Modbus® Mapping Assignments for Micro Motion® Transmitters

Micro Motion®

FISHER-ROSEMOUNT™

Modbus® Mapping Assignments for Micro Motion® Transmitters

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For technical assistance, telephone the Micro Motion Customer Service Department:
- In the U.K., phone 0800-966 180 (toll-free)
- Outside the U.K., phone +31 (0) 318 549 443
- Or visit our Web site at **www.micromotion.com**.
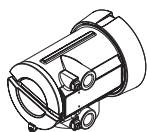
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1   Using the Modbus Map

What this document tells you

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

Micro Motion transmitters that support Modbus protocol include:

Series 1000 and 2000, all versions

Core processor, all versions,
remotely mounted from or integrally mounted to
Micro Motion sensors
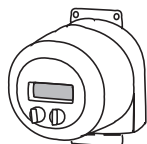
Field-mount Model RFT9739, Version 2 and higher

Rack-mount Model RFT9739, Version 2 and higher

Key to using the Modbus map
Tables throughout the Modbus map contain checkmarks (√) that identify the Micro Motion transmitters for which each mapped address is available.

What this document does not tell you

This document does *not* explain how individual mapped addresses are used. This document is a list of mapped addresses that are available for Micro Motion transmitters that support Modbus protocol.

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, contact Modicon, Inc., North Andover, Massachusetts, U.S.A.

For detailed information about using the mapped addresses that are listed in this document, see *Using Modbus Protocol with Micro Motion Transmitters*, available on the compact disc (CD) that is shipped with the transmitter, or from our Web site (www.micromotion.com).

This manual does *not* explain transmitter installation or flowmeter wiring. For information about installation and wiring, see the following manuals:
- *Series 1000 and 2000 Instruction Manual*
- *Micro Motion T-Series Sensor Instruction Manual*
- *Model RFT9739 Field-Mount Transmitter Instruction Manual*
- *Model RFT9739 Rack-Mount Transmitter Instruction Manual*

To order any of the manuals listed above, refer to the phone numbers and Web site address listed below.

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2 Modbus Mapping Assignments

Read/write coils

Address		Description	Core processor	Series 1000	Series 2000	RFT9739
0	0002	Start/stop totalizers	√	√	√	√
0	0003	Reset totals	√	√	√	√
0	0004	Reset inventories	√	√	√	√
0	0005	Perform flowmeter zeroing	√	√	√	√
0	0006	Trim primary mA output at 0 or 4 mA		√	√	√
0	0007	Trim primary mA output at 20 mA		√	√	√
0	0008	Trim secondary mA output at 0 or 4 mA (IS output board only)				√
0	0009	Trim secondary mA output at 20 mA (IS output board only)				√
0	0010	Fix current level from primary mA output		√	√	√
0	0011	Fix current level from secondary mA output (IS output board only)				√
0	0012	Fix frequency from frequency/pulse output		√	√	√
0	0013	Perform low-density calibration	√	√	√	√
0	0014	Perform high-density calibration	√	√	√	√
0	0014	Perform third-point density calibration				√
0	0015	Perform temperature offset calibration	√	√	√	
0	0016	Perform temperature slope calibration	√	√	√	
0	0018	Perform third-point density (FD) calibration	√	√	√	
0	0018	Save non-volatile data				√
0	0020	Perform transmitter test	√	√	√	√
0	0039	Reset configuration and calibration registers				√
0	0041	Perform reboot	√	√	√	√
0	0044	Perform T-Series sensor D3 calibration	√	√	√	
0	0045	Perform T-Series sensor D4 calibration	√	√	√	
0	0056	Reset mass total	√	√	√	
0	0057	Reset line volume (gross volume) total	√	√	√	
0	0082	Enable/disable Series 1000 or 2000 pressure compensation	√	√	√	
0	0083	Enable/disable HART® burst mode		√	√	
0	0084	Enable/disable FOUNDATION® Fieldbus simulation mode (Fieldbus option board only)		√	√	
0	0094	Enable/disable totalizer reset using display		√	√	
0	0095	Enable/disable automatic scrolling using display		√	√	
0	0096	Enable/disable display offline menu		√	√	
0	0097	Enable/disable offline password for display		√	√	
0	0098	Enable/disable display alarm menu		√	√	
0	0099	Enable/disable acknowledge all alarms using display		√	√	

RFT9739 security coils

Address		Description	Core processor	Series 1000	Series 2000	RFT9739
0	0113	Read protect calibration factors				√
0	0114	Write protect output variables and units				√
0	0115	Write protect scaled integers				√
0	0116	Write protect sensor and transmitter information				√
0	0117	Write protect special units factors				√
0	0118	Write protect control output variable				√
0	0119	Write protect flow direction				√
0	0120	Write protect fault code				√
0	0121	Write protect fault limit				√
0	0122	Write protect output variables				√
0	0123	Write protect flowmeter zeroing and process variable limits				√
0	0124	Write protect pressure variables				√
0	0125	Write protect calibration factors				√
0	0126	Write protect coil 00002 (start/stop totalizer)				√
0	0127	Write protect coil 00003 (reset totals)				√
0	0128	Write protect coil 00004 (reset inventories)				√
0	0129	Write protect coil 00005 (perform flowmeter zeroing)				√
0	0130	Write protect coil 00006 (trim primary mA output at 4 mA or 0 mA)				√
0	0131	Write protect coil 00007 (trim primary mA output at 20 mA)				√
0	0132	Write protect coil 00008 (trim secondary mA output at 4 mA or 0 mA)				√
0	0133	Write protect coil 00009 (trim secondary mA output at 20 mA)				√
0	0134	Write protect coil 00010 (fix primary mA output)				√
0	0135	Write protect coil 00011 (fix secondary mA output)				√
0	0136	Write protect coil 00012 (fix frequency output)				√
0	0137	Write protect coil 00013 (perform low-density calibration)				√
0	0138	Write protect coil 00014 (perform high-density calibration)				√
0	0142	Write protect coil 00018 (save non-volatile data)				√
0	0143	Read/write protect master reset defaults				√
0	0144	Read/write protect coil 00020 (perform transmitter self-test)				√

RFT9739 security coils (continued)

Address	Description	Core processor	Series 1000	Series 2000	RFT9739
0 0145	Read protect coil 10021 (EEPROM checksum failure)				√
0 0146	Read protect coil 10022 (RAM diagnostic failure)				√
0 0147	Read protect coil 10023 (real-time interrupt failure)				√
0 0148	Read protect coil 10024 (sensor failure)				√
0 0149	Read protect coil 10025 (temperature sensor failure)				√
0 0150	Read protect coil 10026 (flowmeter zeroing failure)				√
0 0151	Read protect coil 10027 (other failure occurred)				√
0 0152	Read protect coil 10028 (transmitter initializing/warming up)				√
0 0153	Read protect coil 10029 (primary variable out of range)				√
0 0154	Read protect coil 10030 (non-primary variable out of range)				√
0 0155	Read protect coil 10031 (milliamp output saturated)				√
0 0156	Read protect coil 10032 (milliamp output fixed)				√
0 0157	Read protect coil 10033 (watchdog timer error)				√
0 0158	Read protect coil 10034 (power reset occurred)				√
0 0159	Read protect coil 10035 (transmitter configuration changed)				√
0 0160	Read protect coil 10036 (transmitter electronics failure)				√

