

Instruction Manual

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Modbus[®] Mapping Assignments for Micro Motion[®] Transmitters

Instruction Manual



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Chapter 1

Using the Modbus Map

1.1 About this manual

This manual lists Modbus® mapping assignments for Micro Motion® transmitters that support Modbus protocol.

This manual does *not* explain how individual registers are used. For detailed information about using the registers that are listed in this document, see *Using Modbus Protocol with Micro Motion Transmitters*, available on the CD that is shipped with the transmitter, or on the Micro Motion web site (www.micromotion.com).

This manual does *not* explain terminology and procedures for using Modbus protocol, or how to use a host controller to communicate with other devices in a Modbus-compatible multidrop network. For detailed information about using Modbus protocol, see www.modbus.org.

This manual does *not* explain transmitter installation or flowmeter wiring. For information about installation and wiring, see the appropriate sensor and transmitter manuals.

1.2 Transmitters that support Modbus protocol

Micro Motion transmitters that support Modbus protocol include:

- RFT9739 transmitters, Version 2 and higher
- Micro Motion MVD™ Direct Connect™, with or without the MVD Direct Connect I.S. barrier
- Series 1000 and 2000 transmitters, all versions
- LF-Series transmitters, all versions
- Series 3000 MVD (4-wire) transmitters

Note: MVD Direct Connect installations do not include a transmitter. However, a Modbus/RS-485 connection can be made to the core processor component, and Modbus commands can be used to communicate with the core processor. See the MVD Direct Connect flowmeter installation manual for information on setting up this connection.

In this manual, the term “MVD” refers to all of the above except the RFT9739 transmitters.

1.3 How to use this manual

This manual is designed for use as a reference manual. It lists the Modbus registers for transmitter configuration, calibration, use, and diagnostic procedures. Some procedures are required; others are optional.

This manual also lists the Modbus registers for the following special applications:

- Petroleum measurement application (API feature)
- Enhanced density application
- Discrete batch application and filling and dosing application
- Net Oil Computer (NOC) application
- Custody transfer application

For each register, checkmarks indicate the transmitters for which the register is enabled.

In addition, this manual lists the integer codes that are used in configuration.

1.3.1 Register addresses

Each register is identified by its address (or starting address), which is a 4-digit number.

Depending on the PLC that will be used to communicate with the transmitter, you may need to subtract 1 from the address or starting address of the register. Refer to your PLC documentation to know if this applies to you.

Example	This Modbus manual specifies 0042 as the address of the register that contains the unit for process variables that measure volume flow. Use 0041 in the data field of the Modbus frame.
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1.3.2 Register types

The register types are listed and briefly described in Table 1-1.

Note: Micro Motion terminology is a simplified version of Modbus terminology. The term “coil” is used for both Modbus coils (read-write) and Modbus discrete inputs (read-only), and the term “register” is used for both Modbus holding registers (read-write) and Modbus input registers (read-only).

Table 1-1 Modbus register types

Register type	Size	Data type	Description
Coil	1 bit	Binary	Boolean (0 or 1, ON or OFF)
Float	16 bit	Floating-point	Used in pairs to store 32-bit floating-point values in single precision IEEE 754 format
Integer	16 bit	Integer	Unsigned 16-bit integers ranging from 0 to 65535
Long integer	16 bit	Integer	Used in pairs to store unsigned 32-bit integers ranging from 0 to 4294967295 (0xFFFFFFFF)
ASCII	16 bit	8-bit ASCII	One or more consecutive registers. Each register stores two 8-bit ASCII characters (16 bits total).

1.3.3 Transmitter codes

If a register applies only to a subset of the model or series, codes are used to identify the models to which the register applies. Codes are listed in Table 1-2.

Table 1-2 Transmitter codes

Code	Transmitter
A	All transmitters with the analog outputs option board
I	All transmitters with the intrinsically safe outputs option board
C	All transmitters with the configurable input/outputs option board
F	All transmitters with the FOUNDATION Fieldbus outputs option board
P	All transmitters with the Profibus-PA outputs option board
N	Net Oil Computer (Series 3000 transmitters with the NOC application)

1.3.4 LF-Series transmitters

The LF-Series transmitters are based on Series 1000 and Series 2000 transmitters, and use the same Modbus interface. For this reason, they are not called out separately in this manual. All references to Series 1000 or Series 2000 transmitter also apply to the equivalent LF-Series transmitter:

- Model 1500 includes the LF-Series: DIN Rail Flow Only
- Model 1700 includes the LF-Series: Field Mount Flow Only
- Model 2500 includes the LF-Series: DIN Rail Multivariable
- Model 2700 A includes the LF-Series: Field Mount Multivariable 1mA/1FO
- Model 2700 C includes the LF-Series: Field Mount Multivariable 2mA/1FO configurable
- Model 2700 F includes the LF-Series: Field Mount FOUNDATION fieldbus
- Model 2700 P includes the LF-Series: Field Mount Profibus-PA

1.3.5 Organization

The reference section of this manual is organized as follows:

- All coils, listed numerically by address (Table 2-1)
- All floating-point registers, listed numerically by address (Table 2-2)
- All integer registers, listed numerically by address (Table 2-3)
- All long integer registers, listed numerically by address (Table 2-4)
- All ASCII registers, listed numerically by address (Table 2-5)
- Integer codes, listed by function (Tables 2-6 through 2-44)

Additional information for a specific register or transmitter is provided in a footnote. For each table, the page on which the footnotes can be found is listed at the top of the page.

1.4 Customer service

For customer service, or to order manuals, contact Micro Motion Customer Service. Contact information is provided on the title page of this manual.

Chapter 2

Modbus Mapping Assignments

2.1 Coil registers

In Table 2-1:

- RW = Read/write
 - ON (1) = Start, Reset, Apply, Enable, Resume
 - OFF (0) = Stop, Abort, Disable, No action taken
- RO = Read-only
 - ON (1) = Condition active
 - OFF (0) = Condition inactive

Table 2-1 Coils

Transmitter codes on page 3, footnotes on page 9

Address	RO/RW	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
0002	RW	Start/stop totalizers	√	√	√	√	√	√	√
0003	RW	Reset all totalizers	√	√	√	√	√	√	√
0004	RW	Reset all inventories	√	√	√	√	√	√	√
0005	RW	Perform flowmeter zeroing	√	√	√	√	√	√	√
0006	RW	Trim primary mA output at 0 or 4 mA	√		√	√	√	AIC	√
0007	RW	Trim primary mA output at 20 mA	√		√	√	√	AIC	√
0008	RW	Trim secondary mA output at 0 or 4 mA	√				√	IC	√
0009	RW	Trim secondary mA output at 20 mA	√				√	IC	√
0010	RW	Fix/unfix current level from primary mA output	√		√	√	√	AIC	√
0011	RW	Fix/unfix current level from secondary mA output	√				√	IC	√
0012	RW	Fix/unfix frequency from frequency/pulse output	√		√	√	√	AIC	√
0013	RW	Perform low-density calibration	√	√	√	√	√	√	√
0014	RW	Perform high-density calibration	√ ¹	√	√	√	√	√	√
0014	RW	Perform flowing density (FD) calibration	√ ¹						
0015	RW	Perform temperature offset calibration	√	√	√	√	√	√	√
0016	RW	Perform temperature slope calibration	√	√	√	√	√	√	√
0018	RW	Perform flowing density (FD) calibration	√	√	√	√	√	√	√
0018	RW	Save non-volatile data	√						
0020	RW	Perform transmitter self-test	√	√	√	√	√	√	√
0021	RO	(E)EPROM checksum failure	√	√	√	√	√	√	√
0022	RO	RAM diagnostic failure	√	√	√	√	√	√	√
0023	RO	Real-time interrupt failure	√						
0024	RO	Sensor failure	√	√	√	√	√	√	√
0025	RO	Temperature sensor failure	√	√	√	√	√	√	√
0026	RO	Flowmeter zeroing failure	√	√	√	√	√	√	√
0027	RO	Other failure occurred	√	√	√	√	√	√	√
0028	RO	Transmitter initializing/warming up	√	√	√	√	√	√	√
0029	RO	Primary variable out of range	√	√	√	√	√	√	√
0030	RO	Non-primary variable out of range	√	√	√	√	√	√	√
0031	RO	Milliamp output(s) saturated	√		√	√	√	AIC	√
0032	RO	Milliamp output(s) fixed	√		√	√	√	AIC	√
0033	RO	Watchdog timer error	√	√	√	√	√	√	√

Table 2-1 Coils *continued*

Transmitter codes on page 3, footnotes on page 9

Address	RO/RW	Description	RFT19739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
0034	RO	Power reset occurred	√	√	√	√	√	√	√
0035	RO	Transmitter configuration changed	√	√	√	√	√	√	√
0036	RO	Transmitter electronics failure	√	√	√	√	√	√	√
0037	RO	Event 1 status	√	√	√	√	√	AIC	
0038	RO	Event 2 status	√	√	√	√	√	AIC	
0039	RW	Reset configuration and calibration registers	√						
0039	RW	Save “factory calibration” meter fingerprint data set		√	√	√	√	√	√
0040	RW	Reset meter fingerprint statistics for “current” data set		√	√	√	√	√	√
0041	RW	Perform reboot	√	√	√	√	√	√	√
0044	RW	Perform T-Series sensor D3/K3 calibration		√	√	√	√	√	√
0045	RW	Perform T-Series sensor D4/K4 calibration		√	√	√	√	√	√
0046	RW	Fix/set discrete output 1			√ ²		√	AIC	√
0047	RW	Fix/set discrete output 2			√ ²		√	C	√
0048	RW	Fix/set discrete output 3							√
0050	RW	Backlight control (ON=Backlight on; OFF=Backlight off)				√ ^{3, 4}		AIC _{3, 4}	√
0052	RW	Screen test				√ ^{3, 4}		√ ³	√
0053	RW	Reset alarm history							√
0054	RW	Reset audit trail event counter and record counter							√ ⁵
0055	RW	Reset frequency input total							√
0056	RW	Reset mass total		√	√	√	√	√	√
0057	RW	Reset line volume (gross volume) total		√	√	√	√	√	√
0058	RW	Reset API reference volume total (standard volume total)		√ ⁶			√ ⁶	√ ⁶	√ ⁶
0059	RW	Reset enhanced density reference volume total					√ ⁷	√ ⁷	√ ⁷
0060	RW	Reset enhanced density net mass total					√ ⁷	√ ⁷	√ ⁷
0061	RW	Reset enhanced density net volume total					√ ⁷	√ ⁷	√ ⁷
0062	RW	Reset lifetime temperature statistics		√			√	√	√
0065	RO	Event 1 or event 2 status			√	√	√	AIC	
0066	RO	Flow direction switch status			√	√	√	√	√
0067	RO	Flow rate indicator status			√	√	√	√	√
0068	RO	Zero in progress status			√	√	√	√	√
0069	RO	High-severity alarm status			√	√	√	√	√
0071	RW	Enable/disable line volume flow calculations		√	√	√	√	√	√
0074	RW	Enable/disable meter fingerprinting		√	√	√	√	√	√
0079	RW	Enable/disable copper RTD		√	√	√	√	√	√
0081	RW	Enable/disable cryogenic modulus compensation		√	√	√	√	√	√
0082	RW	Enable/disable pressure compensation		√	√	√	√	√	√
0083	RW	Enable/disable burst mode			√	√	√	AIC	√
0084	RW	Enable/disable fieldbus simulation mode						F	
0085	RW	Enable/disable locked ED curves					√ ^{7, 8}	√ ^{7, 8}	√ ^{7, 9}
0086	RW	Enable/disable use externally written temperature (floating-point register pair 0449–0450) for internal calculations		√	√	√	√	√	√
0088	RW	Enable/disable inhibit slug flow event actions		√	√ ⁷	√ ⁷	√ ⁷	√ ⁷	√ ⁷
0089	RW	Enable/disable fault on unidentified K1/FCF combination		√	√ ⁷	√ ⁷	√ ⁷	√ ⁷	√ ⁷
0090	RW	Enable/disable auto print at batch end							√
0091	RW	Enable/disable totalizer start/stop from display				√ ⁴		√ ⁴	
0092	RW	Enable/disable display security							√
0094	RW	Enable/disable totalizer reset from display				√		√	
0095	RW	Enable/disable automatic scrolling of display variables				√		√	
0096	RW	Enable/disable access to display offline menu				√		√	
0097	RW	Enable/disable password for access to display offline menu				√		√	
0098	RW	Enable/disable access to alarm menu from display				√		√	
0099	RW	Enable/disable acknowledge all alarms function using display				√		√	
0100	RW	Start/stop (pause) batch							√ ¹⁰
0100	RW	Begin/end fill			√ ²				
0101	RW	Resume batch/fill			√ ²				√ ¹⁰

Table 2-1 Coils *continued*

Transmitter codes on page 3, footnotes on page 9

Address	RO/RW	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
0102	RW	Enable/disable sensor zero from display							√ ^s
0103	RW	Enable/disable sensor zero via remote communication							√ ^s
0104	RW	Enable/disable batch reset from display							√ ^s
0105	RW	Enable/disable batch reset via remote communication							√ ^s
0106	RW	Reset AOC flow rate			√ ²				
0107	RW	Pause fill			√ ²				
0108	RW	Reset fill statistics			√ ²				
0109	RW	Start/stop cleaning			√ ²				
0110	RW	Override blocked start			√ ²				
0111	RW	Enable purge stage			√ ²				
0112	RW	Enable 3-position analog valve			√ ²				
0113	RW	Read protect calibration factors	√						
0114	RW	Write protect output variables and units	√						
0115	RW	Write protect scaled integers	√						
0116	RW	Write protect sensor and transmitter information	√						
0117	RW	Write protect special units factors	√						
0118	RW	Write protect control output variable	√						
0119	RW	Write protect flow direction	√						
0120	RW	Write protect fault code	√						
0121	RW	Write protect fault limit	√						
0122	RW	Write protect output variables	√						
0123	RW	Write protect flowmeter zeroing and process variable limits	√						
0124	RW	Write protect pressure variables	√						
0125	RW	Write protect calibration factors	√						
0126	RW	Write protect coil 0002 (start/stop totalizer)	√						
0127	RW	Write protect coil 0003 (reset totals)	√						
0128	RW	Write protect coil 0004 (reset inventories)	√						
0129	RW	Write protect coil 0005 (perform flowmeter zeroing)	√						
0130	RW	Write protect coil 0006 (trim primary mA output at 4 mA or 0 mA)	√						
0131	RW	Write protect coil 0007 (trim primary mA output at 20 mA)	√						
0132	RW	Write protect coil 0008 (trim secondary mA output at 4 mA or 0 mA)	√						
0133	RW	Write protect coil 0009 (trim secondary mA output at 20 mA)	√						
0134	RW	Write protect coil 0010 (fix primary mA output)	√						
0135	RW	Write protect coil 0011 (fix secondary mA output)	√						
0136	RW	Write protect coil 0012 (fix frequency output)	√						
0137	RW	Write protect coil 0013 (perform low-density calibration)	√						
0138	RW	Write protect coil 0014 (perform high-density calibration)	√						
0142	RW	Write protect coil 0018 (save non-volatile data)	√						
0143	RW	Read/write protect master reset defaults	√						
0144	RW	Read/write protect coil 00020 (perform transmitter self-test)	√						
0145	RW	Read protect coil 0021 (EEPROM checksum failure)	√						
0146	RW	Read protect coil 0022 (RAM diagnostic failure)	√						
0147	RW	Read protect coil 0023 (real-time interrupt failure)	√						
0148	RW	Read protect coil 0024 (sensor failure)	√						
0149	RW	Read protect coil 0025 (temperature sensor failure)	√						
0150	RW	Read protect coil 0026 (flowmeter zeroing failure)	√						
0150	RW	Enable Coriolis input from sensor							√
0151	RW	Treat sensor alarms as informational until alarm timeout (see register 1150)							N

Table 2-1 Coils *continued*

Transmitter codes on page 3, footnotes on page 9

Address	RO/RW	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
0151	RW	Read protect coil 0027 (other failure occurred)	√						
0152	RW	Read protect coil 0028 (transmitter initializing/warming up)	√						
0153	RW	Read protect coil 0029 (primary variable out of range)	√						
0154	RW	Read protect coil 0030 (non-primary variable out of range)	√						
0155	RW	Read protect coil 0031 (milliamp output saturated)	√						
0156	RW	Read protect coil 0032 (milliamp output fixed)	√						
0157	RW	Read protect coil 0033 (watchdog timer error)	√						
0158	RW	Read protect coil 0034 (power reset occurred)	√						
0159	RW	Read protect coil 0035 (transmitter configuration changed)	√						
0160	RW	Read protect coil 0036 (transmitter electronics failure)	√						
0198	RW	End batch							√ ¹⁰
0199	RW	Start/stop purge			√ ²				
0200	RW	Purge mode (0=Automatic, 1=Manual)			√ ²				
0201	RW	Enable/disable batcher/filling applicatoin			√ ²				√ ¹⁰
0202	RW	Enable/disable batch reset on start							√ ¹⁰
0203	RW	Enable/disable batch/fill count up			√ ²				√ ¹⁰
0204	RW	Enable/disable batch end warning							√ ¹⁰
0205	RW	Enable/disable AOC			√ ²				√ ¹⁰
0206	RW	Enable/disable batch overrun							√ ¹⁰
0207	RW	Enable/disable batch lockout target							√ ¹⁰
0208	RW	Enable/disable batch ignore source alarms							√ ¹⁰
0209	RW	Start AOC calibration			√ ²				√ ¹⁰
0210	RW	Save AOC calibration			√ ²				√ ¹⁰
0211	RW	Reset batch/fill current total			√ ²				√ ¹⁰
0212	RW	Reset batch preset 1 inventory							√ ¹⁰
0213	RW	Reset batch preset 2 inventory							√ ¹⁰
0214	RW	Reset batch preset 3 inventory							√ ¹⁰
0215	RW	Reset batch preset 4 inventory							√ ¹⁰
0216	RW	Reset batch preset 5 inventory							√ ¹⁰
0217	RW	Reset batch preset 6 inventory							√ ¹⁰
0218	RW	Inhibit batch							√ ¹⁰
0219	RW	Inhibit batch totalizer							√ ¹⁰
0220	RW	Reset fill counter			√ ²				
0221	RO	Batch/fill timeout			√ ²				√ ¹⁰
0222	RO	Batch/fill in progress			√ ²				√ ¹⁰
0223	RO	Batch end warning							√ ¹⁰
0224	RO	Batch overrun							√ ¹⁰
0225	RO	Batch pump							√ ¹⁰
0226	RO	Batch/fill primary valve			√ ²				√ ¹⁰
0227	RO	Batch/fill secondary valve			√ ²				√ ¹⁰
0228	RO	Start not okay			√ ²				√ ¹⁰
0230	RO	AOC training active			√ ²				√ ¹⁰
0231	RO	Batch/fill ready to start			√ ²				√ ¹⁰
0259	RO	NOC in continuous mode							N
0260	RO	NOC in pause mode							N
0269	RW	Pause production measurements							N
0270	RW	Resume production measurements							N
0271	RW	Reset all production measurements							N
0272	RW	Reset back flow							N
0273	RW	Reset density							N
0274	RW	Reset drive gain							N
0275	RW	Reset gross flow							N
0276	RW	Reset mass flow							N

Table 2-1 Coils *continued*

Transmitter codes on page 3, footnotes on page 9

Address	RO/RW	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
0277	RW	Reset net oil rate (min/max/avg)							N
0278	RW	Reset net water cut (min/max/avg)							N
0279	RW	Reset temperature							N
0280	RW	Reset uncorrected gross							N
0281	RW	Reset uncorrected oil							N
0282	RW	Reset uncorrected water							N
0283	RW	Reset uncorrected water cut							N
0284	RW	Reset water cut							N
0285	RW	Enable continuous run mode							N
0286	RW	Enable well test mode							N
0287	RW	Start purge							N
0288	RW	Stop purge							N
0289	RW	Start well test							N
0290	RW	Stop well test							N
0297	RW	Start determination of produced water density							N
0298	RW	Stop determination of produced water density							N
0300	RO	Configuration memory initialized; NOC not configured							N
0301	RO	NOC configuration corrupted							N
0302	RO	NOC configuration mismatched							N
0303	RO	NOC configuration invalid							N
0304	RO	Temperature out of range							N
0305	RO	Density out of range (slug flow) warning							N
0306	RO	Density out of range (slug flow) alarm							N
0307	RO	Continuous-mode measurements paused for more than 15 minutes							N
0308	RO	Transient bubbles in sensor (TBR) warning							N
0309	RO	Transient bubbles in sensor (TBR) alarm							N
0310	RO	Density calculation completed							N
0311	RO	Purge in progress							N
0320	RW	Calculate water density from manually entered values							N
0321	RW	Save results from calculated water density							N
0322	RW	Reset density determination volume total							N
0323	RW	Start water density determination measurement							N
0324	RW	Abort water density determination measurement							N
0325	RW	Save results from water density determination measurement							N
0326	RW	Start oil density determination measurement							N
0327	RW	Abort oil density determination measurement							N
0328	RW	Save intermediate results from oil density determination measurement							N
0329	RW	Calculate actual oil density at configured reference temperature from oil density measurement and user-supplied water cut							N
0330	RW	Save actual oil density at configured reference temperature							N
0331	RO	Density operation complete flag (0 = In progress; 1 = Finished)							N

- (1) For RFT9739 transmitters, coil 14 initiates either high-density (D2) or flowing density calibration. If the flow rate is greater than 50% of full scale, coil 14 initiates a flowing density calibration; otherwise, coil 14 initiates a D2 calibration.
- (2) Requires filling and dosing application.
- (3) Requires appropriate hardware.
- (4) Transmitter software v3.3 and higher.
- (5) Requires custody transfer application.
- (6) Requires petroleum measurement application (API feature).
- (7) Requires enhanced density application.
- (8) Transmitter software v4.1 and higher, or, for transmitters with the FOUNDATION fieldbus outputs option board, transmitter software v3.0 and higher.
- (9) Transmitter software v6.1 and higher.
- (10) Requires discrete batch application.

