	0	0	0
Channel 6 Live Data	No	2	451	450	0	0
Channel 6 15 Minute Average	No	2	453	452	0	0
Channel 6 One Hour Average	No	2	455	454	0	0
Channel 6 One Day Average	No	2	457	456	0	0
Channel 6 One Week Average	No	2	459	458	0	0
Channel 6 One Month Average	No	2	461	460	0	0
Channel 6 Minimum Value	No	2	463	462	0	0
Channel 6 Minimum Date & Time	Yes	3	464	0	0	0
Channel 6 Maximum Value	No	2	468	467	0	0
Channel 6 Maximum Date & Time	Yes	3	469	0	0	0
Channel 6 Cumulative Total	Yes	4	472	0	0	0
Channel 6 Total for Current Interval	Yes	4	476	0	0	0
Channel 6 Total for Previous Interval	Yes	4	480	0	0	0
Channel 6 Total for Current Day	Yes	4	484	0	0	0
Channel 6 Total for Previous Day	Yes	4	488	0	0	0

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Register Assignment Table – Discrete Input Channels 7 & 8 Minimum Value, Maximum Value, Accumulation, and Other Values						
Discrete Input (DI) Data Value	In Sequence	Number of Registers	Registers			
			R1	R2	R3	R4
Channel 7 Live Data	No	2	501	500	0	0
Channel 7 15 Minute Average	No	2	503	502	0	0
Channel 7 One Hour Average	No	2	505	504	0	0
Channel 7 One Day Average	No	2	507	506	0	0
Channel 7 One Week Average	No	2	509	508	0	0
Channel 7 One Month Average	No	2	511	510	0	0
Channel 7 Minimum Value	No	2	513	512	0	0
Channel 7 Minimum Date & Time	Yes	3	514	0	0	0
Channel 7 Maximum Value	No	2	518	517	0	0
Channel 7 Maximum Date & Time	Yes	3	519	0	0	0
Channel 7 Cumulative Total	Yes	4	522	0	0	0
Channel 7 Total for Current Interval	Yes	4	526	0	0	0
Channel 7 Total for Previous Interval	Yes	4	530	0	0	0
Channel 7 Total for Current Day	Yes	4	534	0	0	0
Channel 7 Total for Previous Day	Yes	4	538	0	0	0
Channel 8 Live Data	No	2	551	550	0	0
Channel 8 15 Minute Average	No	2	553	552	0	0
Channel 8 One Hour Average	No	2	555	554	0	0
Channel 8 One Day Average	No	2	557	556	0	0
Channel 8 One Week Average	No	2	559	558	0	0
Channel 8 One Month Average	No	2	561	560	0	0
Channel 8 Minimum Value	No	2	563	562	0	0
Channel 8 Minimum Date & Time	Yes	3	564	0	0	0
Channel 8 Maximum Value	No	2	568	567	0	0
Channel 8 Maximum Date & Time	Yes	3	569	0	0	0
Channel 8 Cumulative Total	Yes	4	572	0	0	0
Channel 8 Total for Current Interval	Yes	4	576	0	0	0
Channel 8 Total for Previous Interval	Yes	4	580	0	0	0
Channel 8 Total for Current Day	Yes	4	584	0	0	0
Channel 8 Total for Previous Day	Yes	4	588	0	0	0

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Register Assignment Table – Discrete Input Channels 9 & 10 Minimum Value, Maximum Value, Accumulation, and Other Values						
Discrete Input (DI) Data Value	In Sequence	Number of Registers	Registers			
			R1	R2	R3	R4
Channel 9 Live Data	No	2	601	600	0	0
Channel 9 15 Minute Average	No	2	603	602	0	0
Channel 9 One Hour Average	No	2	605	604	0	0
Channel 9 One Day Average	No	2	607	606	0	0
Channel 9 One Week Average	No	2	609	608	0	0
Channel 9 One Month Average	No	2	611	610	0	0
Channel 9 Minimum Value	No	2	613	612	0	0
Channel 9 Minimum Date & Time	Yes	3	614	0	0	0
Channel 9 Maximum Value	No	2	618	617	0	0
Channel 9 Maximum Date & Time	Yes	3	619	0	0	0
Channel 9 Cumulative Total	Yes	4	622	0	0	0
Channel 9 Total for Current Interval	Yes	4	626	0	0	0
Channel 9 Total for Previous Interval	Yes	4	630	0	0	0
Channel 9 Total for Current Day	Yes	4	634	0	0	0
Channel 9 Total for Previous Day	Yes	4	638	0	0	0
Channel 10 Live Data	No	2	651	650	0	0
Channel 10 15 Minute Average	No	2	653	652	0	0
Channel 10 One Hour Average	No	2	655	654	0	0
Channel 10 One Day Average	No	2	657	656	0	0
Channel 10 One Week Average	No	2	659	658	0	0
Channel 10 One Month Average	No	2	661	660	0	0
Channel 10 Minimum Value	No	2	663	662	0	0
Channel 10 Minimum Date & Time	Yes	3	664	0	0	0
Channel 10 Maximum Value	No	2	668	667	0	0
Channel 10 Maximum Date & Time	Yes	3	669	0	0	0
Channel 10 Cumulative Total	Yes	4	672	0	0	0
Channel 10 Total for Current Interval	Yes	4	676	0	0	0
Channel 10 Total for Previous Interval	Yes	4	680	0	0	0
Channel 10 Total for Current Day	Yes	4	684	0	0	0
Channel 10 Total for Previous Day	Yes	4	688	0	0	0

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Appendix D — SMS Device Type

In the System Management Software (SMS), each class of WAGES Meter, whether standard or custom, has a device type. The device type for WAGESD10 Meter is identifiable as 522.

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.