Modbus Mapping Assignments *continued*

Read-only discrete inputs

Address		Description	Core processor	Series 1000	Series 2000	RFT9739
1	0021	(E)EPROM checksum failure	√	√	√	√
1	0022	RAM diagnostic failure	√	√	√	√
1	0023	Real-time interrupt failure	√	√	√	√
1	0024	Sensor failure	√	√	√	√
1	0025	Temperature sensor failure	√	√	√	√
1	0026	Flowmeter zeroing failure	√	√	√	√
1	0027	Other failure occurred	√	√	√	√
1	0028	Transmitter initializing/warming up	√	√	√	√
1	0029	Primary variable out of range		√	√	√
1	0030	Non-primary variable out of range	√	√	√	√
1	0031	Milliamp output(s) saturated		√	√	√
1	0032	Milliamp output(s) fixed		√	√	√
1	0033	Watchdog timer error	√	√	√	√
1	0034	Power reset occurred	√	√	√	√
1	0035	Transmitter configuration changed	√	√	√	√
1	0036	Transmitter electronics failure	√	√	√	√
1	0037	Event 1 status (ON/OFF)	√	√	√	√
1	0038	Event 2 status (ON/OFF)	√	√	√	√
1	0065	Event 1 or event 2 status (ON/OFF)		√	√	
1	0066	Flow direction status (ON/OFF)		√	√	
1	0067	Flow rate switch status (ON/OFF)		√	√	
1	0068	Zero in progress status (ON/OFF)		√	√	
1	0069	Fault status (ON/OFF)		√	√	

Floating-point register pairs

Address	Description	Core processor	Series 1000	Series 2000	RFT9739
2 0141 0142	Slug duration (seconds)	√	√	√	√
2 0143 0144	Fixed current for primary mA output test (milliamps)		√	√	√
2 0145 0146	Fixed current for secondary mA output test (milliamps) (IS output board only)			√	√
2 0147 0148	Fixed frequency for frequency/output test (Hertz)		√	√	√
2 0151 0252	Temperature for temperature offset/slope calibrations	√	√	√	
2 0155 0156	Density for low-density calibration (g/cc)	√	√	√	√
2 0157 0158	Density for high-density calibration (g/cc)				√
2 0157 0158	Density for third-point density calibration (g/cc)				√
2 0159 0160	Density calibration constant 1 (µsec)	√	√	√	√
2 0161 0162	Density calibration constant 2 (µsec)	√	√	√	√
2 0163 0164	Density temperature coefficient	√	√	√	√
2 0165 0166	High mass flow limit of sensor	√	√	√	√
2 0167 0168	High temperature limit of sensor	√	√	√	√
2 0169 0170	High density limit of sensor (g/cc)	√	√	√	√
2 0171 0172	High volume flow limit of sensor	√	√	√	√
2 0173 0174	Low mass flow limit of sensor	√	√	√	√
2 0175 0176	Low temperature limit of sensor	√	√	√	√
2 0177 0178	Low density limit of sensor (g/cc)	√	√	√	√
2 0179 0180	Low volume flow limit of sensor	√	√	√	√
2 0181 0182	Mass flow minimum range	√	√	√	√
2 0183 0184	Temperature minimum range	√	√	√	√
2 0185 0186	Density minimum range	√	√	√	√
2 0187 0188	Volume flow minimum range	√	√	√	√
2 0189 0190	Flow rate internal damping (seconds)	√	√	√	√
2 0191 0192	Temperature internal damping (seconds)	√	√	√	√
2 0193 0194	Density internal damping (seconds)	√	√	√	√
2 0195 0196	Mass flow cutoff for frequency/pulse output and totalizers	√	√	√	√
2 0197 0198	Volume flow cutoff for frequency/pulse output and totalizers	√	√	√	√
2 0199 0200	Slug flow high-density limit (g/cc)	√	√	√	√
2 0201 0202	Slug flow low-density limit (g/cc)	√	√	√	√
2 0203 0204	Primary mA output present current (milliamps)		√	√	√
2 0205 0206	Added damping on primary mA output (seconds)		√	√	√
2 0207 0208	Flow cutoff for primary mA output		√	√	√
2 0209 0210	Primary variable at 20 mA		√	√	√
2 0211 0212	Primary variable at 0 mA or 4 mA		√	√	√

Floating-point register pairs (continued)

Address		Description		Core processor	Series 1000	Series 2000	RFT9739
2	0213 0214	Secondary mA output present current (milliamps) (IS output board only)				√	√
2	0215 0216	Added damping on secondary mA output (seconds) (IS output board only)				√	√
2	0217 0218	Flow cutoff for secondary mA output (IS output board only)				√	√
2	0219 0220	Secondary variable at 20 mA (IS output board only)				√	√
2	0221 0222	Secondary variable at 0 mA or 4 mA (IS output board only)				√	√
2	0223 0224	Frequency setpoint or number of pulses (Hertz)			√	√	√
2	0225 0226	Flow rate or total represented by frequency or number of pulses			√	√	√
2	0227 0228	Frequency pulse width (seconds)			√	√	√
2	0229 0230	Frequency/pulse output present frequency (Hertz)			√	√	√
2	0231 0232	Flowmeter zeroing standard deviation		√	√	√	√
2	0233 0234	Present flow signal offset at zero flow		√	√	√	√
2	0235 0236	Flowmeter zeroing standard deviation limit					√
2	0237 0238	Special mass unit conversion factor		√	√	√	√
2	0239 0240	Special volume unit conversion factor		√	√	√	√
2	0241 0242	Event 1 setpoint		√	√	√	√
2	0243 0244	Event 2 setpoint		√	√	√	√
2	0245 0246	1	(E)EPROM checksum failure	√	√	√	√
		2	RAM diagnostic failure	√	√	√	√
		4	Sensor failure	√	√	√	√
		8	Temperature sensor failure	√	√	√	√
		16	Input overrange	√	√	√	√
		32	Frequency/pulse output saturated		√	√	√
		64	Transmitter not configured	√	√	√	√
		128	Real-time interrupt failure	√	√	√	√
		256	Primary mA output saturated		√	√	√
		512	Secondary mA output saturated (IS output board only)			√	√
		1024	Primary mA output fixed		√	√	√
		2048	Secondary mA output fixed (IS output board only)			√	√
		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	√	√	√	√

Floating-point register pairs (continued)

