



Modbus Register Map: InRow ACRC30x

Part number: 990-4742A

Notes:

- 16-bit registers are transmitted MSB first (i.e., big-endian).
- INT32 and UINT32 are most-significant word in n+0, least significant word in n+1 (i.e. big-endian).
- 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.
- Modbus serial RTU and Modbus over TCP is supported.
- Signed numbers are twos-compliment
- Status bits are atomic within a single Modbus register. User should not look for consistency across multiple registers, only within a single register.
- Strings are two characters per register, first character in high-order byte, second character in low-order byte. Printable ASCII only.
- When writing an ASCII string the null terminator must be included.
- 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.
- 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.
- "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.
- Accesses to items before data is available will result in an invalid address error.
- 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 occur, reduce the number of registers in each request or increase the response timeout.

Modicon Standard Register Number	Absolute Starting Register Number, (Hexadecimal)	Absolute Starting Register Number, (Decimal)	Data Point	R/W	Length	Units	Valid Response						
Group Data													
40001	0000	0	OVERALL_STATUS	R	1	ENUM	0 = No Alarm	1 = Informational	2 = Warning	3 = Critical			
40002	0001	1	GROUP_COOL_OUTPUT	R	2	INT32	(Tenths) kW						
40004	0003	3	GROUP_COOL_DEMAND	R	2	INT32	(Tenths) kW						
40006	0005	5	COOL_SETPOINT	R/W	2	INT32	(Tenths Deg) F						
40008	0007	7	SUPPLY_AIR_SETPOINT	R/W	2	INT32	(Tenths Deg) F						
40010	0009	9	GROUP_AIR_FLOW	R	2	INT32	CFM						
40012	000B	11	GROUP_MAX_RACK_TEMP	R	2	INT32	(Tenths Deg) F						
40014	000D	13	GROUP_MIN_RACK_TEMP	R	2	INT32	(Tenths Deg) F						
40016	000F	15	AIRFLOW_CONTROL	R/W	1	ENUM	0 = Automatic	1 = 60%	2 = 70%	3 = 80%	4 = 90%	5 = 100%	
40017	0010	16	NUMBER_OF_UNITS	R/W	2	INT32	N/A						
40019	0012	18	CONFIGURATION_TYPE	R	1	ENUM	0 = RACS	1 = HACS	2 = InRow	3 = CACS			
40020	0013	19	COOL_PID_P	R	2	INT32	(Hundredths) Unitless						
40022	0015	21	COOL_PID_I	R	2	INT32	(Hundredths) Unitless						
40024	0017	23	COOL_PID_D	R	2	INT32	(Hundredths) Unitless						
40026	0019	25	PERCENT_GLYCOL	R	2	INT32	%						
40028	001B	27	MAX_FAN_SPEED	R/W	2	INT32	%						
40030	001D	29	RESERVED	R	1	NA	Reserved						
40031	001E	30	ALTITUDE	R/W	2	INT32	Feet						
40033	0020	32	NUMBER_ACTIVE_FLOW_CONTROLLERS	R/W	2	INT32	N/A						
40035	0022	34	ACTIVE_FLOW_CONTROL_BIAS	R	1	ENUM	0 = Positive	1 = Slightly Positive	2 = Zero	3 = Slightly Negative	4 = Negative		
40036	0023	35	ACTIVE_FLOW_CONTROL_STATUS	R	1	ENUM	0 = Under	1 = Okay	2 = Over	3 = N/A			
40037	0024	36	ACTIVE_FLOW_CONTROL_LAMP_TEST	R/W	1	ENUM	0 = Disable	1 = Enable					
40038	0025	37	DELTA_T_SETPOINT	R/W	1	ENUM	0 = 10 Deg F	1 = 15 Deg F	2 = 20 Deg F	3 = 25 Deg F	4 = 30 Deg F	5 = 35 Deg F	6 = 40 Deg F
40039	0026	38	GROUP_RESERVED_REGISTERS	R	90	NA	Reserved						
Unit Data													
40129	0080	128	UNIT_NAME	R/W	21	ASCII	N/A						
40150	0095	149	UNIT_LOCATION	R/W	21	ASCII	N/A						
40171	00AA	170	RESERVED	R	2	NA	Reserved						
40173	00AC	172	MODEL_NUMBER	R	10	ASCII	N/A						
40183	00B6	182	SERIAL_NUMBER	R	10	ASCII	N/A						
40193	00C0	192	FIRMWARE_REV	R	4	ASCII	N/A						
40197	00C4	196	HARDWARE_REV	R	4	ASCII	N/A						
40201	00C8	200	DATE_OF_MANUFACTURE	R	6	ASCII	mm/dd/yyyy						
40207	00CE	206	OPERATE_MODE	R	1	ENUM	0 = Standby	1 = On	2 = idle	3 = Maintenance			
40208	00CF	207	UNIT_COOL_OUTPUT	R	2	INT32	(Tenths) kW						

