



Title: i-Controller Modbus Integration Specification REV.201

Overview

The Flō i-Controller has the capability to communicate with Building Management Systems (BMS) over Modbus or BACnet protocols. Set points, occupancy, and some site-specific parameters can be sent from the BMS to the i-Controller as an “Input” for control customization. Unit status parameters can also be mapped as “Outputs” to the BMS from the i-Controller to provide real-time status of the Flō unit.

The following sections explain the available Inputs and Outputs, along with associated rules and configuration parameters. For unit operation details, refer to CN-IC1-04 i-Controller (6-70 Ton) MPU Sequence Of Operations Rev.201.

NOTE: This integration specification is only applicable for Flō units equipped with i-Controller Revision 201 or greater.

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Inputs

This section describes the values that can be sent to the i-Controller from the BMS for control customization.

Initializing Inputs

For the i-Controller to operate from the set points, occupancy, etc. sent from a BMS, a continuous check is made to ensure a successful communication exists between the i-Controller and the BMS. To prove communication, the program looks for a value equal or greater than 0 over address F400 for Modbus.

Every BMS transfer should include an update of this register with a value greater than or equal to 0. If this value is not updated within 90s of the last transfer, the i-Controller will revert to standalone control.

Modbus Inputs

Address	Variable Description	Input Format	Eng Units	Acceptable Range	Modbus Function	Read/Write
End User Settings						
F400	Building Controller Online (Send Value >= 0 to controller)	BOOL	-	>=0	Coil	Write
F401	Occ Cool Set Point	DINT * 10	°C	16 - 29°C	Holding Register	Write
F402	Unocc Cool Set Point	DINT * 10	°C	16 - 29°C	Holding Register	Write
F403	Occ Heat Set Point	DINT * 10	°C	10 - 26°C	Holding Register	Write
F404	Unocc Heat Set Point	DINT * 10	°C	10 - 26°C	Holding Register	Write
F405	Occ Dew Point Set Point	DINT * 10	°C	9 - 15°C	Holding Register	Write
F406	Unocc Dew Point Set Point	DINT * 10	°C	9 - 15°C	Holding Register	Write
F62B	VAV Heating Temperature Set Point	DINT * 10	°C	10 - 26°C	Holding Register	Write
F625	VAV Cooling Temperature Set Point	DINT * 10	°C	16 - 29°C	Holding Register	Write
F64C	VAV 2 Heating Temperature Set Point	DINT * 10	°C	10 - 26°C	Holding Register	Write
F648	VAV 2 Cooling Temperature Set Point	DINT * 10	°C	16 - 29°C	Holding Register	Write
F407	Occupied / Unoccupied (True if Occupied)	BOOL	-	-	Coil	Write
F408	Enable/Disable* (True if CES Unit Enabled)	BOOL	-	-	Coil	Write
F845	Outdoor Air Temperature	DINT * 10	°C	≠ 0.0°C	Holding Register	Write
F846	Outdoor Humidity	DINT * 10	% RH	≠ 0.0%	Holding Register	Write
F673	Exhaust Fan 1 Interlock	BOOL	-	-	Coil	Write
F674	Exhaust Fan 2 Interlock	BOOL	-	-	Coil	Write
F675	Exhaust Fan 3 Interlock	BOOL	-	-	Coil	Write
F671	Load Shed Input	BOOL	-	-	Coil	Write
F894	Exhaust Fan Minimum Speed %	DINT	%	0 - 100	Holding Register	Write
F895	Exhaust Fan Maximum Speed %	DINT	%	0 - 100	Holding Register	Write

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*The CES Unit Enable/Disable variable can be used to disable the FLō unit via the BMS. The value will be “TRUE” by default but can be sent a “FALSE” value to disable the FLō unit.

NOTE: Input values have a precision of 0.1 °C or 0.1%. To represent the decimal value over Modbus communication, all values noted with an input format of “DINT*10” need to be converted to SI units (°C) and multiplied by 10 before sending to the i-Controller. *Example:* A desired Occ Cool Set Point of 74°F is equivalent to 23.3 °C and would be sent over Modbus address F401 as a value of 233 (23.3 * 10).

Outputs

This section describes the values that can be mapped from the i-Controller to the BMS to view status of the FLō unit operation.

