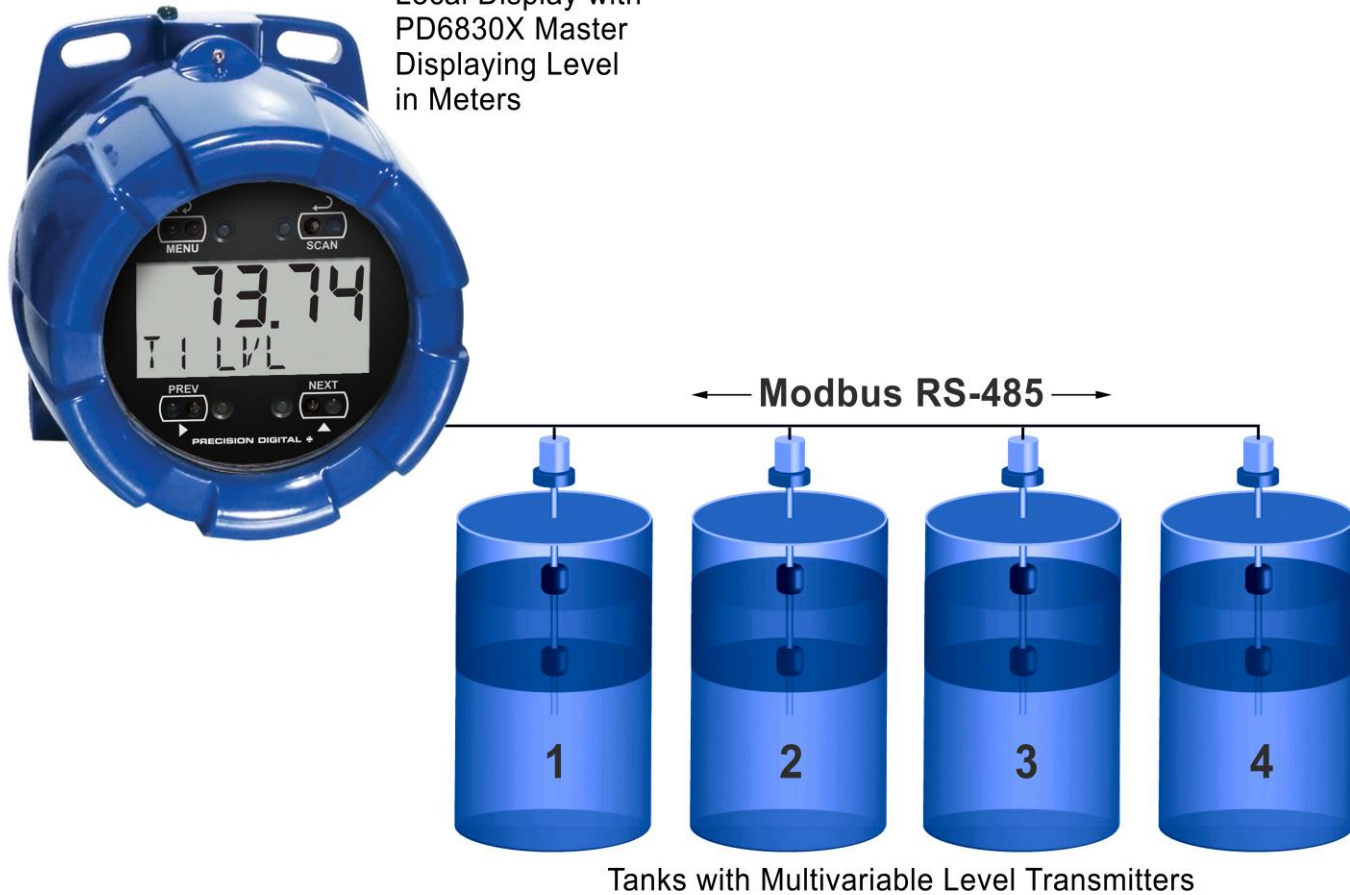


# PD6830X and PD6730X Super Snooper Modbus® Register Tables

Local Display with  
PD6830X Master  
Displaying Level  
in Meters



 **WARNING**

As is typical with most instruments, the addition of serial communications carries an inherent risk; it allows a remote operator to change the operation and/or characteristics of the device being digitally communicated with (in this case the ProtEX® meter). Inappropriate communication could have serious consequences in meter or system operation.

Ultimately, it is up to the system designer to provide for the safe operation of a process. But certainly, no single event should make the difference between a safe situation and a catastrophe. Please use the appropriate level of caution when implementing serial communication.

**Disclaimer**

The information contained in this document is subject to change without notice. Precision Digital makes no representations or warranties with respect to the contents hereof; and specifically disclaims any implied warranties of merchantability or fitness for a particular purpose.

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**Introduction**

This document describes how to communicate with the PD6830X and PD6730x Series of Modbus scanners, with firmware version 1.10 & greater, using the Modbus® RTU Serial Communication Protocol. The user should be familiar with Modbus serial communication and the meters before using these tables. Refer to the meter instruction manual and the serial communication adapters' manual for setup and wiring instructions.

Go to <http://www.modbus.org/> to obtain a copy of the Modbus Specifications and to find Modbus Technical Resources.

Note that although there are no specific 3x Registers, all 4x Registers are mirrored into 3x register space, and are therefore capable of being read by Modbus function 04 (Read Input Registers).

**Register Overview**

- 40001 – 40042: Rate Value, Max Rate, Min Rate, Total, and Grand Total in floating point, double precision and long integer formats
- 40081 – 40087: Alarm status, alarm output acknowledge, reset Max & Min, reset Total, reset Grand Total
  - 40091: System Status
- 40101 – 40149: Input selection, K-Factor, decimal points, time base, units, Total conversion factors, and alarm settings
- 40151 – 40184: Open collector pulse output settings and parameters
- 40191 – 40225: Analog output values and setup parameters
- 40231 – 40235: Gate, filter (contact de-bounce), and cutoff settings
- 40241 – 40243: Backlight enable/display; battery, Rate, Total, and Grand Total symbol settings
  - 40247: Tank height (feet and inches display models)
- 40251 – 40288: Display mode settings, Rate, Total, and Grand Total units and tags (see 40351 for Grand Total tag)
- 40291 – 40295: Serial communication settings
- 40301 – 40319: Date & time settings and data logging settings
- 40351 – 40357: Grand Total tag
- 40401 – 40406: Menu password, Total & Grand Total passwords
- 40401 – 40406: Password settings
- 40411 – 40418: Custom menu settings
- 40501 – 40632: Multipoint Rate scaling parameters
- 40641 – 40700: Modbus PV and Math channel displays and validity checks
- 40705 – 40747: Log data retrieval: Date & time; Rate, Total, and Grand Total units; log entry alarm status

- 40751 – 40785: Log status & data retrieval: Select log number, read log settings, read Modbus PV/Math channel log data
- 40901 – 40911: Product ID and firmware version
- 40921 - 40936: Modbus tag
  - 40991: Load factory defaults
  - 40992: Restart meter
- 41001 – 41004: Button triggers
- 41101 – 41103: Modbus scanner configuration: Modbus mode, display cycle time, and Modbus timeout
- 41111 – 41349: Modbus PV 1 to PV16 setup: data type, register number, slave device ID, function code, tag, unit, scale and display settings
- 41351 – 41414: Modbus PV 1 to PV16 scale and display points
  - 41599: New Modbus PV scale point save
- 41601 – 41639: Math channel tag, unit, and display configuration parameters
- 41641 – 41680: Math channel function parameters

Register <sup>1</sup>			Name	Access	Limits or Range <sup>2</sup>	Units	Data Type <sup>3</sup>	Function Code(s)	Comments
Number	Address (Decimal)	Address (Hex)							
40001 – 40002	0 – 1	0000 – 0001	Rate Display Value	Read Only	0 to 99,999	User defined	Floating point	03, 04	Represents the Rate display value including the decimal point. Over Range = 100000
40003 – 40004	2 – 3	0002 – 0003	Total Value	Read Only	0 to 9,999,999,999,999	User defined	Floating point	03, 04	Represents the Total value, including the decimal point, since last Total reset. These registers must be read together.
40005 – 40006	4 – 5	0004 – 0005	Total Remainder Value	Read Only	1.73e5	User defined	Floating point	03, 04	To obtain the most accurate value add the remainder to the total. The small difference between the display value and the Modbus value is caused by data conversion rounding.
40007 – 40008	6 – 7	0006 – 0007	Grand Total Value	Read Only	0 to 9,999,999,999,999	User defined	Floating point	03, 04	Represents the Grand Total value, including the decimal point, since last Grand Total reset. These registers must be read together.
40009 – 40010	8 – 9	0008 – 0009	Grand Total Remainder Value	Read Only	1.73e5	User defined	Floating point	03, 04	To obtain the most accurate value add the remainder to the grand total. The small difference between the display value and the Modbus value is caused by data conversion rounding.
40011 – 40012	10 – 11	000A – 000B	Maximum Rate Value	Read Only	0 to 99,999	User defined	Floating point	03, 04	Represents the Maximum rate value, including the decimal point, since last power up or Max Value reset.
40013 – 40014	12 – 13	000C – 000D	Minimum Rate Value	Read Only	0 to 99,999	User defined	Floating point	03, 04	Represents the Minimum rate value, including the decimal point, since last power up or Min Value reset.
40015 – 40018	14 – 17	000E – 0011	Total Value	Read Only	0 to 9,999,999,999,999	User defined	Double	03, 04	Represents the Total value, including the decimal point, since last Total reset.
40019 – 40022	18 – 21	0012 – 0015	Grand Total Value	Read Only	0 to 9,999,999,999,999	User defined	Double	03, 04	Represents the Grand Total value, including the decimal point, since last Grand Total reset.
40023	22	0016	Rate Display Value	Read Only	0 to 99,999	User defined	Long Hi	03, 04	Represents the PV/Rate display value excluding the decimal point. Decimal point setting in 40105.
40024	23	0017	Rate Display Value	Read Only			Long Lo	03, 04	Must be read with 40023.
40025	24	0018	Total Non-Overflow Value	Read Only	0 to 9,999,999	User defined	Long Hi	03, 04	Represents the 7-digit Total non-overflow value, excluding the decimal point, since last Total reset. Decimal point setting in 40106. Use 40035 – 40038 to read 13-digit total.
40026	25	0019	Total Non-Overflow Value	Read Only			Long Lo	03, 04	Must be read with 40025.
40027	26	001A	Grand Total Non-Overflow Value	Read Only	0 to 9,999,999	User defined	Long Hi	03, 04	Represents the 7-digit Grand Total non-overflow value, excluding the decimal point, since last Grand Total reset. Decimal point setting in 40107. Use 40039 – 40042 to read 13-digit grand total.

PD6830X & PD6730X Modbus® Register Tables

Serial Communication

Register <sup>1</sup>			Name	Access	Limits or Range <sup>2</sup>	Units	Data Type <sup>3</sup>	Function Code(s)	Comments
Number	Address (Decimal)	Address (Hex)							
40028	27	001B	Grand Total Non-Overflow Value	Read Only			Long Lo	03, 04	Must be read with 40027.
40029	28	001C	Maximum Rate Value	Read Only	0 to 99,999	User defined	Long Hi	03, 04	Represents the Maximum rate value, excluding the decimal point, since last power up or Max Value reset.
40030	29	001D	Maximum Rate Value	Read Only			Long Lo	03, 04	Must be read with 40029.
40031	30	001E	Minimum Rate Value	Read Only	0 to 99,999	User defined	Long Hi	03, 04	Represents the Minimum rate value, excluding the decimal point, since last power up or Min Value reset.
40032	31	001F	Minimum Rate Value	Read Only			Long Lo	03, 04	Must be read with 40031.
40033	32	0020	Rate Display Value	Read Only	0 to 99,999	User defined	Long Hi	03, 04	Represents the Rate display value excluding the decimal point. Decimal point setting in 40105.
40034	33	0021	Rate Display Value	Read Only			Long Lo	03, 04	Must be read with 40033.
40035	34	0022	Total Non-Overflow Value	Read Only	0 to 9,999,999	User defined	Long Hi	03, 04	Represents the Total non-overflow value, excluding the decimal point, since last Total reset. Total Value = (Total overflow x 10 <sup>7</sup> ) + (total non-overflow) Decimal point setting in 40106. The small difference between the display value and the Modbus value is caused by rounding applied to the display value.
40036	35	0023	Total Non-Overflow Value	Read Only			Long Lo	03, 04	Must be read with 40035.
40037	36	0024	Total Overflow Value	Read Only	0 to 999,999	User defined	Long Hi	03, 04	Represents the Total overflow value, since last Total reset.
40038	37	0025	Total Overflow Value	Read Only			Long Lo	03, 04	Must be read with 40037
40039	38	0023	Grand Total Non-Overflow Value	Read Only	0 to 9,999,999	User defined	Long Hi	03, 04	Represents the Grand Total non-overflow value, excluding the decimal point, since last Grand Total reset. Grand Total Value = (GTotal overflow x 10 <sup>7</sup> ) + (GTotal non-overflow) Decimal point setting in 40107. The small difference between the display value and the Modbus value is caused by rounding applied to the display value.

