

## NEW LEONARDO: DIGITAL VARIABLES (COILS)

variable address	description	variable type	MODBUS Database (e.g. address -> bit nr.)			
			unit 1	unit 2	unit 3	unit n
0	Not used	...	1	201	401	(n-1)*200+1
1	System On (Fan)	R	2	202	402	(n-1)*200+2
2	Compressor 1	R	3	203	403	(n-1)*200+3
3	Compressor 2	R	4	204	404	(n-1)*200+4
4	Compressor 3	R	5	205	405	(n-1)*200+5
5	Compressor 4	R	6	206	406	(n-1)*200+6
6	El. Heater 1	R	7	207	407	(n-1)*200+7
7	El. Heater 2	R	8	208	408	(n-1)*200+8
8	Not Used	R	9	209	409	(n-1)*200+9
9	Hot gas ON	R	10	210	410	(n-1)*200+10
10	Dehumidification	R	11	211	411	(n-1)*200+11
11	Humidification	R	12	212	412	(n-1)*200+12
12	Emergency Working	R	13	213	413	(n-1)*200+13
13	Not used	...	14	214	414	(n-1)*200+14
14	Not used	...	15	215	415	(n-1)*200+15
15	Not used	...	16	216	416	(n-1)*200+16
16	Not used	...	17	217	417	(n-1)*200+17
17	Not used	...	18	218	418	(n-1)*200+18
18	Not used	...	19	219	419	(n-1)*200+19
19	Not used	...	20	220	420	(n-1)*200+20
20	Wrong Password Alarm	R	21	221	421	(n-1)*200+21
21	High Room Temperature Alarm	R	22	222	422	(n-1)*200+22
22	Low Room Temperature Alarm	R	23	223	423	(n-1)*200+23
23	High Room Humidity Alarm	R	24	224	424	(n-1)*200+24
24	Low Room Humidity Alarm	R	25	225	425	(n-1)*200+25
25	Room Temp. And Humidity Limits by External Sensors	R	26	226	426	(n-1)*200+26
26	Clogged Filter Alarm	R	27	227	427	(n-1)*200+27
27	Flooding Alarm	R	28	228	428	(n-1)*200+28
28	Loss of Air Flow Alarm	R	29	229	429	(n-1)*200+29
29	Heater Overheating Alarm	R	30	230	430	(n-1)*200+30
30	Circuit 1 High Pressure Alarm	R	31	231	431	(n-1)*200+31
31	Circuit 2 High Pressure Alarm	R	32	232	432	(n-1)*200+32
32	Circuit 1 Low Pressure Alarm	R	33	233	433	(n-1)*200+33
33	Circuit 2 Low Pressure Alarm	R	34	234	434	(n-1)*200+34
34	Circuit 1 Electronic Valve Failure	R	35	235	435	(n-1)*200+35
35	Circuit 2 Electronic Valve Failure	R	36	236	436	(n-1)*200+36
36	Wrong Phase Sequence Alarm	R	37	237	437	(n-1)*200+37
37	Smoke-Fire Alarm	R	38	238	438	(n-1)*200+38
38	Interrupted LAN Alarm	R	39	239	439	(n-1)*200+39
39	Humidifier: High Current Alarm	R	40	240	440	(n-1)*200+40
40	Humidifier: Power Loss Alarm	R	41	241	441	(n-1)*200+41