NOTE: All Network Variables do not pertain to all FLō units. Refer to the “Unit Type Applicability” column to determine if the Network Variable should be included for a specific unit. The “Design Options” section provides detailed information about the configuration of the FLō unit and can be used to determine if a feature is included for Network Variables with an “Unit Type Applicability” noted as “OPTION.”

Modbus Outputs

Addr	Network Variables	Output Format	Eng Units	Modbus Function	Read/Write	Unit Type Applicability	Description
Operation Mode							
F842	Current Operation Mode	DINT	-	Input Register	Read	ALL	1: FanOnly, 2: Heating Only, 3: Cooling Only, 4: Dehum Only, 5: Dehum + Heat, 6: Dehum + Cool, 7: Pre-Emptive Ramp Up, 8: Shutdown; 9: Net Disable
Physical Inputs							
F06B	Space Temp	DINT * 10	°C	Input Register	Read	ALL	Average Space Temperature
F06C	Space Dewpoint	DINT * 10	°C	Input Register	Read	ALL	Calculated or Measured Space Dew Point
F142	Return Air Temp	DINT * 10	°C	Input Register	Read	ALL	Temperature of Air in Return Duct
F143	Outdoor Air Temp	DINT * 10	°C	Input Register	Read	ALL	Outdoor Air Temperature
F141	Outdoor Air Dewpoint	DINT * 10	°C	Input Register	Read	OPTION	Calculated Outdoor Air Dewpoint
F06F	Supply Air Temp	DINT * 10	°C	Input Register	Read	ALL	Temperature of Air in Supply Duct
F514	Suction Pressure Transducer 1	DINT * 10	psi	Input Register	Read	ALL	Suction pressure reading for Compressor 1
F588	Discharge Pressure Transducer 1	DINT * 10	psi	Input Register	Read	ALL	Discharge pressure reading for Compressor 1

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Physical Inputs - *Continued*

F06D	Suction Pressure Transducer 1	DINT * 10	Pa	Input Register	Read	ALL	Suction pressure reading for Compressor 1
F13E	Discharge Pressure Transducer 1	DINT * 10	Pa	Input Register	Read	ALL	Discharge pressure reading for Compressor 1
F524	Suction Pressure Transducer 2	DINT * 10	psi	Input Register	Read	10 - 70 TON	Suction pressure reading for Compressor 2
F589	Discharge Pressure Transducer 2	DINT * 10	psi	Input Register	Read	10 - 70 TON	Discharge pressure reading for Compressor 2
F201	Suction Pressure Transducer 2	DINT * 10	Pa	Input Register	Read	10 - 70 TON	Suction pressure reading for Compressor 2
F204	Discharge Pressure Transducer 2	DINT * 10	Pa	Input Register	Read	10 - 70 TON	Discharge pressure reading for Compressor 2
F779	Suction Pressure Transducer 3	DINT * 10	psi	Input Register	Read	31 - 70 TON	Suction pressure reading for Compressor 3
F759	Discharge Pressure Transducer 3	DINT * 10	psi	Input Register	Read	31 - 70 TON	Discharge pressure reading for Compressor 3
F77A	Suction Pressure Transducer 3	DINT * 10	Pa	Input Register	Read	31 - 70 TON	Suction pressure reading for Compressor 3
F76E	Discharge Pressure Transducer 3	DINT * 10	Pa	Input Register	Read	31 - 70 TON	Discharge pressure reading for Compressor 3
F77E	Suction Pressure Transducer 4	DINT * 10	psi	Input Register	Read	31 - 70 TON	Suction pressure reading for Compressor 4
F75C	Discharge Pressure Transducer 4	DINT * 10	psi	Input Register	Read	31 - 70 TON	Discharge pressure reading for Compressor 4
F77F	Suction Pressure Transducer 4	DINT * 10	Pa	Input Register	Read	31 - 70 TON	Suction pressure reading for Compressor 4
F76F	Discharge Pressure Transducer 4	DINT * 10	Pa	Input Register	Read	31 - 70 TON	Discharge pressure reading for Compressor 4
F13F	Reheat/Reclaim Inlet Temp 1	DINT * 10	°C	Input Register	Read	OPTION	Temperature reading from inlet pipe of reheat/reclaim coil (if equipped)
F796	Reheat/Reclaim Inlet Temp 2	DINT * 10	°C	Input Register	Read	OPTION	Temperature reading from inlet pipe of reheat/reclaim coil 2 (if equipped)
F06E	CO2 Level	DINT * 10	ppm	Input Register	Read	OPTION	Current CO2 level reading from CO2 sensor
F04C	Airflow Switch	BOOL	-	Discrete Input	Read	ALL	True if airflow switch is closed and fan proof is made
F556	Outdoor Humidity	DINT * 10	%RH	Input Register	Read	OPTION	Outdoor %RH
F577	Indoor Humidity	DINT * 10	%RH	Input Register	Read	ALL	Indoor %RH
F848	Single CT Amp Reading	DINT * 10	A	Input Register	Read	OPTION	Amperage reading from one leg of the input power
F62A	VAV Zone 1 - 1st Temperature	DINT * 10	°C	Input Register	Read	OPTION	Temperature 1 for VAV Zone 1
F629	VAV Zone 1 - 2nd Temperature	DINT * 10	°C	Input Register	Read	OPTION	Temperature 2 for VAV Zone 1