# PD6830X & PD6730X Modbus® Register Tables

# Serial Communication

Register <sup>1</sup>			Name	Access	Limits or Range <sup>2</sup>	Units	Data Type <sup>3</sup>	Function Code(s)	Comments
Number	Address (Decimal)	Address (Hex)							
40040	39	0024	Grand Total Non-Overflow Value	Read Only			Long Lo	03, 04	Must be read with 40039.
40041	40	0028	Grand Total Overflow Value	Read Only	0 to 999,999	User defined	Long Hi	03, 04	Represents the Total overflow value, since last Total reset.
40042	41	0029	Grand Total Overflow Value	Read Only			Long Lo	03, 04	Must be read with 40041
40081	80	0050	Alarm Status	Read Only			Word	03, 04	See <i>Alarm Status</i> on table 1 for details.
40082	81	0051	Alarm Acknowledge	Write Only	1		Bit	06, 16	Acknowledge alarms.
40083	82	0052	Reset Maximum	Write Only	1		Bit	06, 16	Reset stored maximum (Max) value.
40084	83	0053	Reset Minimum	Write Only	1		Bit	06, 16	Reset stored minimum (Min) value.
40085	84	0054	Reset Max & Min	Write Only	1		Bit	06, 16	Reset both stored maximum (Max) and minimum (Min) value.
40086	85	0055	Reset Total	Write Only	1		Bit	06, 16	To reset with total reset password disabled, write 1. To reset total when total password is enabled, write the total password.
40087	86	0056	Reset Grand Total	Write Only	1		Bit	06, 16	To reset with grand total reset password disabled, write 1. To reset total when total password is enabled, write the total password.
40091	90	005A	System Status	Read Only			Word	03, 04	Bit 0: Reserved; Bit 1: Low Power; Bit 2: Set Clk; Bit 3: Log Full; Bit 4: Pulse Over; Bit 5: Reserved; Bit 6: ;Warm Start; Bit 7: Cold Start, Bits 8 to 15: Reserved
40101	100	0064	Pulse Input	Read Write			Word	03, 04, 06, 16	0=Disabled, 1=Active, 2=NPN, 3=PNP, 4=Reed, 5=Coil, 6=Isolated, 7=Active Low, 8=NPN Low, 9=PNP Low, 10 to 15=Reserved
40102	101	0065	K-Factor Unit	Read Write	0 to 12		Integer	03, 04, 06, 16	0=Custom, 1=Gallon, 2=Liter, 3=Imperial Gallon, 4=Cubic Meter, 5=Barrel, 6= Bushel, 7= Cubit Yard, 8=Cubic Foot, 9=Cubic Inch, 10=Liquid Barrel, 11=Beer Barrel, 12=Hectoliter
40103 - 40104	102 - 103	0066 - 0067	K-Factor	Read Write	0.000001 to 9,999,999	Pulses per user defined unit	Float	03, 04, 06, 16	

# PD6830X & PD6730X Modbus® Register Tables

# Serial Communication

Register <sup>1</sup>			Name	Access	Limits or Range <sup>2</sup>	Units	Data Type <sup>3</sup>	Function Code(s)	Comments
Number	Address (Decimal)	Address (Hex)							
40105	104	0068	Rate Decimal	Read Write	0 to 4		Integer	03, 04, 06, 16	Set number of Rate decimal places.
40106	105	0069	Total Decimal	Read Write	0 to 6		Integer	03, 04, 06, 16	Set number of Total decimal places.
40107	106	006A	Grand Total Decimal	Read Write	0 to 6		Integer	03, 04, 06, 16	Set number of Grand Total decimal places.
40108	107	006B	Time Base	Read Write	0 to 3		Integer	03, 04, 06, 16	0=sec, 1=min, 2=hour, 3=day
40109	108	006C	Rate Units	Read Write	0 to 12		Integer	03, 04, 06, 16	0=Custom, 1=Gallon, 2=Liter, 3=Imperial Gallon, 4=Cubic Meter, 5=Barrel, 6= Bushel, 7= Cubit Yard, 8=Cubic Foot, 9=Cubic Inch, 10=Liquid Barrel, 11=Beer Barrel, 12=Hectoliter
40110 – 40111	109 – 110	006D – 006E	Rate Conversion Factor	Read Write	0.000001 to 9,999,999		Float	03, 04, 06, 16	Rate units must be set to Custom
40112	111	006F	Total Units	Read Write	0 to 12		Integer	03, 04, 06, 16	0=Custom, 1=Gallon, 2=Liter, 3=Imperial Gallon, 4=Meter <sup>3</sup> , 5=Barrel, 6= Bushel, 7= Cubic Yard, 8=Cubic Foot, 9=Cubic Inch, 10=Liquid Barrel, 11=Beer Barrel, 12=Hectoliter
40113	112	0070	Total Unit Multiplier	Read Write	0, 2, 3, 6		Integer	03, 04, 06, 16	0=1, 2=x100 (h), 3=x1,000 (k), 6=x1,000,000 (M)
40114 – 40115	113 - 114	0071 – 0072	Total Conversion Factor	Read Write	0.000001 to 9,999,999		Float	03, 04, 06, 16	Total units must be set to Custom
40116	115	0073	Total Reset Mode	Read Write	0 to 2		Integer	03, 04, 06, 16	0=Manual enable, 1= manual disable, 2=Auto
40117	116	0074	Total Reset Delay	Read Write	0 to 99,999	Seconds	Long Hi	03, 04, 06, 16	Must set reset mode to Auto
40118	117	0075	Total Reset Delay	Read Write			Long Lo	03, 04, 06, 16	Must be read with register 40117
40119	118	0076	Total Alarm 1 Set Point	Read Write	0 to 9,999,999	User defined	Long Hi	03, 04, 06, 16	Set alarm output 1
40120	119	0077	Total Alarm 1 Set Point	Read Write			Long Lo	03, 04, 06, 16	Must be read with register 40119
40121	120	0078	Total Alarm 2 Set Point	Read Write	0 to 9,999,999	User defined	Long Hi	03, 04, 06, 16	Set alarm output 2
40122	121	0079	Total Alarm 2 Set Point	Read Write			Long Lo	03, 04, 06, 16	Must be read with register 40121

# PD6830X & PD6730X Modbus® Register Tables

# Serial Communication

Register <sup>1</sup>			Name	Access	Limits or Range <sup>2</sup>	Units	Data Type <sup>3</sup>	Function Code(s)	Comments
Number	Address (Decimal)	Address (Hex)							
40123	122	007A	Grand Total Units	Read Write	0 to 12		Integer	03, 04, 06, 16	0=Custom, 1=Gallon, 2=Liter, 3=Imperial Gallon, 4=Meter <sup>3</sup> , 5=Barrel, 6= Bushel, 7= Cubic Yard, 8=Cubic Foot, 9=Cubic Inch, 10=Liquid Barrel, 11=Beer Barrel, 12=Hectoliter
40124	123	007B	Grand Total Unit Multiplier	Read Write	0, 2, 3, 6		Integer	03, 04, 06, 16	0=1, 2=x100 (h), 3=x1,000 (k), 6=x1,000,000 (M)
40125 - 40126	124 - 125	007AC- 007D	Grand Total Conversion Factor	Read Write	0.000001 to 9,999,999	User defined	Float	03, 04, 06, 16	Grand Total units must be set to Custom.
40127	126	007E	Grand Total Reset Mode	Read Write	0 to 2		Integer	03, 04, 06, 16	0=Manual Enable, 1= Manual Disable, 2=Auto
40128	127	007F	Grand Total Reset Delay	Read Write	0.000000 to 9,999,999	Seconds	Long Hi	03, 04, 06, 16	
40129	128	0080	Grand Total Reset Delay	Read Write			Long Lo	03, 04, 06, 16	Must be read with register 40128
40130	129	0081	Grand Total Alarm 1 Set Point	Read Write	0.000000 to 9,999,999	User defined	Long Hi	03, 04, 06, 16	Set Alarm Output 1
40131	130	0082	Grand Total Alarm 1 Set Point	Read Write			Long Lo	03, 04, 06, 16	Must be read with register 40130
40132	131	0083	Grand Total Alarm 2 Set Point	Read Write	0.000000 to 9,999,999	User defined	Long Hi	03, 04, 06, 16	Set Alarm Output 2
40133	132	0084	Grand Total Alarm 2 Set Point	Read Write			Long Lo	03, 04, 06, 16	Must be read with register 40132
40134	133	0085	Rate Alarm 1 Set Point	Read Write	0 to 99,999	User defined	Long Hi	03, 04, 06, 16	Set Alarm Output 1
40135	134	0086	Rate Alarm 1 Set Point	Read Write			Long Lo	03, 04, 06, 16	Must be read with register 40134
40136	135	0087	Rate Alarm 1 Reset Point	Read Write	0 to 99,999	User defined	Long Hi	03, 04, 06, 16	Reset Alarm Output 1
40137	136	0088	Rate Alarm 1 Reset Point	Read Write			Long Lo	03, 04, 06, 16	Must be read with register 40136
40138	137	0089	Rate Alarm 2 Set Point	Read Write	0 to 99,999	User defined	Long Hi	03, 04, 06, 16	Set Alarm Output 2
40139	138	008A	Rate Alarm 2 Set Point	Read Write			Long Lo	03, 04, 06, 16	Must be read with register 40138



# PD6830X & PD6730X Modbus® Register Tables

# Serial Communication

Register <sup>1</sup>			Name	Access	Limits or Range <sup>2</sup>	Units	Data Type <sup>3</sup>	Function Code(s)	Comments
Number	Address (Decimal)	Address (Hex)							
40140	139	008B	Rate Alarm 2 Reset Point	Read Write	0 to 99,999	User defined	Long Hi	03, 04, 06, 16	Reset Alarm Output 2
40141	140	008C	Rate Alarm 2 Reset Point	Read Write			Long Lo	03, 04, 06, 16	Must be read with register 40140
40142 - 40143	141-142	008D-008E	PV Alarm 1 Set Point	Read Write	0 to 99,999	User defined	Float	03, 04, 06, 16	PV set point alarm output 1
40144 - 40145	143-144	008F-0090	PV Alarm 1 Reset Point	Read Write	0 to 99,999	User defined	Float	03, 04, 06, 16	PV reset point alarm output 1
40146 - 40147	145-146	0091-0092	PV Alarm 2 Set Point	Read Write	0 to 99,999	User defined	Float	03, 04, 06, 16	PV set point alarm output 2
40148 - 40149	147-148	0093-0094	PV Alarm 2 Reset Point	Read Write	0 to 99,999	User defined	Float	03, 04, 06, 16	PV reset point alarm output 2
40151	150	0096	Pulse Output 1 Mode	Read Write	0 to 12		Integer	03, 04, 06, 16	0=Off, 1=Rate Alarm, 2=Total Alarm, 3=GT Alarm, 4=PV Alarm, 5=On, 6=Off, 7=Pulse timer, 8=Pulse Rate, 9=Pulse Total, 10=Pulse GT, 11=Pulse Retr, 12=Pulse Quad, 13=Pulse PV, 14=Test Note: PV alarm and pulse PV are assigned at 40183
40152	151	0097	Pulse Output 2 Mode	Read Write	0 to 12		Integer	03, 04, 06, 16	0=Off, 1=Rate Alarm, 2=Total Alarm, 3=GT Alarm, 4=PV Alarm, 5=On, 6=Off, 7=Pulse timer, 8=Pulse Rate, 9=Pulse Total, 10=Pulse GT, 11=Pulse Retr, 12=Pulse Quad, 13=Pulse PV, 14=Test Note: PV alarm and pulse PV are assigned at 40184
40153 – 40154	152 – 153	0098 – 0099	Pulse Output 1 Rate Factor	Read Write	>0.00001 to 9,999,999	User defined	Float	03, 04, 06, 16	Set rate output conversion factor for output 1
40155 – 40156	154 – 155	009A – 009B	Pulse Output 2 Rate Factor	Read Write	>0.00001 to 9,999,999	User defined	Float	03, 04, 06, 16	Set rate output conversion factor for output 2
40157 – 40158	156 – 157	009C – 009D	Pulse Output 1 Total Factor	Read Write	>0.00001 to 9,999,999	User defined	Float	03, 04, 06, 16	Set total output conversion factor for output 1
40159 – 40160	158 – 159	009E – 009F	Pulse Output 2 Total Factor	Read Write	>0.00001 to 9,999,999	User defined	Float	03, 04, 06, 16	Set total output conversion factor for output 2
40161 – 40162	160 – 161	00A0 – 00A1	Pulse Output 1 Grand Total Factor	Read Write	>0.00001 to 9,999,999	User defined	Float	03, 04, 06, 16	Set grand total output conversion factor for output 1
40163 – 40164	162 – 163	00A2 – 00A3	Pulse Output 2 Grand Total Factor	Read Write	>0.00001 to 9,999,999	User defined	Float	03, 04, 06, 16	Set grand total output conversion factor for output 2