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40210	00D1	209	UNIT_COOL_DEMAND	R	2	INT32	(Tenths) kW							
40212	00D3	211	UNIT_MAX_RACK_INLET_TEMP	R	2	INT32	(Tenths Deg) F							
40214	00D5	213	SUPPLY_AIR_TEMP	R	2	INT32	(Tenths Deg) F							
40216	00D7	215	RETURN_AIR_TEMP	R	2	INT32	(Tenths Deg) F							
40218	00D9	217	UNIT_AIR_FLOW	R	2	INT32	CFM							
40220	00DB	219	FAN_SPEED	R	2	INT32	(Tenths) %							
40222	00DD	221	ACTIVE_POWER_SOURCE	R	1	ENUM	0 = Primary	1 = Secondary						
40223	00DE	222	FILTER_DIFFERENTIAL_PRESSURE	R	2	INT32	(Hundredths) in W.C.							
40225	00E0	224	RESERVED	R	2	NA	Reserved							
40227	00E2	226	CHILLED_WATER_VALVE_POSITION	R	2	INT32	% Open							
40229	00E4	228	CHILLED_WATER_FLOW	R	2	INT32	(Tenths) GPM							
40231	00E6	230	CHILLED_WATER_TEMP_IN	R	2	INT32	(Tenths Deg) F							
40233	00E8	232	CHILLED_WATER_TEMP_OUT	R	2	INT32	(Tenths Deg) F							
40235	00EA	234	AIR_FILTER_RUNHOUR	R	2	INT32	Hours							
40237	00EC	236	FAN_1_RUNHOUR	R	2	INT32	Hours							
40239	00EE	238	FAN_2_RUNHOUR	R	2	INT32	Hours							
40241	00F0	240	FAN_3_RUNHOUR	R	2	INT32	Hours							
40243	00F2	242	FAN_4_RUNHOUR	R	2	INT32	Hours							
40245	00F4	244	FAN_5_RUNHOUR	R	2	INT32	Hours							
40247	00F6	246	FAN_6_RUNHOUR	R	2	INT32	Hours							
40249	00F8	248	FAN_7_RUNHOUR	R	2	INT32	Hours							
40251	00FA	250	FAN_8_RUNHOUR	R	2	INT32	Hours							
40253	00FC	252	FAN_PSU_1_RUNHOUR	R	2	INT32	Hours							
40255	00FE	254	FAN_PSU_2_RUNHOUR	R	2	INT32	Hours							
40257	0100	256	CONDENSATE_PUMP_RUNHOUR	R	2	INT32	Hours							
40259	0102	258	AIR_FILTER_SERVICE_INTERVAL	R/W	2	INT32	Weeks							
40261	0104	260	AIR_FILTER_SERVICE_INTERVAL_ALARM	R/W	1	ENUM	0 = Enable	1 = Disable						
40262	0105	261	RACK_TEMP_HIGH_THRESH	R/W	2	INT32	(Tenths Deg) F							
40264	0107	263	SUPPLY_AIR_TEMP_HIGH_THRESH	R/W	2	INT32	(Tenths Deg) F							
40266	0109	265	RETURN_AIR_TEMP_HIGH_THRESH	R/W	2	INT32	(Tenths Deg) F							
40268	010B	267	ENTERING_CHILLED_WATER_TEMP_HIGH_THRESH	R/W	2	INT32	(Tenths Deg) F							
40270	010D	269	STARTUP_DELAY	R/W	2	INT32	sec							
40272	010F	271	CHILLED_WATER_VALVE_CONTROL	R	1	ENUM	0 = Automatic	1 = Open						
40273	0110	272	IDLE_ON_LEAK	R/W	1	ENUM	0 = Yes	1 = No						
40274	0111	273	STANDBY_INPUT_NORMAL_STATE	R/W	1	ENUM	0 = Open	1 = Closed						
40275	0112	274	STANDBY_INPUT_STATE	R	1	ENUM	0 = Open	1 = Closed						
40276	0113	275	RESERVED	R	1	NA	Reserved							
40277	0114	276	OUTPUT_STATE_1	R	1	ENUM	0 = Abnormal	1 = Normal	Same as register 280. For legacy systems.					
40278	0115	277	RESERVED	R	1	NA	Reserved							
40279	0116	278	POWER_SOURCE	R/W	1	ENUM	0 = Single	1 = Dual						
40280	0117	279	IDLE_ON_COOL_FAIL	R/W	1	ENUM	0 = Yes	1 = No						
40281	0118	280	OUTPUT_STATE_1	R	1	ENUM	0 = Abnormal	1 = Normal	Same as register 276.					
40282	0119	281	OUTPUT_STATE_2	R	1	ENUM	0 = Abnormal	1 = Normal						
40283	011A	282	OUTPUT_STATE_3	R	1	ENUM	0 = Abnormal	1 = Normal						
40284	011B	283	OUTPUT_STATE_4	R	1	ENUM	0 = Abnormal	1 = Normal						
40285	011C	284	RESERVED	R	5	NA	Reserved							
40290	0121	289	MAXIMUM_CHILLED_WATER_FLOW	R	2	INT32	(Tenths) GPM							
40292	0123	291	BYPASS_VALVE_POSITION	R/W	1	ENUM	0 = Open	1 = Closed						
40293	0124	292	UNIT_SERVICE_INTERVAL	R	2	INT32	Weeks							
40295	0126	294	UNIT_SERVICE_INTERVAL_ALARM	R	1	ENUM	0 = Enable	1 = Disable						
40296	0127	295	DEW_POINT_TEMP	R	2	INT32	(Tenths Deg) F							
40298	0129	297	COIL_CHILLED_WATER_TEMP	R	2	INT32	(Tenths Deg) F							
40300	012B	299	UNIT_POWER	R	2	INT32	(Tenths) kW							
40302	012D	301	UNIT_ENERGY	R	2	INT32	(Tenths) kWh							
40304	012F	303	UNIT_RUNHOUR	R	2	INT32	Hours							
40306	0131	305	CIRCULATION_PUMP_RUNHOUR	R	2	INT32	Hours							
40308	0133	307	NUMBER_OF_RACK_INLET_TEMPERATURE_SENSORS	R/W	2	INT32	N/A							
40310	0135	309	NUMBER_OF_LEAK_DETECTORS	R/W	2	INT32	N/A							
40312	0137	311	AIR_FILTER_TYPE	R/W	1	ENUM	0 = Standard	1 = Pleated						