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F652	VAV Zone 2 Temperature	DINT * 10	°C	Input Register	Read	OPTION	Temperature for VAV Zone 2
F35C	Hydronic HW Entering Temperature	DINT * 10	°F	Input Register	Read	OPTION	Hydronic Heating Entering Hot Water Temperature
F362	Hydronic HW Leaving Temperature	DINT * 10	°F	Input Register	Read	OPTION	Hydronic Heating Leaving Hot Water Temperature
F368	Hydronic HW Flow Proof	BOOL	-	Discrete Input	Read	OPTION	Hydronic Heating Water Flow Proof
F31F	Entering Water Temp A	DINT * 10	°C	Input Register	Read	WATER SOURCE	Entering Water Temperature for water condenser A
F324	Leaving Water Temp A	DINT * 10	°C	Input Register	Read	WATER SOURCE	Leaving Water Temperature for water condenser A
F32B	Entering Water Temp B	DINT * 10	°C	Input Register	Read	WATER SOURCE	Entering Water Temperature for water condenser B
F331	Leaving Water Temp B	DINT * 10	°C	Input Register	Read	WATER SOURCE	Leaving Water Temperature for water condenser B
F33F	Water Flow Switch A	BOOL	-	Discrete Input	Read	WATER SOURCE	Water Flow Switch for water condenser A
F340	Water Flow Switch B	BOOL	-	Discrete Input	Read	WATER SOURCE	Water Flow Switch for water condenser B