41	Humidifier: Water Loss Alarm	R	42	242	442	(n-1)*200+42
42	CW Temperature too High for Dehumidification	R	43	243	443	(n-1)*200+43
43	CW Valve Failure or Water Flow too Low	R	44	244	444	(n-1)*200+44
44	Loss of Water Flow Alarm	R	45	245	445	(n-1)*200+45
45	High Chilled Water Temperature Alarm	R	46	246	446	(n-1)*200+46
46	Room Air Sensor Failed/Disconnected	R	47	247	447	(n-1)*200+47
47	Hot Water Temp. Sensor Failed/Disconnected	R	48	248	448	(n-1)*200+48
48	Chilled Water Temp. Sensor Failed/Disconnected	R	49	249	449	(n-1)*200+49
49	Outdoor Temperature Sensor Failed/Disconnected	R	50	250	450	(n-1)*200+50
50	Delivery Air Temp. Sensor Failed/Disconnected	R	51	251	451	(n-1)*200+51
51	Room Humidity Sensor Failed/Disconnected	R	52	252	452	(n-1)*200+52
52	Chilled Water Outlet Temp.Sensor Failed/Disconnected	R	53	253	453	(n-1)*200+53
53	Compressor 1: hour counter threshold Alarm	R	54	254	454	(n-1)*200+54
54	Compressor 2: hour counter threshold Alarm	R	55	255	455	(n-1)*200+55
55	Compressor 3: hour counter threshold Alarm	R	56	256	456	(n-1)*200+56
56	Compressor 4: hour counter threshold Alarm	R	57	257	457	(n-1)*200+57
57	Air filter: hour counter threshold Alarm	R	58	258	458	(n-1)*200+58
58	Heater 1: hour counter threshold Alarm	R	59	259	459	(n-1)*200+59
59	Heater 2: hour counter threshold Alarm	R	60	260	460	(n-1)*200+60
60	Humidifier: hour counter threshold Alarm	R	61	261	461	(n-1)*200+61
61	Air conditioning unit: hour counter threshold Alarm	R	62	262	462	(n-1)*200+62
62	Alarm by Digital Input 2	R	63	263	463	(n-1)*200+63
63	Alarm by Digital Input 4	R	64	264	464	(n-1)*200+64
64	Alarm by Digital Input 6	R	65	265	465	(n-1)*200+65
65	Humidifier General Alarm	R	66	266	466	(n-1)*200+66
66	Unit on Alarm	R	67	267	467	(n-1)*200+67
67	Unit on Rotation Alarm	R	68	268	468	(n-1)*200+68
68	Unit on Alarm Type A	R	69	269	469	(n-1)*200+69
69	Unit on Alarm Type B	R	70	270	470	(n-1)*200+70
70	Unit on Alarm Type C	R	71	271	471	(n-1)*200+71
71	DX/CW Switch on TC Units	R/W	72	272	472	(n-1)*200+72
72	Summer/Winter Switch	R/W	73	273	473	(n-1)*200+73
73	Not used	...	74	274	474	(n-1)*200+74
74	Not used	...	75	275	475	(n-1)*200+75
75	Unit ON/OFF Switch	R/W	76	276	476	(n-1)*200+76
76	Buzzer and Alarm Unit Reset	R/W	77	277	477	(n-1)*200+77
77	Filter Run Hours Reset	R/W	78	278	478	(n-1)*200+78
78	Compressor 1 Run Hours Reset	R/W	79	279	479	(n-1)*200+79
79	Compressor 2 Run Hours Reset	R/W	80	280	480	(n-1)*200+80
80	Compressor 3 Run Hours Reset	R/W	81	281	481	(n-1)*200+81
81	Compressor 4 Run Hours Reset	R/W	82	282	482	(n-1)*200+82
82	Compressor 1 Starting Reset	R/W	83	283	483	(n-1)*200+83
83	Compressor 2 Starting Reset	R/W	84	284	484	(n-1)*200+84
84	Compressor 3 Starting Reset	R/W	85	285	485	(n-1)*200+85
85	Compressor 4 Starting Reset	R/W	86	286	486	(n-1)*200+86
86	Heater 1 Run Hours Reset	R/W	87	287	487	(n-1)*200+87

87	Heater 2 Run Hours Reset	R/W	88	288	488	(n-1)*200+88
88	Heater 1 Starting Reset	R/W	89	289	489	(n-1)*200+89
89	Heater 2 Starting Reset	R/W	90	290	490	(n-1)*200+90
90	Humidifier Run Hours Reset	R/W	91	291	491	(n-1)*200+91
91	Humidifier Starting Reset	R/W	92	292	492	(n-1)*200+92
92	Unit Run Hours Reset	R/W	93	293	493	(n-1)*200+93
93	Not used	...	94	294	494	(n-1)*200+94
94	Not used	...	95	295	495	(n-1)*200+95
95	Setback Mode (Sleep Mode)	R/W	96	296	496	(n-1)*200+96
96	Sleep Mode Test	R/W	97	297	497	(n-1)*200+97
97	Local/Mean Usage of Values	R/W	98	298	498	(n-1)*200+98
98	No. of Stand-by Units	R	99	299	499	(n-1)*200+99
99	Not used	...	100	300	500	(n-1)*200+100
<b>Only for LAN Unit Number 1:</b>						
100	Unit 2 on Rotation Alarm	R	101	301	501	(n-1)*200+101
101	Unit 3 on Rotation Alarm	R	102	302	502	(n-1)*200+102
102	Unit 4 on Rotation Alarm	R	103	303	503	(n-1)*200+103
103	Unit 5 on Rotation Alarm	R	104	304	504	(n-1)*200+104
104	Unit 6 on Rotation Alarm	R	105	305	505	(n-1)*200+105
105	Unit 7 on Rotation Alarm	R	106	306	506	(n-1)*200+106
106	Unit 8 on Rotation Alarm	R	107	307	507	(n-1)*200+107
107	Unit 9 on Rotation Alarm	R	108	308	508	(n-1)*200+108
108	Unit 10 on Rotation Alarm	R	109	309	509	(n-1)*200+109