Address	Description	Core processor	Series 1000	Series 2000	RFT9739
2 0247 0248	Mass flow rate	√	√	√	√
2 0249 0250	Density	√	√	√	√
2 0251 0252	Temperature	√	√	√	√
2 0253 0254	Volume flow rate	√	√	√	√
2 0257 0258	Pressure				√
2 0259 0260	Mass total	√	√	√	√
2 0261 0262	Volume total	√	√	√	√
2 0263 0264	Mass inventory	√	√	√	√
2 0265 0266	Volume inventory	√	√	√	√
2 0267 0268	Pressure correction factor for flow	√	√	√	√
0269 0270	Pressure correction factor for density	√	√	√	√
0271 0272	Flow calibration pressure	√	√	√	√
0273 0274	Pressure input at 4 mA				√
0275 0275	Pressure input at 20 mA				√
2 0277 0278	Core processor, Series 1000, or Series 2000 density value for flowing density calibration	√	√	√	
2 0277 0278	Version 2 to 3.5 RFT9739 constant for third-point density calibration				√
2 0279 0280	Mass flow rate meter factor	√	√	√	√[1]
2 0281 0282	Volume flow rate meter factor	√	√	√	√
2 0283 0284	Density meter factor	√	√	√	√
2 0285 0286	Raw tube frequency (Hertz)	√	√	√	√[1]
2 0287 0288	Left pickoff voltage (millivolts)	√	√	√	√[1]
2 0289 0290	Right pickoff voltage (millivolts)	√	√	√	√[1]
2 0291 0292	Drive gain (milliamps for core processor, Series 1000, or Series 2000; volts for RFT9739)	√	√	√	√[1]
2 0293 0294	Mass flow live zero flow	√	√	√	√[1]
2 0303 0304	Flowing density calibration constant	√	√	√	√[2]
2 0451 0452	Pressure value from host controller	√	√	√	
2 0463 0464	Electronics maximum recorded temperature	√	√	√	
2 0465 0466	Electronics minimum recorded temperature	√	√	√	
2 0467 0468	Electronics average recorded temperature	√	√	√	
2 0503 0504	T-Series K3 density constant	√	√	√	
2 0505 0506	T-Series FTG value	√	√	√	
2 0507 0508	T-Series FTQ value	√	√	√	
2 0509 0510	Density for T-Series sensor D3 density calibration	√	√	√	
2 0511 0512	Density for T-Series sensor D4 density calibration	√	√	√	
2 0513 0514	T-Series DTG value	√	√	√	
2 0515 0516	T-Series DFQ1 value	√	√	√	
2 0517 0518	T-Series DFQ2 value	√	√	√	
2 0519 0520	T-Series K4 density constant	√	√	√	

[1] Version 3 or higher revision RFT9739 transmitter.
[2] Version 3.6 or higher revision RFT9739 transmitter.

Floating-point register pairs (continued)

Address		Description	Core processor	Series 1000	Series 2000	RFT9739
2	0687 0688	Slot 0 configuration variable	√	√	√	
2	0689 0690	Slot 1 configuration variable	√	√	√	
2	0691 0692	Slot 2 configuration variable	√	√	√	
2	0693 0694	Slot 3 configuration variable	√	√	√	
2	0695 0696	Slot 4 configuration variable	√	√	√	
2	0697 0698	Slot 5 configuration variable	√	√	√	
2	0699 0700	Slot 6 configuration variable	√	√	√	
2	0701 0702	Slot 7 configuration variable	√	√	√	
2	0703 0704	Slot 8 configuration variable	√	√	√	
2	0705 0706	Slot 9 configuration variable	√	√	√	
2	0707 0708	Slot 10 configuration variable	√	√	√	
2	0709 0710	Slot 11 configuration variable	√	√	√	
2	0711 0712	Slot 12 configuration variable	√	√	√	
2	0713 0714	Slot 13 configuration variable	√	√	√	
2	0715 0716	Slot 14 configuration variable	√	√	√	
2	0717 0718	Slot 15 configuration variable	√	√	√	
2	0719 0720	Slot 16 configuration variable	√	√	√	
2	0721 0722	Slot 17 configuration variable	√	√	√	
2	0723 0724	Slot 18 configuration variable	√	√	√	
2	0725 0726	Slot 19 configuration variable	√	√	√	
2	0727 0728	Slot 20 configuration variable	√	√	√	
2	0729 0730	Slot 21 configuration variable	√	√	√	
2	0731 0732	Slot 22 configuration variable	√	√	√	
2	0733 0734	Slot 23 configuration variable	√	√	√	
2	0735 0736	Slot 24 configuration variable	√	√	√	
2	0737 0738	Slot 25 configuration variable	√	√	√	
2	0739 0740	Slot 26 configuration variable	√	√	√	
2	0741 0742	Slot 27 configuration variable	√	√	√	
2	0743 0744	Slot 28 configuration variable	√	√	√	
2	0745 0746	Slot 29 configuration variable	√	√	√	
2	0747 0748	Slot 30 configuration variable	√	√	√	
2	0749 0750	Slot 31 configuration variable	√	√	√	

Floating-point register pairs (continued)

Address	Description	Core processor	Series 1000	Series 2000	RFT9739
2 0783 0784	Slot 0 process variable	√	√	√	
2 0785 0786	Slot 1 process variable	√	√	√	
2 0787 0788	Slot 2 process variable	√	√	√	
2 0789 0790	Slot 3 process variable	√	√	√	
2 0791 0792	Slot 4 process variable	√	√	√	
2 0793 0794	Slot 5 process variable	√	√	√	
2 0795 0796	Slot 6 process variable	√	√	√	
2 0797 0798	Slot 7 process variable	√	√	√	
2 0799 0800	Slot 8 process variable	√	√	√	
2 0801 0802	Slot 9 process variable	√	√	√	
2 0803 0804	Slot 10 process variable	√	√	√	
2 0805 0806	Slot 11 process variable	√	√	√	
2 0807 0808	Slot 12 process variable	√	√	√	
2 0809 0810	Slot 13 process variable	√	√	√	
2 0811 0812	Slot 14 process variable	√	√	√	
2 0813 0814	Slot 15 process variable	√	√	√	
2 0815 0816	Slot 16 process variable	√	√	√	
2 0817 0818	Slot 17 process variable	√	√	√	
2 0819 0820	Slot 18 process variable	√	√	√	
2 0821 0822	Slot 19 process variable	√	√	√	
2 0823 0824	Slot 20 process variable	√	√	√	
2 0825 0826	Slot 21 process variable	√	√	√	
2 0827 0828	Slot 22 process variable	√	√	√	
2 0829 0830	Slot 23 process variable	√	√	√	
2 0831 0832	Slot 24 process variable	√	√	√	
2 0833 0834	Slot 25 process variable	√	√	√	
2 0835 0836	Slot 26 process variable	√	√	√	
2 0837 0838	Slot 27 process variable	√	√	√	
2 0839 0840	Slot 28 process variable	√	√	√	
2 0841 0842	Slot 29 process variable	√	√	√	
2 0843 0844	Slot 30 process variable	√	√	√	
2 0845 0846	Slot 31 process variable	√	√	√	
2 1101 1102	Frequency output pulses per unit		√	√	
2 1103 1104	Frequency output units per pulse		√	√	
2 1105 1106	Frequency output fault setting		√	√	
2 1109 1110	Primary mA output fault setting (1 to 3 mA for downscale, 21 to 24 mA for upscale)		√	√	
2 1111 1112	Secondary mA output fault setting (2 to 3 mA for downscale, 21 to 24 mA for upscale)		√	√	
2 1159 1160	Flow rate switch setpoint		√	√	