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40313	0138	312	UNIT_RESERVED_REGISTERS	R	72	NA	Reserved						
	Alarms												
40385	0180	384	INTERNAL_COMM_ERROR	R	1	ENUM	0 = Clear 1 = Alarm						
40386	0181	385	RESERVED	R	1	ENUM	0 = Clear 1 = Alarm						
40387	0182	386	COOL_FUNCTION_UNAVAILABLE	R	1	ENUM	0 = Clear 1 = Alarm						
40388	0183	387	HIGH_RACK_TEMP	R	1	ENUM	0 = Clear 1 = Alarm						
40389	0184	388	AIR_FILTER_CLOGGED	R	1	ENUM	0 = Clear 1 = Alarm						
40390	0185	389	LOWER_RETURN_AIR_SENSOR_ERROR	R	1	ENUM	0 = Clear 1 = Alarm						
40391	0186	390	UPPER_RETURN_AIR_SENSOR_ERROR	R	1	ENUM	0 = Clear 1 = Alarm						
40392	0187	391	LOWER_SUPPLY_AIR_SENSOR_ERROR	R	1	ENUM	0 = Clear 1 = Alarm						
40393	0188	392	UPPER_SUPPLY_AIR_SENSOR_ERROR	R	1	ENUM	0 = Clear 1 = Alarm						
40394	0189	393	RACK_TEMP_SENSOR_1_ERROR	R	1	ENUM	0 = Clear 1 = Alarm						
40395	018A	394	CHILLED_WATER_VALVE_ACTUATOR_ERROR	R	1	ENUM	0 = Clear 1 = Alarm						
40396	018B	395	FAN_1_ERROR	R	1	ENUM	0 = Clear 1 = Alarm						
40397	018C	396	FAN_2_ERROR	R	1	ENUM	0 = Clear 1 = Alarm						
40398	018D	397	FAN_3_ERROR	R	1	ENUM	0 = Clear 1 = Alarm						
40399	018E	398	FAN_4_ERROR	R	1	ENUM	0 = Clear 1 = Alarm						
40400	018F	399	FAN_5_ERROR	R	1	ENUM	0 = Clear 1 = Alarm						
40401	0190	400	FAN_6_ERROR	R	1	ENUM	0 = Clear 1 = Alarm						
40402	0191	401	FAN_7_ERROR	R	1	ENUM	0 = Clear 1 = Alarm						
40403	0192	402	FAN_8_ERROR	R	1	ENUM	0 = Clear 1 = Alarm						
40404	0193	403	WATER_DETECTED	R	1	ENUM	0 = Clear 1 = Alarm						
40405	0194	404	CHECK_CONDS_MGMT_SYSTEM	R	1	ENUM	0 = Clear 1 = Alarm						
40406	0195	405	CHILLED_WATER_FLOWMETER_ERROR	R	1	ENUM	0 = Clear 1 = Alarm						
40407	0196	406	ENTERING_CHILLED_WATER_HIGH_TEMP	R	1	ENUM	0 = Clear 1 = Alarm						
40408	0197	407	ENTERING_CHILLED_WATER_TEMP_SENSOR_ERROR	R	1	ENUM	0 = Clear 1 = Alarm						
40409	0198	408	LEAVING_CHILLED_WATER_TEMP_SENSOR_ERROR	R	1	ENUM	0 = Clear 1 = Alarm						
40410	0199	409	CONDENSATE_PAN_FULL	R	1	ENUM	0 = Clear 1 = Alarm						
40411	019A	410	PRIMARY_POWER_SOURCE_UNAVAILABLE	R	1	ENUM	0 = Clear 1 = Alarm						
40412	019B	411	SECONDARY_POWER_SOURCE_UNAVAILABLE	R	1	ENUM	0 = Clear 1 = Alarm						