2.2 Floating-point register pairs

In Table 2-2:

- RO = Read-only
- RW = Read/write

Table 2-2 Floating-point register pairs

Transmitter codes on page 3, footnotes on page 16

Address	RO/RW	Description	RFT9739	MVD DC	Modelo 1500	Model 1700	Model 2500	Model 2700	Series 3000
0141 0142	RW	Slug flow duration (seconds)	√	√	√	√	√	√	√
0143 0144	RW	Fixed current for primary mA output test (milliamps)	√		√	AI	√	AIC	√
0145 0146	RW	Fixed current for secondary mA output test (milliamps)	√				√	IC	√
0147 0148	RW	Fixed frequency for frequency output test (Hz)	√		√	AI	√	AIC	√
0149 0150	RW	Cutoff for density		√	√	√	√	AICF	√
0151 0152	RW	Temperature for temperature offset/slope calibrations • MVD transmitters: °C • RFT9739 transmitters: configured temperature unit (register 0041)	√	√	√	√	√	√	√
0155 0156	RW	Density for low-density calibration (g/cm ³)	√	√	√	√	√	√	√
0157 0158	RW	Density for high-density calibration (g/cm ³)	√	√	√	√	√	√	√
0157 0158	RW	Density for flowing-density calibration (g/cm ³)	√ ¹						
0159 0160	RW	Density calibration constant 1 (μsec)	√	√	√	√	√	√	√
0161 0162	RW	Density calibration constant 2 (μsec)	√	√	√	√	√	√	√
0163 0164	RW	Density temperature coefficient	√	√	√	√	√	√	√
0165 0166	RO	High mass flow limit of sensor	√	√	√	√	√	√ ²	√
0167 0168	RO	High temperature limit of sensor	√	√	√	√	√	√ ²	√
0169 0170	RO	High density limit of sensor (g/cm ³)	√	√	√	√	√	√ ²	√
0171 0172	RO	High volume flow limit of sensor	√	√	√	√	√	√ ²	√
0173 0174	RO	Low mass flow limit of sensor	√	√	√	√	√	√ ²	√
0175 0176	RO	Low temperature limit of sensor	√	√	√	√	√	√ ²	√
0177 0178	RO	Low density limit of sensor (g/cm ³)	√	√	√	√	√	√ ²	√
0179 0180	RO	Low volume flow limit of sensor	√	√	√	√	√	√ ²	√
0181 0182	RO	Mass flow minimum range	√	√	√	√	√	√ ²	√
0183 0184	RO	Temperature minimum range	√	√	√	√	√	√ ²	√
0185 0186	RO	Density minimum range	√	√	√	√	√	√ ²	√
0187 0188	RO	Volume flow minimum range	√	√	√	√	√	√ ²	√
0189 0190	RW	Flow rate internal damping (seconds)	√	√	√	√	√	√	√
0191 0192	RW	Temperature internal damping (seconds)	√	√	√	√	√	√	√
0193 0194	RW	Density internal damping (seconds)	√	√	√	√	√	√	√
0195 0196	RW	Mass flow cutoff	√	√	√	√	√	√	√
0197 0198	RW	Volume flow cutoff	√	√	√	√	√	√	√
0199 0200	RW	Slug flow high-density limit (g/cm ³)	√	√	√	√	√	√	√
0201 0202	RW	Slug flow low-density limit (g/cm ³)	√	√	√	√	√	√	√
0203 0204	RO	Primary mA output present current (milliamps)	√		√	√	√	AIC	√
0205 0206	RW	Added damping on primary mA output (seconds)	√		√	√	√	AIC	√
0207 0208	RW	Flow cutoff for primary mA output	√		√	√	√	AIC	√
0209 0210	RW	Primary variable at 20 mA	√		√	√	√	AIC	√
0211 0212	RW	Primary variable at 0 mA or 4 mA	√		√	√	√	AIC	√
0213 0214	RO	Secondary mA output present current (milliamps)	√				√	IC	√
0215 0216	RW	Added damping on secondary mA output (seconds)	√				√	IC	√
0217 0218	RW	Flow cutoff for secondary mA output	√				√	IC	√
0219 0220	RW	Secondary variable at 20 mA	√				√	IC	√
0221 0222	RW	Secondary variable at 0 mA or 4 mA	√				√	IC	√
0223 0224	RW	Frequency factor or number of pulses (Hz)	√		√	√	√	AIC	√
0225 0226	RW	Flow rate or total represented by frequency or number of pulses	√		√	√	√	AIC	√
0227 0228	RW	Frequency maximum pulse width (milliseconds; 0 = 50% duty cycle)	√		√	√	√	AIC	√
0229 0230	RO	Frequency/pulse output present frequency (Hz)	√		√	√	√	AIC	√
0231 0232	RO	Flowmeter zeroing standard deviation (units in μsec)	√	√	√	√	√	√	√
0233 0234	RW	Present flow signal offset at zero flow (units in μsec)	√	√	√	√	√	√	√

Table 2-2 Floating-point register pairs *continued*

Transmitter codes on page 3, footnotes on page 16

Address	RO/RW	Description	RFT9739	MVD DC	Modelo 1500	Model 1700	Model 2500	Model 2700	Series 3000
0235 0236	RO	Failed DensCal/TempCal/ZeroCal value (valid only if last calibration failed)		√	√	√	√	√	√
0235 0236	RW	Flowmeter zeroing standard deviation limit	√						
0237 0238	RW	Special mass unit conversion factor	√	√	√	√	√	√	√
0239 0240	RW	Special volume unit conversion factor	√	√	√	√	√	√	√
0241 0242	RW	Event 1 setpoint	√	√	√	√	√	AIC	
0243 0244	RW	Event 2 setpoint	√	√	√	√	√	AIC	
0245 0246	RO	1 (E)EPROM checksum failure	√	√	√	√	√	√	√
		2 RAM diagnostic failure	√	√	√	√	√	√	√
		4 Sensor failure	√	√	√	√	√	√	√
		8 Temperature sensor failure	√	√	√	√	√	√	√
		16 Input overrange	√	√	√	√	√	√	√
		32 Frequency/pulse output saturated	√		√	√	√	AIC	√
		64 Transmitter not configured	√	√	√	√	√	√	√
		128 Real-time interrupt failure	√	√	√	√	√	√	√
		256 Primary mA output saturated	√		√	√		AIC	√
		512 Secondary mA output saturated	√			√	√	IC	√
		1024 Primary mA output fixed	√		√	√	√	AIC	√
		2048 Secondary mA output fixed	√			√	√	IC	√
		4096 Density overrange	√	√	√	√	√	√	√
		8192 Flowmeter zeroing failure	√	√	√	√	√	√	√
		16384 Zero value too low	√	√	√	√	√	√	√
		32768 Zero value too high	√	√	√	√	√	√	√
		65536 Transmitter electronics failure	√	√	√	√	√	√	√
		131072 Flowmeter zeroing in progress	√	√	√	√	√	√	√
		262144 Slug flow	√	√	√	√	√	√	√
		524288 Power reset occurred	√	√	√	√	√	√	√
		1048576 Transmitter configuration changed	√	√					
		2097152 Transmitter initializing/warming up	√	√	√	√	√	√	√
0247 0248	RO	Mass flow rate	√	√	√	√	√	√	√
0249 0250	RO	Density	√	√	√	√	√	√	√
0251 0252	RO	Temperature	√	√	√	√	√	√	√
0253 0254	RO	Volume flow rate	√	√	√	√	√	√	√
0257 0258	RO	Pressure (internally derived)	√	√					
0259 0260	RO	Mass total	√	√	√	√	√	√	√
0261 0262	RO	Volume total	√	√	√	√	√	√	√
0263 0264	RO	Mass inventory	√	√	√	√	√	√	√
0265 0266	RO	Volume inventory	√	√	√	√	√	√	√
0267 0268	RW	Pressure correction factor for flow	√	√	√	√	√	√	√
0269 0270	RW	Pressure correction factor for density	√	√	√	√	√	√	√
0271 0272	RW	Flow calibration pressure	√	√	√	√	√	√	√
0273 0274	RW	Pressure input at 4 mA	√						
0275 0276	RW	Pressure input at 20 mA	√						
0277 0278	RW	Density for flowing-density calibration		√	√	√	√	√	√
0277 0278	RW	Flowing density calibration constant	√ ³						
0279 0280	RW	Mass flow rate meter factor	√ ⁴	√	√	√	√	√	√
0281 0282	RW	Volume flow rate meter factor	√ ³	√	√	√	√	√	√
0283 0284	RW	Density meter factor	√ ³	√	√	√	√	√	√
0285 0286	RO	Raw tube frequency (Hz)	√ ³	√	√	√	√	√	√
0287 0288	RO	Left pickoff voltage (millivolts)	√ ³	√	√	√	√	√	√
0289 0290	RO	Right pickoff voltage (millivolts)	√ ³	√	√	√	√	√	√
0291 0292	RO	Drive gain (% for MVD Direct Connect, Series 1000, Series 2000, Series 3000; volts for RFT9739)	√ ³	√	√	√	√	√	√
0293 0294	RO	Mass flow live zero flow	√ ⁵	√	√	√	√	√	√
0303 0304	RW	Flowing-density calibration constant	√ ⁶	√	√	√	√	√	√
0319 0320	RW	API reference temperature		√ ⁷			√ ⁷	√ ⁷	√ ⁷
0323 0324	RW	API thermal expansion coefficient		√ ⁷			√ ⁷	√ ⁷	√ ⁷
0325 0326	RO	Temperature-corrected density		√ ⁷			√ ⁷	√ ⁷	√ ⁷

Table 2-2 Floating-point register pairs *continued*

Transmitter codes on page 3, footnotes on page 16

Address	RO/RW	Description	RFT9739	MVD DC	Modelo 1500	Model 1700	Model 2500	Model 2700	Series 3000
0329 0330	RO	CTL		√ ⁷			√ ⁷	√ ⁷	√ ⁷
0331 0332	RO	Temperature-corrected volumetric flow		√ ⁷			√ ⁷	√ ⁷	√ ⁷
0333 0334	RO	Temperature-corrected volumetric total		√ ⁷			√ ⁷	√ ⁷	√ ⁷
0335 0336	RO	Temperature-corrected volumetric inventory		√ ⁷			√ ⁷	√ ⁷	√ ⁷
0337 0338	RO	Weighted average batch observed density		√ ⁷			√ ⁷	√ ⁷	√ ⁷
0339 0340	RO	Weighted average batch observed temperature		√ ⁷			√ ⁷	√ ⁷	√ ⁷
0367 0368	RO	DeltaT (seconds)		√	√	√	√	√	√
0369 0370	RO	Tube period (seconds)		√	√	√	√	√	√
0371 0372	RO	Temperature: Line RTD (Std RTD on all sensors); (°C)		√	√	√	√	√	√
0373 0374	RO	Temperature: Meter RTD (T-Series sensors only); (°C)		√	√	√	√	√	√
0379 0380	RO	LPO amplitude (volts)		√	√	√	√	√	√
0381 0382	RO	RPO amplitude (volts)		√	√	√	√	√	√
0383 0384	RO	Board temperature (°C)		√	√	√	√	√	√
0385 0386	RO	Input voltage (volts)		√	√	√	√	√	√
0407 0408	RW	Altus-compatibility ⁸ flow calibration factor (FCF)		√	√	√	√	√	√
0409 0410	RW	Altus-compatibility ⁸ temperature coefficient for flow (FT)		√	√	√	√	√	√
0411 0412	RW	Altus-compatibility ⁹ tempcal slope		√	√	√	√	√	√
0413 0414	RW	Altus-compatibility ⁹ tempcal offset		√	√	√	√	√	√
0435 0436	RO	Sensor maximum recorded temperature		√	√	√	√	√	√
0437 0438	RO	Sensor minimum recorded temperature		√	√	√	√	√	√
0439 0440	RO	Sensor average recorded temperature		√	√	√	√	√	√
0441 0442	RW	Electronics flow offset compensation for mass flow (nom 0, units μsec)		√	√	√	√	√	√
0449 0450	RW	External temperature input value		√	√	√	√	√	√
0451 0452	RW	External pressure input value		√	√	√	√	√	√
0453 0454	RW	Gas density used to calculate reference volume gas and flow totals		√	√ ¹⁰	√ ¹⁰	√ ¹⁰	√ ¹⁰	√ ¹¹
0455 0456	RO	Reference volume gas flow rate (not valid when petroleum measurement application or enhanced density application is enabled)		√	√ ¹⁰	√ ¹⁰	√ ¹⁰	√ ¹⁰	√ ¹¹
0457 0458	RO	Reference volume gas total (not valid when petroleum measurement application or enhanced density application is enabled)		√	√ ¹⁰	√ ¹⁰	√ ¹⁰	√ ¹⁰	√ ¹¹
0459 0460	RO	Reference volume gas inventory (not valid when petroleum measurement application or enhanced density application is enabled)		√	√ ¹⁰	√ ¹⁰	√ ¹⁰	√ ¹⁰	√ ¹¹
0463 0464	RO	Electronics maximum recorded temperature		√	√	√	√	√	√
0465 0466	RO	Electronics minimum recorded temperature		√	√	√	√	√	√
0467 0468	RO	Electronics average recorded temperature		√	√	√	√	√	√
0469 0470	RO	Wire (cable) RTD resistance (ohms)		√	√	√	√	√	√
0471 0472	RO	On-board thermistor resistance (ohms)		√	√	√	√	√	√
0473 0474	RO	Meter RTD resistance (ohms)		√	√	√	√	√	√
0475 0476	RO	Line RTD resistance (ohms)		√	√	√	√	√	√
0503 0504	RW	T-Series K3 density constant		√	√	√	√	√	√
0505 0506	RW	T-Series FTG value		√	√	√	√	√	√
0507 0508	RW	T-Series FFQ value		√	√	√	√	√	√
0509 0510	RW	Density for T-Series sensor D3 density calibration		√	√	√	√	√	√
0511 0512	RW	Density for T-Series sensor D4 density calibration		√	√	√	√	√	√
0513 0514	RW	T-Series DTG value		√	√	√	√	√	√
0515 0516	RW	T-Series DFG1 value		√	√	√	√	√	√
0517 0518	RW	T-Series DFG2 value		√	√	√	√	√	√
0519 0520	RW	T-Series K4 density constant		√	√	√	√	√	√
0531 0532	RW	Enhanced density: Curve _n (6x1) temperature isotherm _x value (x-axis)					√ ¹²	√ ¹²	√ ¹²
0533 0534	RW	Enhanced density: Curve _n (6x5) density at temperature isotherm _x , concentration _y					√ ¹²	√ ¹²	√ ¹²
0535 0536	RW	Enhanced density: Curve _n (6x5) coefficient at temperature isotherm _x , concentration _y					√ ¹²	√ ¹²	√ ¹²
0537 0538	RW	Enhanced density: Curve _n (1x5) concentration _y value (label for y-axis)					√ ¹²	√ ¹²	√ ¹²
0539 0540	RW	Enhanced density: Curve _n (1x6) density at concentration _y (at reference temperature)					√ ¹²	√ ¹²	√ ¹²

Table 2-2 Floating-point register pairs *continued*

Transmitter codes on page 3, footnotes on page 16

Address	RO/RW	Description	RFT9739	MVD DC	Modeo 1500	Model 1700	Model 2500	Model 2700	Series 3000
0541 0542	RW	Enhanced density: Curve _n (1x6) coefficient at concentration _y (at reference temperature)					√ ¹²	√ ¹²	√ ¹²
0543 0544	RW	Enhanced density: Curve _n (1x6) concentration _y value (y-axis)					√ ¹²	√ ¹²	√ ¹²
0545 0546	RW	Enhanced density: Curve _n reference temperature					√ ¹²	√ ¹²	√ ¹²
0547 0548	RW	Enhanced density: Curve _n specific gravity water reference temperature					√ ¹²	√ ¹²	√ ¹²
0549 0550	RW	Enhanced density: Curve _n specific gravity water reference density					√ ¹²	√ ¹²	√ ¹²
0551 0552	RW	Enhanced density: Curve _n curve trim: slope					√ ¹²	√ ¹²	√ ¹²
0553 0554	RW	Enhanced density: Curve _n curve trim: offset					√ ¹²	√ ¹²	√ ¹²
0555 0556	RW	Enhanced density: Curve _n extrapolation alarm limit: %					√ ¹²	√ ¹²	√ ¹²
0571 0572	RW	Enhanced density: Curve _n curve fit expected accuracy					√ ¹²	√ ¹²	√ ¹²
0611 0612	RW	Discrete event x setpoint A (For x, see register 0609)	√	√ ¹⁰	√ ¹⁰	√ ¹⁰	√ ¹⁰	AIC ¹⁰	√
0613 0614	RW	Discrete event x setpoint B (For x, see register 0609)	√	√ ¹⁰	√ ¹⁰	√ ¹⁰	√ ¹⁰	AIC ¹⁰	√
0629 0630	RO	Fingerprint data for process/transmitter variable x, instantaneous (valid only for "current" data set) (for x, see register 0626)	√	√	√	√	√	√	√
0631 0632	RO	Fingerprint data for process/transmitter variable, average (1-minute rolling) (for x, see register 0626)	√	√	√	√	√	√	√
0633 0634	RO	Fingerprint data for process/transmitter variable, standard deviation (1-minute rolling) (for x, see register 0626)	√	√	√	√	√	√	√
0635 0636	RO	Fingerprint data for process/transmitter variable, maximum (since last statistics reset) (for x, see register 0626)	√	√	√	√	√	√	√
0637 0638	RO	Fingerprint data for process/transmitter variable, minimum (since last statistics reset) (for x, see register 0626)	√	√	√	√	√	√	√
0687 0688	RW	Slot 0 value register pair for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0689 0690	RW	Slot 1 value register pair for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0691 0692	RW	Slot 2 value register pair for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0693 0694	RW	Slot 3 value register pair for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0695 0696	RW	Slot 4 value register pair for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0697 0698	RW	Slot 5 value register pair for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0699 0700	RW	Slot 6 value register pair for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0701 0702	RW	Slot 7 value register pair for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0703 0704	RW	Slot 8 value register pair for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0705 0706	RW	Slot 9 value register pair for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0707 0708	RW	Slot 10 value register pair for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0709 0710	RW	Slot 11 value register pair for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0711 0712	RW	Slot 12 value register pair for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0713 0714	RW	Slot 13 value register pair for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0715 0716	RW	Slot 14 value register pair for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0717 0718	RW	Slot 15 value register pair for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0719 0720	RW	Slot 16 value register pair for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0721 0722	RW	Slot 17 value register pair for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0723 0724	RW	Slot 18 value register pair for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0725 0726	RW	Slot 19 value register pair for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0727 0728	RW	Slot 20 value register pair for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0729 0730	RW	Slot 21 value register pair for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0731 0732	RW	Slot 22 value register pair for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0733 0734	RW	Slot 23 value register pair for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0735 0736	RW	Slot 24 value register pair for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0737 0738	RW	Slot 25 value register pair for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0739 0740	RW	Slot 26 value register pair for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0741 0742	RW	Slot 27 value register pair for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0743 0744	RW	Slot 28 value register pair for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0745 0746	RW	Slot 29 value register pair for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0747 0748	RW	Slot 30 value register pair for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0749 0750	RW	Slot 31 value register pair for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√