# PD6830X & PD6730X Modbus® Register Tables

# Serial Communication

Register <sup>1</sup>			Name	Access	Limits or Range <sup>2</sup>	Units	Data Type <sup>3</sup>	Function Code(s)	Comments
Number	Address (Decimal)	Address (Hex)							
40165 – 40166	164 – 165	00A4 – 00A5	Pulse Output Test Frequency	Read Write	0.0 to 5,000.0	Hz	Float	03, 04, 06, 16	Output 1
40167 – 40168	166 – 167	00A6 – 00A7	Pulse Output Test Frequency	Read Write	0.0 to 5,000.0	Hz	Float	03, 04, 06, 16	Output 2
40169 – 40170	168 – 169	00A8 – 00A9	Pulse Output Timer Delay	Read Write	0.1 to 999,999.9	Seconds	Float	03, 04, 06, 16	Timer delay output 1
40171 – 40172	170 – 171	00AA – 00AB	Pulse Output Timer Delay	Read Write	0.1 to 999,999.9	Seconds	Float	03, 04, 06, 16	Timer delay output 2
40173 – 40174	172 – 173	00AC – 00AD	Pulse Output Timer On	Read Write	0.10 to 99,999.99	Seconds	Float	03, 04, 06, 16	Timer output pulse on time (pulse width) output 1
40175 – 40176	174 – 175	00AE – 00AF	Pulse Output Timer On	Read Write	0.10 to 99,999.99	Seconds	Float	03, 04, 06, 16	Timer output pulse time (pulse width) output 2
40177	176	00B0	Pulse Output Timer Start/Stop	Read Write	0 or 1		Bit	03, 04, 06, 16	Output 1; 0=Stop, 1=Start
40178	177	00B1	Pulse Output Timer Start/Stop	Read Write	0 or 1		Bit	03, 04, 06, 16	Output 2; 0=Stop, 1=Start
40179 – 40180	178 – 179	00B2 - 00B3	Pulse Output PV Factor	Read Write	>0.00001 to 9,999,999	User defined	Float	03, 04, 06, 16	PV pulse factor output 1
40181 – 40182	180 – 181	00B4 – 00B5	Pulse Output PV Factor	Read Write	>0.00001 to 9,999,999	User defined	Float	03, 04, 06, 16	PV pulse factor output 2
40183	182	00B6	Pulse Output PV Channel	Read Write	>0.00001 to 9,999,999	User defined	Integer	03, 04, 06, 16	0=None, 1-16 = PV, 17-20=Math PV channels for output 1 are used for either alarm or pulse output modes
40184	183	00B7	Pulse Output PV Channel	Read Write	>0.00001 to 9,999,999	User defined	Integer	03, 04, 06, 16	0=None, 1-16 = PV, 17-20=Math PV channels for output 2 are used for either alarm or pulse output modes
40191 - 40192	190 - 191	00BE – 00BF	mA Output Scale 1 (PV Source)	Read Write	3.800 to 20.500	mA	Float	03, 04, 06, 16	Analog output scale point 1 when sourced from a Modbus PV or math channel
40193-40194	192 - 193	00C0 – 00C1	mA Output Scale 2 (PV Source)	Read Write	3.800 to 20.500	mA	Float	03, 04, 06, 16	Analog output scale point 2 when sourced from a Modbus PV or math channel

# PD6830X & PD6730X Modbus® Register Tables

# Serial Communication

Register <sup>1</sup>			Name	Access	Limits or Range <sup>2</sup>	Units	Data Type <sup>3</sup>	Function Code(s)	Comments
Number	Address (Decimal)	Address (Hex)							
40195-40196	194 - 195	00C2 – 00C3	mA Output Display 1 (PV Source)	Read Write	0 to 99,999	User defined	Float	03, 04 06, 16	Analog output display for scale point 1 when sourced from a Modbus PV or math channel
40197- 40198	196 - 197	00C4 – 00C5	mA Output Display 2 (PV Source)	Read Write	0 to 99,999	User defined	Float	03, 04 06, 16	Analog output display for display scale point 2 when sourced from a Modbus PV or math channel
40201	200	00C8	mA Output Mode	Read Write	0 to 23	mA	Bit (x4)	03, 04, 06, 16	0=disable, 1-16 = PV, 17-20=Math, 21 = Rate, 22 = Total, 23 = Grand Total
40202 – 40203	201 – 202	00C9 – 00CA	mA Output Scale 1 (Rate Source)	Read Write	3.800 to 20.500	mA	Float	03, 04, 06, 16	Analog output scale point 1 when sourced from the pulse input Rate
40204 – 40205	203 – 204	00CB – 00CC	mA Output Scale 2 (Rate Source)	Read Write	3.800 to 20.500	mA	Float	03, 04, 06, 16	Analog output scale point 2 when sourced from the pulse input Rate
40206 – 40206	205 – 206	00CD – 00CE	mA Output Display 1 (Rate Source)	Read Write	0.0000 to 99,999	User defined	Float	03, 04, 06, 16	Analog output display for scale point 1 when sourced from the pulse input Rate
40208 – 40209	207 – 208	00CF – 00D0	mA Output Display 2 (Rate Source)	Read Write	0.0000 to 99,999	User defined	Float	03, 04, 06, 16	Analog output display for display scale point 2 when sourced from the pulse input Rate
40210 – 40211	209 – 210	00D1 – 00D2	mA Output Scale 1 (Total Source)	Read Write	3.800 to 20.500	mA	Float	03, 04, 06, 16	Analog output scale point 1 when sourced from the pulse input Total
40212 – 40213	211 – 212	00D3 – 00D4	mA Output Scale 2 (Total Source)	Read Write	3.800 to 20.500	mA	Float	03, 04, 06, 16	Analog output scale point 2 when sourced from the pulse input Total
40214 – 40215	213 – 214	00D5 – 00D6	mA Output Display 1 (Total Source)	Read Write	0.0000 to 9,999,999	User defined	Float	03, 04, 06, 16	Analog output display for scale point 1 when sourced from the pulse input Total
40216 – 40217	215 – 216	00D7 – 00D8	mA Output Display 2 (Total Source)	Read Write	0.0000 to 9,999,999	User defined	Float	03, 04, 06, 16	Analog output display for display scale point 2 when sourced from the pulse input Total
40218 – 40219	217 – 218	00D9 – 00DA	mA Output Scale 1 (Grand Total Source)	Read Write	3.800 to 20.500	mA	Float	03, 04, 06, 16	Analog output scale point 1 when sourced from the pulse input Grand Total
40220 – 40221	219 – 220	00DB – 00DC	mA Output Scale 2 (Grand Total Source)	Read Write	3.800 to 20.500	mA	Float	03, 04, 06, 16	Analog output scale point 2 when sourced from the pulse input Grand Total

# PD6830X & PD6730X Modbus® Register Tables

# Serial Communication

Register <sup>1</sup>			Name	Access	Limits or Range <sup>2</sup>	Units	Data Type <sup>3</sup>	Function Code(s)	Comments
Number	Address (Decimal)	Address (Hex)							
40222 – 40223	221 – 222	00DD – 00DE	mA Output Display 1 (Grand Total Source)	Read Write	0.0000 to 9,999,999	User defined	Float	03, 04, 06, 16	Analog output display for scale point 1 when sourced from the pulse input Grand Total
40224 - 40225	223 - 224	00DF – 00E0	mA Output Display 2 (Grand Total Source)	Read Write	0.0000 to 9,999,999	User defined	Float	03, 04, 06, 16	Analog output display for display scale point 2 when sourced from the pulse input Grand Total
40231	230	00E6	Lo Gate	Read Write	1 to 99	Seconds	Integer	03, 04, 06, 16	
40232	231	00E7	Hi Gate	Read Write	2 to 9,999	Seconds	Integer	03, 04, 06, 16	
40233	232	00E8	Pulse Input Filter	Read Write	0 to 2		Integer	03, 04, 06, 16	0=High, 1=Medium, 2=Low Speed
40234 - 40235	233 - 234	00E9 – 00EA	Rate Cutoff	Read Write	0 to 99,999	User defined	Float	03, 04, 06, 16	
40241	240	00F0	Backlight	Read Write	0 or 1		Bit	03, 04, 06, 16	0=Off, 1=Enable
40242	241	00F1	Battery Symbol	Read Write	0 or 1		Bit	03, 04, 06, 16	0=Off, 1=Enable; Not used Dec., Not available Ft-In.
40243	242	00F2	Rate/T/Gr display	Read Write	0 to 222		Integer	03, 04, 06, 16	Units digit = display rate Tens Digit = display total Hundreds Digit = display grand total 0=None,1=Top,2=Bottom For Feet-Inch: 0=None,1=Dec
40247	246	00F6	Tank Height	Read Write	0 to 399	Feet	Integer	03, 04, 06, 16	Feet & inches version Range: 0-399 feet, 0 = disabled
40251	250	00FA	Bottom Display Mode	Read Write			Integer	03, 04, 06, 16	See Display Settings on table 2 for bottom display mode settings.
40252	251	00FB	Top Display Mode	Read Write			Integer	03, 04, 06, 16	See Display Settings on table 2 for top display mode settings.
40253	252	00FC	Units Display Seconds	Read Write	0 to 5	Seconds	Integer	03, 04, 06, 16	Set the time for the units display to toggle on the display. 0 = off

# PD6830X & PD6730X Modbus® Register Tables

# Serial Communication

Register <sup>1</sup>			Name	Access	Limits or Range <sup>2</sup>	Units	Data Type <sup>3</sup>	Function Code(s)	Comments
Number	Address (Decimal)	Address (Hex)							
40254	253	00FD	PV Display Seconds	Read Write	2 to 99	Seconds	Integer	03, 04, 06, 16	Set the time for the PV display to toggle on the display.
40255	254	00FE	Tag Display Seconds	Read Write	0 to 5	Seconds	Integer	03, 04, 06, 16	Set the time for the tag display to toggle on the display. 0 = off
40256 – 40260	255 – 259	00FF – 0103	Rate Custom Unit Name	Read Write			Word (x5)	03, 04, 16	5 ASCII characters see <i>Allowable ASCII Character Set</i> on table 6. Listed range must be written together. Applicable when rate unit set to custom
40261 – 40267	260 – 266	0104 – 010A	Total Custom Unit Name	Read Write			Word (x7)	03, 04, 16	7 ASCII characters see <i>Allowable ASCII Character Set</i> on table 6. All registers in listed range must be written together. Applicable when total unit set to custom
40268 – 40274	267 – 273	010B – 0111	Grand Total Custom Unit Name	Read Write			Word (x7)	03, 04, 16	7 ASCII characters see <i>Allowable ASCII Character Set</i> on table 6. All registers in listed range must be written together. Applicable when grand total unit set to custom
40275 – 40281	274 – 280	0112 – 0118	User Tag	Read Write			Word (x7)	03, 04, 06, 16	7 ASCII character lower display user defined tag; <i>Allowable ASCII Character Set</i> on table 6. All registers in listed range must be written together.
40282-40288	281-287	0119 – 011F	Total Tag	Read Write			Word (x7)	03, 04, 06, 16	7 ASCII character lower display user defined tag; <i>Allowable ASCII Character Set</i> on table 6. All registers in listed range must be written together.
40291	290	0122	Modbus Slave ID	Read Write	1 to 247		Integer	03, 04, 06, 16	
40292	291	0123	Modbus Parity	Read Write	0 to 3		Integer	03, 04, 06, 16	0=8N1, 1=8N2, 2=Even Parity, 3=Odd Parity
40293	292	0124	Modbus Delay	Read Write	0 to 199	Milliseconds	Integer	03, 04, 06, 16	
40294	293	0125	Modbus Baud Rate	Read Write	1,200; 2,400; 4,800; 9,600; 19,200; 38,400; 57,600; or 115,200	bps	Long Hi	03, 04, 06, 16	
40295	294	0126	Modbus Baud Rate	Read Write			Long Lo	03, 04, 06, 16	Must be read with register 40294
40301 - 40306	300 - 305	012C – 0131	Time	Read Write	0 to 99, 1 to 12, 1 to 31 (see comments), 0 to 23, 0 to 59, 0 to 59	Years, months, days, hours, minutes, seconds	Integer (x6)	03, 04, 16	Register 40301: Year; 40302: Month; 40303: Day; 40304: Hour; 40305: Minute; 40306: Second Range for days is determined by month. Write all Time registers with one command.
40307	306	0132	Log Time Active	Read Write	0 or 1		Bit (x4)	03, 04, 06, 16	Set appropriate bit to enable log times. Bit 0: Log Time 1, Bit 1: Log Time 2, Bit 2: Log Time 3, Bit 3: Log Time 4 Will error if log interval state is enabled (1, 2).