## NEW LEONARDO: ANALOG VARIABLES (HOLDING or INPUT REGISTERS)

(all values x 10)

variable address	description	m.u.	variable type	MODBUS Database (e.g. address -> bit nr.)			
				unit 1	unit 2	unit 3	unit n
0	Not used	-	-	1	257	513	(n-1)*256+1
1	Room Temperature	°C	R	2	258	514	(n-1)*256+2
2	Outdoor Temperature	°C	R	3	259	515	(n-1)*256+3
3	Delivery Air Temperature	°C	R	4	260	516	(n-1)*256+4
4	Chilled Water Temperature	°C	R	5	261	517	(n-1)*256+5
5	Hot Water Temperature	°C	R	6	262	518	(n-1)*256+6
6	Room Relative Humidity	rH%	R	7	263	519	(n-1)*256+7
7	Outlet Chilled Water Temperature	°C	R	8	264	520	(n-1)*256+8
8	Circuit 1 Evaporating Pressure	bar	R	9	265	521	(n-1)*256+9
9	Circuit 2 Evaporating Pressure	bar	R	10	266	522	(n-1)*256+10
10	Circuit 1 Suction Temperature	°C	R	11	267	523	(n-1)*256+11
11	Circuit 2 Suction Temperature	°C	R	12	268	524	(n-1)*256+12
12	Circuit 1 Evaporating Temperature	°C	R	13	269	525	(n-1)*256+13
13	Circuit 2 Evaporating Temperature	°C	R	14	270	526	(n-1)*256+14
14	Circuit 1 Superheat	°C	R	15	271	527	(n-1)*256+15
15	Circuit 2 Superheat	°C	R	16	272	528	(n-1)*256+16
16	Cold Water Valve Ramp	%	R/W	17	273	529	(n-1)*256+17
17	Hot Water Valve Ramp	%	R/W	18	274	530	(n-1)*256+18
18	Evaporating Fan Speed	%	R/W	19	275	531	(n-1)*256+19
19	Not_used	-	-	20	276	532	(n-1)*256+20
20	Cooling Setpoint	°C	R/W	21	277	533	(n-1)*256+21
21	Cooling Sensitivity	°C	R/W	22	278	534	(n-1)*256+22
22	Second Cooling Setpoint	°C	R/W	23	279	535	(n-1)*256+23
23	Heating Setpoint	°C	R/W	24	280	536	(n-1)*256+24
24	Second Heating setpoint	°C	R/W	25	281	537	(n-1)*256+25
25	Heating Sensitivity	°C	R/W	26	282	538	(n-1)*256+26
26	High Room Temperature Alarm Threshold(1)	°C	R/W	27	283	539	(n-1)*256+27
27	Low Room Temperature Alarm Threshold(1)	°C	R/W	28	284	540	(n-1)*256+28
28	Setback Mode: Cooling Setpoint	°C	R/W	29	285	541	(n-1)*256+29
29	Setback Mode: Heating Setpoint	°C	R/W	30	286	542	(n-1)*256+30
30	CW Setpoint to Start Dehumidification	°C	R/W	31	287	543	(n-1)*256+31
31	CW High Temperature Alarm Threshold	°C	R/W	32	288	544	(n-1)*256+32
32	CW Setpoint to start CW Operating Mode (Only TC Units)	°C	R/W	33	289	545	(n-1)*256+33
33	Radcooler Setpoint in Energy Saving Mode	°C	R/W	34	290	546	(n-1)*256+34
34	Radcooler Setpoint in DX Mode	°C	R/W	35	291	547	(n-1)*256+35
35	Delivery Temperature Low Limit Setpoint(1)	°C	R/W	36	292	548	(n-1)*256+36
36	Delta Temperature for Automatic Mean/Local Changeover	°C	R/W	37	293	549	(n-1)*256+37
37	Serial Transmission Offset		R/W	38	294	550	(n-1)*256+38
38	Not used	-	-	39	295	551	(n-1)*256+39
39	Not used	-	-	40	296	552	(n-1)*256+40

