Modbus Register Map: InRow ACSC 100 Series

Part number: 990-3027D

Notes:

1. 16-bit registers are transmitted MSB first (i.e., big-endian).
2. INT32 and UINT32 are most-significant word in n+0, least significant word in n+1 (i.e. big-endian).
3. Reads can be performed with function codes 3, or 4. Writes can be performed with function code 16, or with function code 6 to registers with length 1.
4. Modbus serial RTU and Modbus over TCP is supported.
5. Signed numbers are twos-compliment
6. Status bits are atomic within a single Modbus register. User should not look for consistency across multiple registers, only within a single register.
7. Strings are two characters per register, first character in high-order byte, second character in low-order byte. Printable ASCII only.
8. When writing an ASCII string the null terminator must be included.
9. Single-register reads of reserved or undefined registers will return an error. Block reads which begin with a valid register will not return an error but will return zeros for undefined registers.
10. Data Type column: "INT16"=signed 16-bit integer, "UINT16" = unsigned 16-bit integer, "INT32" = signed 32-bit integer, "UINT32" = unsigned 32-bit integer, "ENUM" is a UINT16 value which maps to a defined list of states, "ASCII" = the printable ASCII subset from 0x20 - 0x7E. BOOLEAN= a single bit, 0 or 1.
11. "Absolute Starting Register Address" = 0 (the column heading used in this table) is equivalent to "Register 40001" in Modicon terminology, which is address zero when transmitted over the wire.
12. Accesses to items before data is available will reult in an invalid address error.
13. Response Timeout Guide: A single register response is typically less than 100 ms; however, reading a large number of registers may take 2 seconds or more. If timeouts

Absolute Starting Register Number, (Hexadecimal)	Absolute Starting Register Number, (Decimal)	Data Point	R/W	Length	Units	Valid Response				
// InRow SC Unit										
0000	0	OVERALL_STATUS	R	1	ENUM	0 = No Alarm	2 = Informational	4 = Warning	8 = Critical	
0001	1	COOL_SETPOINT	R/W	2	LONG	(Tenths Deg) F				
0003	3	SUPPLY_AIR_SETPOINT	R/W	2	LONG	(Tenths Deg) F				
0005	5	CONFIGURATION_TYPE	R/W	1	ENUM	0 = RACS	1 = Spot	2 = In-Row		
0006	6	FAN_SPEED_PREFERENCE	R/W	1	ENUM	0 = Low	1 = Med-Low	2 = Med	3 = Med-High	4 = High
0007	7	UNIT_CTRL	R/W	1	ENUM	0 = Standby	1 = On			
0008	8	CAPACITY_CTRL	R/W	1	ENUM	0 = Discrete (Disc)	1 = Proportional (Prop)			
0009	9	COOL_DEADBAND	R/W	2	LONG	(Tenths Deg) F				
000B	11	UNIT_NAME	R/W	21	ASCII	N/A				
0020	32	UNIT_LOCATION	R/W	21	ASCII	N/A				
0035	53	MODEL_NUM	R	10	ASCII	N/A				
003F	63	SERIAL_NUM	R	10	ASCII	N/A				
0049	73	FIRMWARE_REV	R	4	ASCII	N/A				
004D	77	HARDWARE_REV	R	4	ASCII	N/A				
0051	81	DATE_OF_MANUFACTURE	R	6	ASCII	mm/dd/yyyy				
0057	87	OPERATE_MODE	R	1	ENUM	0 = Standby	1 = On	2 = Idle		
0058	88	UNIT_COOL_OUTPUT	R	2	LONG	(Tenths) kW				
005A	90	UNIT_COOL_DEMAND	R	2	LONG	(Tenths) kW				
005C	92	RACK_INLET_TEMP	R	2	LONG	(Tenths Deg) F				
005E	94	SUPPLY_TEMP	R	2	LONG	(Tenths Deg) F				
0060	96	RETURN_TEMP	R	2	LONG	(Tenths Deg) F				
0062	98	COND_OUTLET_TEMP	R	2	LONG	(Tenths Deg) F				