# PD6830X & PD6730X Modbus® Register Tables

# Serial Communication

Register <sup>1</sup>			Name	Access	Limits or Range <sup>2</sup>	Units	Data Type <sup>3</sup>	Function Code(s)	Comments
Number	Address (Decimal)	Address (Hex)							
40308 – 40309	307 – 308	0133 - 0134	Log Time 1 Hour Minute	Read Write	0 to 23 0 to 59	Hour Minute	Integer (x2)	03, 04, 16	Log Time 1 Register 40308: Hour; 40309: Minute Write all above registers with one command.
40310 – 40311	309 – 310	0135 – 0136	Log Time 2 Hour Minute	Read Write	0 to 23 0 to 59	Hour Minute	Integer (x2)	03, 04, 16	Log Time 2 Register 40310: Hour; 40311: Minute Write all above registers with one command.
40312 – 40313	311 – 312	0137 – 0138	Log Time 3 Hour Minute	Read Write	0 to 23 0 to 59	Hour Minute	Integer (x2)	03, 04, 16	Log Time 3 Register 40312: Hour; 40313: Minute Write all above registers with one command.
40314 - 40315	313 – 314	0139 – 013A	Log Time 4 Hour Minute	Read Write	0 to 23 0 to 59	Hour Minute	Integer (x2)	03, 04, 16	Log Time 4 Register 40314: Hour; 40315: Minute Write all above registers with one command.
40316	315	013B	Log Interval State	Read Write	0 to 2		Integer	03, 04, 06, 16	0=Disable, 1=Enabled/Stop, 2=Start/Running Will error if any log times are enabled (1).
40317 – 40318	316 – 317	013C – 013D	Log Interval Time	Read Write	0 to 23 0 to 59	Hour Minute	Integer (x2)	03, 04, 16	Register 40317: Hour; 40318: Minute Write all above registers with one command.
40319	318	013E	Log Erase	Read Write	0xFFFF		Word	03, 04, 06, 16	Write 0xFFFF erases. Read 0xFFFF indicates no logs, else returns the next available record sequence number.
40351-40357	350-356	015E – 0165	Tag for Grand Total	Read Write			Word (x7)	03, 04, 06, 16	7 ASCII characters see <i>Allowable ASCII Character Set</i> on table 6. All registers in listed range must be written together. Applicable when total unit set to custom
40401	400	0190	Menu Password	Read Write	0 to 99,999		Long Hi	03, 04, 06, 16	Read 0xFFFFFFFF if set, 0 if not set. Write password to set/unlock password.
40402	401	0191	Menu Password	Read Write			Long Lo	03, 04, 06, 16	
40403	402	0192	Total Password	Read Write	0 to 99,999		Long Hi	03, 04, 06, 16	Read 0xFFFFFFFF if set, 0 if not set. Write password to set/unlock password.
40404	403	0193	Total Password	Read Write			Long Lo	03, 04, 06, 16	
40405	404	0194	Grand Total Password	Read Write	0 to 99,999		Long Hi	03, 04, 06, 16	Read 0xFFFFFFFF if set, 0 if not set. Write password to set/unlock password. Note: 50873 used for permanent lock.
40406	405	0195	Grand Total Password	Read Write			Long Lo	03, 04, 06, 16	
40411	410	019A	Custom Menu 1	Read Write	0 to 30		Integer	03, 04, 06, 16	See Custom Menu Settings on table 3 for custom menu listings
40412	411	019B	Custom Menu 2	Read Write	0 to 30		Integer	03, 04, 06, 16	See Custom Menu Settings on table 3 for custom menu listings

# PD6830X & PD6730X Modbus® Register Tables

# Serial Communication

Register <sup>1</sup>			Name	Access	Limits or Range <sup>2</sup>	Units	Data Type <sup>3</sup>	Function Code(s)	Comments
Number	Address (Decimal)	Address (Hex)							
40413	412	019C	Custom Menu <sub>3</sub>	Read Write	0 to 30		Integer	03, 04, 06, 16	See Custom Menu Settings on table 3 for custom menu listings
40414	413	019D	Custom Menu <sub>4</sub>	Read Write	0 to 30		Integer	03, 04, 06, 16	See Custom Menu Settings on table 3 for custom menu listings
40415	414	019E	Custom Menu <sub>5</sub>	Read Write	0 to 30		Integer	03, 04, 06, 16	See Custom Menu Settings on table 3 for custom menu listings
40416	415	019F	Custom Menu <sub>6</sub>	Read Write	0 to 30		Integer	03, 04, 06, 16	See Custom Menu Settings on table 3 for custom menu listings
40417	416	01A0	Custom Menu <sub>7</sub>	Read Write	0 to 30		Integer	03, 04, 06, 16	See Custom Menu Settings on table 3 for custom menu listings
40418	417	01A1	Custom Menu <sub>8</sub>	Read Write	0 to 30		Integer	03, 04, 06, 16	See Custom Menu Settings on table 3 for custom menu listings
3 – 40564	500 - 563	01F4 – 0233	Rate Scale Points Display Value	Read Write	0 to 99,999 for each point	User defined	Float (x32)	03, 04, 06, 16	32 float values of 2 registers per float. Each float number is a scaling display point that corresponds to a scaling input frequency value point. Write each display scale point, up to 32 points. Note: Write values first, then number of points (40632). Writing scale points disables K-factor scaling
40565 – 40628	564 – 627	0234 – 273	Rate Scale Points Input Value	Read Write	0 to 99,999 for each point	Hz	Float (x32)	03, 04, 06, 16	32 float values of 2 registers per float. Each float number is a scaling input frequency (Hz) point that corresponds to a scaling display value point. Write each input scale point, up to 32 points. Note: Write values first, then number of points (40632). Writing scale points disables K-factor scaling
40629	628	0274	Number of Rate Scale Points	Read Only	0, 2 to 32	Scale points	Integer	03, 04, 06, 16	0=K-factor used, scaling disabled. Else, reads 2-32 based on number of points used in scale point registers.
40630	629	0275	Rate Scale Point Units	Read Write	0 to 12		Integer	03, 04, 06, 16	Set units in display values of scale points. 0=Custom, 1=Gallon, 2=Liter, 3=Imperial Gallon, 4=Cubic Meter, 5=Barrel, 6= Bushel, 7= Cubit Yard, 8=Cubic Foot, 9=Cubic Inch, 10=Liquid Barrel, 11=Beer Barrel, 12=Hectoliter
40631	630	0276	Rate Scale Time Base	Read Write	0 to 3		Integer	03, 04, 06, 16	0=Sec, 1=Min, 2=Hour, 3=Day Changes after save scale
40632	631	0277	Number Of Points / Save Rate Scale	Read Write	Read: 0, 2 to 32 Write: 2 to 32	Scale points	Integer	03, 04, 06, 16	Read to confirm number of scale points set after wring display value and input value scale points. Write confirmed number of scale points to save new scale points. Error if span error. 0=K-factor used, scaling disabled.
40641 - 40642	640 - 641	0280 – 0281	PV 1 Value	Read Write	-999,999 to 9,999,999	User defined	Float	03, 04, 06, 16	Range depends on the version. Ft-In can't go negative. Ft-In PV values stored in units of feet (ie: 47.43 feet). Decimal num of digits depends on top or bottom display.

# PD6830X & PD6730X Modbus® Register Tables

# Serial Communication

Register <sup>1</sup>			Name	Access	Limits or Range <sup>2</sup>	Units	Data Type <sup>3</sup>	Function Code(s)	Comments
Number	Address (Decimal)	Address (Hex)							
40643 - 40644	642 - 643	0282 – 0283	PV 2 Value	Read Write	-999,999 to 9,999,999	User defined	Float	03, 04 06, 16	See PV1 Value comments
40645 - 40646	644 - 645	0284 – 0285	PV 3 Value	Read Write	-999,999 to 9,999,999	User defined	Float	03, 04 06, 16	See PV1 Value comments
40647 - 40648	646 - 647	0286 – 0287	PV 4 Value	Read Write	-999,999 to 9,999,999	User defined	Float	03, 04 06, 16	See PV1 Value comments
40649 - 40650	648 - 649	0288 – 0289	PV 5 Value	Read Write	-999,999 to 9,999,999	User defined	Float	03, 04 06, 16	See PV1 Value comments
40651 - 40652	650 - 651	028A – 028B	PV 6 Value	Read Write	-999,999 to 9,999,999	User defined	Float	03, 04 06, 16	See PV1 Value comments
40653 - 40654	652 - 653	028C – 028D	PV 7 Value	Read Write	-999,999 to 9,999,999	User defined	Float	03, 04 06, 16	See PV1 Value comments
40655 - 40656	654 - 655	028E – 028F	PV 8 Value	Read Write	-999,999 to 9,999,999	User defined	Float	03, 04 06, 16	See PV1 Value comments
40657 - 40658	656 - 657	0290 – 0291	PV 9 Value	Read Write	-999,999 to 9,999,999	User defined	Float	03, 04 06, 16	See PV1 Value comments
40659 - 40660	658 - 659	0292 – 0293	PV 10 Value	Read Write	-999,999 to 9,999,999	User defined	Float	03, 04 06, 16	See PV1 Value comments
40661 - 40662	660 - 661	0294 – 095	PV 11 Value	Read Write	-999,999 to 9,999,999	User defined	Float	03, 04 06, 16	See PV1 Value comments
40663 - 40664	662 - 663	0296 – 0297	PV 12 Value	Read Write	-999,999 to 9,999,999	User defined	Float	03, 04 06, 16	See PV1 Value comments
40665 - 40666	664 - 665	0298 – 0299	PV 13 Value	Read Write	-999,999 to 9,999,999	User defined	Float	03, 04 06, 16	See PV1 Value comments
40667 - 40668	666 - 667	029A – 029B	PV 14 Value	Read Write	-999,999 to 9,999,999	User defined	Float	03, 04 06, 16	See PV1 Value comments
40669 - 40670	668 - 669	029C – 029D	PV 15 Value	Read Write	-999,999 to 9,999,999	User defined	Float	03, 04 06, 16	See PV1 Value comments
40671 - 40672	670 - 671	029E – 029F	PV 16 Value	Read Write	-999,999 to 9,999,999	User defined	Float	03, 04 06, 16	See PV1 Value comments
40673 - 40674	672 - 673	02A0 – 02A1	Math 1 Value	Read Write	-999,999 to 9,999,999	User defined	Float	03, 04 06, 16	See PV1 Value comments
40675 - 40676	674 - 675	02A2 – 02A3	Math 2 Value	Read Write	-999,999 to 9,999,999	User defined	Float	03, 04 06, 16	See PV1 Value comments