Table 2-2 Floating-point register pairs *continued*

Transmitter codes on page 3, footnotes on page 16

Address	RO/RW	Description	RFT9739	MVD DC	Modelo 1500	Model 1700	Model 2500	Model 2700	Series 3000
0783 0784	RO	Slot 0 value register pair for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0785 0786	RO	Slot 1 value register pair for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0787 0788	RO	Slot 2 value register pair for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0789 0790	RO	Slot 3 value register pair for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0791 0792	RO	Slot 4 value register pair for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0793 0794	RO	Slot 5 value register pair for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0795 0796	RO	Slot 6 value register pair for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0797 0798	RO	Slot 7 value register pair for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0799 0800	RO	Slot 8 value register pair for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0801 0802	RO	Slot 9 value register pair for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0803 0804	RO	Slot 10 value register pair for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0805 0806	RO	Slot 11 value register pair for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0807 0808	RO	Slot 12 value register pair for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0809 0810	RO	Slot 13 value register pair for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0811 0812	RO	Slot 14 value register pair for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0813 0814	RO	Slot 15 value register pair for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0815 0816	RO	Slot 16 value register pair for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0817 0818	RO	Slot 17 value register pair for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0819 0820	RO	Slot 18 value register pair for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0821 0822	RO	Slot 19 value register pair for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0823 0824	RO	Slot 20 value register pair for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0825 0826	RO	Slot 21 value register pair for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0827 0828	RO	Slot 22 value register pair for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0829 0830	RO	Slot 23 value register pair for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0831 0832	RO	Slot 24 value register pair for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0833 0834	RO	Slot 25 value register pair for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0835 0836	RO	Slot 26 value register pair for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0837 0838	RO	Slot 27 value register pair for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0839 0840	RO	Slot 28 value register pair for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0841 0842	RO	Slot 29 value register pair for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0843 0844	RO	Slot 30 value register pair for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0845 0846	RO	Slot 31 value register pair for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
1101 1102	RW	Frequency output pulses per unit			√	√	√	AIC	√
1103 1104	RW	Frequency output units per pulse			√	√	√	AIC	√
1105 1106	RW	Frequency output fault setting			√	√	√	AIC	√
1109 1110	RW	Primary mA output fault setting			√	√	√	AIC	√
1111 1112	RW	Secondary mA output fault setting					√	IC	√
1159 1160	RW	Flow switch setpoint			√	√	√	√	√
1189 1190	RW	mA output 1 trim constant – 4 mA trim			√	√	√	AIC	√
1191 1192	RW	mA output 1 trim constant – 20 mA trim			√	√	√	AIC	√
1193 1194	RW	mA output 2 trim constant – 4 mA trim					√	IC	√
1195 1196	RW	mA output 2 trim constant – 20 mA trim					√	IC	√
1223 1224	RW	Frequency input frequency factor (Hz) or number of pulses							√
1225 1226	RW	Frequency input flow rate or total							√
1227 1228	RW	Frequency input K-factor							√
1231 1232	RO	Frequency input measured flow rate							√
1233 1234	RO	Frequency input measured total							√
1235 1236	RO	Frequency input measured inventory							√
1257 1258	RW	Batch: No-flow timeout (seconds)							√ ¹³
1259 1260	RW	Batch: Alarm timeout (minutes)							√ ¹³
1261 1262	RW	Batch: Maximum target							√ ¹³
1277 1278	RW	Batch/fill: Preset x open primary			√ ^{14, 15}				√ ¹³
1279 1280	RW	Batch/fill: Preset x open secondary			√ ^{14, 15}				√ ¹³
1281 1282	RW	Batch/fill: Preset x close primary			√ ^{14, 15}				√ ¹³
1283 1284	RW	Batch: Preset x end warning							√ ¹³
1285 1286	RW	Batch: Preset x target							√ ¹³
1287 1288	RW	Batch: Preset x overrun							√ ¹³

Table 2-2 Floating-point register pairs *continued*

Transmitter codes on page 3, footnotes on page 16

Address	RO/RW	Description	RFT9739	MVD DC	Modelo 1500	Model 1700	Model 2500	Model 2700	Series 3000
1289 1290	RW	Batch/fill: Current target			√ ¹⁴				√ ¹³
1291 1292	RO	Batch/fill: Current total			√ ¹⁴				√ ¹³
1293 1294	RO	Batch: Preset 1 inventory							√ ¹³
1295 1296	RO	Batch: Preset 2 inventory							√ ¹³
1297 1298	RO	Batch: Preset 3 inventory							√ ¹³
1299 1300	RO	Batch: Preset 4 inventory							√ ¹³
1301 1302	RO	Batch: Preset 5 inventory							√ ¹³
1303 1304	RO	Batch: Preset 6 inventory							√ ¹³
1305 1306	RW	Maximum fill time (seconds)			√ ¹⁴				
1311 1312	RW	Purge delay (seconds)			√ ¹⁴				
1313 1314	RW	Purge length (seconds)			√ ¹⁴				
1453 1454	RW	Frequency input pulses per unit							√
1455 1456	RW	Frequency input units per pulse							√
1457 1458	RO	AOC average			√ ¹⁴				√ ¹³
1459 1460	RO	Fill time (seconds)			√ ¹⁴				
1537 1538	RO	Actual back flow rate							N
1539 1540	RO	Actual density							N
1541 1542	RO	Actual drive gain							N
1543 1544	RO	Actual gross flow rate							N
1545 1546	RO	Actual mass flow rate							N
1547 1548	RO	Actual net oil flow rate							N
1549 1550	RO	Actual net water flow rate							N
1551 1552	RO	Actual temperature							N
1553 1554	RO	Actual uncorrected net oil flow rate							N
1555 1556	RO	Actual uncorrected net water cut							N
1557 1558	RO	Actual water cut							N
1567 1568	RO	Average back flow rate							N
1569 1570	RO	Average density							N
1571 1572	RO	Average drive gain							N
1573 1574	RO	Average gross flow rate							N
1575 1576	RO	Average mass flow rate							N
1577 1578	RO	Average net oil flow rate							N
1579 1580	RO	Average net water flow rate							N
1581 1582	RO	Average temperature							N
1583 1584	RO	Average uncorrected net oil flow rate							N
1585 1586	RO	Average uncorrected net water cut							N
1587 1588	RO	Average water cut							N
1597 1598	RO	Maximum back flow rate							N
1599 1600	RO	Maximum density							N
1601 1602	RO	Maximum drive gain							N
1603 1604	RO	Maximum gross flow rate							N
1605 1606	RO	Maximum mass flow rate							N
1607 1608	RO	Maximum net oil flow rate							N
1609 1610	RO	Maximum net water flow rate							N
1611 1612	RO	Maximum temperature							N
1613 1614	RO	Maximum uncorrected net oil flow rate							N
1615 1616	RO	Maximum uncorrected net water cut							N
1617 1618	RO	Maximum water cut							N
1627 1628	RO	Minimum back flow rate							N
1629 1630	RO	Minimum density							N
1631 1632	RO	Minimum drive gain							N
1633 1634	RO	Minimum gross flow rate							N
1635 1636	RO	Minimum mass flow rate							N

Table 2-2 Floating-point register pairs *continued*

Transmitter codes on page 3, footnotes on page 16

Address	RO/RW	Description	RFT9739	MVD DC	Modelo 1500	Model 1700	Model 2500	Model 2700	Series 3000
1637 1638	RO	Minimum net oil flow rate							N
1639 1640	RO	Minimum net water flow rate							N
1641 1642	RO	Minimum temperature							N
1643 1644	RO	Minimum uncorrected net oil flow rate							N
1645 1646	RO	Minimum uncorrected net water cut							N
1647 1648	RO	Minimum water cut							N
1657 1658	RO	Gross volume total							N
1659 1660	RO	Mass total							N
1661 1662	RO	Net oil volume total							N
1663 1664	RO	Net water volume total							N
1665 1666	RO	Uncorrected oil volume total							N
1675 1676	RO	Density of oil at reference temperature							N
1677 1678	RO	Maximum deviation of oil density during density determination							N
1679 1680	RO	Density of water at reference conditions							N
1681 1682	RO	Maximum deviation of water density during density determination							N
1683 1684	RO	Drive gain threshold for TBR (volts)							N
1831 1832	RO	Density value used in or resulting from density determination							N
1833 1834	RO	Temperature value used in or resulting from density determination							N
1835 1836	RO	Water cut percentage used in density determination							N
1839 1840	RO	Results from calculated water density operation							N
1843 1844	RO	Density value used in or resulting from density determination							N
1847 1848	RO	Density of water at reference conditions							N
1851 1852	RO	Density of oil at reference temperature							N
1855 1856	RO	Results from calculation of oil density at reference							N
1859 1860	RO	Density determination volume total							N
2509 2510	RW	Analog valve setpoint							√ ¹⁴
2511 2512	RW	Analog valve open full							√ ¹⁴
2513 2514	RW	Analog valve close partial							√ ¹⁴
2515 2516	RW	Fixed AOC value							√ ¹⁴
2517 2518	RW	Close secondary							√ ¹⁴
2519 2520	RO	Average of fill totals							√ ¹⁴
2521 2522	RO	Variance of fill totals							√ ¹⁴
2527 2528	RW	Analog valve closed value (mA)							√ ¹⁴

- (1) For RFT9739 transmitters v2.0 and higher, register pair 0157–0158 is used for both the high-density calibration and the flowing-density calibration.
- (2) Read-only for transmitters with the FOUNDATION fieldbus or Profibus-PA outputs option board.
- (3) RFT9739 transmitters v3.5 and lower.
- (4) RFT9739 transmitters v3 and higher.
- (5) RFT9739 transmitters v3.x only.
- (6) RFT9739 transmitters v3.6 and higher.
- (7) Requires petroleum measurement application (API feature).
- (8) Format compatible with Series 3000 9-wire (ALTUS) transmitters. The flow calibration factor is also stored in ASCII registers 0072–0076; changing the data here will change the data in ASCII registers 0072–0076, and vice versa.
- (9) Format compatible with Series 3000 9-wire (ALTUS) transmitters. The temperature calibration factor is also stored in ASCII registers 0080–0086; changing the data here will change the data in ASCII registers 0080–0086, and vice versa.
- (10) Transmitter software v4.1 and higher, or for transmitters with the FOUNDATION fieldbus outputs option board, transmitter software v3.0 and higher.
- (11) Transmitter software v6.1 and higher.
- (12) Requires enhanced density application.
- (13) Requires discrete batch application.
- (14) Requires filling and dosing application.
- (15) Preset indexing does not apply; Model 1500 filling transmitter supports only one batch preset.

2.3 Integer registers

In Table 2-3:

- RO = Read-only
- RW = Read/write

Table 2-3 Integer registers

Transmitter codes on page 3, footnotes on page 26

Address	RO/RW	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
0001	RO	Bit #0 (E)EPROM checksum failure	√	√	√	√	√	√	√
		Bit #1 Transmitter configuration changed	√	√					
		Bit #2 Sensor failure	√	√	√	√	√	√	√
		Bit #3 Temperature sensor failure	√	√	√	√	√	√	√
		Bit #4 Input overrange	√	√	√	√	√	√	√
		Bit #5 Frequency/pulse output saturated	√		√	√	√	AIC	√
		Bit #6 Transmitter not configured	√	√	√	√	√	√	√
		Bit #7 Real-time interrupt failure	√						
		Bit #8 Milliamp output(s) saturated	√		√	√	√	AIC	√
		Bit #9 Milliamp output(s) fixed	√		√	√	√	AIC	√
		Bit #10 Density overrange	√	√	√	√	√	√	√
		Bit #11 Flowmeter zeroing failure	√	√	√	√	√	√	√
		Bit #12 Transmitter electronics failure	√	√	√	√	√	√	√
		Bit #13 Slug flow	√	√	√	√	√	√	√
		Bit #14 Transmitter initializing/warming up	√	√	√	√	√	√	√
Bit #15 Power reset occurred	√	√	√	√	√	√	√		
0002	RO	Mass flow rate (scaled integer)	√	√	√	√	√	√	
0003	RO	Density (scaled integer)	√	√	√	√	√	√	
0004	RO	Temperature (scaled integer)	√	√	√	√	√	√	
0005	RO	Volume flow rate (scaled integer)	√	√	√	√	√	√	
0007	RO	Pressure (scaled integer)	√						
0008	RO	Mass total (scaled integer) ¹	√	√	√	√	√	√	
0009	RO	Volume total (scaled integer) ¹	√	√	√	√	√	√	
0010	RO	Mass inventory (scaled integer) ¹	√	√	√	√	√	√	
0011	RO	Volume inventory (scaled integer) ¹	√	√	√	√	√	√	
0012	RW	Process variable assigned to primary mA output (HART PV)	√	√ ²	√	√	√	√	
0013	RW	Process variable assigned to secondary mA output (HART SV)	√	√ ²	√ ²	√ ²	√ ²	√ ²	
0014	RW	Process variable assigned to frequency output (HART TV)	√	√ ²	√	√	√ ²	√ ²	
0015	RW	Process variable assigned to RFT9739 control output	√						
0015	RW	Process variable assigned to quaternary variable (HART QV)		√ ²	√ ²	√ ²	√ ²	√ ²	
0016	RO	Transmitter software revision (xxxx.x format; 141=rev14.1)	√	√	√	√	√	√	
0017	RW	Flow direction	√	√	√	√	√	√	
0018	RW	Maximum integer	√	√	√	√	√	√	
0019	RW	Mass flow offset ³	√	√	√	√	√	√	
0020	RW	Density offset ³	√	√	√	√	√	√	
0021	RW	Temperature offset ³	√	√	√	√	√	√	
0022	RW	Volume flow offset ³	√	√	√	√	√	√	
0024	RW	Pressure offset ³	√						
0025	RW	Mass total offset ³	√	√	√	√	√	√	
0026	RW	Volume total offset ³	√	√	√	√	√	√	
0027	RW	Mass inventory offset ³	√	√	√	√	√	√	
0028	RW	Volume inventory offset ³	√	√	√	√	√	√	
0029	RW	Mass flow scale factor	√	√	√	√	√	√	
0030	RW	Density scale factor	√	√	√	√	√	√	
0031	RW	Temperature scale factor	√	√	√	√	√	√	
0032	RW	Volume flow scale factor	√	√	√	√	√	√	
0034	RW	Pressure scale factor	√						
0035	RW	Mass total scale factor	√	√	√	√	√	√	
0036	RW	Volume total scale factor	√	√	√	√	√	√	
0037	RW	Mass inventory scale factor	√	√	√	√	√	√	
0038	RW	Volume inventory scale factor	√	√	√	√	√	√	

Table 2-3 Integer registers *continued*

Transmitter codes on page 3, footnotes on page 26

Address	RO/RW	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000	
0039	RW	Standard or special mass flow unit	√	√	√	√	√	√	√	
0040	RW	Density unit	√	√	√	√	√	√	√	
0041	RW	Temperature unit	√	√	√	√	√	√	√	
0042	RW	Standard or special volume flow unit	√	√	√	√	√	√	√	
0044	RW	Pressure unit	√	√	√	√	√	√	√	
0045	RO	Standard or special mass total or inventory unit ⁴	√	√	√	√	√	√	√	
0046	RO	Standard or special volume total or inventory unit ⁵	√	√	√	√	√	√	√	
0047	RW	Polling address ⁶	√	√	√	√	√	√	√	
0120	RO	Device type code	√	√	√	√	√	√	√	
0121	RO	Electronics manufacturer's code identification number	√	√	√	√	√	√	√	
0124	RW	RFT9739 fault code	√ ⁷							
0124	RW	MVD digital output fault code		√	√	√	√	√	√ ⁸	
0125	RO	Bit #0	Primary mA output saturated	√		√	√	√	AIC	√
		Bit #1	Secondary mA output saturated	√				√	IC	√
		Bit #2	Primary mA output fixed	√		√	√	√	AIC	√
		Bit #3	Secondary mA output fixed	√				√	IC	√
		Bit #4	Density overrange	√	√	√	√	√	√	√
		Bit #5	Drive gain overrange	√	√	√	√	√	√	√
		Bit #6	Not used							
		Bit #7	External input failure			√	√	√	AIC	√
		Bit #7	Milliamp input error	√						
		Bit #8	(E)EPROM checksum failure, core processor or RFT9739	√	√	√	√	√	√	√
		Bit #9	RAM diagnostic failure, core processor or RFT9739	√	√	√	√	√	√	√
		Bit #10	Sensor failure (no tube interrupt)	√	√	√	√	√	√	√
		Bit #11	Temperature sensor failure	√	√	√	√	√	√	√
		Bit #12	Input overrange	√	√	√	√	√	√	√
		Bit #13	Frequency/pulse output saturated	√		√	√	√	AIC	√
		Bit #14	Transmitter not configured	√	√	√	√	√	√	√
Bit #15	Real-time interrupt failure	√								
0126	RO	Bit #0	Burst mode enabled	√		√	√	√	AIC	√
		Bit #1	Power reset occurred	√	√	√	√	√	√	√
		Bit #2	Transmitter initializing/warming up	√	√	√	√	√	√	√
		Bit #3	Security breach	√						
		Bit #4	Display readback error	√						
		Bit #5	Event 2 ON	√	√	√	√	√	AIC	
		Bit #6	Event 1 ON	√	√	√	√	√	AIC	
		Bit #7	Not used							
		Bit #8	Flowmeter zeroing failure	√	√	√	√	√	√	√
		Bit #9	Zero value too low	√	√	√	√	√	√	√
		Bit #10	Zero value too high	√	√	√	√	√	√	√
		Bit #11	Zero too noisy	√	√	√	√	√	√	√
		Bit #12	Transmitter electronics failure	√	√	√	√	√	√	√
		Bit #13	Data loss possible	√	√	√	√	√	√	√
		Bit #14	Calibration in progress	√	√	√	√	√	√	√
		Bit #15	Slug flow	√	√	√	√	√	√	√
0129	RW	Sensor flange type	√	√	√	√	√	√	√	
0130	RW	Sensor flow tube construction material	√	√	√	√	√	√	√	
0131	RW	Sensor flow tube liner material	√	√	√	√	√	√	√	
0132	RW	Base mass unit for special mass unit	√	√	√	√	√	√	√	
0133	RW	Base time unit for special mass unit	√	√	√	√	√	√	√	
0134	RW	Base volume unit for special volume unit	√	√	√	√	√	√	√	
0135	RW	Base time unit for special volume unit	√	√	√	√	√	√	√	
0136	RW	Maximum zeroing time ⁹	√	√	√	√	√	√	√	
0137	RW	Event 1 variable assignment	√	√	√	√	√	AIC		
0138	RW	Event 2 variable assignment	√	√	√	√	√	AIC		
0139	RW	Event 1 type (1=High, 2=Low)	√	√	√	√	√	AIC		
0140	RW	Event 2 type (1=High, 2=Low)	√	√	√	√	√	AIC		
0295	RO	Security event configuration register	√							