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Alarms

F07E	Clogged Filter Alarm	BOOL	-	Discrete Input	Read	ALL	True if a clogged filter is detected
F130	Fan Fail Alarm	BOOL	-	Discrete Input	Read	ALL	True if supply fan has failed to start after 10 attempts
F756	Phase Loss Alarm	BOOL	-	Discrete Input	Read	ALL	True if the phase monitor detects a voltage above the acceptable limit
F755	Drain Pan Overflow Alarm	BOOL	-	Discrete Input	Read	ALL	True if the drain pan level has exceeded the acceptable limit
F69C	Refrigerant Leak Alarm	BOOL	-	Discrete Input	Read	OPTION	True if a signal was received from the refrigeration system indicating a leak
F132	Heat Alarm	BOOL	-	Discrete Input	Read	OPTION	True heating module is not functioning properly (if equipped)
F719	Reheat/Reclaim Proof	BOOL	-	Discrete Input	Read	OPTION	True if proof of reheat or reclaim operation is made (if equipped)
F783	Reheat/Reclaim Proof 2	BOOL	-	Discrete Input	Read	OPTION	True if proof of reheat or reclaim coil 2 operation is made (if equipped)
F85E	Compressor 1 Status	DINT	-	Discrete Input	Read	ALL	0: OK; 1: Compressor High Discharge Trip; 2: Compressor Proof Alarm, 3: Low Suction Pressure Alarm, 4:High Discharge Pressure Alarm, 5: High Suction Pressure Alarm, 6: Suction Pressure Transducer Error, 7: Discharge Pressure Transducer Error, 8: Gradual Compressor Shutdown, 9: Instant Compressor Shutdown, 10: Entering Water Temp Shutdown, 11: No Condenser Flow, 12: Outdoor Air Compressor Lockout, 13: EconMode LockOut, 14: Compressor Gradual Shutdown
F860	Compressor 2 Status	DINT	-	Discrete Input	Read	10 - 70 TON	0: OK; 1: Compressor High Discharge Trip; 2: Compressor Proof Alarm, 3: Low Suction Pressure Alarm, 4:High Discharge Pressure Alarm, 5: High Suction Pressure Alarm, 6: Suction Pressure Transducer Error, 7: Discharge Pressure Transducer Error, 8: Gradual Compressor Shutdown, 9: Instant Compressor Shutdown, 10: Entering Water Temp Shutdown, 11: No Condenser Flow, 12: Outdoor Air Compressor Lockout, 13: EconMode LockOut, 14: Compressor Gradual Shutdown
F861	Compressor 3 Status	DINT	-	Discrete Input	Read	31 - 70 TON	0: OK; 1: Compressor High Discharge Trip; 2: Compressor Proof Alarm, 3: Low Suction Pressure Alarm, 4:High Discharge Pressure Alarm, 5: High Suction Pressure Alarm, 6: Suction Pressure Transducer Error, 7: Discharge Pressure Transducer Error, 8: Gradual Compressor Shutdown, 9: Instant Compressor Shutdown, 10: Entering Water Temp Shutdown, 11: No Condenser Flow, 12: Outdoor Air Compressor Lockout, 13: EconMode LockOut, 14: Compressor Gradual Shutdown

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Alarms - Continued

F862	Compressor 4 Status	DINT	-	Discrete Input	Read	31 - 70 TON	0: OK; 1: Compressor High Discharge Trip; 2: Compressor Proof Alarm, 3: Low Suction Pressure Alarm, 4: High Discharge Pressure Alarm, 5: High Suction Pressure Alarm, 6: Suction Pressure Transducer Error, 7: Discharge Pressure Transducer Error, 8: Gradual Compressor Shutdown, 9: Instant Compressor Shutdown, 10: Entering Water Temp Shutdown, 11: No Condenser Flow, 12: Outdoor Air Compressor Lockout, 13: EconMode LockOut, 14: Compressor Gradual Shutdown
F0A0	Smoke Alarm	BOOL	-	Discrete Input	Read	ALL	True if alarm is active (smoke detector has been tripped)
F07F	CO2 Alarm	BOOL	-	Discrete Input	Read	OPTION	True if alarm is active (CO2 level has exceeded upper limit)
F851	Expansion 1 Fault	BOOL	-	Discrete Input	Read	ALL	True if Expansion card 1 is expected but not communicating
F852	Expansion 2 Fault	BOOL	-	Discrete Input	Read	ALL	True if Expansion card 2 is expected but not communicating
F210	Sensor Failures	BOOL	-	Discrete Input	Read	ALL	True if a sensor failure exists
F423	Hydronic Heating Alarm	BOOL	-	Analog Value	Read	HYDRONIC	Hydronic Heating Status Alarm: 1: OK, 2: Flow Proof Alarm, 3: Entering Water Temp Alarm
F39E	High Entering Water Temperature A	BOOL	-	Discrete Input	Read	WATER SOURCE	True if water condenser A entering water temperature is too high
F39F	Low Entering Water Temperature A	BOOL	-	Discrete Input	Read	WATER SOURCE	True if water condenser A entering water temperature is too low
F3A2	High Entering Water Temperature B	BOOL	-	Discrete Input	Read	WATER SOURCE	True if water condenser B entering water temperature is too high
F3A3	Low Entering Water Temperature B	BOOL	-	Discrete Input	Read	WATER SOURCE	True if water condenser B entering water temperature is too low
F39C	Water Flow Alarm A	BOOL	-	Discrete Input	Read	WATER SOURCE	True if no water flow is detected in condenser A
F39D	Water Flow Alarm B	BOOL	-	Discrete Input	Read	WATER SOURCE	True if no water flow is detected in condenser B