Absolute Starting Register Number, (Hexadecimal)	Absolute Starting Register Number, (Decimal)	Data Point	R/W	Length	Units	Valid Response				
0064	100	COND_INLET_TEMP	R	2	LONG	(Tenths Deg) F				
0066	102	UNIT_AIR_FLOW	R	2	LONG	CFM				
0068	104	EVAPORATOR_FAN_SPEED	R	2	LONG	(Tenths) %				
006A	106	SUCTION_TEMP	R	2	LONG	(Tenths Deg) F				
006C	108	SUPERHEAT	R	2	LONG	(Tenths Deg) F				
006E	110	CONDENSER_FAN_SPEED	R	2	LONG	(Tenths) %				
0070	112	FILTER_DP	R	2	LONG	(Hundredths) in W.C.				
0072	114	CONTAINMENT_DP	R	2	LONG	(Hundredths) in W.C.				
0074	116	SUCTION_PRESSURE	R	2	LONG	Psi				
0076	118	DISCHARGE_PRESSURE	R	2	LONG	Psi				
0078	120	AIR_FILTER_RUNHOUR	R	2	LONG	Hours				
007A	122	EVAPORATOR_FAN_1_RUNHOUR	R	2	LONG	Hours				
007C	124	EVAPORATOR_FAN_2_RUNHOUR	R	2	LONG	Hours				
007E	126	EVAPORATOR_FAN_3_RUNHOUR	R	2	LONG	Hours				
0080	128	COMPRESSOR_RUNHOUR	R	2	LONG	Hours				
0082	130	CONDENSER_FAN_RUNHOUR	R	2	LONG	Hours				
0084	132	CONDENSER_FAN_RUNHOUR	R	2	LONG	Hours				
0086	134	CONDENSER_FAN_RUNHOUR	R	2	LONG	Hours				
0088	136	FAN_LEFT_PWRSP_RUNHOUR	R	2	LONG	Hours				
008A	138	FAN_RIGHT_PWRSP_RUNHOUR	R	2	LONG	Hours				
008C	140	CONDS_PUMP_RUNHOUR	R	2	LONG	Hours				
008E	142	AIR_FILTER_SERV_INT	R/W	2	LONG	Weeks				
0090	144	AIR_FILTER_SERV_INT_ALARM	R/W	1	ENUM	0 = Enable	1 = Disable			
0091	145	RACK_TEMP_HIGH_THRESH	R/W	2	LONG	(Tenths Deg) F				
0093	147	SPLY_AIR_TEMP_HIGH_THRESH	R/W	2	LONG	(Tenths Deg) F				
0095	149	RTN_AIR_TEMP_HIGH_THRESH	R/W	2	LONG	(Tenths Deg) F				
0097	151	ALTITUDE	R/W	2	LONG	Feet				
0099	153	STARTUP_DELAY	R/W	2	LONG	Seconds				
009B	155	IDLE_ON_LEAK	R/W	1	ENUM	0 = Yes	1 = No			
009C	156	INPUT_NORMAL	R/W	1	ENUM	0 = Open	1 = Closed			
009D	157	INPUT_STATE	R	1	ENUM	0 = Open	1 = Closed			
009E	158	OUTPUT_NORMAL	R/W	1	ENUM	0 = Open	1 = Closed			
009F	159	OUTPUT_STATE	R	1	ENUM	0 = Open	1 = Closed			
00A0	160	OUTPUT_SOURCE	R/W	1	ENUM	0 = Any Alarm	1 = Only Critical Alarms			
00A1	161	COMPRESSOR_STATE	R	1	ENUM	0 = Off	1 = On			
00A2	162	UNIT_RESERVED_REGISTERS	R	38	NA	Reserved				
// InRow SC Group										
00C8	200	NUMBER_OF_COOLING_UNITS	R/W	2	LONG					
00CA	202	GROUP_COOL_SETPOINT	R/W	2	LONG	(Tenths Deg) F				
00CC	204	GROUP_SUPPLY_AIR_SETPOINT	R/W	2	LONG	(Tenths Deg) F				
00CE	206	GROUP_CONFIGURATION_TYPE	R/W	1	ENUM	0 = RACS	1 = Spot	2 = In-Row		
00CF	207	GROUP_FAN_SPEED_PREFERENCE	R/W	1	ENUM	0 = Low	1 = Med-Low	2 = Med	3 = Med-High	4 = High
00D0	208	GROUP_CAPACITY_CTRL	R/W	1	ENUM	0 = Discrete (Disc)	1 = Proportional (Prop)			
00D1	209	GROUP_FAN_SPEED_CTRL	R/W	1	ENUM	0 = Automatic	1 = Manual			
00D2	210	GROUP_COOL_DEADBAND	R/W	2	LONG	(Tenths Deg) F				
00D4	212	GROUP_ALTITUDE	R/W	2	LONG	Feet				