# PD6830X & PD6730X Modbus® Register Tables

# Serial Communication

Register <sup>1</sup>			Name	Access	Limits or Range <sup>2</sup>	Units	Data Type <sup>3</sup>	Function Code(s)	Comments
Number	Address (Decimal)	Address (Hex)							
40677- 40678	676 - 677	02A4 – 02A5	Math 3 Value	Read Write	-999,999 to 9,999,999	User defined	Float	03, 04 06, 16	See PV1 Value comments
40679 - 40680	678 - 679	02A6 – 02A7	Math 4 Value	Read Write	-999,999 to 9,999,999	User defined	Float	03, 04 06, 16	See PV1 Value comments
40681	680	2A8	PV 1 Valid	Read Only	0 to 1		Integer	03, 04 06, 16	Indicates that a PV or Math channel has valid data. Valid when 1 ( <i>i.e.</i> Does not display "NONE")
40682	681	2A9	PV 2 Valid	Read Only	0 to 1		Integer	03, 04 06, 16	See PV1 Valid comments
40683	682	2AA	PV 3 Valid	Read Only	0 to 1		Integer	03, 04 06, 16	See PV1 Valid comments
40684	683	2AB	PV 4 Valid	Read Only	0 to 1		Integer	03, 04 06, 16	See PV1 Valid comments
40685	684	2AC	PV 5 Valid	Read Only	0 to 1		Integer	03, 04 06, 16	See PV1 Valid comments
40686	685	2AD	PV 6 Valid	Read Only	0 to 1		Integer	03, 04 06, 16	See PV1 Valid comments
40687	686	2AE	PV 7 Valid	Read Only	0 to 1		Integer	03, 04 06, 16	See PV1 Valid comments
40688	687	2AF	PV 8 Valid	Read Only	0 to 1		Integer	03, 04 06, 16	See PV1 Valid comments
40689	688	2B0	PV 9 Valid	Read Only	0 to 1		Integer	03, 04 06, 16	See PV1 Valid comments
40690	689	2B1	PV 10 Valid	Read Only	0 to 1		Integer	03, 04 06, 16	See PV1 Valid comments
40691	690	2B2	PV 11 Valid	Read Only	0 to 1		Integer	03, 04 06, 16	See PV1 Valid comments
40692	691	2B3	PV 12 Valid	Read Only	0 to 1		Integer	03, 04 06, 16	See PV1 Valid comments
40693	692	2B4	PV 13 Valid	Read Only	0 to 1		Integer	03, 04 06, 16	See PV1 Valid comments
40694	693	2B5	PV 14 Valid	Read Only	0 to 1		Integer	03, 04 06, 16	See PV1 Valid comments
40695	694	2B6	PV 15 Valid	Read Only	0 to 1		Integer	03, 04 06, 16	See PV1 Valid comments

# PD6830X & PD6730X Modbus® Register Tables

# Serial Communication

Register <sup>1</sup>			Name	Access	Limits or Range <sup>2</sup>	Units	Data Type <sup>3</sup>	Function Code(s)	Comments
Number	Address (Decimal)	Address (Hex)							
40696	695	2B7	PV 16 Valid	Read Only	0 to 1		Integer	03, 04 06, 16	See PV1 Valid comments
40697	696	2B8	Math 1 Valid	Read Only	0 to 1		Integer	03, 04 06, 16	See PV1 Valid comments
40698	697	2B9	Math 2 Valid	Read Only	0 to 1		Integer	03, 04 06, 16	See PV1 Valid comments
40699	698	2BA	Math 3 Valid	Read Only	0 to 1		Integer	03, 04 06, 16	See PV1 Valid comments
40700	699	2BB	Math 4 Valid	Read Only	0 to 1		Integer	03, 04 06, 16	See PV1 Valid comments
40705 – 40710	704 – 709	02C0 – 02C5	Log Record Time	Read Only	0 to 99, 1 to 12, 1 to 31, 0 to 23, 0 to 59, 0 to 59	Years, months, days, hours, minutes, seconds	Integer (x6)	03, 04	Read active log # record time. Register 40705: Year; 40706: Month; 40707: Day; 40708: Hour; 40709: Minute; 40710: Second Write all above registers with one command.
40711 – 40712	710 – 711	02C6 – 02C7	Log Rate	Read Only	0 to 99,999	User defined	Float	03, 04	Read active log # recorded Rate. Valid only when log record status (40754) bit 4 is clear.
40713 – 40716	712 – 715	02C8 – 02C9	Log Total	Read Only	0 to 9,999,999,999,999	User defined	Float	03, 04	Read active log # recorded Total. Valid only when log record status (40754) bit 4 is clear.
40717 – 40720	716 – 720	02CC – 02CF	Log Grand Total	Read Only	0 to 9,999,999,999,999	User defined	Float	03, 04	Read active log # recorded Grand Total. Valid only when log record status (40754) bit 4 is clear.
40721 – 40724	720 – 723	02D0 – 02D3	Log Total	Read Only	0 to 9,999,999,999,999	User defined	Double	03, 04	Read active log # recorded Total. Double data type available for greater accuracy. Valid only when log record status (40754) bit 4 is clear.
40725 – 40728	724 – 727	02D4 – 02D7	Log Grand Total	Read Only	0 to 9,999,999,999,999	User defined	Double	03, 04	Read active log # recorded Grand Total. Double data type available for greater accuracy. Valid only when log record status (40754) bit 4 is clear.
40729	728	02D8	Log Rate	Read Only	0 to 99,999	User defined	Long Hi	03, 04	Read active log # recorded Rate. Long data type available for more accuracy. Valid only when log record status (40754) bit 4 is clear.
40730	729	02D9	Log Rate	Read Only			Long Lo	03, 04	
40731	730	02DA	Log Total Non-Overflow Value	Read Only	0 to 9,999,999	User defined	Long Hi	03, 04	Read active log # recorded Total Represents the Total non-overflow value, excluding the decimal point. Total Value = (Total overflow x 10 <sup>7</sup> ) + (Total non- overflow) Decimal point setting in 40106. Valid only when log record status (40754) bit 4 is clear.
40732	731	02DB	Log Total Non-Overflow Value	Read Only			Long Lo	03, 04	Must be read with 40731

PD6830X & PD6730X Modbus® Register Tables

Serial Communication

Register <sup>1</sup>			Name	Access	Limits or Range <sup>2</sup>	Units	Data Type <sup>3</sup>	Function Code(s)	Comments
Number	Address (Decimal)	Address (Hex)							
40733	732	02DC	Log Total Overflow Value	Read Only	0 to 999,999	User defined	Long Hi	03, 04	Read active log # recorded Total. Represents the Total overflow value. Valid only when log record status (40754) bit 4 is clear.
40734	733	02DD	Log Total Overflow Value	Read Only			Long Lo	03, 04	Must be read with 40733
40735	734	02DE	Log Grand Total Non-Overflow Value	Read Only	0 to 9,999,999	User defined	Long Hi	03, 04	Read active log # recorded Grand Total Represents the Grand Total non-overflow value, excluding the decimal point. Total Value = (Grand Total overflow x 10 <sup>7</sup> ) + (Grand Total non-overflow) Decimal point setting in 40107. Valid only when log record status (40754) bit 4 is clear.
40736	735	02DF	Log Grand Total Non-Overflow Value	Read Only			Long Lo		Must be read with 40735
40737	736	02E0	Log Grand Total Overflow Value	Read Only	0 to 999,999	User defined	Long Hi		Read active log # recorded Grand Total. Represents the Grand Total overflow value. Valid only when log record status (40754) bit 4 is clear.
40738	737	02E1	Log Grand Total Overflow Value	Read Only			Long Lo		Must be read with 40737
40739	738	02E2	Log Rate Units	Read Only	0 to 12		Integer	03, 04	0=Custom, 1=Gallon, 2=Liter, 3=Imperial Gallon, 4=Cubic Meter, 5=Barrel, 6= Bushel, 7= Cubit Yard, 8=Cubic Foot, 9=Cubic Inch, 10=Liquid Barrel, 11=Beer Barrel, 12=Hectoliter Valid only when log record status (40754) bit 4 is clear.
40740	739	02E3	Log Total Units	Read Only	0 to 12		Integer	03, 04	0=Custom, 1=Gallon, 2=Liter, 3=Imperial Gallon, 4=Cubic Meter, 5=Barrel, 6= Bushel, 7= Cubit Yard, 8=Cubic Foot, 9=Cubic Inch, 10=Liquid Barrel, 11=Beer Barrel, 12=Hectoliter Valid only when log record status (40754) bit 4 is clear.
40741	740	02E4	Log Total Unit Scaling	Read Write	0, 2, 3, 6		Integer	03, 04, 06, 16	0=1, 2=x100 (h), 3=x1,000 (k), 6=x1,000,000 (M) Note: Register not applicable for custom Total unit scaling. Valid only when log record status (40754) bit 4 is clear.
40742	741	02E5	Log Grand Total Units	Read Only	0 to 12		Integer	03, 04	0=Custom, 1=Gallon, 2=Liter, 3=Imperial Gallon, 4=Cubic Meter, 5=Barrel, 6= Bushel, 7= Cubit Yard, 8=Cubic Foot, 9=Cubic Inch, 10=Liquid Barrel, 11=Beer Barrel, 12=Hectoliter Valid only when log record status (40754) bit 4 is clear.

# PD6830X & PD6730X Modbus® Register Tables

# Serial Communication

Register <sup>1</sup>			Name	Access	Limits or Range <sup>2</sup>	Units	Data Type <sup>3</sup>	Function Code(s)	Comments
Number	Address (Decimal)	Address (Hex)							
40743	742	02E6	Log Grand Total Unit Scaling	Read Write	0, 2, 3, 6		Integer	03, 04, 06, 16	0=1, 2=x100 (h), 3=x1,000 (k), 6=x1,000,000 (M) Note: Register not applicable for custom Grand Total unit scaling. Valid only when log record status (40754) bit 4 is clear.
40744	743	02E7	Log Rate Time Base	Read Write	0 to 3		integer	03, 04, 06, 16	The rate time base used for the current log 0: seconds 1: minutes 2: hours 3: days Valid only when log record status (40754) bit 4 is clear.
40745	744	02E8	Log Alarm Status	Read only	0 or 1		Bit (x12)	03, 04, 06, 16	Alarm status of the current log Bit 0: High out 1      Bit 9: PV high out 1 Bit 1: Low out 1      Bit 10: PV low out 1 Bit 2: T set 1        Bit 11: PV high out 2 Bit 3: GT set 1      Bit 12: PV low out 2 Bit 4: High out 2 Bit 5: Low out 2 Bit 6: T set 2 Bit 7: GT set 2 Bit 8: HALT
40746	745	02E9	Log Ack Status	Read only	0 or 1		Bit (x12)	03, 04, 06, 16	Bit map for the acknowledgement of alarms. Uses the same bit descriptions as above.
40747	746	02EA	Read/Next Log	Read write			integer	03, 04, 06, 16	Causes the log data to advance to the next log or go to the previous log. Depends on the Read log mode.
40751	750	2EE	Read Log Mode Start Log	Read Write	0 to 1		Integer	03, 04, 06, 16	Sets the direction for reading the next log. 1 = increasing, 0 = decreasing. Writing 1 = goes to the start of the logs, Writing 0 = goes to the end of the logs.
40752	751	2EF	Read Next Log	Read Write			Integer	03, 04, 06, 16	Causes the log data to advance to the next log or go to the previous log. Depends on the Read log mode.
40753	752	2F0	Log Sequence Number	Read Write			Integer	03, 04, 06, 16	Sets or reads the current log number.
40754	753	2F1	Log Record Status	Read Only	0 or 1		Bit (x5)	03, 04	Bit 0: Bad CRC Bit 1: The start of the log, first record Bit 2: Interval mode enabled Bit 3: Log time mode enabled Bit 4: PV & Math valid, When bit is set, PV data is valid else Rate, Total, Grand Total is valid.
40755-40760	754-759	2F2-2F7	Log Time	Read Only			Integer (x6)	03, 04	Same as registers 40705-40710
40761-40762	760-761	2F8-2F9	Log Data 1	Read Only			Float	03, 04	See Note 6 Logged Data Record Numbers
40763-40764	762-763	2FA-2FB	Log Data 2	Read Only			Float	03, 04	See Note 6 Logged Data Record Numbers