Input registers

Address		Description		Core processor	Series 1000	Series 2000	RFT9739
3	0001	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	√	√	√	√
		Bit #6	Transmitter not configured	√	√	√	√
		Bit #7	Real-time interrupt failure	√	√	√	√
		Bit #8	Milliamp output(s) saturated		√	√	√
		Bit #9	Milliamp output(s) fixed		√	√	√
		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	√	√	√	√
3	0002	Mass flow rate scaled integer		√	√	√	√
3	0003	Density scaled integer		√	√	√	√
3	0004	Temperature scaled integer		√	√	√	√
3	0005	Volume flow rate scaled integer		√	√	√	
4	0007	Pressure scaled integer					√
3	0008	Mass total scaled integer		√	√	√	√
3	0009	Volume total scaled integer		√	√	√	√
3	0010	Mass inventory scaled integer		√	√	√	√
3	0011	Volume inventory scaled integer		√	√	√	√
3	0125	Bit #0	Primary mA output saturated		√	√	√
		Bit #1	Secondary mA output saturated (IS output board only)			√	√
		Bit #2	Primary mA output fixed		√	√	√
		Bit #3	Secondary mA output fixed (IS output board only)			√	√
		Bit #4	Density overrange	√	√	√	√
		Bit #5	Drive gain overrange	√	√	√	√
		Bit #6	Not used				
		Bit #7	External input failure		√	√	√
		Bit #8	(E)EPROM checksum failure, core processor or RFT9739	√	√	√	√
		Bit #9	RAM diagnostic failure, core processor or RFT9739	√	√	√	√
		Bit #10	Sensor failure	√	√	√	√
		Bit #11	Temperature sensor failure	√	√	√	√
		Bit #12	Input overrange	√	√	√	√
		Bit #13	Frequency/pulse output saturated		√	√	√
		Bit #14	Transmitter not configured	√	√	√	√
		Bit #15	Real-time interrupt failure	√	√	√	√

Input registers (continued)

Address		Description		Core processor	Series 1000	Series 2000	RFT9739
3	0126	Bit #0	Burst mode enabled		√	√	√
		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	√	√	√	√
		Bit #6	Event 1 ON	√	√	√	√
		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	√	√	√	√
3	0305	Most significant word for binary mass total					√[1]
3	0306	High-order word for binary mass total					√[1]
3	0307	Low-order word for binary mass total					√[1]
3	0308	Least significant word for binary mass total					√[1]
3	0309	Most significant word for binary volume total					√[1]
3	0310	High-order word for binary volume total					√[1]
3	0311	Low-order word for binary volume total					√[1]
3	0312	Least significant word for binary volume total					√[1]
3	0419	Bit #0	(E)EPROM checksum error, core processor	√	√	√	
		Bit #1	RAM test error, core processor	√	√	√	
		Bit #2	Real-time interrupt failure	√	√	√	
		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	Not used				
		Bit #9	Not used				
		Bit #10	Not used				
		Bit #11	Not used				
		Bit #12	Not used				
		Bit #13	Not used				
		Bit #14	Not used				
		Bit #15	Transmitter fault	√	√	√	

[1] Version 3.7 or higher revision RFT9739 transmitter.

Input registers (continued)

Address		Description		Core processor	Series 1000	Series 2000	RFT9739
3	0420	Bit #0	Primary mA output saturated		√	√	
		Bit #1	Secondary mA output saturated (IS output board only)			√	
		Bit #2	Primary mA output fixed		√	√	
		Bit #3	Secondary mA output fixed (IS output board only)			√	
		Bit #4	Density overrange	√	√	√	
		Bit #5	Drive overrrange	√	√	√	
		Bit #6	Not used				
		Bit #7	External input failure		√	√	
		Bit #8	(E)EPROM checksum failure, core processor	√	√	√	
		Bit #9	RAM diagnostic failure, core processor	√	√	√	
		Bit #10	Sensor not vibrating	√	√	√	
		Bit #11	Temperature sensor failure	√	√	√	
		Bit #12	Input overrange	√	√	√	
		Bit #13	Frequency/pulse output saturated	√	√	√	
		Bit #14	Transmitter not configured	√	√	√	
		Bit #15	Real-time interrupt failure	√	√	√	
3	0421	Bit #0	Burst mode enabled		√	√	
		Bit #1	Power reset occurred	√	√	√	
		Bit #2	Transmitter initializing/warming up	√	√	√	
		Bit #3	Not used				
		Bit #4	Not used				
		Bit #5	Event 1 ON	√	√	√	
		Bit #6	Event 2 ON	√	√	√	
		Bit #7	Sensor/transmitter communication failure	√	√	√	
		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	√	√	√	

Input registers (continued)

Address		Description		Core processor	Series 1000	Series 2000	RFT9739
3	0422	Bit #0	Not used				
		Bit #1	Not used				
		Bit #2	Line temperature sensor out of range	√	√	√	
		Bit #3	Case temperature sensor out of range	√	√	√	
		Bit #4	Flow direction (1 = reverse, 0 = forward or zero flow)	√	√	√	
		Bit #5	Not used				
		Bit #6	Not used				
		Bit #7	Not used				
		Bit #8	Not used				
		Bit #9	Transmitter not configured	√	√	√	
		Bit #10	(E)EPROM checksum error, Series 1000 or 2000		√	√	
		Bit #11	RAM test error, Series 1000 or 2000		√	√	
		Bit #12	Invalid/unrecognized sensor type	√	√	√	
		Bit #13	(E)EPROM database corrupt, core processor	√	√	√	
		Bit #14	(E)EPROM powerdown totals corrupt, core processor	√	√	√	
		Bit #15	(E)EPROM program corrupt, core processor	√	√	√	
3	0423	Bit #0	Boot sector fault, core processor	√	√	√	
		Bit #1	Software upgrade needed		√	√	
		Bit #2	Frequency output fixed		√	√	
		Bit #3	Not used				
		Bit #4	DO status (0=OFF, 1=ON)		√	√	
		Bit #5	Not used				
		Bit #6	T-Series D3 calibration in progress	√	√	√	
		Bit #7	T-Series D4 calibration in progress	√	√	√	
		Bit #8	Not used				
		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	√	√	√	
3	1137	Core processor software revision			√	√	
3	1138	Output option board			√	√	
3	1166	Output channel A type assignment (refer to output type codes)			√	√	