40413	019C	412	FAN_POWER_SUPPLY_1_ERROR	R	1	ENUM	0 = Clear 1 = Alarm						
40414	019D	413	FAN_POWER_SUPPLY_2_ERROR	R	1	ENUM	0 = Clear 1 = Alarm						
40415	019E	414	AIR_FILTER_RUNHOUR_VIOLATION	R	1	ENUM	0 = Clear 1 = Alarm						
40416	019F	415	RESERVED	R	1	ENUM	0 = Clear 1 = Alarm						
40417	01A0	416	STANDBY_DUE_TO_INPUT_CONTACT	R	1	ENUM	0 = Clear 1 = Alarm						
40418	01A1	417	UNEXPECTED_NUMBER_OF_UNITS_IN_GROUP	R	1	ENUM	0 = Clear 1 = Alarm						
40419	01A2	418	SUPPLY_HIGH_TEMPERATURE	R	1	ENUM	0 = Clear 1 = Alarm						
40420	01A3	419	RETURN_HIGH_TEMPERATURE	R	1	ENUM	0 = Clear 1 = Alarm						
40421	01A4	420	DP_FILTER_SENSOR_ERROR	R	1	ENUM	0 = Clear 1 = Alarm						
40422	01A5	421	RESERVED	R	1	ENUM	0 = Clear 1 = Alarm						
40423	01A6	422	CHILLED_WATER_VALVE_NOT_SET_TO_AUTO	R	1	ENUM	0 = Clear 1 = Alarm						
40424	01A7	423	IDLE_DUE_TO_LEAK_DETECTED	R	1	ENUM	0 = Clear 1 = Alarm						
40425	01A8	424	RESERVED	R	1	ENUM	0 = Clear 1 = Alarm						
40426	01A9	425	RESERVED	R	1	ENUM	0 = Clear 1 = Alarm						
40427	01AA	426	RESERVED	R	1	ENUM	0 = Clear 1 = Alarm						
40428	01AB	427	RESERVED	R	1	ENUM	0 = Clear 1 = Alarm						
40429	01AC	428	RESERVED	R	1	ENUM	0 = Clear 1 = Alarm						
40430	01AD	429	ECOAISLE_DOOR_OPEN	R	1	ENUM	0 = Clear 1 = Alarm						
40431	01AE	430	UNEXPECTED_NUMBER_OF_ACTIVE_FLOW_CONTROLLERS	R	1	ENUM	0 = Clear 1 = Alarm						
40432	01AF	431	INSUFFICIENT_AIRFLOW	R	1	ENUM	0 = Clear 1 = Alarm						
40433	01B0	432	ACTIVE_FLOW_CONTROLLER_SENSOR_ERROR	R	1	ENUM	0 = Clear 1 = Alarm						
40434	01B1	433	RACK_TEMP_SENSOR_2_ERROR	R	1	ENUM	0 = Clear 1 = Alarm						
40435	01B2	434	RACK_TEMP_SENSOR_3_ERROR	R	1	ENUM	0 = Clear 1 = Alarm						
40436	01B3	435	RACK_TEMP_SENSOR_4_ERROR	R	1	ENUM	0 = Clear 1 = Alarm						
40437	01B4	436	UNIT_SERVICE_REQUIRED	R	1	ENUM	0 = Clear 1 = Alarm						
40438	01B5	437	HUMIDITY_SENSOR_ERROR	R	1	ENUM	0 = Clear 1 = Alarm						
40439	01B6	438	COIL_CONDENSATION_POSSIBLE	R	1	ENUM	0 = Clear 1 = Alarm						
40440	01B7	439	CONTROLLER_POWER_SUPPLY_1_ERROR	R	1	ENUM	0 = Clear 1 = Alarm						
40441	01B8	440	CONTROLLER_POWER_SUPPLY_2_ERROR	R	1	ENUM	0 = Clear 1 = Alarm						
40442	01B9	441	COIL_CHILLED_WATER_TEMP_SENSOR_ERROR	R	1	ENUM	0 = Clear 1 = Alarm						