# PD6830X & PD6730X Modbus® Register Tables

# Serial Communication

Register <sup>1</sup>			Name	Access	Limits or Range <sup>2</sup>	Units	Data Type <sup>3</sup>	Function Code(s)	Comments
Number	Address (Decimal)	Address (Hex)							
40765-40766	764-765	2FC-2FD	Log Data 3	Read Only			Float	03, 04	See Note 6 Logged Data Record Numbers
40767-40768	766-767	2FE-2FF	Log Data 4	Read Only			Float	03, 04	See Note 6 Logged Data Record Numbers
40769-40770	768-769	300-301	Log Data 5	Read Only			Float	03, 04	See Note 6 Logged Data Record Numbers
40771-40772	770-771	302-303	Log Data 6	Read Only			Float	03, 04	See Note 6 Logged Data Record Numbers
40773-40774	772-773	304-305	Log Data 7	Read Only			Float	03, 04	See Note 6 Logged Data Record Numbers
40775-40776	774-775	306-307	Log Data 8	Read Only			Float	03, 04	See Note 6 Logged Data Record Numbers
40777-40778	776-777	308-309	Log Data 9	Read Only			Float	03, 04	See Note 6 Logged Data Record Numbers
40779-40780	778-779	30A-30B	Log Data 10	Read Only			Float	03, 04	See Note 6 Logged Data Record Numbers
40781-40782	780-781	30C-30D	Log Data 11	Read Only			Float	03, 04	See Note 6 Logged Data Record Numbers
40783-40784	782-783	30E-30F	Log Data 12	Read Only			Float	03, 04	See Note 6 Logged Data Record Numbers
40785	784	310	Read next log	Read Write			Integer	03, 04 06, 16	Causes the log data to advance to the next log or go to the previous log. Depends on the Read log mode. Same as 40752
40901 – 40905	900 – 904	0384 – 0388	Model String	Read Only			Word (x5)	03, 04	Contains extended part number information. One ASCII character per register (e.g. "APA-M"). See <i>Allowable ASCII Character Set</i> on table 6
40906 – 40909	905 – 908	0389 – 038C	Product String	Read Only			Word (x4)	03, 04	Contains firmware identifier information. Two ASCII characters per register. See <i>Firmware Identifier</i> on table 4.
40910	909	038D	Product Number	Read Only			Integer	03, 04	Contains basic model number. See <i>Product Number &amp; Description</i> on table 5.
40911	910	038E	Firmware Version	Read Only			Integer	03, 04	Contains firmware version information. Three decimal locations used in firmware number. Example: 2205 represents firmware version 2.205
40921 – 40936	920 – 935	0398 – 03A7	Modbus Tag	Read Write			Word (x16)	03, 04	User settable tag, up to 32 ASCII characters, two per register. This identification tag is only accessible via Modbus. See <i>Allowable ASCII Character Set</i> on table 6.
40991	990	03DE	Default Meter	Write Only	0xFF00 to Initialize		Word	06, 16	0x1100 saves backup 0xEE00 loads backup 0xFF00 loads Factory Defaults
40992	991	03DF	Restart Meter	Write Only	0xFF00 to Initialize		Word	06, 16	0xFF00 initializes meter
41001	1000	03E8	Menu Button	Write Only	1		Bit	06, 16	Write 1 to trigger button response.
41002	1001	03E9	Enter Button	Write Only	1		Bit	06, 16	Write 1 to trigger button response.
41003	1002	03EA	Reset Button	Write Only	1		Bit	06, 16	Write 1 to trigger button response.

# PD6830X & PD6730X Modbus® Register Tables

# Serial Communication

Register <sup>1</sup>			Name	Access	Limits or Range <sup>2</sup>	Units	Data Type <sup>3</sup>	Function Code(s)	Comments
Number	Address (Decimal)	Address (Hex)							
41004	1003	03EB	Display Button	Write Only	1		Bit	06, 16	Write 1 to trigger button response.
41101	1100	044C	Modbus Mode	Read Write	0, 1 or 2		Integer	03, 04 06, 16	0 = Slave 1 = Master 2 = Snooper
41102	1101	044D	Modbus Poll Time	Read Write	99.9		Integer	03, 04 06, 16	Master: Time between polls of all PV's (Cycle Time) Snooper: Response timeout
41103	1102	044E	Modbus Master Timeout	Read Write	99.9		Integer	03, 04 06, 16	Master: Time before no response causes a timeout Slave: Time before timeout, if new data not received
41111	1110	0456	Data Type PV1	Read Write			Integer	03, 04 06, 16	Bits 0,1 : 0=Idle, 1=Short, 2=Long, 3=Float Bit 2 : 1=Signed, 0=Unsigned (Not for Float) Bit 3 : 1=BCD, 0=Binary (Short & Long only) Bits 4,5 : 0=1234, 1=2134, 2=3412, 3=4321 Bit 6 : 1=6 Digit address
41112	1111	0457	Register Number PV1	Read Write	40001 to 49999		integer	03, 04 06, 16	
41113	1112	0458	Slave ID PV1	Read Write	1 to 247		Integer	03, 04 06, 16	
41114	1113	0459	Function Code PV1	Read Write	03, 04 or 65		Integer	03, 04 06, 16	
41115-41118	1114-1117	045A-045D	Tag Data PV1	Read Write			Integer	03, 04 06, 16	2 Characters per register
41119-41122	1118-1121	045E-0461	Unit Data PV1	Read Write			Integer	03, 04 06, 16	2 Characters per register
41123	1122	0462	Scale Points PV1	Read Write	1 to 32		Integer	03, 04 06, 16	1 = Factor, 2 = Linear, 3-32 table
41124	1123	0463	Display PV1	Read Write			Integer	03, 04 06, 16	Decimal version display format Hundreds: Top=1 , Bottom=4, Off=0 Tens= Float decimal point Ones=Display decimal point Example: Reg. 41124 = 132 PV1 = Top; float dp = 3; display dp = 2  Feet-Inches version display format Hundreds: Dec =1 (bottom), 1/16 <sup>th</sup> =2, 1/8 <sup>th</sup> =3, Off=0 Example: Reg. 41124 = 100 PV1 = Bottom

Register <sup>1</sup>			Name	Access	Limits or Range <sup>2</sup>	Units	Data Type <sup>3</sup>	Function Code(s)	Comments
Number	Address (Decimal)	Address (Hex)							
41126-41139	1125-1138	0465-0472	PV 2 Configuration	Read Write				03, 04 06, 16	Configuration array: 14 registers See registers 41111-41124 for details. Data type Register Number Slave Id Function code Tag data; 2 characters per register (4x) Unit data; 2 characters per register (4x) Scale points Display settings
41141-41154	1140-1153	0474-0481	PV 3 Configuration	Read Write				03, 04 06, 16	Configuration array: 14 registers See registers 41111-41124 for details. Data type Register Number Slave Id Function code Tag data; 2 characters per register (4x) Unit data; 2 characters per register (4x) Scale points Display settings
41156-41169	1155-1168	0483-490	PV 4 Configuration	Read Write				03, 04 06, 16	Configuration array: 14 registers See registers 41111-41124 for details. Data type Register Number Slave Id Function code Tag data; 2 characters per register (4x) Unit data; 2 characters per register (4x) Scale points Display settings
41171-41184	1170-1183	0492-049F	PV 5 Configuration	Read Write				03, 04 06, 16	Configuration array: 14 registers See registers 41111-41124 for details. Data type Register Number Slave Id Function code Tag data; 2 characters per register (4x) Unit data; 2 characters per register (4x) Scale points Display settings

Register <sup>1</sup>			Name	Access	Limits or Range <sup>2</sup>	Units	Data Type <sup>3</sup>	Function Code(s)	Comments
Number	Address (Decimal)	Address (Hex)							
41186-41199	1185-1198	04A1-04AE	PV 6 Configuration	Read Write				03, 04 06, 16	Configuration array: 14 registers See registers 41111-41124 for details. Data type Register Number Slave Id Function code Tag data; 2 characters per register (4x) Unit data; 2 characters per register (4x) Scale points Display settings
41201-41214	1200-1213	04B0-04BD	PV 7 Configuration	Read Write				03, 04 06, 16	Configuration array: 14 registers See registers 41111-41124 for details. Data type Register Number Slave Id Function code Tag data; 2 characters per register (4x) Unit data; 2 characters per register (4x) Scale points Display settings
41216-41229	1215-1228	04BF-04CC	PV 8 Configuration	Read Write				03, 04 06, 16	Configuration array: 14 registers See registers 41111-41124 for details. Data type Register Number Slave Id Function code Tag data; 2 characters per register (4x) Unit data; 2 characters per register (4x) Scale points Display settings
41231-41244	1230-1243	04CE-04DB	PV 9 Configuration	Read Write				03, 04 06, 16	Configuration array: 14 registers See registers 41111-41124 for details. Data type Register Number Slave Id Function code Tag data; 2 characters per register (4x) Unit data; 2 characters per register (4x) Scale points Display settings



# PD6830X & PD6730X Modbus® Register Tables

# Serial Communication

Register <sup>1</sup>			Name	Access	Limits or Range <sup>2</sup>	Units	Data Type <sup>3</sup>	Function Code(s)	Comments
Number	Address (Decimal)	Address (Hex)							
41246-41259	1245-1258	04DD-04EA	PV 10 Configuration	Read Write				03, 04 06, 16	Configuration array: 14 registers See registers 41111-41124 for details. Data type Register Number Slave Id Function code Tag data; 2 characters per register (4x) Unit data; 2 characters per register (4x) Scale points Display settings
41261-41274	1260-1273	04EC-04F9	PV 11 Configuration	Read Write				03, 04 06, 16	Configuration array: 14 registers See registers 41111-41124 for details. Data type Register Number Slave Id Function code Tag data; 2 characters per register (4x) Unit data; 2 characters per register (4x) Scale points Display settings
41276-41289	1275-1288	04FB-0508	PV 12 Configuration	Read Write				03, 04 06, 16	Configuration array: 14 registers See registers 41111-41124 for details. Data type Register Number Slave Id Function code Tag data; 2 characters per register (4x) Unit data; 2 characters per register (4x) Scale points Display settings
41291-41304	1290-1303	050A-0517	PV 13 Configuration	Read Write				03, 04 06, 16	Configuration array: 14 registers See registers 41111-41124 for details. Data type Register Number Slave Id Function code Tag data; 2 characters per register (4x) Unit data; 2 characters per register (4x) Scale points Display settings

Register <sup>1</sup>			Name	Access	Limits or Range <sup>2</sup>	Units	Data Type <sup>3</sup>	Function Code(s)	Comments
Number	Address (Decimal)	Address (Hex)							
41306-41319	1305-1318	0519-0526	PV 14 Configuration	Read Write				03, 04 06, 16	Configuration array: 14 registers See registers 41111-41124 for details. Data type Register Number Slave Id Function code Tag data; 2 characters per register (4x) Unit data; 2 characters per register (4x) Scale points Display settings
41321-41334	1320-1333	0528-0535	PV 15 Configuration	Read Write				03, 04 06, 16	Configuration array: 14 registers See registers 41111-41124 for details. Data type Register Number Slave Id Function code Tag data; 2 characters per register (4x) Unit data; 2 characters per register (4x) Scale points Display settings
41336-41349	1335-1348	0537-0544	PV 16 Configuration	Read Write				03, 04 06, 16	Configuration array: 14 registers See registers 41111-41124 for details. Data type Register Number Slave Id Function code Tag data; 2 characters per register (4x) Unit data; 2 characters per register (4x) Scale points Display settings
41351-41414	1350-1413	0546-0585	PV 1 Scaling Table – Display Values	Read Write			Float	03, 04 16	The table contains up to 32 float values of 2 registers each. The float values are scaling display points 1 to 32.  After setting both, input and display values, write the number of the PV that changed to address 41599.
41415-41478	1414-1477	0586-5C5	PV 1 Scaling Table – Input Values	Read Write			Float	03, 04 16	The float values are scaling input points 1 to 32.  After setting both, input and display values, write the number of the PV that changed to address 41599.
41479-41480	1478-1479	05C6-05C7	PV 2 Scaling – Display Value 1	Read Write			Float	03, 04 16	Value for display 1
41481-41482	1480-1481	05C8-05C9	PV 2 Scaling – Display Value 2	Read Write			Float	03, 04 16	Value for display 2