Holding registers

Address		Description	Core processor	Series 1000	Series 2000	RFT9739
4	0012	Primary milliamp output variable		√	√	√
4	0013	Secondary milliamp output variable			√	√
4	0014	Frequency/pulse output variable		√	√	√
4	0015	RFT9739 control output variable				√
4	0015	Series 1000 or 2000 quaternary variable		√	√	
4	0016	Read-only transmitter software revision	√	√	√	√
4	0017	Flow direction	√	√	√	√
4	0018	Maximum integer	√	√	√	√
4	0019	Mass flow offset	√	√	√	√
4	0020	Density offset	√	√	√	√
4	0021	Temperature offset	√	√	√	√
4	0022	Volume flow offset	√	√	√	√
4	0024	Pressure offset				√
4	0025	Mass total offset	√	√	√	√
4	0026	Volume total offset	√	√	√	√
4	0027	Mass inventory offset	√	√	√	√
4	0028	Volume inventory offset	√	√	√	√
4	0029	Mass flow scale factor	√	√	√	√
4	0030	Density scale factor	√	√	√	√
4	0031	Temperature scale factor	√	√	√	√
4	0032	Volume flow scale factor	√	√	√	√
4	0034	Pressure scale factor				√
4	0035	Mass total scale factor	√	√	√	√
4	0036	Volume total scale factor	√	√	√	√
4	0037	Mass inventory scale factor	√	√	√	√
4	0038	Volume inventory scale factor	√	√	√	√
4	0039	Standard or special mass flow rate unit	√	√	√	√
4	0040	Density unit	√	√	√	√
4	0041	Temperature unit	√	√	√	√
4	0042	Standard or special volume flow rate unit	√	√	√	√
4	0044	Pressure unit		√	√	√
4	0045	Standard or special mass total or inventory unit	√	√	√	√
4	0046	Standard or special volume total or inventory unit	√	√	√	√

Holding registers (continued)

Address		Description	Core processor	Series 1000	Series 2000	RFT9739
4	0047	HART or Modbus polling address				√[1]
		HART polling address		√	√	√[2]
4	0048	Final assembly number – high order register of 3-byte integer	√	√	√	√
4	0049	Final assembly number – low order register of 3-byte integer	√	√	√	√
4	0050	Date low order byte: day	√	√	√	√
4	0051	Date high order byte: month	√	√	√	√
		Date low order byte: year (1900 + x assumed, will work until 2156)				
3	0120	Device type code	√	√	√	√
3	0121	Electronics manufacturer's module identification number	√	√	√	√
3	0122	HART device I.D. number – high order register of 3-byte integer	√	√	√	√
3	0123	HART device I.D. number – low order register of 3-byte integer	√	√	√	√
4	0124	RFT9739 fault code				√
4	0124	Series 1000 or 2000 digital output fault code		√	√	
4	0127	Sensor serial number	√	√	√	√
4	0128	Sensor serial number	√	√	√	√
4	0129	Sensor flange type	√	√	√	√
4	0130	Sensor flow tube construction material	√	√	√	√
4	0131	Sensor flow tube liner material	√	√	√	√
4	0132	Base mass unit	√	√	√	√
4	0133	Base time unit for special mass unit	√	√	√	√
4	0134	Base volume unit	√	√	√	√
4	0135	Base time unit for special volume unit	√	√	√	√
4	0136	Maximum zeroing time	√	√	√	√
4	0137	Event 1 variable assignment	√	√	√	√
4	0138	Event 2 variable assignment	√	√	√	√
4	0139	Event 1 type (high=1/low=2)	√	√	√	√
4	0140	Event 2 type (high=1/low=2)	√	√	√	√
4	0295	Security event configuration register				√
4	0296	Security event calibration register				√
4	0297	Mass flow live zero flow				√[3]
4	0302	Polling control code #1 (refer to polling control code table)		√	√	√
4	0313	Modbus slave address	√	√	√	√[2]
4	0314	Last measured value fault timeout	√	√	√	
4	0366	DSP basic calculation update rate (Hz, 20 or 100 Hz)	√	√	√	
4	0521	Floating-point byte order	√	√	√	
4	0522	Additional delay to Modbus/HART response	√	√	√	

[1] *Version 3.6 or older revision RFT9739 transmitter.*
[2] *Version 3.7 or higher revision RFT9739 transmitter.*
[3] *Version 3 RFT9739 transmitter.*

Holding registers (continued)

Address		Description	Core processor	Series 1000	Series 2000	RFT9739
4	1107	Frequency/pulse output fault code		√	√	
4	1108	Frequency/pulse output scaling method		√	√	
4	1113	Primary mA output fault code (see analog output fault table in back)		√	√	
4	1114	Secondary mA output fault code (see analog output fault table in back)			√	
4	1115	Display offline password (0000 to 9999)		√	√	
4	1116	Display scroll rate (1 to 10 seconds)		√	√	
4	1117	Display process variable #1		√	√	
4	1118	Display process variable #2		√	√	
4	1119	Display process variable #3		√	√	
4	1120	Display process variable #4		√	√	
4	1121	Display process variable #5		√	√	
4	1122	Display process variable #6		√	√	
4	1123	Display process variable #7		√	√	
4	1124	Display process variable #8		√	√	
4	1125	Display process variable #9		√	√	
4	1126	Display process variable #10		√	√	
4	1127	Display process variable #11		√	√	
4	1128	Display process variable #12		√	√	
4	1129	Display process variable #13		√	√	
4	1130	Display process variable #14		√	√	
4	1131	Display process variable #15		√	√	
4	1132	RS-485 digital communication protocol setting		√	√	
4	1133	RS-485 digital communication baud rate		√	√	
4	1134	RS-485 digital communication parity setting		√	√	
4	1135	RS-485 digital communication stop bits setting		√	√	
4	1137	Read-only core processor software revision		√	√	
4	1139	Sensor type code		√	√	
4	1144	Polling control code #2 (refer to polling control code table)		√	√	
4	1145	Polling variable #1 code (refer to process variable codes in back)		√	√	
4	1146	Polling variable #2 code (refer to process variable codes in back)		√	√	
4	1147	Polling type code (refer to polling type codes table)		√	√	
4	1151	Discrete output 1 assignment (refer to discrete output assignment codes)		√	√	
4	1164	100 Hz update rate variable assignment (refer to process variable codes in back)		√	√	
4	1165	Burst command (refer to burst command options table)		√	√	
4	1167	Output channel B type assignment (refer to output type codes)		√	√	
4	1168	Output channel C type assignment (refer to output type codes)		√	√	
4	1169	Burst variable 1 (refer to process variable codes in back)		√	√	
4	1170	Burst variable 2 (refer to process variable codes in back)		√	√	
4	1171	Burst variable 3 (refer to process variable codes in back)		√	√	
4	1172	Burst variable 4 (refer to process variable codes in back)		√	√	

Holding registers (continued)