Table 2-3 Integer registers *continued*

Transmitter codes on page 3, footnotes on page 26

Address	RO/RW	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
0296	RO	Security event calibration register	√						
0297	RO	Mass flow live zero flow	√ ¹⁰						
0302	RW	Polling control code #1			√	√	√	AIC	√
0302	RW	Pressure input method	√ ¹⁰						
0313	RW	Modbus polling address	√ ¹¹	√	√	√	√	√	√
0314	RW	Last measured value fault timeout (seconds)		√	√	√	√	√	√
0351	RW	API 2540 CTL table type		√ ¹²			√ ¹²	√ ¹²	√ ¹²
0365	RO	Timestamp		√	√	√	√	√	√
0366	RW	DSP calculation update rate (20 or 100, Hz units)		√	√	√	√	AIC	
0399	RW	Sensor failure timeout time (1/16 sec units)		√	√	√	√	√	√
0400	RW	Sensor failure status bits		√	√	√	√	√	√
		Bit #0 Low amplitude		√	√	√	√	√	√
		Bit #1 Clip flag (A/D)		√	√	√	√	√	√
		Bit #2 Amplitude mismatch between pickoffs		√	√	√	√	√	√
		Bit #3 Phase OOR (one pickoff is 180° of phase)		√	√	√	√	√	√
		Bit #4 Freq OOR (main signal component detected on pickoff is outside expected frequency range)		√	√	√	√	√	√
0419	RO	Bit #0 (E)EPROM checksum error, core processor		√	√	√	√	√	√
		Bit #1 RAM test error, core processor		√	√	√	√	√	√
		Bit #2 Not used							
		Bit #3 Sensor not vibrating		√	√	√	√	√	√
		Bit #4 Temperature sensor out of range		√	√	√	√	√	√
		Bit #5 Calibration failure		√	√	√	√	√	√
		Bit #6 Other failure occurred		√	√	√	√	√	√
		Bit #7 Transmitter initializing/warming up		√	√	√	√	√	√
		Bit #8 Primary variable out of limits		√					
		Bit #9 Non-primary variable out of limits		√					
		Bit #10 Not used							
		Bit #11 Not used							
		Bit #12 Watchdog error		√					
		Bit #13 Cold start occurred		√					
		Bit #14 Transmitter configuration changed (HART bit)		√					
		Bit #15 High-severity alarm(s) active		√	√	√	√	√	√
0420	RO	Bit #0 Primary mA output saturated			√	√	√	AIC	√
		Bit #1 Secondary mA output saturated					√	IC	√
		Bit #2 Primary mA output fixed			√	√	√	AIC	√
		Bit #3 Secondary mA output fixed					√	IC	√
		Bit #4 Density overrange		√	√	√	√	√	√
		Bit #5 Drive overrange		√	√	√	√	√	√
		Bit #6 Not used							
		Bit #7 External input failure			√	√	√	AIC	√
		Bit #8 (E)EPROM checksum failure, core processor		√	√	√	√	√	√
		Bit #9 RAM diagnostic failure, core processor		√	√	√	√	√	√
		Bit #10 Sensor not responding (no tube interrupt)		√	√	√	√	√	√
		Bit #11 Temperature sensor out of range		√	√	√	√	√	√
		Bit #12 Input overrange		√	√	√	√	√	√
		Bit #13 Frequency/pulse output saturated			√	√	√	AIC	√
		Bit #14 Transmitter not characterized (flow calibration factor or sensor type)		√	√	√	√	√	√
		Bit #15 Not used							

Table 2-3 Integer registers *continued*

Transmitter codes on page 3, footnotes on page 26

Address	RO/RW	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000	
0421	RO	Bit #0	Burst mode enabled		√	√	√	√	AIC	√
		Bit #1	Power reset occurred		√	√	√	√	√	√
		Bit #2	Transmitter initializing/warming up		√	√	√	√	√	√
		Bit #3	Sensor/transmitter communication failure (A28)			√ ¹³	√ ¹³	√ ¹³	√ ¹³	√
		Bit #4	Paper out							√
		Bit #5	Event 2 ON		√	√	√	√	AIC	
		Bit #6	Event 1 ON		√	√	√	√	AIC	
		Bit #7	Sensor/transmitter communication failure (A26)			√	√	√	√	√
		Bit #8	Calibration failure		√	√	√	√	√	√
		Bit #9	Zero value too low		√	√	√	√	√	√
		Bit #10	Zero value too high		√	√	√	√	√	√
		Bit #11	Zero too noisy		√	√	√	√	√	√
		Bit #12	Transmitter electronics failure		√	√	√	√	√	√
		Bit #13	Data loss possible		√	√	√	√	√	√
		Bit #14	Calibration in progress		√	√	√	√	√	√
		Bit #15	Slug flow		√	√	√	√	√	√
0422	RO	Bit #0	API: Temperature outside standard range		√ ¹²			√ ¹²	√ ¹²	√ ¹²
		Bit #1	API: Density outside standard range		√ ¹²			√ ¹²	√ ¹²	√ ¹²
		Bit #2	“Line RTD” temperature out of range		√	√	√	√	√	√
		Bit #3	“Meter RTD” temperature out of range		√	√	√	√	√	√
		Bit #4	Flow direction (0=Forward or Zero flow, 1=Reverse)		√	√	√	√	√	√
		Bit #5	Not used							
		Bit #6	Enhanced density: Unable to fit curve data					√ ¹⁴	√ ¹⁴	√ ¹⁴
		Bit #7	Last measured value override active			√	√	√	√	√
		Bit #8	Enhanced density extrapolation alarm					√ ¹⁴	√ ¹⁴	√ ¹⁴
		Bit #9	Transmitter not configured (flow calibration factor)		√	√	√	√	√	√
		Bit #10	(E)EPROM checksum error			√	√	√	√	√
		Bit #11	RAM test error in transmitter			√	√	√	√	√
		Bit #12	Invalid/unrecognized sensor type (K1 value)		√	√	√	√	√	√
		Bit #13	(E)EPROM database corrupt in core processor		√	√	√	√	√	√
		Bit #14	(E)EPROM powerdown totals corrupt in core processor		√	√	√	√	√	√
		Bit #15	(E)EPROM program corrupt in core processor		√	√	√	√	√	√
0423	RO	Bit #0	Core processor boot sector fault		√	√	√	√	√	√
		Bit #1	Transmitter software upgrade recommended			√	√	√	√	√
		Bit #2	Frequency output fixed			√	√	√	AIC	√
		Bit #3	Not used							
		Bit #4	DO1 status (0=OFF, 1=ON)			√ ¹⁵		√	AIC	√
		Bit #5	DO2 status (0=OFF, 1=ON)			√ ¹⁵		√	C	√
		Bit #6	T-Series D3 calibration in progress		√	√	√	√	√	√
		Bit #7	T-Series D4 calibration in progress		√	√	√	√	√	√
		Bit #8	DO3 status (0=OFF, 1=ON)							√
		Bit #9	Not used							
		Bit #10	Temperature slope calibration in progress		√	√	√	√	√	√
		Bit #11	Temperature offset calibration in progress		√	√	√	√	√	√
		Bit #12	Flowing density calibration in progress		√	√	√	√	√	√
		Bit #13	High-density calibration in progress		√	√	√	√	√	√
		Bit #14	Low-density calibration in progress		√	√	√	√	√	√
		Bit #15	Flowmeter zeroing in progress		√	√	√	√	√	√

Table 2-3 Integer registers *continued*

Transmitter codes on page 3, footnotes on page 26

Address	RO/RW	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
0424	RO	Bit #0 Discrete input 1 status (0=OFF, 1=ON)			√ ¹⁵		√	C	√
		Bit #1 Discrete input 2 status (0=OFF, 1=ON)							√
		Bit #2 Discrete output 1 fixed			√ ¹⁵		√	AIC	√
		Bit #3 Discrete output 2 fixed			√ ¹⁵		√	C	√
		Bit #4 Discrete output 3 fixed							√
		Bit #5 Not used							
		Bit #6 Security breach			√	√	√	√	√
		Bit #7 Frequency input saturated							√
		Bit #8 Batch/fill timeout			√ ¹⁵				√ ¹⁶
		Bit #9 Batch/fill in progress			√ ¹⁵				√ ¹⁶
		Bit #10 Batch end warning							√ ¹⁶
		Bit #11 Batch overrun							√ ¹⁶
		Bit #12 Batch pump							√ ¹⁶
		Bit #13 Batch/fill primary valve			√ ¹⁵				√ ¹⁶
		Bit #14 Batch/fill secondary valve			√ ¹⁵				√ ¹⁶
		Bit #15 Not used							
0433	RO	Bit #0 K1/FCF combination unrecognized		√	√ ¹⁷	√ ¹⁷	√ ¹⁷	√ ¹⁷	√ ¹⁸
0521	RW	Floating-point byte order		√	√	√	√	√	√
0522	RW	Additional delay to Modbus message response ¹⁹		√	√	√	√	√	√
0523	RW	Enhanced density: Active calculation curve (a=0,1,2,3,4,5)					√ ¹⁴	√ ¹⁴	√ ¹⁴
0524	RW	Enhanced density: Derived variable					√ ¹⁴	√ ¹⁴	√ ¹⁴
0527	RW	Enhanced density: Curve configuration index (n=0,1,2,3,4,5)					√ ¹⁴	√ ¹⁴	√ ¹⁴
0528	RW	Enhanced density: Curve _n temperature isotherm index (x=0,1,2,3,4,5)					√ ¹⁴	√ ¹⁴	√ ¹⁴
0529	RW	Enhanced density: Curve _n concentration index (y=0,1,2,3,4,5)					√ ¹⁴	√ ¹⁴	√ ¹⁴
0563	RW	Enhanced density: Curve _n using coefficients direct (0=No, 1=Yes)					√ ¹⁴	√ ¹⁴	√ ¹⁴
0564	RW	Enhanced density: Maximum fit order for 5x5 curve (Order=2,3,4,5)					√ ¹⁴	√ ¹⁴	√ ¹⁴
0569	RW	Enhanced density: Curve _n curve fit results (0=Good, 1=Poor, 2=Failed, 3=Empty)					√ ¹⁴	√ ¹⁴	√ ¹⁴
0570	RW	Enhanced density: Curve _n concentration units label code					√ ¹⁴	√ ¹⁴	√ ¹⁴
0609	RW	Discrete event index (x=0,1,2,3,4)		√	√ ¹⁷	√ ¹⁷	√ ¹⁷	AIC ¹⁷	√
0610	RW	Discrete event x action (0=HI, 1=LO, 2=IN HI/LO, 3=OUT HI/LO) (For x, see register 0609)		√	√ ¹⁷	√ ¹⁷	√ ¹⁷	AIC ¹⁷	√
0615	RW	Discrete event x process variable (For x, see register 0609)		√	√ ¹⁷	√ ¹⁷	√ ¹⁷	AIC ¹⁷	√
0616	RO	Discrete event x status (1=ON, 2=OFF) (Bit #0: x = 0; Bit #1: x = 1, ...)		√	√ ¹⁷	√ ¹⁷	√ ¹⁷	AIC ¹⁷	√
0625	RW	Meter fingerprint units (0=SI, 1=English)		√	√	√	√	√	√
0626	RW	Meter fingerprint transmitter variable index		√	√	√	√	√	√
0627	RW	Fingerprint data set (0=Current, 1=Factory, 2=Installation, 3=Last zero)		√	√	√	√	√	√
0655	RW	Slot 0 configuration register for mapped address slots (Slot Type 1)		√	√	√	√	√	√
0656	RW	Slot 1 configuration register for mapped address slots (Slot Type 1)		√	√	√	√	√	√
0657	RW	Slot 2 configuration register for mapped address slots (Slot Type 1)		√	√	√	√	√	√
0658	RW	Slot 3 configuration register for mapped address slots (Slot Type 1)		√	√	√	√	√	√
0659	RW	Slot 4 configuration register for mapped address slots (Slot Type 1)		√	√	√	√	√	√
0660	RW	Slot 5 configuration register for mapped address slots (Slot Type 1)		√	√	√	√	√	√
0661	RW	Slot 6 configuration register for mapped address slots (Slot Type 1)		√	√	√	√	√	√
0662	RW	Slot 7 configuration register for mapped address slots (Slot Type 1)		√	√	√	√	√	√
0663	RW	Slot 8 configuration register for mapped address slots (Slot Type 1)		√	√	√	√	√	√
0664	RW	Slot 9 configuration register for mapped address slots (Slot Type 1)		√	√	√	√	√	√
0665	RW	Slot 10 configuration register for mapped address slots (Slot Type 1)		√	√	√	√	√	√
0666	RW	Slot 11 configuration register for mapped address slots (Slot Type 1)		√	√	√	√	√	√
0667	RW	Slot 12 configuration register for mapped address slots (Slot Type 1)		√	√	√	√	√	√
0668	RW	Slot 13 configuration register for mapped address slots (Slot Type 1)		√	√	√	√	√	√
0669	RW	Slot 14 configuration register for mapped address slots (Slot Type 1)		√	√	√	√	√	√
0670	RW	Slot 15 configuration register for mapped address slots (Slot Type 1)		√	√	√	√	√	√
0671	RW	Slot 16 configuration register for mapped address slots (Slot Type 1)		√	√	√	√	√	√
0672	RW	Slot 17 configuration register for mapped address slots (Slot Type 1)		√	√	√	√	√	√
0673	RW	Slot 18 configuration register for mapped address slots (Slot Type 1)		√	√	√	√	√	√
0674	RW	Slot 19 configuration register for mapped address slots (Slot Type 1)		√	√	√	√	√	√

Table 2-3 Integer registers *continued*

Transmitter codes on page 3, footnotes on page 26

Address	RO/RW	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
0675	RW	Slot 20 configuration register for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0676	RW	Slot 21 configuration register for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0677	RW	Slot 22 configuration register for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0678	RW	Slot 23 configuration register for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0679	RW	Slot 24 configuration register for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0680	RW	Slot 25 configuration register for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0681	RW	Slot 26 configuration register for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0682	RW	Slot 27 configuration register for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0683	RW	Slot 28 configuration register for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0684	RW	Slot 29 configuration register for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0685	RW	Slot 30 configuration register for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0686	RW	Slot 31 configuration register for mapped address slots (Slot Type 1)	√	√	√	√	√	√	√
0751	RW	Slot 0 configuration register for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0752	RW	Slot 1 configuration register for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0753	RW	Slot 2 configuration register for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0754	RW	Slot 3 configuration register for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0755	RW	Slot 4 configuration register for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0756	RW	Slot 5 configuration register for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0757	RW	Slot 6 configuration register for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0758	RW	Slot 7 configuration register for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0759	RW	Slot 8 configuration register for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0760	RW	Slot 9 configuration register for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0761	RW	Slot 10 configuration register for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0762	RW	Slot 11 configuration register for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0763	RW	Slot 12 configuration register for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0764	RW	Slot 13 configuration register for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0765	RW	Slot 14 configuration register for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0766	RW	Slot 15 configuration register for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0767	RW	Slot 16 configuration register for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0768	RW	Slot 17 configuration register for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0769	RW	Slot 18 configuration register for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0770	RW	Slot 19 configuration register for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0771	RW	Slot 20 configuration register for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0772	RW	Slot 21 configuration register for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0773	RW	Slot 22 configuration register for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0774	RW	Slot 23 configuration register for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0775	RW	Slot 24 configuration register for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0776	RW	Slot 25 configuration register for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0777	RW	Slot 26 configuration register for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0778	RW	Slot 27 configuration register for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0779	RW	Slot 28 configuration register for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0780	RW	Slot 29 configuration register for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0781	RW	Slot 30 configuration register for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
0782	RW	Slot 31 configuration register for process variable slots (Slot Type 2)	√	√	√	√	√	√	√
1107	RW	Frequency/pulse output fault code			√	√	√	AIC	√
1108	RW	Frequency/pulse output scaling method			√	√	√	AIC	√
1113	RW	Primary milliamp output fault code			√	√	√	AIC	√
1114	RW	Secondary milliamp output fault code					√	IC	√
1115	RW	Display offline password (0000 to 9999)				√		√	
1116	RW	Display scroll rate (1 to 10 seconds)				√		√	
1117	RW ²⁰	Display variable #1				√		√	√
1118	RW	Display variable #2				√		√	√
1119	RW	Display variable #3				√		√	√
1120	RW	Display variable #4				√		√	√
1121	RW	Display variable #5				√		√	√
1122	RW	Display variable #6				√		√	√
1123	RW	Display variable #7				√		√	√
1124	RW	Display variable #8				√		√	√

Table 2-3 Integer registers *continued*

Transmitter codes on page 3, footnotes on page 26

Address	RO/RW	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
1125	RW	Display variable #9				√		√	√
1126	RW	Display variable #10				√		√	√
1127	RW	Display variable #11				√		√	√
1128	RW	Display variable #12				√		√	√
1129	RW	Display variable #13				√		√	√
1130	RW	Display variable #14				√		√	√
1131	RW	Display variable #15				√		√	√
1132	RW	RS-485 digital communication protocol setting			√	A	√	A	√
1133	RW	RS-485 digital communication baud rate			√	A	√	A	√
1134	RW	RS-485 digital communication parity setting			√	A	√	A	√
1135	RW	RS-485 digital communication stop bits setting			√	A	√	A	√
1136	RW	RS-485/service port switch (0=Service port, 1=RS-485)			√		√		√
1137	RO	Core processor software revision			√	√	√	√	√
1138	RO	Outputs option board			√	√	√	√	√
1139	RW	Sensor type code			√	√	√	√	√
1144	RW	Polling control code #2			√	√	√	AIC	√
1145	RW	Polled variable #1 code			√	√	√	AIC	√
1146	RW	Polled variable #2 code			√	√	√	AIC	√
1147	RW	Polling type code				√ ²¹		AIC ²¹	
1148	RW	Totalizer display precision				√		AICF	
1150	RW	Coriolis and sensor alarm timeout (minutes)							N
1151	RW	Discrete output 1 assignment			√ ¹⁵		√	AIC	√
1152	RW	Discrete output 1 polarity (0=Active low, 1=Active high)			√ ¹⁵		√	AIC	√
1153	RW	Discrete output 2 assignment			√ ¹⁵		√	C	√
1154	RW	Discrete output 2 polarity (0=Active low, 1=Active high)			√ ¹⁵		√	C	√
1155	RW	Discrete output 3 assignment							√
1156	RW	Discrete output 3 polarity (0=Active low, 1=Active high)							√
1164	RW	100 Hz update rate variable assignment			√	√	√	AIC	
1165	RW	Burst command			√	√	√	AIC	√
1166	RW	Output channel A type assignment (read-only)			√	√	√	AIC	
1167	RW	Output channel B type assignment			√ ²²	√ ²³	√	AIC ²⁴	
1168	RW	Output channel C type assignment			√ ²²	√ ²³	√	AIC ²⁴	
1169	RW	Burst variable 1			√	√	√	AIC	√
1170	RW	Burst variable 2			√	√	√	AIC	√
1171	RW	Burst variable 3			√	√	√	AIC	√
1172	RW	Burst variable 4			√	√	√	AIC	√
1173	RW	Channel A power (read-only)					√	C	
1174	RW ²⁵	Channel B power			√ ²²	√ ²³	√	AIC ²⁴	
1175	RW	Channel C power			√ ²²	√ ²³	√	AIC ²⁴	
1176	RW	Discrete input 1 assignment			√ ¹⁵		√	C	
1178	RW	Discrete input 1 polarity (0=Active low, 1=Active high)			√ ¹⁵		√ ²⁶	C ²⁶	√
1179	RW	Discrete input 2 polarity (0=Active low, 1=Active high)							√
1181	RW ²⁷	Frequency output mode			√	√	√	AIC	
1182	RW	Discrete output 1 fixed value			√ ¹⁵		√	AIC	√
1183	RW	Discrete output 2 fixed value			√ ¹⁵		√	C	√
1184	RW	Discrete output 3 fixed value							√
1186	RW	Profibus station address (0–126)						P	
1197	RW	Frequency output polarity (0=Active low, 1=Active high)			√	√	√	AIC	√
1198	RW	Frequency output power							√
1199	RW	Display test on/off duration (1–60 seconds)				√ ¹⁷		√ ¹⁷	
1200	RO	Transmitter software version (xxx.xx: 1353=rev13.53)			√	√ ²⁸	√	√ ²⁸	√
1215	RW	Real-time clock: Seconds (0–59)							√
1216	RW	Real-time clock: Minutes (0–59)							√
1217	RW	Real-time clock: Hours (0–23)							√
1218	RW	Real-time clock: Day (1–31)							√
1219	RW	Real-time clock: Month (1–12)							√
1220	RW	Real-time clock: Year (1996–2095)							√