# PD6830X & PD6730X Modbus® Register Tables

# Serial Communication

Register <sup>1</sup>			Name	Access	Limits or Range <sup>2</sup>	Units	Data Type <sup>3</sup>	Function Code(s)	Comments
Number	Address (Decimal)	Address (Hex)							
41483-41484	1482-1483	05CA-05CB	PV 2 Scaling – Input Value 1	Read Write			Float	03, 04 16	Value for input 1
41485-41486	1484-1485	05CC-05CD	PV 2 Scaling – Input Value 2	Read Write			Float	03, 04 16	Value for input 2 After setting both, input and display values, write the number of the PV that changed to address 41599.
41487-41488	1486-1487	05CE-05CF	PV 3 Scaling – Display Value 1	Read Write			Float	03, 04 16	Value for display 1
41489-41490	1488-1489	05D0-05D1	PV 3 Scaling – Display Value 2	Read Write			Float	03, 04 16	Value for display 2
41491-41492	1490-1491	05D2-05D3	PV 3 Scaling – Input Value 1	Read Write			Float	03, 04 16	Value for input 1
41493-41494	1492-1493	05D4-05D5	PV 3 Scaling – Input Value 2	Read Write			Float	03, 04 16	Value for input 2 After setting both, input and display values, write the number of the PV that changed to address 41599.
41495-41496	1494-1495	05D6-05D7	PV 4 Scaling – Display Value 1	Read Write			Float	03, 04 16	Value for display 1
41497-41498	1496-1497	05D8-05D9	PV 4 Scaling – Display Value 2	Read Write			Float	03, 04 16	Value for display 2
41499-41500	1498-1499	05DA-05DB	PV 4 Scaling – Input Value 1	Read Write			Float	03, 04 16	Value for input 1
41501-41502	1500-1501	05DC-05DD	PV 4 Scaling – Input Value 2	Read Write			Float	03, 04 16	Value for input 2 After setting both, input and display values, write the number of the PV that changed to address 41599.
41503-41504	1502-1503	05DE-05DF	PV 5 Scaling – Display Value 1	Read Write			Float	03, 04 16	Value for display 1
41505-41506	1504-1505	05E0-05E1	PV 5 Scaling – Display Value 2	Read Write			Float	03, 04 16	Value for display 2
41507-41508	1506-1507	05E2-05E3	PV 5 Scaling – Input Value 1	Read Write			Float	03, 04 16	Value for input 1
41509-41510	1508-1509	05E4-05E5	PV 5 Scaling – Input Value 2	Read Write			Float	03, 04 16	Value for input 2 After setting both, input and display values, write the number of the PV that changed to address 41599.
41511-41512	1510-1511	05E6-05E7	PV 6 Scaling – Display Value 1	Read Write			Float	03, 04 16	Value for display 1
41513-41514	1512-1513	05E8-05E9	PV 6 Scaling – Display Value 2	Read Write			Float	03, 04 16	Value for display 2
41515-41516	1514-1515	05EA-05EB	PV 6 Scaling – Input Value 1	Read Write			Float	03, 04 16	Value for input 1

# PD6830X & PD6730X Modbus® Register Tables

# Serial Communication

Register <sup>1</sup>			Name	Access	Limits or Range <sup>2</sup>	Units	Data Type <sup>3</sup>	Function Code(s)	Comments
Number	Address (Decimal)	Address (Hex)							
41517-41518	1516-1517	05EC-05ED	PV 6 Scaling – Input Value 2	Read Write			Float	03, 04 16	Value for input 2 After setting both, input and display values, write the number of the PV that changed to address 41599.
41519-41520	1518-1519	05EE-05EF	PV 7 Scaling – Display Value 1	Read Write			Float	03, 04 16	Value for display 1
41521-41522	1520-1521	05F0-05F1	PV 7 Scaling – Display Value 2	Read Write			Float	03, 04 16	Value for display 2
41523-41524	1522-1523	05F2-05F3	PV 7 Scaling – Input Value 1	Read Write			Float	03, 04 16	Value for input 1
41525-41526	1524-1525	05F4-05F5	PV 7 Scaling – Input Value 2	Read Write			Float	03, 04 16	Value for input 2 After setting both, input and display values, write the number of the PV that changed to address 41599.
41527-41528	1526-1527	05F6-05F7	PV 8 Scaling – Display Value 1	Read Write			Float	03, 04 16	Value for display 1
41529-41530	1528-1529	05F8-05F9	PV 8 Scaling – Display Value 2	Read Write			Float	03, 04 16	Value for display 2
41531-41532	1530-1531	05FA-05FB	PV 8 Scaling – Input Value 1	Read Write			Float	03, 04 16	Value for input 1
41533-41534	1532-1533	05FC-05FD	PV 8 Scaling – Input Value 2	Read Write			Float	03, 04 16	Value for input 2 After setting both, input and display values, write the number of the PV that changed to address 41599.
41535-41536	1534-1535	05FE-05FF	PV 9 Scaling – Display Value 1	Read Write			Float	03, 04 16	Value for display 1
41537-41538	1536-1537	0600-0601	PV 9 Scaling – Display Value 2	Read Write			Float	03, 04 16	Value for display 2
41539-41540	1538-1539	0602-0603	PV 9 Scaling – Input Value 1	Read Write			Float	03, 04 16	Value for input 1
41541-41542	1540-1541	0604-0605	PV 9 Scaling – Input Value 2	Read Write			Float	03, 04 16	Value for input 2 After setting both, input and display values, write the number of the PV that changed to address 41599.
41543-41544	1542-1543	0606-0607	PV 10 Scaling – Display Value 1	Read Write			Float	03, 04 16	Value for display 1
41545-41546	1544-1545	0608-0609	PV 10 Scaling – Display Value 2	Read Write			Float	03, 04 16	Value for display 2
41547-41548	1546-1547	060A-060B	PV 10 Scaling – Input Value 1	Read Write			Float	03, 04 16	Value for input 1

# PD6830X & PD6730X Modbus® Register Tables

# Serial Communication

Register <sup>1</sup>			Name	Access	Limits or Range <sup>2</sup>	Units	Data Type <sup>3</sup>	Function Code(s)	Comments
Number	Address (Decimal)	Address (Hex)							
41549-41550	1548-1549	060C-060D	PV 10 Scaling – Input Value 2	Read Write			Float	03, 04 16	Value for input 2 After setting both, input and display values, write the number of the PV that changed to address 41599.
41551-41552	1550-1551	060E-060F	PV 11 Scaling – Display Value 1	Read Write			Float	03, 04 16	Value for display 1
41553-41554	1552-1553	0610-0611	PV 11 Scaling – Display Value 2	Read Write			Float	03, 04 16	Value for display 2
41555-41556	1554-1555	0612-0613	PV11 Scaling – Input Value 1	Read Write			Float	03, 04 16	Value for input 1
41557-41558	1556-1557	0614-0615	PV 11 Scaling – Input Value 2	Read Write			Float	03, 04 16	Value for input 2 After setting both, input and display values, write the number of the PV that changed to address 41599.
41559-41560	1558-1559	0616-0617	PV 12 Scaling – Display Value 1	Read Write			Float	03, 04 16	Value for display 1
41561-41562	1560-1561	0618-0619	PV 12 Scaling – Display Value 2	Read Write			Float	03, 04 16	Value for display 2
41563-41564	1562-1563	061A-061B	PV 12 Scaling – Input Value 1	Read Write			Float	03, 04 16	Value for input 1
41565-41566	1564-1565	061C-061D	PV 12 Scaling – Input Value 2	Read Write			Float	03, 04 16	Value for input 2 After setting both, input and display values, write the number of the PV that changed to address 41599.
41567-41568	1566-1567	061E-061F	PV 13 Scaling – Display Value 1	Read Write			Float	03, 04 16	Value for display 1
41569-41570	1568-1569	0620-0621	PV 13 Scaling – Display Value 2	Read Write			Float	03, 04 16	Value for display 2
41571-41572	1570-1571	0622-0623	PV 13 Scaling – Input Value 1	Read Write			Float	03, 04 16	Value for input 1
41573-41574	1572-1573	0624-0625	PV 13 Scaling – Input Value 2	Read Write			Float	03, 04 16	Value for input 2 After setting both, input and display values, write the number of the PV that changed to address 41599.
41575-41576	1574-1575	0626-0627	PV 14 Scaling – Display Value 1	Read Write			Float	03, 04 16	Value for display 1
41577-41578	1576-1577	0628-0629	PV 14 Scaling – Display Value 2	Read Write			Float	03, 04 16	Value for display 2
41579-41580	1578-1579	062A-062B	PV 14 Scaling – Input Value 1	Read Write			Float	03, 04 16	Value for input 1

# PD6830X & PD6730X Modbus® Register Tables

# Serial Communication

Register <sup>1</sup>			Name	Access	Limits or Range <sup>2</sup>	Units	Data Type <sup>3</sup>	Function Code(s)	Comments
Number	Address (Decimal)	Address (Hex)							
41581-41582	1580-1581	062C-062D	PV 14 Scaling – Input Value 2	Read Write			Float	03, 04 16	Value for input 2 After setting both, input and display values, write the number of the PV that changed to address 41599.
41583-41584	1582-1583	062E-062F	PV 15 Scaling – Display Value 1	Read Write			Float	03, 04 16	Value for display 1
41585-41586	1584-1585	0630-0631	PV 15 Scaling – Display Value 2	Read Write			Float	03, 04 16	Value for display 2
41587-41588	1586-1587	0632-0633	PV 15 Scaling – Input Value 1	Read Write			Float	03, 04 16	Value for input 1
41589-41590	1588-1589	0634-0635	PV 15 Scaling – Input Value 2	Read Write			Float	03, 04 16	Value for input 2 After setting both, input and display values, write the number of the PV that changed to address 41599.
41591-41592	1590-1591	0636-0637	PV 16 Scaling – Display Value 1	Read Write			Float	03, 04 16	Value for display 1
41593-41594	1592-1593	0638-0639	PV 16 Scaling – Display Value 2	Read Write			Float	03, 04 16	Value for display 2
41595-41596	1594-1595	063A-063B	PV 16 Scaling – Input Value 1	Read Write			Float	03, 04 16	Value for input 1
41597-41598	1596-1597	063C-063D	PV 16 Scaling – Input Value 2	Read Write			Float	03, 04 16	Value for input 2 After setting both, input and display values, write the number of the PV that changed to address 41599.
41599	1598	063E	PV Scale Update	Read Write			Short	03, 04 06, 16	After setting the scale values. Write the number of the PV that changed to this register. This will save and enable the changes.
41601-41604	1600 – 1603	0640-0643	Tag Data for Math Channel 1	Read Write			Integer	03, 04 06, 16	2 Characters per register
41605-41608	1604 – 1607	0644-0647	Unit Data for Math Channel 1	Read Write			Integer	03, 04 06, 16	2 Characters per register
41609	1608	0648	Display for Math Channel 1	Read Write			Integer	03, 04 06, 16	Decimal version display format Hundreds: Top=1 , Bottom=4, Off=0 Tens= Float decimal point Ones=Display decimal point Example: Reg. 41609 = 132 PV1 = Top; float dp = 3; display dp = 2  Feet-Inches version display format Hundreds: Dec =1 (bottom), 1/16 <sup>th</sup> =2, 1/8 <sup>th</sup> =3, Off=0 Example: Reg. 41609 = 200 PV1 = Top, 1/16"

Register <sup>1</sup>			Name	Access	Limits or Range <sup>2</sup>	Units	Data Type <sup>3</sup>	Function Code(s)	Comments
Number	Address (Decimal)	Address (Hex)							
41611-41619	1610 – 1618	064A-0652	Math Channel 2 Configuration	Read Write			Integer	03, 04 06, 16	Configuration array: 27 registers See registers 41601-41604 for details.
41621-41629	1620 – 1628	0654-065C	Math Channel 3 Configuration	Read Write			Integer	03, 04 06, 16	Configuration array: 27 registers See registers 41601-41604 for details.
41631-41639	1630 – 1638	065E-0666	Math Channel 4 Configuration	Read Write			Integer	03, 04 06, 16	Configuration array: 27 registers See registers 41601-41604 for details.
41641-41650	1640 – 1649	0668-0671	Math 1 Function	Read Write				03, 04 06, 16	See Table 6. Math Function Configuration for details.
41651-41660	1650 – 1659	0672-067B	Math 2 Function	Read Write				03, 04 06, 16	See Table 6. Math Function Configuration for details.
41661-41670	1660 – 1669	067C-0685	Math 3 Function	Read Write				03, 04 06, 16	See Table 6. Math Function Configuration for details.
41671-41680	1670 - 1679	0686-068F	Math 4 Function	Read Write				03, 04 06, 16	See Table 6. Math Function Configuration for details.

**Notes**

Note 1. The Register numbers and addresses follow the Modbus format:

- 3xxxx are for Input Registers and are read – only.
- 4xxxx are for Holding Registers and are read/write.

Although there are no specific 3x Registers, all 4x Registers are mirrored into 3x register space, and are therefore capable of being read by Modbus function 04 (Read Input Registers). All data addresses in Modbus messages are referenced to zero (0), while Register addresses are referenced to one (1). For example, Register 40100 is sent in the Modbus message as 0x0063 (100 - 1 = 99 ≡ 63 hex). If two addresses are shown separated by a “-”, they form a register pair to make the parameter into a 4-byte (32 bit) value.