Absolute Starting Register Number, (Hexadecimal)	Absolute Starting Register Number, (Decimal)	Data Point	R/W	Length	Units	Valid Response				
00D6	214	GROUP_RACK_INLET_MAX_TEMP	R	2	LONG	(Tenths Deg) F				
00D8	216	GROUP_RACK_INLET_MIN_TEMP	R	2	LONG	(Tenths Deg) F				
00DA	218	GROUP_RETURN_AIR_MAX_TEMP	R	2	LONG	(Tenths Deg) F				
00DC	220	GROUP_RETURN_AIR_MIN_TEMP	R	2	LONG	(Tenths Deg) F				
00DE	222	GROUP_COOLING_DEMAND	R	2	LONG	(Tenths) kW				
00E0	224	GROUP_COOLING_ACTUAL	R	2	LONG	(Tenths) kW				
00E2	226	GROUP_AIRFLOW_DEMAND	R	2	LONG	CFM				
00E4	228	NUM_ACTIVE_FLOW_CONTROLLERS	R/W	2	LONG	N/A				
00E6	230	ACTIVE_FLOW_CONTROL_BIAS	R/W	1	ENUM	0 = Positive	1 = Slightly Positive	2 = Zero	3 = Slightly Ne	4 = Negative
00E7	231	ACTIVE_FLOW_CONTROL_STATUS	R	1	ENUM	0 = Under	1 = Okay	2 = Over	3 = N/A	
00E8	232	ACTIVE_FLOW_CONTROL_LAMP_TEST	R/W	1	ENUM	0 = Disable	1 = Enable			
00E9	233	GROUP_RESERVED_REGISTERS	R	23	NA	Reserved				
// InRow SC Faults										
0100	256	INTERNAL_COMM_FAULT	R	1	ENUM	0 = Clear	1 = Alarm			
0101	257	ALINK_ISOLATION_RELAY_FAULT	R	1	ENUM	0 = Clear	1 = Alarm			
0102	258	EXTERNAL_COMMUNICATION_FAULT	R	1	ENUM	0 = Clear	1 = Alarm			
0103	259	COOL_FAIL	R	1	ENUM	0 = Clear	1 = Alarm			
0104	260	HIGH_RACK_TEMP	R	1	ENUM	0 = Clear	1 = Alarm			
0105	261	AIR_FILTER_CLOGGED	R	1	ENUM	0 = Clear	1 = Alarm			
0106	262	RTN_AIR_SENSOR_FAULT	R	1	ENUM	0 = Clear	1 = Alarm			
0107	263	UPPER_RTN_AIR_SENSOR_FAULT	R	1	ENUM	0 = Clear	1 = Alarm			
0108	264	SPLY_AIR_SENSOR_FAULT	R	1	ENUM	0 = Clear	1 = Alarm			
0109	265	UPPER_SPLY_AIR_SENSOR_FAULT	R	1	ENUM	0 = Clear	1 = Alarm			
010A	266	RACK_TEMP_SENSOR_FAULT	R	1	ENUM	0 = Clear	1 = Alarm			
010B	267	HIGH_DISCHARGE_PRESSURE	R	1	ENUM	0 = Clear	1 = Alarm			
010C	268	LOW_SUCTION_PRESSURE	R	1	ENUM	0 = Clear	1 = Alarm			
010D	269	EVAPORATOR_FAN_1_FAULT	R	1	ENUM	0 = Clear	1 = Alarm			
010E	270	EVAPORATOR_FAN_2_FAULT	R	1	ENUM	0 = Clear	1 = Alarm			
010F	271	EVAPORATOR_FAN_3_FAULT	R	1	ENUM	0 = Clear	1 = Alarm			
0110	272	WATER_DETECTED	R	1	ENUM	0 = Clear	1 = Alarm			
0111	273	CHECK_CONDENSATE_MANAGEMENT_FAULT	R	1	ENUM	0 = Clear	1 = Alarm			
0112	274	CONDS_PAN_FULL	R	1	ENUM	0 = Clear	1 = Alarm			
0113	275	FAN_PWRSP_LEFT_FAULT	R	1	ENUM	0 = Clear	1 = Alarm			
0114	276	FAN_PWRSP_RIGHT_FAULT	R	1	ENUM	0 = Clear	1 = Alarm			
0115	277	AIR_FILTER_RUNHOUR_VIOLATION	R	1	ENUM	0 = Clear	1 = Alarm			
0116	278	CONDENSER_FAN_1_FAULT	R	1	ENUM	0 = Clear	1 = Alarm			
0117	279	CONDENSER_FAN_2_FAULT	R	1	ENUM	0 = Clear	1 = Alarm			
0118	280	CONDENSER_FAN_3_FAULT	R	1	ENUM	0 = Clear	1 = Alarm			
0119	281	SUPPLY_HIGH_TEMP_FAULT	R	1	ENUM	0 = Clear	1 = Alarm			
011A	282	RETURN_HIGH_TEMP_FAULT	R	1	ENUM	0 = Clear	1 = Alarm			
011B	283	FILTER_DP_SENSOR_FAULT	R	1	ENUM	0 = Clear	1 = Alarm			
011C	284	CONTAINMENT_DP_SENSOR_FAULT	R	1	ENUM	0 = Clear	1 = Alarm			
011D	285	SUCTION_TEMP_SENSOR_FAULT	R	1	ENUM	0 = Clear	1 = Alarm			
011E	286	SUCTION_PRESSURE_SENSOR_FAULT	R	1	ENUM	0 = Clear	1 = Alarm			
011F	287	DISCH_PRESS_SENSOR_FAULT	R	1	ENUM	0 = Clear	1 = Alarm			
0120	288	CONTAINMENT_DP_HIGH_FAULT	R	1	ENUM	0 = Clear	1 = Alarm			