Table 2-3 Integer registers *continued*

Transmitter codes on page 3, footnotes on page 26

Address	RO/RW	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
1221	RW	Frequency input measurement units							√
1222	RW	Frequency input scaling method							√
1229	RO	Frequency input measured frequency							√
1237	RW	Alarm index (1=A1, 2=A2, ... 39=A39, 40=A100, 41=A101, ... 70=A130)	√		√ ¹⁷	√ ¹⁷	√ ¹⁷	√ ¹⁷	√
1238	RW	Alarm x severity (0=Ignore, 1=Informational, 2=Fault) (For x, see register 1237)	√		√ ¹⁷	√ ¹⁷	√ ¹⁷	√ ¹⁷	√
1239	RO	Alarm status Bit #0: 0=Inactive, 1=Active			√ ¹⁷	√ ¹⁷	√ ¹⁷	√ ¹⁷	√
	RW	Alarm status Bit #1: 0=Unacknowledged, 1=Acknowledged ²⁹			√ ¹⁷	√ ¹⁷	√ ¹⁷	√ ¹⁷	√
1240	RO	Alarm count							√
1245	RW	Alarm type index (0=Electronics, 1=Sensor, 2=Process, 3=Configuration)							√
1246	RW	Alarm type status (0=Acknowledged, 1=Unacknowledged)							√
1251	RW	Batch/fill: Flow source			√ ¹⁵				√ ¹⁶
1252	RW	Batch: Current preset (0–5)							√ ¹⁶
1253	RW	Batch/fill: Type (1=1 stage, 2=2 stage, 3=Analog ¹⁵)			√ ¹⁵				√ ¹⁶
1254	RW	Batch: Precision of display values							√ ¹⁶
1255	RW	Batch/fill: Configure presets by (0=%target, 1=Quantity)			√ ¹⁵				√ ¹⁶
1256	RO	Batch/fill: State ³⁰			√ ¹⁵				√ ¹⁶
1263	RW	Batch: Preset configuration index (x=0,1,2,3,4,5)							√ ¹⁶
1264	RW	Batch: Enable/disable preset x (0=Disable, 1=Enable) (For x, see register 1263)							√ ¹⁶
1276	RW	Batch: preset x density curve (For x, see register 1263)							√ ¹⁶
1309	RW	AOC compensation algorithm (0=Learn upward, 1=Learn downward, 2=Fixed)			√ ¹⁵				
1310	RW	AOC learning cycles			√ ¹⁵				
1315	RW	Discrete input assignment: Start sensor zero							√
1316	RW	Discrete input assignment: Reset mass total							√
1317	RW	Discrete input assignment: Reset volume total							√
1318	RW	Discrete input assignment: Reset API reference (standard) volume total							√ ¹²
1319	RW	Discrete input assignment: Reset enhanced density reference (corrected) volume total							√ ¹⁴
1320	RW	Discrete input assignment: Reset enhanced density net mass total							√ ¹⁴
1321	RW	Discrete input assignment: Reset enhanced density net volume total							√ ¹⁴
1322	RW	Discrete input assignment: Reset all totals							√
1323	RW	Discrete input assignment: Start/stop all totalization							√
1324	RW	Discrete input assignment: End batch							√ ¹⁶
1325	RW	Discrete input assignment: Inhibit batch							√ ¹⁶
1326	RW	Discrete input assignment: Inhibit batch totalizer							√ ¹⁶
1327	RW	Discrete input assignment: Reset batch							√ ¹⁶
1328	RW	Discrete input assignment: Resume batch							√ ¹⁶
1329	RW	Discrete input assignment: Start batch							√ ¹⁶
1330	RW	Discrete input assignment: Stop batch							√ ¹⁶
1331	RW	Discrete input assignment: Increment current batch preset							√ ¹⁶
1332	RW	Discrete input assignment: Increment current enhanced density curve							√ ^{14, 16}
1333	RW	Discrete input assignment: Print screen							√
1351	RW	Maintenance password cursor press 1							√
1352	RW	Maintenance password cursor press 2							√
1353	RW	Maintenance password cursor press 3							√
1354	RW	Maintenance password cursor press 4							√
1355	RW	Configuration password cursor press 1							√
1356	RW	Configuration password cursor press 2							√
1357	RW	Configuration password cursor press 3							√
1358	RW	Configuration password cursor press 4							√

Table 2-3 Integer registers *continued*

Transmitter codes on page 3, footnotes on page 26

Address	RO/RW	Description	RFT19739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
1359	RW	Language selection							√
1361	RO	Display temperature (°C)							√
1362	RW	Display variable #16							√
1363	RW	Display variable #17							√
1364	RW	Display variable #18							√
1365	RW	Display variable #19							√
1366	RW	Display variable #20							√
1367	RW	Process variable code (n=0...94; see process variable codes in Table 2-32)							√
1368	RW	Display precision (0–5) for process variable n (For n, see register 1367)							√
1382	RW	Header line 1 line feeds							√
1383	RW	Header line 1 font size (0=Normal height, 1=Double height)							√
1395	RW	Header line 2 line feeds							√
1396	RW	Header line 2 font size (0=Normal height, 1=Double height)							√
1408	RW	Header line 3 line feeds							√ ³¹
1409	RW	Header line 3 font size (0=Normal height, 1=Double height)							√ ³¹
1421	RW	Header line 4 line feeds							√ ³¹
1422	RW	Header line 4 font size (0=Normal height, 1=Double height)							√ ³¹
1434	RW	Footer line feeds							√
1435	RW	Footer font size (0=Normal height, 1=Double height)							√
1436	RW	Lines per page							√
1437	RW	Number of tickets							√ ¹⁶
1438	RW	Number of data bits							√
1441	RW	Printer type							√
1442	RW	Print request configuration							√
1444	RW	Disable paper out detection (0=Allow for Epson, 1=Disallow for Epson)							√
1445	RW	Printer characters per second							√
1446	RW	Printer buffer size							√
1461	RW	Fill count							√ ¹⁵
1470	RW	World area (0=Worldwide, 1=Europe)							√ ³¹
1471	RO	Audit trail event counter (event index)							√ ³¹
1472	RO	Audit trail index value for next record							√ ³¹
1473	RW	Audit trail record index (n=0...999)							√ ³¹
1474	RO	Audit trail record _n event index							√ ³¹
1477	RO	Audit trail record _n changed register (0xxxx for coil, 4xxxx for register)							√ ³¹
1478	RO	Audit trail record _n changed register array index (valid only if register specified in 1477 refers to an array)							√ ³¹
1479	RO	Audit trail record _n units (valid only if register specified in 1477 normally has associated units)							√ ³¹
1505	RW	Fieldbus AI function block index (0–3)						F	
1506	RW	Fieldbus AI target mode						F	
1507	RO	Fieldbus AI actual mode						F	
1508	RW	Fieldbus AI channel						F	
1509	RW	Fieldbus AI XD scale units						F	
1510	RW	Fieldbus AI linearization type						F	
1511	RW	Fieldbus integrator block type						F	
1691	RW	Time period over which oil density will be averaged during density determination (seconds)							N
1692	RW	Time period over which produced water density will be averaged during density determination (seconds)							N
1693	RW	Purge time to allow the separator contents of the previous test to purge (seconds)							N
1694	RW	Look-back time interval for TBR (5–30 seconds)							N

Table 2-3 Integer registers *continued*

Transmitter codes on page 3, footnotes on page 26

Address	RO/RW	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
1701	RW	Well to be configured (1–48)							N
1702	RW	Well currently being tested (1–48)							N
1703	RW	Test results (0=Well currently under test, 1=Last test, 2=Next-to-last test, 3=Oldest test)							N
1704	RW	Well within archive for test results (1–48)							N
1705	RW	Reference temperature (0=60 °F, 1=15 °C, 2=20 °C)							N
1706	RW	Action to be taken on TBR event (0=Hold last value, 1=Stop well test, 2=Alarm only)							N
2305	RW	Index of well name to configure (1–48)							N
2525	RW	Analog valve number of stages (1 or 2)			√ ¹⁵				
2526	RW	Bit #0			√ ¹⁵				
		Bit #1			√ ¹⁵				
		Bit #2			√ ¹⁵				
		Bit #3			√ ¹⁵				
		Bit #4			√ ¹⁵				
		Bit #5			√ ¹⁵				
		Bit #6			√ ¹⁵				
		Bit #7			√ ¹⁵				
		Bit #8			√ ¹⁵				
		Bit #9			√ ¹⁵				
		Bit #10							
		Bit #11							
		Bit #12							
		Bit #13							
		Bit #14							
		Bit #15							
5003	RW	Custody transfer security switch (7070=Secured; all other values=Unsecured)							√ ³¹

- (1) For RFT9739 transmitters, read-only. For MVD Direct Connect and Series 1000, 2000, and 3000 transmitters, read-only during standard use; to reset, write 0 to register.
- (2) Supported in software even if associated output is not available.
- (3) Signed integer.
- (4) Automatically derived from register 0039.
- (5) Automatically derived from register 0042.
- (6) Modbus or HART polling address (v3.6 or lower RFT9739 transmitter); HART polling address (v3.7 or higher RFT9739 transmitter, MVD Direct Connect, and Series 1000, 2000, and 3000 transmitters).
- (7) Read-only for transmitters v3 and higher.
- (8) Transmitter software v6.0 and higher.
- (9) For MVD Solo and Series 1000, 2000, and 3000 transmitters, unit is seconds. For RFT9739 transmitters, unit is M (measurement cycles); $M = N / 2$, where N represents the number of tube periods.
- (10) RFT9739 transmitters v3.x only.
- (11) RFT9739 transmitters v3.7 and higher.
- (12) Requires petroleum measurement application (API feature).
- (13) Transmitter software v3.7 and higher.
- (14) Requires enhanced density application.
- (15) Requires filling and dosing application.
- (16) Requires discrete batch application.
- (17) Transmitter software v4.1 and higher, or for transmitters with the FOUNDATION fieldbus outputs option board, transmitter software v3.0 and higher.
- (18) Transmitter software v6.1 and higher.
- (19) Units: 38,400 baud – 200 μsec; 19,200 baud – 400 μsec; 9600 baud – 800 μsec; 3800 baud – 1.6 μsec; 2400 baud – 3.2 μsec; 1200 baud – 6.4 μsec.
- (20) Read-write for Series 3000 transmitters. Read-only for Series 1000/2000 transmitters; primary variable automatically assigned as first display variable.
- (21) Transmitter software v2.x and lower.
- (22) Read-write for Model 1500 filling transmitters; read-only for other Model 1500 transmitters.
- (23) Read-only.

Modbus Mapping Assignments *continued*

- (24) Read-only for Model 2700 with analog outputs option board; configurable for Model 2700 with configurable input/outputs option board or intrinsically safe outputs option board.
- (25) Read-only if Channel B is configured for mA output; read-write for other output types.
- (26) Read-write for transmitter software v4.1 and higher; read-only for earlier transmitters.
- (27) Read-write for transmitters with configurable input/outputs option board; read-only for all other transmitters.
- (28) Transmitter software v3.6 and higher.
- (29) Can be changed from 0 to 1; cannot be changed from 1 to 0.
- (30) For Series 3000 transmitters: 0=Startup, 1=Idle, 2=Stopped, 3=Running. For Model 1500 transmitters: 0=Startup, 1=Idle, 2=Paused, 3=Running, 4=Purge delay, 5=Purge in progress, 6=Cleaning in progress.
- (31) Requires custody transfer application.

2.4 Long integer registers

In Table 2-4:

- RO = Read-only
- RW = Read/write

Table 2-4 Long integer registers

Transmitter codes on page 3, footnotes on page 29

Address	RO/ RW	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
0048 0049	RW	Final assembly number of transmitter; 3-byte integer. • First register: 00000000 in high-order byte; first 8 bits of value in low-order byte. • Second register: last 16 bits of value.	√	√	√	√	√	√	√
0050 0051	RW	Date; 3-byte integer. • First register: 00000000 in high-order byte; day of month (1–31) in low-order byte. • Second register: high-order byte: month of year (1–12); low-order byte: X, where X = current year - 1900.	√	√	√	√	√	√	√
0122 0123	RO ¹	HART device ID ² ; 3-byte integer. • First register: 00000000 in high-order byte; first 8 bits of value in low-order byte. • Second register: last 16 bits of value.	√	√	√	√	√	√	√
0127 0128	RW	Sensor serial number: 3-byte integer. • First register: 00000000 in high-order byte; first 8 bits of value in low-order byte. • Second register: last 16 bits of value.	√	√	√	√	√	√	√
0305 0308	RO	Binary mass total; 8-byte integer. • First register: MSW (high-order byte, low-order byte) • Second register: LSW (high-order byte, low-order byte)	√ ³						
0309 0312	RO	Binary volume total; 8-byte integer. • First register: MSW (high-order byte, low-order byte) • Second register: LSW (high-order byte, low-order byte)	√ ³						
1187 1188	RO ¹	Core processor ⁴ HART device ID; 3-byte integer. • First register: 00000000 in high-order byte; first 8 bits of value in low-order byte. • Second register: last 16 bits of value.			√	√	√	√	√
1241 1242	RO	Time that alarm was last posted, in seconds since January 1, 1996; 4-byte integer. • First register: MSW (high-order byte, low-order byte) • Second register: LSW (high-order byte, low-order byte)							√
1243 1244	RO	Time that alarm was last cleared, in seconds since January 1, 1996; 4-byte integer. • First register: MSW (high-order byte, low-order byte) • Second register: LSW (high-order byte, low-order byte)							√
1247 1248	RO	Time that alarm type was last posted, in seconds since January 1, 1996; 4-byte integer. • First register: MSW (high-order byte, low-order byte) • Second register: LSW (high-order byte, low-order byte)							√
1249 1250	RO	Time that alarm type was last cleared, in seconds since January 1, 1996; 4-byte integer. • First register: MSW (high-order byte, low-order byte) • Second register: LSW (high-order byte, low-order byte)							√
1439 1440	RW	Start number (BOL); 4-byte integer • First register: MSW (high-order byte, low-order byte) • Second register: LSW (high-order byte, low-order byte)							√ ⁵

Table 2-4 Long integer registers *continued*

Transmitter codes on page 3, footnotes on page 29

Address	RO/ RW	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
1475 1476	RO	Audit trail timestamp for record _n ; 4-byte integer <ul style="list-style-type: none"> • First register: MSW (high-order byte, low-order byte) • Second register: LSW (high-order byte, low-order byte) For n, see register 1473.							√ ⁵
1711 1712	RO	Well test elapsed time (seconds)							N
1713 1714	RO	Production measurement paused time (seconds)							N
1715 1716	RO	Well test purge time remaining (seconds)							N
1727 1728	RO	Timecode when last well test was stopped (seconds since January 1, 1998)							N
1729 1730	RO	Timecode when last well test was started (seconds since January 1, 1998)							N
1741 1742	RO	Timecode when maximum back flow was achieved (seconds since January 1, 1998)							N
1743 1744	RO	Timecode when maximum density was achieved (seconds since January 1, 1998)							N
1745 1746	RO	Timecode when maximum drive gain was achieved (seconds since January 1, 1998)							N
1747 1748	RO	Timecode when maximum gross flow rate was achieved (seconds since January 1, 1998)							N
1749 1750	RO	Timecode when maximum mass flow rate was achieved (seconds since January 1, 1998)							N
1751 1752	RO	Timecode when maximum net oil flow rate rate was achieved (seconds since January 1, 1998)							N
1753 1754	RO	Timecode when maximum net water flow rate rate was achieved (seconds since January 1, 1998)							N
1755 1756	RO	Timecode when maximum temperature was achieved (seconds since January 1, 1998)							N
1757 1758	RO	Timecode when maximum uncorrected net oil flow was achieved (seconds since January 1, 1998)							N
1759 1760	RO	Timecode when maximum uncorrected water cut was achieved (seconds since January 1, 1998)							N
1761 1762	RO	Timecode when maximum water cut was achieved (seconds since January 1, 1998)							N
1771 1772	RO	Timecode when minimum back flow was achieved (seconds since January 1, 1998)							N
1773 1774	RO	Timecode when minimum density was achieved (seconds since January 1, 1998)							N
1775 1776	RO	Timecode when minimum drive gain was achieved (seconds since January 1, 1998)							N
1777 1778	RO	Timecode when minimum gross flow rate was achieved (seconds since January 1, 1998)							N
1779 1780	RO	Timecode when minimum mass flow rate was achieved (seconds since January 1, 1998)							N
1781 1782	RO	Timecode when minimum net oil flow rate rate was achieved (seconds since January 1, 1998)							N
1783 1784	RO	Timecode when minimum net water flow rate rate was achieved (seconds since January 1, 1998)							N
1785 1786	RO	Timecode when minimum temperature was achieved (seconds since January 1, 1998)							N
1787 1788	RO	Timecode when minimum uncorrected net oil flow was achieved (seconds since January 1, 1998)							N
1789 1790	RO	Timecode when minimum uncorrected water cut was achieved (seconds since January 1, 1998)							N
1791 1792	RO	Timecode when minimum water cut was achieved (seconds since January 1, 1998)							N

Table 2-4 Long integer registers *continued*

Transmitter codes on page 3, footnotes on page 29

Address	RO/ RW	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
1801 1802	RO	Timecode when back flow was reset (seconds since January 1, 1998)							N
1803 1804	RO	Timecode when density was reset (seconds since January 1, 1998)							N
1805 1806	RO	Timecode when drive gain was reset (seconds since January 1, 1998)							N
1807 1808	RO	Timecode when gross flow rate was reset (seconds since January 1, 1998)							N
1809 1810	RO	Timecode when mass flow rate was reset (seconds since January 1, 1998)							N
1811 1812	RO	Timecode when net oil flow rate rate was reset (seconds since January 1, 1998)							N
1813 1814	RO	Timecode when net water flow rate rate was reset (seconds since January 1, 1998)							N
1815 1816	RO	Timecode when temperature was reset (seconds since January 1, 1998)							N
1817 1818	RO	Timecode when uncorrected net oil flow was reset (seconds since January 1, 1998)							N
1819 1820	RO	Timecode when uncorrected water cut was reset (seconds since January 1, 1998)							N
1821 1822	RO	Timecode when water cut was reset (seconds since January 1, 1998)							N
1837 1838	RO	Timecode when density determination performed (seconds since January 1, 1998)							N
1841 1842	RO	Timecode for last calculated water density operation (seconds since January 1, 1998)							N
1845 1846	RO	Timecode for last water density determination measurement (seconds since January 1, 1998)							N
1849 1850	RO	Timecode for current water density at reference (seconds since January 1, 1998)							N
1853 1854	RO	Timecode for current oil density at reference (seconds since January 1, 1998)							N
1857 1858	RO	Timecode for last calculation of oil density at reference (seconds since January 1, 1998)							N

- (1) For all Series 1000, 2000, and 3000 transmitters, if the register contains a non-zero value, it is read-only; if it contains 0, it can be written to.
- (2) If wiring is to transmitter, register contains transmitter device ID; if wiring is direct to core processor, register contains core processor device ID.
- (3) RFT9739 transmitters v3.7 and higher.
- (4) Must be queried through transmitter. If wiring is direct to core processor, registers 1187 and 1188 do not exist.
- (5) Requires custody transfer application.