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40443	01BA	442	FAN_POWER_SUPPLY_1_CURRENT_SENSOR_ERROR	R	1	ENUM	0 = Clear	1 = Alarm					
40444	01BB	443	FAN_POWER_SUPPLY_2_CURRENT_SENSOR_ERROR	R	1	ENUM	0 = Clear	1 = Alarm					
40445	01BC	444	FACTORY_CONFIGURATION_NOT_COMPLETE	R	1	ENUM	0 = Clear	1 = Alarm					
40446	01BD	445	UNIT_IN_MAINTENANCE_MODE	R	1	ENUM	0 = Clear	1 = Alarm					
40447	01BE	446	UNEXPECTED_NUMBER_OF_RACK_INLET_SENSORS	R	1	ENUM	0 = Clear	1 = Alarm					
40448	01BF	447	UNEXPECTED_NUMBER_OF_LEAK_SENSORS	R	1	ENUM	0 = Clear	1 = Alarm					
40449	01C0	448	OUTPUT_RELAY_1_ABNORMAL	R	1	ENUM	0 = Clear	1 = Alarm					
40450	01C1	449	OUTPUT_RELAY_2_ABNORMAL	R	1	ENUM	0 = Clear	1 = Alarm					
40451	01C2	450	OUTPUT_RELAY_3_ABNORMAL	R	1	ENUM	0 = Clear	1 = Alarm					
40452	01C3	451	OUTPUT_RELAY_4_ABNORMAL	R	1	ENUM	0 = Clear	1 = Alarm					
40453	01C4	452	CIRCULATION_PUMP_ERROR	R	1	ENUM	0 = Clear	1 = Alarm					

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