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Physical Outputs

F565	Supply Fan Speed	DINT * 10	%	Input Register	Read	ALL	Current VFD Operating %
F0F1	Compressor 1 Status	DINT * 10	%	Input Register	Read	ALL	Digital Compressor 1 Operating %
F075	Fixed Compressor 2 Status	BOOL	-	Discrete Input	Read	10 - 70 TON	True if Fixed Compressor 2 is on
F212	Compressor 2 Status	DINT * 10	%	Input Register	Read	31 - 70 TON	Digital Compressor 2 Operating %
F211	Compressor 3 Status	BOOL	-	Discrete Input	Read	31 - 70 TON	True if Fixed Compressor 3 is on
F220	Compressor 4 Status	BOOL	-	Discrete Input	Read	31 - 70 TON	True if Fixed Compressor 4 is on
F0DC	RA Damper	DINT * 10	%	Input Register	Read	ALL	Return Air Damper % Open
F0DB	BA Damper	DINT * 10	%	Input Register	Read	ALL	Bypass Air Damper % Open
F0DA	OA Damper	DINT * 10	%	Input Register	Read	ALL	Outdoor Air Damper % Open
F185	Condenser Fan 2	BOOL	-	Discrete Input	Read	25 - 70 TON	True if condenser fan 2 is on
F188	Condenser Fan 5	BOOL	-	Discrete Input	Read	31 - 70 TON	True if condenser fan 5 is on
F515	Suction Pressure SP Gp 1	DINT * 10	psi	Input Register	Read	ALL	Suction Pressure Set Point for Suction Group 1
F077	Suction Pressure SP Gp 1	DINT * 10	Pa	Input Register	Read	ALL	Suction Pressure Set Point for Suction Group 1
F523	Suction Pressure SP Gp 2	DINT * 10	psi	Input Register	Read	31 - 70 TON	Suction Pressure Set Point for Suction Group 2
F203	Suction Pressure SP Gp 2	DINT * 10	Pa	Input Register	Read	31 - 70 TON	Suction Pressure Set Point for Suction Group 2
F088	Reheat/Reclaim 1	BOOL	-	Discrete Input	Read	OPTION	True if reheat or reclaim 1 is active (if equipped)
F089	Reheat/Reclaim 2	BOOL	-	Discrete Input	Read	OPTION	True if reheat or reclaim 2 is active (if equipped)
F572	% Heat Capacity	DINT * 10	%	Input Register	Read	OPTION	% of total active heating capacity (if equipped)
F573	% Compressor Capacity	DINT * 10	%	Input Register	Read	ALL	% of total active compressor capacity
F624	VAV Booster Fan	BOOL	-	Discrete Input	Read	OPTION	True if VAV Booster Fan is ON
F627	VAV Fan	BOOL	-	Discrete Input	Read	OPTION	True if VAV Fan is enabled
F628	VAV Fan Speed	DINT	%	Input Register	Read	OPTION	VAV Fan Speed 0-100%
F626	VAV Damper	DINT	%	Input Register	Read	OPTION	VAV Damper % Open
F647	VAV Booster Fan 2	BOOL	-	Discrete Input	Read	OPTION	True if VAV Booster Fan 2 is ON
F64A	VAV Fan 2	BOOL	-	Discrete Input	Read	OPTION	True if VAV Fan 2 is enabled
F64B	VAV Fan Speed 2	DINT	%	Input Register	Read	OPTION	VAV Fan Speed 2 0-100%

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Physical Outputs - *Continued*