2.5 ASCII registers

In Table 2-5, each ASCII register holds two characters.

Table 2-5 ASCII registers

Transmitter codes on page 3, footnotes on page 33

Address	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000	
0052	Label for special mass flow unit] – Single-write multiple
0053	Label for special mass flow unit								
0054	Label for special mass flow unit ¹ or space character ²	√	√	√	√	√	√	√	
0055	Label for special mass flow unit ¹ or space character ²								
0056	Label for special mass total or mass inventory unit] – Single-write multiple
0057	Label for special mass total or mass inventory unit								
0058	Label for special mass total or mass inventory unit ¹ or space character ²	√	√	√	√	√	√	√	
0059	Label for special mass total or mass inventory unit ¹ or space character ²								
0060	Label for special volume flow unit] – Single-write multiple
0061	Label for special volume flow unit								
0062	Label for special volume flow unit ¹ or space character ²	√	√	√	√	√	√	√	
0063	Label for special volume flow unit ¹ or space character ²								
0064	Label for special volume total or volume inventory unit] – Single-write multiple
0065	Label for special volume total or volume inventory unit								
0066	Label for special volume total or volume inventory unit ¹ or space character ²	√	√	√	√	√	√	√	
0067	Label for special volume total or volume inventory unit ¹ or space character ²								
0068	HART tag (software tag)] – Single-write multiple
0069	HART tag (software tag)								
0070	HART tag (software tag)	√	√	√	√	√	√ ³	√	
0071	HART tag (software tag)								
0072	Flow calibration factor ⁴] – Single-write multiple
0073	Flow calibration factor								
0074	Flow calibration factor								
0075	Flow temperature coefficient ⁴	√	√	√	√	√	√	√	
0076	Flow temperature coefficient								
0077	Space character ⁵								
0078	Space character ⁵								
0079	Space character ⁵								
0080	Temperature calibration slope ⁶] – Single-write multiple
0081	Temperature calibration slope								
0082	Temperature calibration slope								
0083	Temperature calibration slope	√	√	√	√	√	√	√	
0084	Temperature calibration offset ⁶								
0085	Temperature calibration offset								
0086	Temperature calibration offset								
0087	Space character (optional)								
0096	Transmitter description] – Single-write multiple
0097	Transmitter description								
0098	Transmitter description								
0099	Transmitter description	√	√	√	√	√	√	√	
0100	Transmitter description								
0101	Transmitter description								
0102	Transmitter description								
0103	Transmitter description								

Table 2-5 ASCII registers *continued*

Transmitter codes on page 3, footnotes on page 33

Address	Description	RFT19739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000	
0104	User message								} – Single-write multiple
0105	User message								
0106	User message								
0107	User message								
0108	User message								
0109	User message								
0110	User message								
0111	User message	√	√	√	√	√	√	√	
0112	User message								
0113	User message								
0114	User message								
0115	User message								
0116	User message								
0117	User message								
0118	User message								
0119	User message								
0298	Polling tag for external device #1 ⁷								} – Single-write multiple
0299	Polling tag for external device #1	√		√	√	√	AIC	√	
0300	Polling tag for external device #1								
0301	Polling tag for external device #1								
0425	Sensor type								} – Single-write multiple
0426	Sensor type								
0427	Sensor type								
0428	Sensor type		√	√	√	√	√	√	
0429	Sensor type								
0430	Sensor type								
0431	Sensor type								
0432	Sensor type								
0557	Enhanced density: Curve _n curve name – 12 characters max								} – Single-write multiple
0558	Enhanced density: Curve _n curve name – 12 characters max								
0559	Enhanced density: Curve _n curve name – 12 characters max					√ ⁸	√ ⁸	√ ⁸	
0560	Enhanced density: Curve _n curve name – 12 characters max								
0561	Enhanced density: Curve _n curve name – 12 characters max								
0562	Enhanced density: Curve _n curve name – 12 characters max								
0573	Enhanced density: Curve _n concentration units label – 8 characters maximum								} – Single-write multiple
0574	Enhanced density: Curve _n concentration units label – 8 characters maximum								
0575	Enhanced density: Curve _n concentration units label – 8 characters maximum					√ ⁸	√ ⁸	√ ⁸	
0576	Enhanced density: Curve _n concentration units label – 8 characters maximum								
1140	Polling tag for external device #2								} – Single-write multiple
1141	Polling tag for external device #2			√	√	√	AIC	√	
1142	Polling tag for external device #2								
1143	Polling tag for external device #2								
1265	Batch: Preset x name (For x, see register 1263)								} – Single-write multiple
1266	Batch: Preset x name								
1267	Batch: Preset x name								
1268	Batch: Preset x name								
1269	Batch: Preset x name								
1270	Batch: Preset x name								
1271	Batch: Preset x name								
1272	Batch: Preset x name							√ ⁹	
1273	Batch: Preset x name								
1274	Batch: Preset x name								
1275	Batch: Preset x name								

Table 2-5 ASCII registers *continued*

Transmitter codes on page 3, footnotes on page 33

Address	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000	
1371	Ticket header line 1								} – Single-write multiple
1372	Ticket header line 1								
1373	Ticket header line 1								
1374	Ticket header line 1								
1375	Ticket header line 1								
1376	Ticket header line 1						√		
1377	Ticket header line 1								
1378	Ticket header line 1								
1379	Ticket header line 1								
1380	Ticket header line 1								
1381	Ticket header line 1								
1384	Ticket header line 2								} – Single-write multiple
1385	Ticket header line 2								
1386	Ticket header line 2								
1387	Ticket header line 2								
1388	Ticket header line 2								
1389	Ticket header line 2						√		
1390	Ticket header line 2								
1391	Ticket header line 2								
1392	Ticket header line 2								
1393	Ticket header line 2								
1394	Ticket header line 2								
1397	Ticket header line 3 ¹⁰								} – Single-write multiple
1398	Ticket header line 3								
1399	Ticket header line 3								
1400	Ticket header line 3								
1401	Ticket header line 3								
1402	Ticket header line 3						√		
1403	Ticket header line 3								
1404	Ticket header line 3								
1405	Ticket header line 3								
1406	Ticket header line 3								
1407	Ticket header line 3								
1410	Ticket header line 4 ¹⁰								} – Single-write multiple
1411	Ticket header line 4								
1412	Ticket header line 4								
1413	Ticket header line 4								
1414	Ticket header line 4								
1415	Ticket header line 4						√		
1416	Ticket header line 4								
1417	Ticket header line 4								
1418	Ticket header line 4								
1419	Ticket header line 4								
1420	Ticket header line 4								
1423	Ticket footer								} – Single-write multiple
1424	Ticket footer								
1425	Ticket footer								
1426	Ticket footer								
1427	Ticket footer								
1428	Ticket footer						√		
1429	Ticket footer								
1430	Ticket footer								
1431	Ticket footer								
1432	Ticket footer								
1433	Ticket footer								
1480	Audit trail record _n configuration value ¹⁰								} – Read-only
1481	Audit trail record _n configuration value								
1482	Audit trail record _n configuration value								
1483	Audit trail record _n configuration value								
1484	Audit trail record _n configuration value						√		
1485	Audit trail record _n configuration value								
1486	Audit trail record _n configuration value								
1487	Audit trail record _n configuration value								

Table 2-5 ASCII registers *continued*

Transmitter codes on page 3, footnotes on page 33

Address	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000	
1489	Fieldbus tag								
1490	Fieldbus tag								
1491	Fieldbus tag								
1492	Fieldbus tag								
1493	Fieldbus tag								
1494	Fieldbus tag								
1495	Fieldbus tag								
1496	Fieldbus tag								
1497	Fieldbus tag								
1498	Fieldbus tag								
1499	Fieldbus tag								
1500	Fieldbus tag								
1501	Fieldbus tag								
1502	Fieldbus tag								
1503	Fieldbus tag								
1504	Fieldbus tag								
2306	Well name – characters 1–2								
2307	Well name – characters 3–4								
2308	Well name – characters 5–6								
2309	Well name – characters 7–8								
2310	Well name – characters 9–10								
2311	Well name – characters 11–12								
2312	Well name – characters 13–14								
2313	Well name – characters 15–16								

- (1) *MVD Direct Connect or Series 1000, 2000, or 3000 transmitters.*
- (2) *RFT9739 transmitters.*
- (3) *Does not apply to v3.0 or higher transmitters with the FOUNDATION fieldbus outputs option board. If you have this transmitter, use registers 1489–1504.*
- (4) *The flow calibration factor is also stored in floating-point registers 0407–0410. Changing the data here will change the data in registers 0407–0410, and vice versa.*
- (5) *Required for RFT9739 transmitters; optional for all other transmitters.*
- (6) *The temperature calibration factor is also stored in floating-point registers 0411–0414. Changing the data here will change the data in registers 0411–0414, and vice versa.*
- (7) *Polling tag for Series 1000, 2000, or 3000 transmitters; for RFT9739 transmitters, HART tag for pressure input host.*
- (8) *Requires enhanced density application.*
- (9) *Requires discrete batch application.*
- (10) *Requires custody transfer application.*
- (11) *Transmitter software v3.0 and higher.*

2.6 Integer codes

Table 2-6 Sensor information codes

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
Sensor type codes (register 1139)								
0	Curved-tube sensor (all sensors except T-Series)			√	√	√	√	√
1	Straight-tube sensor (T-Series)			√	√	√	√	√
Sensor flange type codes (register 0129)								
0	ANSI 150	√	√	√	√	√	√	√
1	ANSI 300	√	√	√	√	√	√	√
2	ANSI 600	√	√	√	√	√	√	√
5	PN 40	√	√	√	√	√	√	√
7	JIS 10K	√	√	√	√	√	√	√
8	JIS 20K	√	√	√	√	√	√	√
9	ANSI 900	√	√	√	√	√	√	√
10	Sanitary clamp	√	√	√	√	√	√	√
11	Union	√	√	√	√	√	√	√
12	PN 100	√	√	√	√	√	√	√
250	Reserved	√						
251	None		√	√	√	√	√	√
252	Unknown	√	√	√	√	√	√	√
253	Special	√	√	√	√	√	√	√
254	Reserved	√						
255	Reserved	√						
Flow tube construction material codes (register 0130)								
3	Hastelloy C-22	√	√	√	√	√	√	√
4	Monel	√	√	√	√	√	√	√
5	Tantalum	√	√	√	√	√	√	√
6	Titanium		√	√	√	√	√	√
19	316L stainless steel	√	√	√	√	√	√	√
23	Inconel		√	√	√	√	√	√
252	Unknown	√	√	√	√	√	√	√
253	Special	√	√	√	√	√	√	√
Flow tube liner material codes (register 0131)								
10	PTFE (Teflon)	√	√	√	√	√	√	√
11	Halar	√	√	√	√	√	√	√
16	Tefzel		√	√	√	√	√	√
251	None	√	√	√	√	√	√	√
252	Unknown	√	√	√	√	√	√	√
253	Special	√	√	√	√	√	√	√

Table 2-7 Outputs option board codes (register 1138)

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
0	None							√
1	Analog I/O (mA/Frequency/RS-485)				A		A	
2	FOUNDATION fieldbus (H1) or Profibus-PA						FP	
3	Intrinsically safe output				I		I	
4	Configurable input/output			√		√	C	

Table 2-8 Digital communication codes

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
Digital communication protocol codes (register 1132)								
0	None			√	A	√	A	√
1	HART				A		A	√
2	Modbus RTU			√	A	√	A	√
3	Modbus ASCII			√	A	√	A	√
4	Printer							√
Digital communication baud rate codes (register 1133)								
0	1200 baud			√	A	√	A	√
1	2400 baud			√	A	√	A	√
2	4800 baud			√	A	√	A	√
3	9600 baud			√	A	√	A	√
4	19,200 baud			√	A	√	A	√
5	38,400 baud			√	A	√	A	√
Digital communication parity codes (register 1134)								
0	None			√	A	√	A	√
1	Odd parity			√	A	√	A	√
2	Even parity			√	A	√	A	√
Digital communication stop bits codes (register 1135)								
1	1 stop bit			√	A	√	A	√
2	2 stop bits			√	A	√	A	√

Table 2-9 Byte order codes (register 0521)

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
0	0-1-2-3 (or 1-2-3-4)		√	√	√	√	√	√
1	2-3-0-1 (or 3-4-1-2) (Default)		√	√	√	√	√	√
2	1-0-3-2 (or 2-1-4-3)		√	√	√	√	√	√
3	3-2-1-0 (or 4-3-2-1)		√	√	√	√	√	√

Table 2-10 100 Hz variable codes (register 1164)

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
0	Mass flow rate			√	√	√	AIC	
1	Temperature			√	√	√	AIC	
3	Density			√	√	√	AIC	
5	Volume flow rate			√	√	√	AIC	
10	Event 1			√	√	√	AIC	
11	Event 2			√	√	√	AIC	
15	API: Temperature corrected density		√ ¹			√ ¹	AIC ¹	
16	API: Temperature corrected (standard) volume flow		√ ¹			√ ¹	AIC ¹	
19	API: Batch weighted average density		√ ¹			√ ¹	AIC ¹	
20	API: Batch weighted average temperature		√ ¹			√ ¹	AIC ¹	

(1) Requires petroleum measurement application (API feature).

Table 2-11 Burst output codes

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
Burst command option codes (register 1165)								
1	Read primary variable			√	√	√	AIC	√
2	Read PV current and percent of range			√	√	√	AIC	√
3	Read dynamic variables and PV current			√	√	√	AIC	√
33	Read transmitter variables			√	√	√	AIC	√
Burst variable codes for command 33 (registers 1169–1172)								
0	Mass flow rate			√	√	√	√	√
1	Temperature					√	√	√
2	Mass total			√	√	√	√	√
3	Density					√	√	√
4	Mass inventory			√	√	√	√	√
5	Volume flow rate			√	√	√	√	√
6	Volume total			√	√	√	√	√
7	Volume inventory			√	√	√	√	√
15	API: Temperature corrected density					√ ¹	√ ¹	√ ¹
16	API: Temperature corrected (standard) volume flow					√ ¹	√ ¹	√ ¹
17	API: Temperature-corrected (standard) volume total					√ ¹	√ ¹	√ ¹
18	API: Temperature-corrected (standard) volume inventory					√ ¹	√ ¹	√ ¹
19	API: Batch weighted average temperature					√ ¹	√ ¹	√ ¹
20	API: Batch weighted average temperature					√ ¹	√ ¹	√ ¹
21	Enhanced density: Density at reference temperature					√ ²	√ ²	√ ²
22	Enhanced density: Density (fixed SG units)					√ ²	√ ²	√ ²
23	Enhanced density: Standard volume flow rate					√ ²	√ ²	√ ²
24	Enhanced density: Standard volume total					√ ²	√ ²	√ ²
25	Enhanced density: Standard volume inventory					√ ²	√ ²	√ ²
26	Enhanced density: Net mass flow rate					√ ²	√ ²	√ ²
27	Enhanced density: Net mass total					√ ²	√ ²	√ ²
28	Enhanced density: Net mass inventory					√ ²	√ ²	√ ²
29	Enhanced density: Net volume flow rate					√ ²	√ ²	√ ²
30	Enhanced density: Net volume total					√ ²	√ ²	√ ²
31	Enhanced density: Net volume inventory					√ ²	√ ²	√ ²
32	Enhanced density: Concentration					√ ²	√ ²	√ ²
33	API: CTL					√ ¹	√ ¹	√ ¹
46	Tube frequency					√	√	√
47	Drive gain					√	√	√
48	Meter temperature (T-Series sensors only)					√	√	√
49	Left pickoff					√	√	√
50	Right pickoff					√	√	√
51	Board temperature					√	√	√
52	Input voltage					√	√	√
53	External pressure					√	√	√
55	External temperature					√	√	√
63	Gas standard volume flow rate			√ ³	√ ³	√ ³	√ ³	√ ⁴
64	Gas standard volume total			√ ³	√ ³	√ ³	√ ³	√ ⁴
65	Gas standard volume inventory			√ ³	√ ³	√ ³	√ ³	√ ⁴
91	Frequency input flow rate							√
92	Frequency input total							√
93	Frequency input inventory							√
94	Frequency input							√

- (1) Requires petroleum measurement application (API feature).
- (2) Requires enhanced density application.
- (3) Transmitter software v4.1 and higher.
- (4) Transmitter software v6.1 and higher.

Table 2-12 Quaternary variable codes (register 0015)

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
0	Mass flow rate	√	√	√	√	√	√	√
1	Temperature	√	√			√	√	√
2	Mass total	√	√	√	√	√	√	√
3	Density	√	√			√	√	√
4	Mass inventory	√	√	√	√	√	√	√
5	Volume flow rate	√	√	√	√	√	√	√
6	Volume total	√	√	√	√	√	√	√
7	Volume inventory	√	√	√	√	√	√	√
8	Viscosity	√ ¹						
15	API: Temperature corrected density		√ ²			√ ²	√ ²	√ ²
16	API: Temperature corrected (standard) volume flow		√ ²			√ ²	√ ²	√ ²
17	API: Temperature-corrected (standard) volume total		√ ²			√ ²	√ ²	√ ²
18	API: Temperature-corrected (standard) volume inventory		√ ²			√ ²	√ ²	√ ²
19	API: Batch weighted average temperature		√ ²			√ ²	√ ²	√ ²
20	API: Batch weighted average temperature		√ ²			√ ²	√ ²	√ ²
21	Enhanced density: Density at reference temperature					√ ³	√ ³	√ ³
22	Enhanced density: Density (fixed SG units)					√ ³	√ ³	√ ³
23	Enhanced density: Standard volume flow rate					√ ³	√ ³	√ ³
24	Enhanced density: Standard volume total					√ ³	√ ³	√ ³
25	Enhanced density: Standard volume inventory					√ ³	√ ³	√ ³
26	Enhanced density: Net mass flow rate					√ ³	√ ³	√ ³
27	Enhanced density: Net mass total					√ ³	√ ³	√ ³
28	Enhanced density: Net mass inventory					√ ³	√ ³	√ ³
29	Enhanced density: Net volume flow rate					√ ³	√ ³	√ ³
30	Enhanced density: Net volume total					√ ³	√ ³	√ ³
31	Enhanced density: Net volume inventory					√ ³	√ ³	√ ³
32	Enhanced density: Concentration					√ ³	√ ³	√ ³
33	API: CTL		√ ²			√ ²	√ ²	√ ²
46	Tube frequency		√			√	√	√
47	Drive gain		√			√	√	√
48	Meter temperature (T-Series sensors only)		√			√	√	√
49	Left pickoff		√			√	√	√
50	Right pickoff		√			√	√	√
51	Board temperature		√			√	√	√
52	Input voltage		√			√	√	√
53	External pressure		√			√	√	√
55	External temperature		√			√	√	√
63	Gas standard volume flow rate		√	√ ⁴	√ ⁴	√ ⁴	√ ⁴	√ ⁵
64	Gas standard volume total		√	√ ⁴	√ ⁴	√ ⁴	√ ⁴	√ ⁵
65	Gas standard volume inventory		√	√ ⁴	√ ⁴	√ ⁴	√ ⁴	√ ⁵
91	Frequency input flow rate							√
92	Frequency input total							√
93	Frequency input inventory							√
94	Frequency input							√

- (1) RFT9739 transmitters v3.7 and lower.
- (2) Requires petroleum measurement application (API feature).
- (3) Requires enhanced density application.
- (4) Transmitter software v4.1 and higher, or for transmitters with the FOUNDATION fieldbus outputs option board, transmitter software v3.0 and higher.
- (5) Transmitter software v6.1 and higher.