Note 2. Limits or Range: Writing a value that is outside the parameters range will force it to be limited to the closest value within the range. For example, if the range is -1.99 to +1.99 and the value sent is 3.21, the value used is 1.99. Likewise for the lower side of the range. Exceptions are noted in the comments.

Note 3. Data Types

Data format is highest byte first (Byte order: 1234).  
 Bit = 1 bit; write a 1 to the first bit of the register  
 Word = 16 bit  
 Integer = -32768 to 32767  
 Unsigned integer = 0 to 65535  
 Long = -2,147,483,648 to 2,147,483,647  
 Float = IEEE floating point format, 4 bytes  
*For the complete floating point standard, see IEEE 754-1985 Standard for Binary Floating-Point Arithmetic.*

Integer’s data: The values represent the number without regard to the decimal point. The decimal point setting can be found in Holding Register 40105 for rate, 40106 for total, and 40107 for grand total.

For example, if the total value is 1234.56, a read of both 40035 – 40036 together will return 1 – 23456 (0x0001 – 0xE240). Register 40106 will contain 2 (0x0002) to indicate a decimal point setting of two places to the right of the decimal point. A floating point version of the total value, with the decimal point included, is also available by accessing register 40003-4006.

Note 4. A read of the Password register will return 0x000000 if the meter is unlocked, otherwise it will return 0xFFFFFFFF to indicate a locked meter. To unlock, the correct lock number must be written, which will then clear the lock number to 0x000000. If the wrong lock number is written, the reply will return 0xFFFFFFFF. If the correct lock number is written, the reply will be 0x000000. An unlocked meter can be locked by writing any non – zero value up to 0x1869F.

Note 5. Remote scaling procedure

- a. Write the desired values for the display, Display 1 & 2, for the active input or PV. The active input type is based on the model number.
- b. Write the desired values for the input, Input 1 & 2, for the active input or PV.
- c. Write to the remote scaling register for the active input or PV.

Note 6. Logged Data Record Numbers

When viewing the logged data through the front panel display, if the input is enabled, the rate, total and grand total will appear in the odd numbered log records (1, 3, 5, etc.). The PVs and math channel data will appear in the even numbered log records (2, 4, 8, etc.). If the input is disabled, the PVs and math channels will use consecutive numbered log records (1, 2, 3, 4, etc.). When logging PVs and math channels, there are only 12 log data slots available per log record. The math channels have precedence, so if there are 3 math channels enabled there can only be up to 9 PVs logged. If no math channels are being logged, there can be up to 12 PVs logged.

Note 7. Data Logging Modes

When switching between LOGTIME and INTERVL data logging modes, the current setting needs to be disabled, in order to select the other mode.

Through Modbus, the rate, total, grand total; units and scaling are valid only when bit 4 of the log record status register is cleared.



Tables

**Table 1. Alarm Status (40081)**

Read alarm status and energized/non-energized status of Open Collector (OC).  
 1= Alarm 1, 2 =Alarm 2, LA= Low Alarm, HA= High Alarm, TA = Total Alarm, GTA = Grand Total Alarm, ACK= Acknowledge, OC = Open Collector Output

Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Function	GTA2	TA2	LA2	HA2	GTA1	TA1	LA1	HA1	PVLO	PVHI	ACK2	ACK1	PVLO	PVHI	OC2	OC1
	<i>Alarm 2</i>	<i>Alarm 2</i>	<i>Alarm 2</i>	<i>Alarm 2</i>	<i>Alarm 1</i>	<i>Alarm 1</i>	<i>Alarm 1</i>	<i>Alarm 1</i>	<i>Output 2</i>	<i>Output 2</i>			<i>Output 1</i>	<i>Output 1</i>	<i>Output 2</i>	<i>Output 1</i>
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1
	1	1	1	1	1	1	1	1	0	0	1	1	0	0	0	0
																<i>Input Condition</i>
																Normal State
																Alarm State
																Acknowledge After Alarm

1=Energized

0=De-energized

**Table 2. Display Settings**

**Bottom Display Settings (40251)**

Integer	Function
0	Off
1	PV
5	Units (When Top display is set to PV)
7	Tag (When Top display is set to PV)
8	Tag + units (When Top display is set to PV)
9	Tag + PV
10	Tag + PV + units

**Top Display Settings (40252)**

Integer	Function
0	PV
1	PV + units
2	Tag + PV + units
3	Tag + PV

Table 3. Custom Menu Settings (40411 – 40418)

Custom Menu Settings		
0	NONE	None
1	PULSEIN	Pulse Input
2	KFACTOR	K-Factor
3	UNITS	Units
4	DECIMAL	Decimal
5	DISPLAY	Display
6	A OUT	Analog out
7	RATE_DP	Rate decimal Point
8	TOTAL_DP	Total decimal point
9	GRTOT_DP	Grand total decimal point
10	SCALE	Scale
11	CAL	Calibrate
12	T BASE	Time base
13	T FACTR	Total conversion factor
14	T RESET	Total reset
15	GTFACTR	Grand total conversion factor
16	GTRESET	Grand total reset
17	PASS	Password
18	PASS T	Total password
19	PASS GT	Grand total password
20	OUTPUT	Output
21	OUT 1	Out 1
22	OUT 2	Out 2
23	DATALOG	Data Log
24	LOGTIME	Log Time
25	INTERVL	Interval
26	LOGVIEW	Log View
27	PASSWORD	Password
28	SETUP	Setup
29	ADVANCE	Advance
30	SYSTEM	System
31	MODE	Mode
32	COMM	Communications

**Table 4. Firmware Identifier (40906 – 40909)**

Byte (Decimal)	Product
092	PD6830X Decimal Series
093	PD6830X FT & IN Series

*Note: Each register holds two ASCII characters.  
 Example: PD6830X Modbus Scanner Pulse Input (SFT092)  
 49901: 0x5346 = SF  
 49902: 0x5430 = T0  
 49903: 0x3932 = 92  
 49904: 0x3030 = 00*

**Table 5. Product Number & Description (40910)**

Integer	Description
6800	Process
6801	Process Level
6820	Process Totalizer
6821	Process Batch Controller
6830	Modbus Scanner or Pulse Totalizer
6831	Pulse Batch Controller

**Table 6. Math Function Configuration (41641-41680)**

Code	Math Function Parameter
1	Rate
2	Total
3	Grand Total
4-19	PV Channels 1 to 16
20-23	Math Channels 1 to 16
24-63	Unused

The codes listed above are used in registers 41641-41680 to construct math functions. Use the following information to construct the register values to program the math functions. Select a math function from the lists below; sorted by how many of the above parameters are involved in the math function. The lists below define the data structure for each two byte defined math function. Following the two byte math function code (example: D0 for the SUM math function), insert the necessary information and math function parameters as described. Examples follow the function list.

**Math Functions Definitions**

**1. Single parameter Functions, 192-207 (0xC2)**

194 (0xC2) = Float Constant Data – 1 Byte for displayed number of Decimal places, value in lower 4 bits, bit 5 (0x10) set when DP and Data are Valid.  
Data is in the following 4 bytes, Little Endian.

192-193 (0xC0-0xC1) Unused

195-207 (0xC3-0xCF) Unused

**2. Two parameter Functions, 208-223 (0xD0-0xDF)**

208 (0xD0) = SUM Function – Following byte is the first parameter, if it is Constant Data or a Channel, use the value of the data or channel, if it is a function, evaluate the function as the parameter value, second parameter follows the first.  
Result is the Sum of the 2 parameters.

209 (0xD1) = DIFF Function – Following byte is the parameter, if it is Constant Data or a Channel, use the value of the data or channel, if it is a function, evaluate the function as the parameter value, second parameter follows the first.  
Result is the Difference between the 2 parameters, the second subtracted from the first.

210 (0xD2) = MULT Function – Following byte is the first parameter, if it is Constant Data or a Channel, use the value of the data or channel, if it is a function, evaluate the function as the parameter value, second parameter follows the first.  
Result is the Product of the 2 parameters.

211 (0xD3) = DIVIDE Function – Following byte is the parameter, if it is Constant Data or a Channel, use the value of the data or channel, if it is a function, evaluate the function as the parameter value, second parameter follows the first.  
Result is the second parameter divided into the first.

212 (0xD4) = DIFFABS Function – Following byte is the parameter, if it is Constant Data or a Channel, use the value of the data or channel, if it is a function, evaluate the function as the parameter value, second parameter follows the first.  
Result is the Absolute Difference between the 2 parameters, the smaller subtracted from the larger.

213-223 (0xD5-0xDF) Unused

**3. Three parameter Functions, 224-239**

224 (0xE0) = WTAvg Function – Following byte is the first parameter, if it is Constant Data or a Channel, use the value of the data or channel, if it is a function, evaluate the function as the parameter value. Second parameter follows the first, third Parameter follows the second.  
Result is  $((P1-P2)*P3)/P2$ .

225 (0xE1) = DRAW Function – Following byte is the parameter, if it is Constant Data or a Channel, use the value of the data or channel, if it is a function, evaluate the function as the parameter value. Second parameter follows the first, third Parameter follows the second.  
Result is  $((P1/P2) - 1.0)/P3$ .

226 (0xE2) = RATIO Function – Following byte is the first parameter, if it is Constant Data or a Channel, use the value of the data or channel, if it is a function, evaluate the function as the parameter value. Second parameter follows the first, third Parameter follows the second.  
Result is  $(P1/P2) * P3$ .

227 (0xE3) = CONCEN Function – Following byte is the parameter, if it is Constant Data or a Channel, use the value of the data or channel, if it is a function, evaluate the function as the parameter value. Second parameter follows the first, third Parameter follows the second.  
 Result is  $(P1/(P1+P2))*P3$ .

228-239 (0xE4-0xE5F) Unused

**4. Multi parameter Functions, 240-255**

240-255 (0xE5-0xEF) Unused

**Math Functions Examples**

Example: Math channel 1, multiply rate times 2.5

41641 = 0xD201 First byte 0xD2 – multiply function, second byte 0x01 – rate channel

41642 = 0xC211 First byte 0xC2 – float constant data, second byte 0x11 - bit 4 (0x10) Data and DP valid. Bits 0-3 number of decimal points 0x01 or “1”

41643 = 0x0000 Next 4 bytes 0x00002040 – using little endian the 32 bit floating point is 0x40200000 or “2.500”

41644 = 0x2040

41645 = 0x0000 Unused

41646 = 0x0000

41647 = 0x0000

41648 = 0x0000

41649 = 0x0000

41650 = 0x0000

Example: Math channel 2, Ratio  $(PV1/PV2)*100$

41651 = 0xE204 First byte 0xE2 – Ratio function, second byte 0x04 – PV 1

41652 = 0x05C2 First byte 0x05 – PV 2, second byte 0xC2 – float constant data

41653 = 0x1000 First byte 0x10 – bit 4 (0x10) Data and DP valid. Bits 0-3 number of decimal points 0x00 or “0”

41654 = 0x00C8 Next 4 bytes (including lower byte of 41653) 0x0000C842

41655 = 0x4200 Using little endian the 32 bit floating point is 0x42C80000 or “100.00”

41656 = 0x0000 Unused

41657 = 0x0000

41658 = 0x0000

41659 = 0x0000

41660 = 0x0000

Table 7. Allowable ASCII Character Set (40256 – 40281)

Display	HEX	Char
0	30	0
1	31	1
2	32	2
3	33	3
4	34	4
5	35	5
6	36	6
7	37	7
8	38	8
9	39	9

Display	HEX	Char
A	41	A
B	42	B
C	43	C
D	44	D
E	45	E
F	46	F
G	47	G
H	48	H
I	49	I
J	4A	J
K	4B	K
L	4C	L
M	4D	M
N	4E	N
O	4F	O
P	50	P
Q	51	Q
R	52	R
S	53	S
T	54	T
U	55	U
V	56	V
W	57	W
X	58	X
Y	59	Y
Z	5A	Z

Display	HEX	Char
a	61	a
b	62	b
c	63	c
d	64	d
e	65	e
f	66	f
g	67	g
h	68	h
i	69	i
j	6A	j
k	6B	k
l	6C	l
m	6D	m
n	6E	n
o	6F	o
p	70	p
q	71	q
r	72	r
s	73	s
t	74	t
u	75	u
v	76	v
w	77	w
x	78	x
y	79	y
z	7A	z

Display	HEX	Char
	20	Space
*	2A	*
+	2B	+
-	2D	-
/	2F	/
^	5E	^
_	5F	_
°	F8	°