Address		Description	Core processor	Series 1000	Series 2000	RFT9739
4	0655	Slot 0 configuration index	√	√	√	
4	0656	Slot 1 configuration index	√	√	√	
4	0657	Slot 2 configuration index	√	√	√	
4	0658	Slot 3 configuration index	√	√	√	
4	0659	Slot 4 configuration index	√	√	√	
4	0660	Slot 5 configuration index	√	√	√	
4	0661	Slot 6 configuration index	√	√	√	
4	0662	Slot 7 configuration index	√	√	√	
4	0663	Slot 8 configuration index	√	√	√	
4	0664	Slot 9 configuration index	√	√	√	
4	0665	Slot 10 configuration index	√	√	√	
4	0666	Slot 11 configuration index	√	√	√	
4	0667	Slot 12 configuration index	√	√	√	
4	0668	Slot 13 configuration index	√	√	√	
4	0669	Slot 14 configuration index	√	√	√	
4	0670	Slot 15 configuration index	√	√	√	
4	0671	Slot 16 configuration index	√	√	√	
4	0672	Slot 17 configuration index	√	√	√	
4	0673	Slot 18 configuration index	√	√	√	
4	0674	Slot 19 configuration index	√	√	√	
4	0675	Slot 20 configuration index	√	√	√	
4	0676	Slot 21 configuration index	√	√	√	
4	0677	Slot 22 configuration index	√	√	√	
4	0678	Slot 23 configuration index	√	√	√	
4	0679	Slot 24 configuration index	√	√	√	
4	0680	Slot 25 configuration index	√	√	√	
4	0681	Slot 26 configuration index	√	√	√	
4	0682	Slot 27 configuration index	√	√	√	
4	0683	Slot 28 configuration index	√	√	√	
4	0684	Slot 29 configuration index	√	√	√	
4	0685	Slot 30 configuration index	√	√	√	
4	0686	Slot 31 configuration index	√	√	√	

Holding registers (continued)

Address		Description	Core processor	Series 1000	Series 2000	RFT9739
4	0751	Slot 0 process variable index	√	√	√	
4	0752	Slot 1 process variable index	√	√	√	
4	0753	Slot 2 process variable index	√	√	√	
4	0754	Slot 3 process variable index	√	√	√	
4	0755	Slot 4 process variable index	√	√	√	
4	0756	Slot 5 process variable index	√	√	√	
4	0757	Slot 6 process variable index	√	√	√	
4	0758	Slot 7 process variable index	√	√	√	
4	0759	Slot 8 process variable index	√	√	√	
4	0760	Slot 9 process variable index	√	√	√	
4	0761	Slot 10 process variable index	√	√	√	
4	0762	Slot 11 process variable index	√	√	√	
4	0763	Slot 12 process variable index	√	√	√	
4	0764	Slot 13 process variable index	√	√	√	
4	0765	Slot 14 process variable index	√	√	√	
4	0766	Slot 15 process variable index	√	√	√	
4	0767	Slot 16 process variable index	√	√	√	
4	0768	Slot 17 process variable index	√	√	√	
4	0769	Slot 18 process variable index	√	√	√	
4	0770	Slot 19 process variable index	√	√	√	
4	0771	Slot 20 process variable index	√	√	√	
4	0772	Slot 21 process variable index	√	√	√	
4	0773	Slot 22 process variable index	√	√	√	
4	0774	Slot 23 process variable index	√	√	√	
4	0775	Slot 24 process variable index	√	√	√	
4	0776	Slot 25 process variable index	√	√	√	
4	0777	Slot 26 process variable index	√	√	√	
4	0778	Slot 27 process variable index	√	√	√	
4	0779	Slot 28 process variable index	√	√	√	
4	0780	Slot 29 process variable index	√	√	√	
4	0781	Slot 30 process variable index	√	√	√	
4	0782	Slot 31 process variable index	√	√	√	

ASCII character strings

Note

• Always write character strings as single-write multiples.

Address	Description	Core processor	Series 1000	Series 2000	RFT9739	
5 0052	Special mass flow unit					
5 0053	Special mass flow unit					
5 0054	Special mass flow unit	√	√	√		– Single-write multiple
5 0055	Special mass flow unit					
5 0056	Special mass total or mass inventory unit					
5 0057	Special mass total or mass inventory unit					
5 0058	Special mass total or mass inventory unit	√	√	√		– Single-write multiple
5 0059	Special mass total or mass inventory unit					
5 0060	Special volume flow unit					
5 0061	Special volume flow unit					
5 0062	Special volume flow unit	√	√	√		– Single-write multiple
5 0063	Special volume flow unit					
5 0064	Special volume total or volume inventory unit					
5 0065	Special volume total or volume inventory unit					
5 0066	Special volume total or volume inventory unit	√	√	√		– Single-write multiple
5 0067	Special volume total or volume inventory unit					
5 0052	Special mass flow unit					
5 0053	Special mass flow unit					
5 0054	Space character				√	– Single-write multiple
5 0055	Space character					
5 0056	Special mass total or mass inventory unit					
5 0057	Special mass total or mass inventory unit				√	– Single-write multiple
5 0058	Space character					
5 0059	Space character					
5 0060	Special volume flow unit					
5 0061	Special volume flow unit					
5 0062	Space character				√	– Single-write multiple
5 0063	Space character					
5 0064	Special volume total or volume inventory unit					
5 0065	Special volume total or volume inventory unit				√	– Single-write multiple
5 0066	Space character					
5 0067	Space character					

ASCII character strings (continued)

Note

- Always write character strings as single-write multiples.

Address		Description	Core processor	Series 1000	Series 2000	RFT9739	
5	0068	Device tag					
5	0069	Device tag	√	√	√	√	Single-write multiple
5	0070	Device tag					
5	0071	Device tag					
5	0072	Flow calibration factor					
5	0073	Flow calibration factor					
5	0074	Flow calibration factor					
5	0075	Flow temperature coefficient	√	√	√	√	Single-write multiple
5	0076	Flow temperature coefficient					
5	0077	Space character					
5	0078	Space character					
5	0079	Space character					
5	0080	Temperature calibration slope					
5	0081	Temperature calibration slope					
5	0082	Temperature calibration slope					
5	0083	Temperature calibration slope	√	√	√	√	Single-write multiple
5	0084	Temperature calibration offset					
5	0085	Temperature calibration offset					
5	0086	Temperature calibration offset					
5	0087	Space character					
5	0096	Description					
5	0097	Description					
5	0098	Description					
5	0099	Description	√	√	√	√	Single-write multiple
5	0100	Description					
5	0101	Description					
5	0102	Description					
5	0103	Description					
5	0104	User message					
5	0105	User message					
5	0106	User message					
5	0107	User message					
5	0108	User message					
5	0109	User message					
5	0110	User message					
5	0111	User message	√	√	√	√	Single-write multiple
5	0112	User message					
5	0113	User message					
5	0114	User message					
5	0115	User message					
5	0116	User message					
5	0117	User message					
5	0118	User message					
5	0119	User message					

ASCII character strings (continued)

Note

• Always write character strings as single-write multiples.