Table 2-13 Polling codes

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
Polling control option codes (registers 0302 and 1144)								
0	Do not poll			√	√	√	√	√
1	Poll transmitter: HART primary			√	√	√	√	√
2	Poll transmitter: HART secondary			√	√	√	√	√
Polling type option codes (register 1147)								
0	None			√	√	√	√	√
1	Pressure compensation only			√	√	√	√	√
2	Enhanced density temperature compensation					√ ¹	√ ¹	√ ¹
4	API temperature					√ ²	√ ²	√ ²
8	API pressure compensation				√ ²	√ ²	√ ²	√ ²
Polled variable codes (registers 1145 and 1146)								
53	Externally read pressure			√	√	√	√	√
55	Externally read temperature			√	√	√	√	√

(1) Requires enhanced density application.

(2) Requires petroleum measurement application (API feature).

Table 2-14 Channel/terminal configuration codes

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
Output type codes (registers 1166–1168)								
0	Milliamp (primary) output			√	√	√	√	
1	Frequency output			√	√	√	√	
2	Digital communications				A		A	
3	Milliamp (secondary) output					√	IC	
4	Discrete output			√ ¹		√	√	
5	Discrete input			√ ¹		√	C	
6	None						I	
Power source codes (registers 1174 and 1175)								
0	External (passive)			√		√	C	√
1	Internal (active)			√		√	C	√
Polarity codes (registers 1152, 1154, 1156, 1178, 1179, 1197)								
0	Active low			√ ¹		√	AIC	√
1	Active high			√ ¹		√	AIC	√
Frequency output mode codes (register 1181)								
0	Single			√	√	√	AIC	√
1	Quadrature					√	C	
2	Dual with 0° phase shift					√	C	
3	Dual with 180° phase shift					√	C	
4	Dual with +90° phase shift					√	C	
5	Dual with –90° phase shift					√	C	

(1) Requires filling and dosing application.

Table 2-15 mA output process variable assignment codes (registers 0012, 0013)

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
0	Mass flow rate	√	√	√	√	√	√	√
1	Temperature	√	√			√	√	√
3	Density	√	√			√	√	√
5	Volume flow rate	√	√	√	√	√	√	√
9	Pressure	√						
10	Event 1	√						
11	Event 2	√						
15	API: Temperature-corrected density		√ ¹			√ ¹	√ ¹	√ ¹
16	API: Temperature-corrected (standard) volume flow		√ ¹			√ ¹	√ ¹	√ ¹
19	API: Batch weighted average density		√ ¹			√ ¹	√ ¹	√ ¹
20	API: Batch weighted average temperature		√ ¹			√ ¹	√ ¹	√ ¹
21	Enhanced density: Density at reference					√ ²	√ ²	√ ²
22	Enhanced density: Density (fixed SG units)					√ ²	√ ²	√ ²
23	Enhanced density: Standard volume flow rate					√ ²	√ ²	√ ²
26	Enhanced density: Net mass flow rate					√ ²	√ ²	√ ²
29	Enhanced density: Net volume flow rate					√ ²	√ ²	√ ²
32	Enhanced density: Concentration					√ ²	√ ²	√ ²
47	Drive gain					√	√	√
56	Fixed Baume units					√ ²	√ ²	√ ²
62	Gas standard volume flow rate		√	√ ³	√ ³	√ ³	√ ³	√ ⁴
70	Drive gain							N
73	Actual uncorrected oil flow							N
74	Actual uncorrected water cut							N
75	Actual uncorrected water flow							N
76	Actual uncorrected gross flow							N
77	Actual uncorrected back flow							N
78	Net oil flow							N
79	Water cut							N
80	Gross flow							N
81	Net water flow							N
82	Average uncorrected oil flow							N
83	Average uncorrected water cut							N
84	Average uncorrected gross flow							N
85	Average uncorrected water flow							N
86	Average back flow							N
87	Average net oil flow							N
88	Average water cut							N
89	Average gross flow							N
90	Average net water flow							N
91	Frequency input flow rate							√
110	Batch/fill: Primary valve					√ ⁵		
111	Batch/fill: Secondary valve					√ ⁵		

- (1) Requires petroleum measurement application (API feature).
- (2) Requires enhanced density application.
- (3) Transmitter software v4.1 and higher.
- (4) Transmitter software v6.1 and higher.
- (5) Requires filling and dosing application.

Table 2-16 Frequency/pulse input/output codes

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
Frequency/pulse output variable codes (register 0014)								
0	Mass flow rate	√	√	√	√	√	√	√
2	Mass totalizer	√						
5	Volume flow rate	√	√	√	√	√	√	√
6	Volume totalizer	√						
16	API: Temperature-corrected (standard) volume flow		√ ¹			√ ¹	√ ¹	√ ¹
23	Enhanced density: Standard volume flow rate					√ ²	√ ²	√ ²
26	Enhanced density: Net mass flow rate					√ ²	√ ²	√ ²
29	Enhanced density: Net volume flow rate					√ ²	√ ²	√ ²
57	Frequency input							N
62	Gas standard volume flow rate			√ ³	√ ³	√ ³	√ ³	√ ⁴
73	Actual uncorrected oil flow							N
75	Actual uncorrected water flow							N
77	Actual uncorrected back flow							N
78	Net oil flow							N
80	Gross flow							N
81	Net water flow							N
91	Frequency input flow rate							√
Frequency/pulse input/output scaling method codes (registers 1108 and 1122)								
0	Frequency=flow			√	√	√	√	√
1	Pulses/unit			√	√	√	√	√
2	Units/pulse			√	√	√	√	√

- (1) Requires petroleum measurement application (API feature).
- (2) Requires enhanced density application.
- (3) Transmitter software v4.1 and higher.
- (4) Transmitter software v6.1 and higher.

Table 2-17 Fault output codes

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
Version 2 RFT9739 fault output codes (register 0124)¹								
0	Upscale	√						
1	Downscale	√						
2	Last measured value	√						
3	Internal zero	√						
Analog fault output codes (registers 1113, 1114, 1107)								
0	Upscale			√	√	√	√	√
1	Downscale			√	√	√	√	√
2	Last measured value							N
3	Internal zero			√	√	√	√	√
4	None			√	√	√	√	√

Table 2-17 Fault output codes *continued*

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
Digital communications fault output codes (register 0124)								
0	Upscale (Hold at value greater than upper sensor limit, stop totalizing)		√	√	√	√	√	√
1	Downscale (Hold at value less than lower sensor limit, stop totalizing)		√	√	√	√	√	√
2	Internal zero (Drive outputs to zero values of process variables, stop totalizing)		√	√	√	√	√	√
3	NAN (Report not-a-number or maximum scaled integer, stop totalizing)		√	√	√	√	√	√
4	Flow zero (Drive flow rate to zero value, other process variables remain unaffected)		√	√	√	√	√	√
5	None (default; use status bits for fault detection)		√	√	√	√	√	√

(1) *Read-only for transmitters v3 and higher. On these transmitters, the fault output must be configured using hardware switches or the display.*

Table 2-18 Control output assignment codes (register 0015)

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
0	Forward/reverse flow	√						
1	Zero in progress	√						
2	Faults	√						
3	Event 1	√						
4	Event 2	√						

Table 2-19 Discrete output assignment codes (registers 1151, 1153, 1155)

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
10	Event 1					√	AIC	
11	Event 2					√	AIC	
54	Discrete input 1							N
55	Discrete input 2							N
57	Discrete event 1 (x=0) (For x, see register 0609)					√ ¹	AIC ¹	√
58	Discrete event 2 (x=1) (For x, see register 0609)					√ ¹	AIC ¹	√
59	Discrete event 3 (x=2) (For x, see register 0609)					√ ¹	AIC ¹	√
60	Discrete event 4 (x=3) (For x, see register 0609)					√ ¹	AIC ¹	√
61	Discrete event 5 (x=4) (For x, see register 0609)					√ ¹	AIC ¹	√
72	Fault alarm							N
97	Transient bubble remediation							N
98	Discrete input 1							√
99	Discrete input 2							√
100	Event 1 or event 2					√	AIC	
101	Flow switch indication					√	√	√
102	Forward/reverse indication					√	√	√
103	Calibration in progress					√	√	√
104	Fault condition indication			√ ²		√	√	√
105	Batch/fill: Batch/fill timeout							√ ³
106	Batch/fill: Batching/filling in progress			√ ²				√ ³

Table 2-19 Discrete output assignment codes (registers 1151, 1153, 1155) *continued*

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
107	Batch: Batch end warning							√ ³
108	Batch: Batch overrun							√ ³
109	Batch: Batch pump							√ ³
110	Batch/fill: Primary valve			√ ²				√ ³
111	Batch/fill: secondary valve			√ ²				√ ³
251	None							√ ³

- (1) *Transmitter software v4.1 and higher.*
- (2) *Requires filling and dosing application.*
- (3) *Requires discrete batch application.*

Table 2-20 Discrete input assignment codes – Series 1000/2000 transmitters (register 1176)

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
0	None			√ ¹		√	C	
1	Start sensor zero					√	C	
2	Reset mass total			√ ¹		√	C	
3	Reset volume total			√ ¹		√	C	
4	Reset API reference (standard) volume total					√ ²	C ²	
5	Reset all totals			√ ¹		√	C	
6	Reset enhanced density reference (corrected) volume total					√ ³	C ³	
7	Reset enhanced density net mass total					√ ³	C ³	
8	Reset enhanced density net volume total					√ ³	C ³	
9	Begin fill			√ ¹				
10	End fill			√ ¹				
11	Pause fill			√ ¹				
12	Resume fill			√ ¹				
13	Reset fill total			√ ¹				

- (1) *Requires filling and dosing application*
- (2) *Requires petroleum measurement application (API feature).*
- (3) *Requires enhanced density application.*

Table 2-21 Triggering conditions codes – Series 3000 transmitters

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
57	Discrete event 1 (x=0)							√
58	Discrete event 2 (x=1)							√
59	Discrete event 3 (x=2)							√
60	Discrete event 4 (x=3)							√
61	Discrete event 5 (x=4)							√
98	Discrete input 1							√
99	Discrete input 2							√
105	Batch: Batch timeout							√ ¹
106	Batch: Batching							√ ¹
107	Batch: Batch end warning							√ ¹

Table 2-21 Triggering conditions codes – Series 3000 transmitters *continued*

Code	Description	RFT19739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
108	Batch: Batch overrun							√ ¹
109	Batch: Batch pump							√ ¹
110	Batch: Batch primary valve							√ ¹
111	Batch: Batch secondary valve							√ ¹
251	None							√ ¹

(1) Requires discrete batch application.

Table 2-22 Fieldbus AI function block codes

Code	Description	RFT19739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
AI mode codes (register 1506)								
1	Out of service						F	
16	Auto						F	
AI channels codes (register 1508)								
0	Uninitialized						F	
1	Mass flow						F	
2	Temperature						F	
3	Density						F	
4	Volume flow						F	
5	Drive gain						F	
6	Not used						F	
7	API: Temperature-corrected density						F	
8	API: Temperature-corrected (standard) volume flow						F	
9	API: Batch weighted average density						F	
10	API: Batch weighted average temperature						F	
11	API: CTL						F	
12	Enhanced density: Density at reference						F	
13	Enhanced density: Density (fixed SG units)						F	
14	Enhanced density: Standard volume flow rate						F	
15	Enhanced density: Net mass flow rate						F	
16	Enhanced density: Net volume flow rate						F	
17	Enhanced density: Concentration						F	
18	Enhanced density: Density (fixed Baume units)						F	
19	Gas standard volume						F	
AI linearization type codes (register 1510)								
0	Initial value						F	
1	Direct (only value that can be written)						F	
2	Indirect						F	
3	Indirect square root						F	

Table 2-23 Fieldbus integrator function block codes (register 1511)

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
0	Standard						F	
1	Internal mass total mode						F	
2	Internal volume total mode						F	
3	Internal mass inventory mode						F	
4	Internal volume inventory mode						F	
5	Gas standard volume total						F	
6	Gas standard volume inventory						F	
7	API: Temperature-corrected (standard) volume total						F	
8	API: Temperature-corrected (standard) volume inventory						F	
9	Enhanced density: Standard volume total						F	
10	Enhanced density: Standard volume inventory						F	
11	Enhanced density: Net mass total						F	
12	Enhanced density: Net mass inventory						F	
13	Enhanced density: Net volume total						F	
14	Enhanced density: Net volume inventory						F	

Table 2-24 Discrete output fixed state codes (registers 1182, 1183, 1184)

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
0	Off			√ ⁽¹⁾		√	√	√
1	On			√ ⁽¹⁾		√	√	√
255	Unfix discrete output			√ ⁽¹⁾		√	√	√

(1) Requires filling and dosing application.

Table 2-25 Mass flow codes

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
Mass flow unit codes (register 0039)								
70	Grams/second	√	√	√	√	√	√	√
71	Grams/minute	√	√	√	√	√	√	√
72	Grams/hour	√	√	√	√	√	√	√
73	Kilograms/second	√	√	√	√	√	√	√
74	Kilograms/minute	√	√	√	√	√	√	√
75	Kilograms/hour	√	√	√	√	√	√	√
76	Kilograms/day	√	√	√	√	√	√	√
77	Metric tons/minute	√	√	√	√	√	√	√
78	Metric tons/hour	√	√	√	√	√	√	√
79	Metric tons/day	√	√	√	√	√	√	√
80	Pounds/second	√	√	√	√	√	√	√
81	Pounds/minute	√	√	√	√	√	√	√
82	Pounds/hour	√	√	√	√	√	√	√
83	Pounds/day	√	√	√	√	√	√	√

Table 2-25 Mass flow codes *continued*

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
84	Short tons (2000 pounds)/minute	✓	✓	✓	✓	✓	✓	✓
85	Short tons (2000 pounds)/hour	✓	✓	✓	✓	✓	✓	✓
86	Short tons (2000 pounds)/day	✓	✓	✓	✓	✓	✓	✓
87	Long tons (2240 pounds)/hour		✓	✓	✓	✓	✓	✓
88	Long tons (2240 pounds)/day		✓	✓	✓	✓	✓	✓
253	Special	✓	✓	✓	✓	✓	✓	✓
Mass totalizer or mass inventory unit codes (register 0045)								
60	Grams	✓	✓	✓	✓	✓	✓	✓
61	Kilograms	✓	✓	✓	✓	✓	✓	✓
62	Metric tons	✓	✓	✓	✓	✓	✓	✓
63	Pounds	✓	✓	✓	✓	✓	✓	✓
64	Short tons (2000 pounds)	✓	✓	✓	✓	✓	✓	✓
65	Long tons (2240 pounds)		✓	✓	✓	✓	✓	✓
253	Special	✓	✓	✓	✓	✓	✓	✓

Table 2-26 Volume flow codes

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
Volume flow unit codes (register 0042)								
15	Cubic feet/minute	✓	✓	✓	✓	✓	✓	✓
16	U.S. gallons/minute	✓	✓	✓	✓	✓	✓	✓
17	Liters/minute	✓	✓	✓	✓	✓	✓	✓
18	Imperial gallons/minute	✓	✓	✓	✓	✓	✓	✓
19	Cubic meters/hour	✓	✓	✓	✓	✓	✓	✓
22	U.S. gallons/second	✓	✓	✓	✓	✓	✓	✓
23	Million U.S. gallons/day		✓	✓	✓	✓	✓	✓
24	Liters/second	✓	✓	✓	✓	✓	✓	✓
25	Million liters/day		✓	✓	✓	✓	✓	✓
26	Cubic feet/second	✓	✓	✓	✓	✓	✓	✓
27	Cubic feet/day		✓	✓	✓	✓	✓	✓
28	Cubic meters/second	✓	✓	✓	✓	✓	✓	✓
29	Cubic meters/day	✓	✓	✓	✓	✓	✓	✓
30	Imperial gallons/hour	✓	✓	✓	✓	✓	✓	✓
31	Imperial gallons/day	✓	✓	✓	✓	✓	✓	✓
130	Cubic feet/hour	✓	✓	✓	✓	✓	✓	✓
131	Cubic meters/minute	✓	✓	✓	✓	✓	✓	✓
132	Barrels/second (42 U.S. gallons)	✓	✓	✓	✓	✓	✓	✓
133	Barrels/minute (42 U.S. gallons)	✓	✓	✓	✓	✓	✓	✓
134	Barrels/hour (42 U.S. gallons)	✓	✓	✓	✓	✓	✓	✓
135	Barrels/day (42 U.S. gallons)	✓	✓	✓	✓	✓	✓	✓
136	U.S. gallons/hour	✓ ¹	✓	✓	✓	✓	✓	✓
137	Imperial gallons/second	✓ ¹	✓	✓	✓	✓	✓	✓
138	Liters/hour	✓ ¹	✓	✓	✓	✓	✓	✓
235	U.S. gallons/day		✓	✓	✓	✓	✓	✓
253	Special	✓	✓	✓	✓	✓	✓	✓

Table 2-26 Volume flow codes *continued*

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
Volume totalizer or volume inventory unit codes (register 0046)								
40	U.S. gallons	✓	✓	✓	✓	✓	✓	✓
41	Liters	✓	✓	✓	✓	✓	✓	✓
42	Imperial gallons	✓	✓	✓	✓	✓	✓	✓
43	Cubic meters	✓	✓	✓	✓	✓	✓	✓
46	Barrels (42 U.S. gallons)	✓	✓	✓	✓	✓	✓	✓
112	Cubic feet	✓	✓	✓	✓	✓	✓	✓
253	Special	✓	✓	✓	✓	✓	✓	✓

(1) *Version 3.x RFT9739 transmitters only.*

Table 2-27 Density codes (register 0040)

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
90	Specific gravity units	✓	✓	✓	✓	✓	✓	✓
91	Grams/cubic centimeter	✓	✓	✓	✓	✓	✓	✓
92	Kilograms/cubic meter	✓	✓	✓	✓	✓	✓	✓
93	Pounds/U.S. gallon	✓	✓	✓	✓	✓	✓	✓
94	Pounds/cubic foot	✓	✓	✓	✓	✓	✓	✓
95	Grams/milliliter	✓	✓	✓	✓	✓	✓	✓
96	Kilograms/liter	✓	✓	✓	✓	✓	✓	✓
97	Grams/liter	✓	✓	✓	✓	✓	✓	✓
98	Pounds/cubic inch	✓	✓	✓	✓	✓	✓	✓
99	Short tons (2000 pounds)/cubic yard	✓	✓	✓	✓	✓	✓	✓
102	Degrees Baume (heavy)	✓	✓	✓	✓	✓ ¹	✓ ¹	✓ ¹
103	Degrees Baume (light)	✓	✓	✓	✓	✓ ¹	✓ ¹	✓ ¹
104	Degrees API	✓	✓	✓	✓	✓	✓	✓