F649	VAV Damper 2	DINT	%	Input Register	Read	OPTION	VAV Damper 2 % Open
F62E	ERV Wheel	BOOL	-	Discrete Input	Read	OPTION	ERV Wheel Enable
F62F	ERV Power Exhaust	BOOL	-	Discrete Input	Read	OPTION	ERV Power Exhaust Enable
F630	ERV Bypass	BOOL	-	Discrete Input	Read	OPTION	True if ERV Bypass is open
F631	ERV Store Exhaust	BOOL	-	Discrete Input	Read	OPTION	ERV Store Exhaust Fan Enable
F66E	Exhaust Interlock 1	BOOL	-	Discrete Input	Read	OPTION	True if Exhaust Interlock 1 is ON
F66F	Exhaust Interlock 2	BOOL	-	Discrete Input	Read	OPTION	True if Exhaust Interlock 2 is ON
F670	Exhaust Interlock 3	BOOL	-	Discrete Input	Read	OPTION	True if Exhaust Interlock 3 is ON
F37C	Hydronic Hot Water Valve	DINT * 10	%	Input Register	Read	HYDRONIC	Percent opening of Hydronic Heating Coil Valve
F36D	Hydronic Hot Water Enable	BOOL	-	Discrete Input	Read	HYDRONIC	Hydronic Hot Water Mode Enable
F36E	Hydronic Hot Water Pump	BOOL	-	Discrete Input	Read	HYDRONIC	Hydronic Hot Water Pump Enable
F347	Water Condenser Valve A	DINT	%	Input Register	Read	WATER SOURCE	Water Condenser Valve A Open Position 0-100%
F349	Water Condenser Valve B	DINT	%	Input Register	Read	WATER SOURCE	Water Condenser Valve B Open Position 0-100%
F343	Reversing Valve	BOOL	-	Discrete Input	Read	WATER SOURCE	Reversing Valve Position - true is heating, false is cooling
F3A8	Discharge Pressure SP Gp 1	DINT * 10	psi	Input Register	Read	HEAT PUMP	Discharge Pressure Set Point for Suction Group 1 during heating
F3BF	Discharge Pressure SP Gp 1	DINT * 10	Pa	Input Register	Read	HEAT PUMP	Discharge Pressure Set Point for Suction Group 1 during heating
F3A9	Discharge Pressure SP Gp 2	DINT * 10	psi	Input Register	Read	HEAT PUMP	Discharge Pressure Set Point for Suction Group 2 during heating
F3C0	Discharge Pressure SP Gp 2	DINT * 10	Pa	Input Register	Read	HEAT PUMP	Discharge Pressure Set Point for Suction Group 2 during heating
F38F	Water Condenser A Pressure	DINT * 10	psi	Input Register	Read	WATER SOURCE	Effective pressure used to modulate water condenser valve A
F3C4	Water Condenser A Pressure	DINT * 10	Pa	Input Register	Read	WATER SOURCE	Effective pressure used to modulate water condenser valve A
F38B	Water Condenser A Pressure SP	DINT * 10	psi	Input Register	Read	WATER SOURCE	Pressure setpoint to modulate condenser valve A
F3C2	Water Condenser A Pressure SP	DINT * 10	Pa	Input Register	Read	WATER SOURCE	Pressure setpoint to modulate condenser valve A
F391	Water Condenser B Pressure	DINT * 10	psi	Input Register	Read	WATER SOURCE	Effective pressure used to modulate water condenser valve B
F3C1	Water Condenser B Pressure	DINT * 10	Pa	Input Register	Read	WATER SOURCE	Effective pressure used to modulate water condenser valve B
F38D	Water Condenser B Pressure SP	DINT * 10	psi	Input Register	Read	WATER SOURCE	Pressure setpoint to modulate condenser valve B
F3C3	Water Condenser B Pressure SP	DINT * 10	Pa	Input Register	Read	WATER SOURCE	Pressure setpoint to modulate condenser valve B
F8A8	Exhaust Fan Speed %	DINT	%	Input Register	Read	OPTION	Current VFD Operating %

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Design Options/Parameters (Available for Conditional Visibility)