Address		Description	Core processor	Series 1000	Series 2000	RFT9739	
5	0298	Polling tag for external device #1					
5	0299	Polling tag for external device #1					
5	0300	Polling tag for external device #1		√	√	√	– Single-write multiple
5	0301	Polling tag for external device #1					
5	0425	Sensor type					
5	0426	Sensor type					
5	0427	Sensor type					
5	0428	Sensor type	√	√	√		– Single-write multiple
5	0429	Sensor type					
5	0430	Sensor type					
5	0431	Sensor type					
5	0432	Sensor type					
5	1140	Polling tag for external device #2					
5	1141	Polling tag for external device #2					
5	1142	Polling tag for external device #2		√	√		– Single-write multiple
5	1143	Polling tag for external device #2					

Integer codes

Mass flow unit codes (holding register 40039)		Core processor	Series 1000	Series 2000	RFT9739
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	√	√	√	√
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	√	√	√	√

Integer codes (continued)

Mass totalizer unit codes (holding register 40045)		Core processor	Series 1000	Series 2000	RFT9739
60	Grams	√	√	√	√
61	Kilograms	√	√	√	√
62	Metric tons	√	√	√	√
63	Pounds	√	√	√	√
64	Short tons (2000 pounds)	√	√	√	√
65	Long tons (2240 pounds)	√	√	√	
253	Special	√	√	√	√
Mass inventory unit codes (holding register 40045)					
60	Grams	√	√	√	√
61	Kilograms	√	√	√	√
62	Metric tons	√	√	√	√
63	Pounds	√	√	√	√
64	Short tons (2000 pounds)	√	√	√	√
65	Long tons (2240 pounds)	√	√	√	
253	Special	√	√	√	√
Base mass unit codes for special mass units (holding register 40132)					
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 (holding register 40133)					
50	Minutes	√	√	√	√
51	Seconds	√	√	√	√
52	Hours	√	√	√	√
53	Days	√	√	√	√

Integer codes (continued)

Volume flow unit codes (holding register 40042)		Core processor	Series 1000	Series 2000	RFT9739
15	Cubic feet/minute	√	√	√	√
16	Gallons/minute	√	√	√	√
17	Liters/minute	√	√	√	√
18	Imperial gallons/minute	√	√	√	√
19	Cubic meters/hour	√	√	√	√
22	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	√	√	√	√
133	Barrels/minute	√	√	√	√
134	Barrels/hour	√	√	√	√
135	Barrels/day	√	√	√	√
136	U.S. gallons/hour	√	√	√	√[1]
137	Imperial gallons/second	√	√	√	√[1]
138	Liters/hour	√	√	√	√[1]
235	U.S. gallons/day	√	√	√	
253	Special	√	√	√	√

[1] *Version 3 RFT9739 transmitter.*

Integer codes (continued)

Volume totalizer unit codes (holding register 40046)		Core processor	Series 1000	Series 2000	RFT9739
40	U.S. gallons	√	√	√	√
41	Liters	√	√	√	√
42	Imperial gallons	√	√	√	√
43	Cubic meters	√	√	√	√
46	Barrels (42 U.S. gallons)	√	√	√	√
112	Cubic feet	√	√	√	√
253	Special	√	√	√	√
Volume inventory unit codes (holding register 40046)					
40	U.S. gallons	√	√	√	√
41	Liters	√	√	√	√
42	Imperial gallons	√	√	√	√
43	Cubic meters	√	√	√	√
46	Barrels (42 U.S. gallons)	√	√	√	√
112	Cubic feet	√	√	√	√
253	Special	√	√	√	√
Base volume units for special volume units (holding register 40134)					
40	U.S. gallons	√	√	√	√
41	Liters	√	√	√	√
42	Imperial gallons	√	√	√	√
43	Cubic meters	√	√	√	√
46	Barrels (42 U.S. gallons)	√	√	√	√
112	Cubic feet	√	√	√	√
Base time units for special volume units (holding register 40135)					
50	Minutes	√	√	√	√
51	Seconds	√	√	√	√
52	Hours	√	√	√	√
53	Days	√	√	√	√

Modbus Mapping Assignments *continued*

Integer codes (continued)

Temperature unit codes (holding register 40041)		Core processor	Series 1000	Series 2000	RFT9739
32	Degrees Celsius	√	√	√	√
33	Degrees Fahrenheit	√	√	√	√
34	Degrees Rankine	√	√	√	√
35	Kelvin	√	√	√	√
Density unit codes (holding register 40040)					
90	Specific gravity units	√	√	√	√
91	Grams/cubic centimeter	√	√	√	√
92	Kilograms/cubic meter	√	√	√	√
93	Pounds/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	√	√	√	
104	Degrees API				√
Pressure unit codes (holding register 40044)					
1	Inches water at 68 degrees Fahrenheit	√	√	√	√
2	Inches mercury at 0 degrees Celsius	√	√	√	√
3	Feet water at 68 degrees Fahrenheit	√	√	√	√
4	Millimeters water at 68 degrees Fahrenheit	√	√	√	√
5	Millimeters mercury at 0 degrees 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 degrees Celsius	√	√	√	√
14	Atmospheres	√	√	√	√

Integer codes (continued)

Milliamp ouput variable codes (holding register 40012 or 40013)		Core processor	Series 1000	Series 2000	RFT9739
0	Mass flow rate		√	√	√
1	Temperature		√	√	√
3	Density		√	√	√
5	Volume flow rate		√	√	√
9	Pressure				√
10	Event 1				√
11	Event 2				√
47	Drive Gain			√	

Display variable codes (holding registers 41117-41131)		Core processor	Series 1000	Series 2000	RFT9739
0	Mass flow rate		√	√	
1	Temperature		√	√	
2	Mass totalizer		√	√	
3	Density		√	√	
4	Mass inventory		√	√	
5	Volume flow rate		√	√	
6	Volume totalizer		√	√	
7	Volume inventory		√	√	
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		√	√	

Event output variable codes (holding register 40137 or 40138)		Core processor	Series 1000	Series 2000	RFT9739
0	Mass flow rate	√	√	√	√
1	Temperature	√	√	√	√
2	Mass totalizer	√	√	√	√
3	Density	√	√	√	√
4	Mass inventory	√	√	√	√
5	Volume flow rate	√	√	√	√
6	Volume totalizer	√	√	√	√
7	Volume inventory	√	√	√	√

Quaternary output variable codes (holding register 40015)		Core processor	Series 1000	Series 2000	RFT9739
0	Mass flow rate		√	√	
1	Temperature		√	√	
2	Mass totalizer		√	√	
3	Density		√	√	
4	Mass inventory		√	√	
5	Volume flow rate		√	√	
6	Volume totalizer		√	√	
7	Volume inventory		√	√	
47	Drive gain		√	√	
53	Externally read pressure		√	√	

Event alarm type codes (holding register 40139 or 40140)		Core processor	Series 1000	Series 2000	RFT9739
1	High alarm	√	√	√	√
2	Low alarm	√	√	√	√

Integer codes (continued)

Flow direction codes (holding register 40017)		Core processor	Series 1000	Series 2000	RFT9739
0	Forward flow only	√	√	√	√
1	Reverse flow only	√	√	√	√
2	Bidirectional flow	√	√	√	√
3	Absolute forward/reverse	√	√	√	
4	Negate – forward only	√			
5	Negate – bidirectional	√			