(1) *Requires enhanced density application.*

Table 2-28 Temperature codes (register 0041)

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
32	Degrees Celsius	✓	✓	✓	✓	✓	✓	✓
33	Degrees Fahrenheit	✓	✓	✓	✓	✓	✓	✓
34	Degrees Rankine	✓	✓	✓	✓	✓	✓	✓
35	Degrees Kelvin	✓	✓	✓	✓	✓	✓	✓

Table 2-29 Pressure codes (register 0044)

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
1	Inches water at 68 °Fahrenheit	✓	✓	✓	✓	✓	✓	✓
2	Inches mercury at 0 °Celsius	✓	✓	✓	✓	✓	✓	✓
3	Feet water at 68 °Fahrenheit	✓	✓	✓	✓	✓	✓	✓
4	Millimeters water at 68 °Fahrenheit	✓	✓	✓	✓	✓	✓	✓
5	Millimeters mercury at 0 °Celsius	✓	✓	✓	✓	✓	✓	✓
6	Pounds/square inch	✓	✓	✓	✓	✓	✓	✓
7	Bar	✓	✓	✓	✓	✓	✓	✓
8	Millibar	✓	✓	✓	✓	✓	✓	✓
9	Grams/square centimeter	✓	✓	✓	✓	✓	✓	✓
10	Kilograms/square centimeter	✓	✓	✓	✓	✓	✓	✓
11	Pascals	✓	✓	✓	✓	✓	✓	✓
12	Kilopascals	✓	✓	✓	✓	✓	✓	✓
13	Torr at 0 °Celsius	✓	✓	✓	✓	✓	✓	✓
14	Atmospheres	✓	✓	✓	✓	✓	✓	✓

Table 2-30 Flow direction codes (register 0017)

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
0	Forward flow only	✓	✓	✓	✓	✓	✓	✓
1	Reverse flow only	✓	✓	✓	✓	✓	✓	✓
2	Bidirectional flow	✓	✓	✓	✓	✓	✓	✓
3	Absolute forward/reverse		✓	✓	✓	✓	✓	✓
4	Negate/Forward only		✓	✓	✓	✓	✓	✓
5	Negate/Bidirectional		✓	✓	✓	✓	✓	✓

Table 2-31 Special measurement unit codes

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
Base mass unit codes for special mass units (register 0132)								
60	Grams	✓	✓	✓	✓	✓	✓	✓
61	Kilograms	✓	✓	✓	✓	✓	✓	✓
62	Metric tons	✓	✓	✓	✓	✓	✓	✓
63	Pounds	✓	✓	✓	✓	✓	✓	✓
64	Short tons (2000 pounds)	✓	✓	✓	✓	✓	✓	✓
65	Long tons (2240 pounds)		✓	✓	✓	✓	✓	✓
Base time unit codes for special mass units (register 0133)								
50	Minutes	✓	✓	✓	✓	✓	✓	✓
51	Seconds	✓	✓	✓	✓	✓	✓	✓
52	Hours	✓	✓	✓	✓	✓	✓	✓
53	Days	✓	✓	✓	✓	✓	✓	✓
Base volume unit codes for special volume units (register 0134)								
40	U.S. gallons	✓	✓	✓	✓	✓	✓	✓
41	Liters	✓	✓	✓	✓	✓	✓	✓
42	Imperial gallons	✓	✓	✓	✓	✓	✓	✓
43	Cubic meters	✓	✓	✓	✓	✓	✓	✓
46	Barrels (42 U.S. gallons)	✓	✓	✓	✓	✓	✓	✓
112	Cubic feet	✓	✓	✓	✓	✓	✓	✓

Table 2-31 Special measurement unit codes *continued*

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
Base time unit codes for special volume units (register 0135)								
50	Minutes	√	√	√	√	√	√	√
51	Seconds	√	√	√	√	√	√	√
52	Hours	√	√	√	√	√	√	√
53	Days	√	√	√	√	√	√	√

Table 2-32 Display variable codes (registers 1117–1131, 1362–1366)

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
0	Mass flow rate				√		√	√
1	Temperature				√		√	√
2	Mass totalizer				√		√	√
3	Density				√		√	√
4	Mass inventory				√		√	√
5	Volume flow rate				√		√	√
6	Volume totalizer				√		√	√
7	Volume inventory				√		√	√
15	API: Temperature-corrected density						√ ¹	√ ¹
16	API: Temperature-corrected (standard) volume flow						√ ¹	√ ¹
17	API: Temperature-corrected (standard) volume total						√ ¹	√ ¹
18	API: Temperature-corrected (standard) volume inventory						√ ¹	√ ¹
19	API: Batch-weighted average corrected density						√ ¹	√ ¹
20	API: Batch-weighted average temperature						√ ¹	√ ¹
21	Enhanced density: Density at reference						√ ²	√ ²
22	Enhanced density: Density (fixed SG units)						√ ²	√ ²
23	Enhanced density: Standard volume flow rate						√ ²	√ ²
24	Enhanced density: Standard volume total						√ ²	√ ²
25	Enhanced density: Standard volume inventory						√ ²	√ ²
26	Enhanced density: Net mass flow rate						√ ²	√ ²
27	Enhanced density: Net mass total						√ ²	√ ²
28	Enhanced density: Net mass inventory						√ ²	√ ²
29	Enhanced density: Net volume flow rate						√ ²	√ ²
30	Enhanced density: Net volume total						√ ²	√ ²
31	Enhanced density: Net volume inventory						√ ²	√ ²
32	Enhanced density: Concentration						√ ²	√ ²
33	API: CTL						√ ¹	√ ¹
46	Raw tube frequency				√		√	√
47	Drive gain				√		√	√
48	Meter temperature (T-Series)				√		√	√
49	Left pickoff amplitude				√		√	√
50	Right pickoff amplitude				√		√	√
51	Board temperature				√		√	√
52	Input voltage				√		√	√
53	Externally read pressure				√		√	√
54	Mechanical zero				√		√	√
55	Externally read temperature				√		√	√
56	Enhanced density: Density (fixed Baume units)						√ ²	√ ²
57	Discrete event 1 (x=0) (For x, see register 0609)							√
58	Discrete event 2 (x=1) (For x, see register 0609)							√
59	Discrete event 3 (x=2) (For x, see register 0609)							√
60	Discrete event 4 (x=3) (For x, see register 0609)							√

Table 2-32 Display variable codes (registers 1117–1131, 1362–1366) *continued*

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
61	Discrete event 5 (x=4) (For x, see register 0609)							√
63	Gas standard volume flow rate				√ ³		√ ³	√ ⁴
64	Gas standard volume total				√ ³		√ ³	√ ⁴
65	Gas standard volume inventory				√ ³		√ ³	√ ⁴
69	Live zero				√ ⁵		√ ⁵	√
91	Frequency input flow rate							√
92	Frequency input total							√
93	Frequency input inventory							√
94	Raw frequency input frequency							√
98	Discrete input 1							√
99	Discrete input 2							√
101	Flow switch indicator							√
102	Forward/reverse indication							√
103	Calibration in progress							√
104	Fault condition indication							√
105	Batch: Batch timeout							√
106	Batch: Batching							√
107	Batch: Batch end warning							√
108	Batch: Batch overrun							√
109	Batch: Batch pump							√
110	Batch: Batch primary valve							√
111	Batch: Batch secondary valve							√
251	None				√		√	√

(1) *Requires petroleum measurement application (API feature).*

(2) *Requires enhanced density application.*

(3) *Transmitter software v4.1 and higher, or for transmitters with the FOUNDATION fieldbus outputs option board, transmitter software v3.0 and higher.*

(4) *Transmitter software v6.1 and higher.*

(5) *Transmitter software v3.5 and higher.*

Table 2-33 API reference table codes (register 0351)

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
17	Table 5A		√			√	√	√
18	Table 5B		√			√	√	√
19	Table 5D		√			√	√	√
36	Table 6C		√			√	√	√
49	Table 23A		√			√	√	√
50	Table 23B		√			√	√	√
51	Table 23D		√			√	√	√
68	Table 24C		√			√	√	√
81	Table 53A		√			√	√	√
82	Table 53B		√			√	√	√
83	Table 53D		√			√	√	√
100	Table 54C		√			√	√	√

Table 2-34 Batch/fill flow source codes (register 1251)

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
0	Mass flow rate			√ ¹				√
5	Volume flow rate			√ ¹				√
16	API: Temperature-corrected (standard) volume flow							√ ²
23	Enhanced density: Standard volume flow rate							√ ³
26	Enhanced density: Net mass flow rate							√ ³
29	Enhanced density: Net volume flow rate							√ ³
91	Frequency input flow rate							√
251	None			√ ¹				√

(1) Requires filling and dosing application.

(2) Requires petroleum measurement application (API feature).

(3) Requires enhanced density application.

Table 2-35 Enhanced density application codes

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
Derived variable codes (register 0524)								
0	Standard					√	√	√
1	Density at reference temperature					√	√	√
2	Specific gravity					√	√	√
3	Mass concentration (density)					√	√	√
4	Mass concentration (SG)					√	√	√
5	Volume concentration (density)					√	√	√
6	Volume concentration (SG)					√	√	√
7	Concentration (density)					√	√	√
8	Concentration (SG)					√	√	√
Concentration unit label codes (register 0570)								
100	Degrees Twaddell					√	√	√
101	Degrees Brix					√	√	√
102	Degrees Baume (heavy)					√	√	√
103	Degrees Baume (light)					√	√	√
105	Percent solids per weight (%mass)					√	√	√
106	Percent solids per volume (%volume)					√	√	√
107	Degrees Balling					√	√	√
108	Proof per volume					√	√	√
109	Proof per mass					√	√	√
160	Percent Plato					√	√	√
255	Special					√	√	√

Table 2-36 Event codes

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
Event variable codes (registers 0137, 0138, 0615)								
0	Mass flow rate	√	√	√	√	√	AIC	
1	Temperature	√	√	√	√	√	AIC	
2	Mass totalizer	√	√	√	√	√	AIC	
3	Density	√	√	√	√	√	AIC	
4	Mass inventory	√	√	√	√	√	AIC	
5	Volume flow rate	√	√	√	√	√	AIC	
6	Volume totalizer	√	√	√	√	√	AIC	
7	Volume inventory	√	√	√	√	√	AIC	
Event type codes (downward compatibility) (registers 0139 and 0140)								
1	HI	√	√	√	√	√	AIC	
2	LO	√	√	√	√	√	AIC	
Event type codes (register 0610)								
0	HI		√ ⁽¹⁾	√ ⁽¹⁾	√ ⁽¹⁾	√ ⁽¹⁾	AIC ⁽¹⁾	√
1	LO		√ ⁽¹⁾	√ ⁽¹⁾	√ ⁽¹⁾	√ ⁽¹⁾	AIC ⁽¹⁾	√
2	IN HI/LO		√ ⁽¹⁾	√ ⁽¹⁾	√ ⁽¹⁾	√ ⁽¹⁾	AIC ⁽¹⁾	√
3	OUT HI/LO		√ ⁽¹⁾	√ ⁽¹⁾	√ ⁽¹⁾	√ ⁽¹⁾	AIC ⁽¹⁾	√

(1) Transmitter software v4.1 and higher.

Table 2-37 TBR event action codes (register 1706)

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
0	Hold last value							N
1	Stop well test							N
2	Alarm only							N

Table 2-38 Process variable codes for slot addresses (registers 0751–0782)

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
0	Mass flow rate		√	√	√	√	√	√
1	Temperature		√	√	√	√	√	√
2	Mass totalizer		√	√	√	√	√	√
3	Density		√	√	√	√	√	√
4	Mass inventory		√	√	√	√	√	√
5	Volume flow rate		√	√	√	√	√	√
6	Volume totalizer		√	√	√	√	√	√
7	Volume inventory		√	√	√	√	√	√
10	Event 1		√	√	√	√	AIC	
11	Event 2		√	√	√	√	AIC	
12	Status word 1 (419/420)		√	√	√	√	√	√
13	Status word 2 (421/422)		√	√	√	√	√	√
14	Status word 3 (423/424)		√	√	√	√	√	√
15	API: Temperature-corrected density		√ ⁽¹⁾			√ ⁽¹⁾	√ ⁽¹⁾	√ ⁽¹⁾
16	API: Temperature-corrected (standard) volume flow		√ ⁽¹⁾			√ ⁽¹⁾	√ ⁽¹⁾	√ ⁽¹⁾
17	API: Temperature-corrected (standard) volume total		√ ⁽¹⁾			√ ⁽¹⁾	√ ⁽¹⁾	√ ⁽¹⁾
18	API: Temperature-corrected (standard) volume inventory		√ ⁽¹⁾			√ ⁽¹⁾	√ ⁽¹⁾	√ ⁽¹⁾

Table 2-38 Process variable codes for slot addresses (registers 0751–0782) *continued*

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
19	API: Batch-weighted average corrected density		√ ¹			√ ¹	√ ¹	√ ¹
20	API: Batch-weighted average temperature		√ ¹			√ ¹	√ ¹	√ ¹
21	Enhanced density: Density at reference					√ ²	√ ²	√ ²
22	Enhanced density: Density (fixed SG units)					√ ²	√ ²	√ ²
23	Enhanced density: Standard volume flow rate					√ ²	√ ²	√ ²
24	Enhanced density: Standard volume total					√ ²	√ ²	√ ²
25	Enhanced density: Standard volume inventory					√ ²	√ ²	√ ²
26	Enhanced density: Net mass flow rate					√ ²	√ ²	√ ²
27	Enhanced density: Net mass total					√ ²	√ ²	√ ²
28	Enhanced density: Net mass inventory					√ ²	√ ²	√ ²
29	Enhanced density: Net volume flow rate					√ ²	√ ²	√ ²
30	Enhanced density: Net volume total					√ ²	√ ²	√ ²
31	Enhanced density: Net volume inventory					√ ²	√ ²	√ ²
32	Enhanced density: Concentration					√ ²	√ ²	√ ²
33	API: CTL		√ ¹			√ ¹	√ ¹	√ ¹
34	High-order doubleword of binary mass total in grams		√	√	√	√	√	√
35	Low-order doubleword of binary mass total in grams		√	√	√	√	√	√
36	High-order doubleword of binary volume total in cubic centimeters		√	√	√	√	√	√
37	Low-order doubleword of binary volume total in cubic centimeters		√	√	√	√	√	√
38	Raw ³ API: Temperature-corrected volume total, high-order doubleword		√ ¹			√ ¹	√ ¹	√ ¹
39	Raw ³ API: Temperature-corrected volume total, low-order doubleword		√ ¹			√ ¹	√ ¹	√ ¹
40	Raw ³ enhanced density: Standard volume total, high-order doubleword		√ ²			√ ²	√ ²	√ ²
41	Raw ³ enhanced density: Standard volume total, low-order doubleword		√ ²			√ ²	√ ²	√ ²
42	Raw ³ enhanced density: Net mass total, high-order doubleword		√ ²			√ ²	√ ²	√ ²
43	Raw ³ enhanced density: Net mass total, low-order doubleword		√ ²			√ ²	√ ²	√ ²
44	Raw ³ enhanced density: Net volume total, high-order doubleword		√ ²			√ ²	√ ²	√ ²
45	Raw ³ enhanced density: Net volume total, low-order doubleword		√ ²			√ ²	√ ²	√ ²
46	Raw tube frequency		√	√	√	√	√	√
47	Drive gain		√	√	√	√	√	√
48	Meter temperature		√	√	√	√	√	√
49	Left pickoff amplitude		√	√	√	√	√	√
50	Right pickoff amplitude		√	√	√	√	√	√
51	Board temperature		√	√	√	√	√	√
52	Input voltage		√	√	√	√	√	√
53	Externally read pressure		√	√	√	√	√	√
55	Externally read temperature		√	√	√	√	√	√
56	Enhanced density: Density (fixed Baume units)					√ ²	√ ²	√ ²
57	Discrete event 1 (x=0) (For x, see register 0609)							√
58	Discrete event 2 (x=1) (For x, see register 0609)							√
59	Discrete event 3 (x=2) (For x, see register 0609)							√
60	Discrete event 4 (x=3) (For x, see register 0609)							√
61	Discrete event 5 (x=4) (For x, see register 0609)							√
69	Live zero flow			√	√	√	√	√
91	Frequency input flow rate							√
92	Frequency input total							√
93	Frequency input inventory							√
94	Raw frequency input frequency							√
98	Discrete input 1							√
99	Discrete input 2							√
100	Event 1 or event 2 ⁴			√	√	√	AIC	
101	Flow switch indicator ⁴			√	√	√	√	√
102	Forward/reverse indication ⁴			√	√	√	√	√
103	Calibration in progress ⁴			√	√	√	√	√
104	Fault condition indication ⁴			√	√	√	√	√
105	Batch: Batch timeout							√
106	Batch: Batching							√
107	Batch: Batch end warning							√
108	Batch: Batch overrun							√

Table 2-38 Process variable codes for slot addresses (registers 0751–0782) *continued*

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
109	Batch: Batch pump							✓
110	Batch: Batch primary valve							✓
111	Batch: Batch secondary valve							✓

- (1) Requires petroleum measurement application (API feature).
- (2) Requires enhanced density application.
- (3) “Raw” for this register means that the value is not presented in IEEE floating-point format, thus providing more resolution.
- (4) Available only when mapped to a discrete output.

Table 2-39 Pressure input receiving method codes (register 0302)

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
0	Do not poll	✓						
1	Poll DP HART Primary	✓ ¹						
2	Poll DP HART Secondary	✓ ¹						
3	Poll pressure HART Primary	✓ ¹						
4	Poll pressure HART Secondary	✓ ¹						
5	Use analog as DP	✓						
6	Use analog as Pressure	✓						
7	Use Modbus DP	✓ ¹						
8	Use Modbus Pressure	✓ ¹						

- (1) Version 3.x transmitters only.

Table 2-40 Series 3000 display password codes (registers 1351–1358)

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
0	Left arrow							✓
1	Right arrow							✓
2	Up arrow							✓
3	Down arrow							✓

Table 2-41 Language codes (register 1359)

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
0	English							✓
1	German							✓
2	French							✓
3	Katakana							✓ ¹

- (1) Transmitter software v6.1 and higher.

Table 2-42 Printer type codes (register 1441)

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
0	Epson							✓
1	Digitec							✓
2	Generic							✓
3	Dumb terminal							✓

Table 2-43 Print request codes (register 1442)

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
0	None							✓
1	Process monitor							✓
2	Batch ticket							✓
4	All configuration data							✓
8	Alarm history							✓
16	Active alarm log							✓
32	Audit trail event log							✓

Table 2-44 Meter fingerprinting process variable index codes (register 0626)

Code	Description	RFT9739	MVD DC	Model 1500	Model 1700	Model 2500	Model 2700	Series 3000
0	Mass flow rate		✓	✓	✓	✓	✓	✓
1	Temperature		✓			✓	✓	✓
3	Density		✓			✓	✓	✓
5	Volume flow rate		✓	✓	✓	✓	✓	✓
46	Tube frequency		✓			✓	✓	✓
47	Drive gain		✓			✓	✓	✓
48	Meter temperature (T-Series sensors only)		✓			✓	✓	✓
49	Left pickoff		✓			✓	✓	✓
50	Right pickoff		✓			✓	✓	✓
51	Board temperature		✓			✓	✓	✓
52	Input voltage		✓			✓	✓	✓
54	Mechanical zero		✓			✓	✓	✓

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