F0F9	Max Outdoor Damper Position	DINT	%	Input Register	Read	ALL	Max % opening of the Outdoor Air Damper including DCV requirements (if equipped)
F0F8	Outdoor Damper CO2 Max Inc.	DINT	%	Input Register	Read	OPTION	Additional % opening of the Outdoor Air Damper during a CO2 call
F150	Max Return Damper Position	DINT	%	Input Register	Read	ALL	Max % opening of the Return Air Damper throughout Cool/Heat/Fan Only modes
F151	Min Return Damper Position	DINT	%	Input Register	Read	ALL	Min % opening of the Return Air Damper throughout Dehum mode
F14F	Min Bypass Damper Position	DINT	%	Input Register	Read	ALL	Min % opening of the Bypass Air Damper throughout Cool/Heat/Fan Only modes
F13B	RH/Dew Point Sensor	BOOL	-	Discrete Input	Read	ALL	True if RH sensor, False if Dewpoint Sensor
F0B2	Number of Condenser Fans	DINT	#	Input Register	Read	ALL	Total # of Condenser Fans included on the unit
F14D	Condenser Fan Control	BOOL	-	Discrete Input	Read	ALL	True if Condenser Fan Control is Enabled in the control sequence
F0B1	Number of Heat Stages	DINT	#	Input Register	Read	OPTION	Total # of Auxiliary Heat Stages included on the unit
F0EC	Reheat/Reclaim	BOOL	-	Discrete Input	Read	OPTION	True if Reclaim, False if Reheat
F847	Reheat/Reclaim Disable	BOOL	-	Discrete Input	Read	OPTION	True if neither Reheat or Reclaim coils are included on the unit
F672	Auxiliary Heat Lockout	BOOL	-	Discrete Input	Read	OPTION	True if there is no auxiliary heating included in the CES unit
F216	CO2 Sensor	BOOL	-	Discrete Input	Read	OPTION	True if a CO2 Sensor is included on the unit or used for control
F214	Number of Compressors	DINT	#	Input Register	Read	ALL	Total # of Compressors included on the unit
F0B3	Number of Exhaust Interlocks	DINT	#	Input Register	Read	OPTION	Total # of exhaust interlocks configured in unit control
F62C	VAV Option	BOOL	-	Discrete Input	Read	OPTION	True if VAV box control is included in the control sequence
F651	VAVNum	DINT	#	Input Register	Read	OPTION	Total # of VAV zones being controlled by the CES unit
F62D	ERV Option	BOOL	-	Discrete Input	Read	OPTION	True if an ERV is included on the unit
F574	Program Revision Number	DINT	#	Input Register	Read	ALL	Current firmware version loaded on the controller
F3A7	Number of Water Condensers	DINT	#	Input Register	Read	WATER SOURCE	# of water condensers present on the unit
F355	Water Source	BOOL	-	Discrete Input	Read	WATER SOURCE	True if the unit uses water source condensers
F3AB	Preheat Option	BOOL	-	Discrete Input	Read	OPTION	True if unit is equipped with pre-heat
F215	Unit Type	DINT	#	Input Register	Read	ALL	1 : SPU, 2 = MPU, 3 = WSHP, 4 = Split, 5 = MUA, 6 = HOU, 7 = Chilled Water
F386	Min Condenser Valve Position	DINT	%	Input Register	Read	WATER SOURCE	Minimum % opening f or water condenser valve during modulation
F397	Max Condenser Valve Position	DINT	%	Input Register	Read	WATER SOURCE	Maximum % opening f or water condenser valve during modulation
F3BE	Condenser Valve OFF Position	DINT	%	Input Register	Read	WATER SOURCE	Condenser valve % opening when no compressors are called for

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Sensor Offsets

F0A1	Space Temp Offset	DINT * 10	°F	Input Register	Read	ALL	Space temperature sensor calibration offset
F0A6	Space Humidity Offset	DINT * 10	%	Input Register	Read	ALL	Space humidity sensor calibration offset
F0A2	Supply Temp Offset	DINT * 10	°F	Input Register	Read	ALL	Supply temperature sensor calibration offset
F0A5	Return Air Temp Offset	DINT * 10	°F	Input Register	Read	ALL	Return temperature sensor calibration offset
F639	VAV Zone 1 Temp Offset	DINT * 10	°F	Input Register	Read	OPTION	VAV zone 1 temperature sensor calibration offset
F637	VAV Zone 1 2nd Temp Offset	DINT * 10	°F	Input Register	Read	OPTION	VAV zone 1 second temperature sensor calibration offset
F64F	VAV Zone 2 Temp Offset	DINT * 10	°F	Input Register	Read	OPTION	VAV zone 2 temperature sensor calibration offset

NOTE: Like the Input values, the Output DINT values also have a precision of 0.1 °C, 0.1%, or 0.1psi (Pa). To represent the decimal value over Modbus communication, all values noted with an input format of “DINT*10” need to be converted from SI units (°C or Pa) and multiplied by 10 before displaying on the BMS. The pressure values are available in both **Pa** and **psi** units depending on preference.