Process variable and diagnostic codes (holding registers 40751-40782)		Core processor	Series 1000	Series 2000	
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	√	√	√	
11	Event 2	√	√	√	
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	√	√	√	
46	Raw tube frequency	√	√	√	
47	Drive gain	√	√	√	
49	Left pickoff amplitude	√	√	√	
50	Right pickoff amplitude	√	√	√	
51	Board temperature	√	√	√	
52	Input voltage	√	√	√	
53	Externally read pressure	√	√	√	
54–99	Undefined				
100	Event 1 or event 2 (discrete output only)		√	√	
101	Flow switch indicator (discrete output only)		√	√	
102	Forward/reverse indication (discrete output only)		√	√	
103	Calibration in progress (discrete output only)		√	√	
104	Fault condition indication (discrete output only)		√	√	
105–249	Undefined				

Frequency/pulse output variable codes (holding register 40014)		Core processor	Series 1000	Series 2000	RFT9739
0	Mass flow rate			√	√
2	Mass totalizer				√
5	Volume flow rate			√	√
6	Volume totalizer				√

Frequency/pulse output scaling method codes (holding register 41108)		Core processor	Series 1000	Series 2000	RFT9739
0	Frequency=flow		√	√	
1	Pulses/unit		√	√	
2	Units/pulse		√	√	

Control output variable codes (holding register 40015)		Core processor	Series 1000	Series 2000	RFT9739
0	Forward/reverse flow				√
1	Zero in progress				√
2	Faults				√
3	Event 1				√
4	Event 2				√

Integer codes (continued)

Flow tube liner material codes (holding register 40131)

		Core processor	Series 1000	Series 2000	RFT9739
10	PTFE (Teflon®)	√	√	√	√
11	Halar	√	√	√	√
16	Tefzel®	√	√	√	√
251	None	√	√	√	√
252	Unknown	√	√	√	√
253	Special	√	√	√	√

Sensor type codes (holding register 41139)

		Core processor	Series 1000	Series 2000	RFT9739
0	Curved-tube sensor (D, DL, DT, CMF, F-Series, R-Series)		√	√	
1	Straight-tube sensor (T-Series)		√	√	

Pressure value receiving method codes (holding register 40302)

		Core processor	Series 1000	Series 2000	RFT9739
0	None				√
3	HART primary				√
4	HART secondary				√
6	Analog input				√
8	Modbus				√

Version 2 RFT9739 fault output codes (holding register 40124)		Core processor	Series 1000	Series 2000	RFT9739
0	Upscale				√
1	Downscale				√
2	Last measured value				√
3	Internal zero				√

Analog fault output codes (holding register 41107 and 41113)

		Core processor	Series 1000	Series 2000	RFT9739
0	Upscale		√	√	
1	Downscale		√	√	
3	Internal zero		√	√	

Digital fault output codes (holding register 40124)

		Core processor	Series 1000	Series 2000	RFT9739
0	Hold at value greater than upper sensor limit, stop totalizing	√	√	√	
1	Hold at value less than lower sensor limit, stop totalizing	√	√	√	
2	Drive outputs to zero values of process variables, stop totalizing	√	√	√	
3	Report not-a-number or maximum scaled integer, stop totalizing	√	√	√	
4	Drive flow rate to zero value, other process variables remain unaffected	√	√	√	
5	None (default; use status bits for fault detection)	√	√	√	

Floating-point byte ordering codes (holding register 40521)

		Core processor	Series 1000	Series 2000	RFT9739
0	0-1-2-3	√	√	√	
1	2-3-0-1 (Default)	√	√	√	
2	1-0-3-2	√	√	√	
3	3-2-1-0	√	√	√	

Integer codes (continued)

Sensor flange type codes (holding register 40129)		Core processor	Series 1000	Series 2000	RFT9739
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 (holding register 40130)					
3	Hastelloy® C-22	√	√	√	√
4	Monel	√	√	√	√
5	Tantalum®	√	√	√	√
6	Titanium	√	√	√	
19	316L stainless steel	√	√	√	√
23	Inconel®	√	√	√	
252	Unknown	√	√	√	√
253	Special	√	√	√	√

Modbus Mapping Assignments *continued*

Integer codes (continued)

Digital communication protocol codes (holding register 41132) (Not available on IS output option board)		Core processor	Series 1000	Series 2000	RFT9739
0	None		√	√	
1	HART only		√	√	
2	Modbus RTU only		√	√	
3	Modbus ASCII only		√	√	

Digital communication baud rate codes (holding register 41133) (Not available on IS output option board)					
0	1200 baud		√	√	
1	2400 baud		√	√	
2	4800 baud		√	√	
3	9600 baud		√	√	
4	19,200 baud		√	√	
5	38,400 baud		√	√	

Digital communication parity codes (holding register 41134) (Not available on IS output option board)					
0	None		√	√	
1	Odd parity		√	√	
2	Even parity		√	√	

Read-only output board codes (holding register 41135)					
0	None		√	√	
1	Analog I/O (mA/Frequency/RS-485)		√	√	
3	IS output		√	√	

Polling control option codes (holding register 40302 and 41144)					
0	Do not poll		√	√	
1	Poll transmitter: HART primary		√	√	
2	Poll transmitter: HART secondary		√	√	
3–249	Undefined				

Polling type option codes (holding register 41147)					
0	None		√	√	
1	Pressure compensation only		√	√	
2–249	Undefined		√	√	

Output type codes (holding registers 31166, 41167, and 41168)					
0	Milliamp (primary) output		√	√	
1	Frequency output		√	√	
2	Digital communications		√	√	
3	Milliamp (secondary) output (IS output option only)			√	
4	Discrete output		√	√	
6–249	Undefined				

Discrete output assignment codes (holding register 41151)					
10	Event 1 active		√	√	
11	Event 2 active		√	√	
100	Event 1 or event 2 active		√	√	
101	Flow switch indication		√	√	
102	Forward/reverse indication		√	√	
103	Calibration in progress		√	√	
104	Fault condition indication		√	√	
5–249	Undefined				

Modbus Mapping Assignments *continued*

Integer codes (continued)

Burst command option codes (holding register 41165)		Core processor	Series 1000	Series 2000	RFT9739
1	Read primary variable		√	√	
2	Read primary variable current and percent of range		√	√	
3	Read dynamic variables and primary variable current		√	√	
33	Read transmitter variables		√	√	
4–249	Undefined				

100 Hz variable codes (holding register 41164)					
0	Mass flow rate		√	√	
1	Temperature		√	√	
2	Mass Total		√	√	
3	Density		√	√	
4	Mass inventory		√	√	
5	Line (gross) volume flow rate		√	√	
6	Line (gross) volume total		√	√	
7	Line (gross) volume inventory		√	√	
10	Event 1		√	√	
11	Event 2		√	√	

Polled variable codes (holding register 41145 and 41146)					
53	Externally read pressure		√	√	

Burst variable codes (holding register 41169–41172)					
0	Mass flow rate		√	√	
1	Temperature		√	√	
2	Mass Total		√	√	
3	Density		√	√	
4	Mass inventory		√	√	
5	Line (gross) volume flow rate		√	√	
6	Line (gross) volume total		√	√	
7	Line (gross) volume inventory		√	√	

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