Absolute Starting Register Number, (Hexadecimal)	Absolute Starting Register Number, (Decimal)	Data Point	R/W	Length	Units	Valid Response				
0121	289	INPUT_CONTACT_FAULT	R	1	ENUM	0 = Clear	1 = Alarm			
0122	290	HIGH_DISCHARGE_PRESSURE_FAULT	R	1	ENUM	0 = Clear	1 = Alarm			
0123	291	LOW_SUCTION_PRESSURE_FAULT	R	1	ENUM	0 = Clear	1 = Alarm			
0124	292	START_LOW_SUCTION_PRESSURE	R	1	ENUM	0 = Clear	1 = Alarm			
0125	293	START_LINE_PRESSURE_IMBALANCE	R	1	ENUM	0 = Clear	1 = Alarm			
0126	294	GROUP_COMM_FAULT	R	1	ENUM	0 = Clear	1 = Alarm			
0127	295	LEAK_DETECTED_SHUTDOWN	R	1	ENUM	0 = Clear	1 = Alarm			
0128	296	ECOAISLE_DOOR_OPEN_FAULT	R	1	ENUM	0 = Clear	1 = Alarm			
0129	297	NUM_OF_ACTIVE_FLOW_CONTROLLERS_FAULT	R	1	ENUM	0 = Clear	1 = Alarm			
012A	298	INSUFFICIENT_AIRFLOW_FAULT	R	1	ENUM	0 = Clear	1 = Alarm			
012B	299	ACTIVE_FLOW_CONTROLLER_SENSOR_FAULT	R	1	ENUM	0 = Clear	1 = Alarm			
// Logging Registers										
FFEE	65518	APC RX CRC ERRORS	R	2	LONG	RX CRC ERRORS				
FFF0	65520	APC RX PACKET COUNTER	R	2	LONG	RX PACKET COUNTER				
FFF2	65522	APC TX PACKET COUNTER	R	2	LONG	TX PACKET COUNTER				
FFF4	65524	APC SER FRAME ERRORS	R	2	LONG	SER FRAME ERRORS				
FFF6	65526	APC SER OVERRUN ERRORS	R	2	LONG	SER OVERRUN ERRORS				
FFF8	65528	APC SER PARITY ERRORS	R	2	LONG	SER PARITY ERRORS				
FFFA	65530	APC SER RX15 ERRORS	R	2	LONG	SER RX15 ERRORS				
FFFC	65532	APC SER RX35 ERRORS	R	2	LONG	SER RX35 ERRORS				
FFFE	65534	APC SER BAUD RATE	R	1	INTEGER	SER BAUD RATE				
// END OF DATA										
Note 1: ASCII strings include Null terminator.										
Note 2: To prevent Building Management Service and automated script difficulties, accesses to data points on unsupported units will return a value of 0 instead of an error.										
Note 3: Accesses to items before data is available will result in an invalid address error.										

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