40	Not used	-	-	41	297	553	(n-1)*256+41
41	Not used	-	-	42	298	554	(n-1)*256+42
42	Not used	-	-	43	299	555	(n-1)*256+43
43	Not used	-	-	44	300	556	(n-1)*256+44
44	Not used	-	-	45	301	557	(n-1)*256+45
45	Not used	-	-	46	302	558	(n-1)*256+46
46	Not used	-	-	47	303	559	(n-1)*256+47
47	Not used	-	-	48	304	560	(n-1)*256+48
48	Not used	-	-	49	305	561	(n-1)*256+49
49	Not used	-	-	50	306	562	(n-1)*256+50
<b>Only for LAN Unit Number 1:</b>							
50	LAN Unit 2 Room Temperature	°C	R	51	307	563	(n-1)*256+51
51	LAN Unit 3 Room Temperature	°C	R	52	308	564	(n-1)*256+52
52	LAN Unit 4 Room Temperature	°C	R	53	309	565	(n-1)*256+53
53	LAN Unit 5 Room Temperature	°C	R	54	310	566	(n-1)*256+54
54	LAN Unit 6 Room Temperature	°C	R	55	311	567	(n-1)*256+55
55	LAN Unit 7 Room Temperature	°C	R	56	312	568	(n-1)*256+56
56	LAN Unit 8 Room Temperature	°C	R	57	313	569	(n-1)*256+57
57	LAN Unit 9 Room Temperature	°C	R	58	314	570	(n-1)*256+58
58	LAN Unit 10 Room Temperature	°C	R	59	315	571	(n-1)*256+59
59	Not used		-	60	316	572	(n-1)*256+60
60	LAN Unit 2 Room Humidity	rH%	R	61	317	573	(n-1)*256+61
61	LAN Unit 3 Room Humidity	rH%	R	62	318	574	(n-1)*256+62
62	LAN Unit 4 Room Humidity	rH%	R	63	319	575	(n-1)*256+63
63	LAN Unit 5 Room Humidity	rH%	R	64	320	576	(n-1)*256+64
64	LAN Unit 6 Room Humidity	rH%	R	65	321	577	(n-1)*256+65
65	LAN Unit 7 Room Humidity	rH%	R	66	322	578	(n-1)*256+66
66	LAN Unit 8 Room Humidity	rH%	R	67	323	579	(n-1)*256+67
67	LAN Unit 9 Room Humidity	rH%	R	68	324	580	(n-1)*256+68
68	LAN Unit 10 Room Humidity	rH%	R	69	325	581	(n-1)*256+69

**N.B.: all the analog variables are expressed in °C/10 except for those indicated by (1) these one are the expressed in °C.**

## NEW LEONARDO: INTEGER VARIABLES (HOLDING or INPUT REGISTERS)

variable address	description	m.u.	variable type	MODBUS Database (e.g. address -> bit nr.)			
				unit 1	unit 2	unit 3	unit n
0	Not Used	-	-	129	385	641	(n-1)*256+128+1
1	Air Filter Run Hours	h	R	130	386	642	(n-1)*256+128+2
2	Unit Run Hours	h	R	131	387	643	(n-1)*256+128+3
3	Compressor 1 Run Hours	h	R	132	388	644	(n-1)*256+128+4
4	Compressor 2 Run Hours	h	R	133	389	645	(n-1)*256+128+5
5	Compressor 3 Run Hours	h	R	134	390	646	(n-1)*256+128+6
6	Compressor 4 Run Hours	h	R	135	391	646	(n-1)*256+128+7
7	Heater 1 Run Hours	h	R	136	392	648	(n-1)*256+128+8
8	Heater 2 Run Hours	h	R	137	393	649	(n-1)*256+128+9
9	Humidifier Run Hours	h	R	138	394	650	(n-1)*256+128+10
10	Not used	-	-	139	395	651	(n-1)*256+128+11
11	Not used	-	-	140	396	652	(n-1)*256+128+12
12	Dehumidification Prop.Band	rH%	R/W	141	397	653	(n-1)*256+128+13
13	Humidification Prop.Band	rH%	R/W	142	398	654	(n-1)*256+128+14
14	High Humidity Alarm Threshold	rH%	R/W	143	399	655	(n-1)*256+128+15
15	Low Humidity Alarm Threshold	rH%	R/W	144	400	656	(n-1)*256+128+16
16	Dehumidification Setpoint	rH%	R/W	145	401	657	(n-1)*256+128+17
17	Setback Mode: Dehumidification Setpoint	rH%	R/W	146	402	658	(n-1)*256+128+18
18	Humidification Setpoint	rH%	R/W	147	403	659	(n-1)*256+128+19
19	Setback Mode: Humidification Setpoint	rH%	R/W	148	404	660	(n-1)*256+128+20
20	Restart Delay	sec	R/W	149	405	661	(n-1)*256+128+21
21	Regulation Start Transitory	sec	R/W	150	406	662	(n-1)*256+128+22
22	Low Pressure Delay	sec	R/W	151	407	663	(n-1)*256+128+23
23	Temp./Humid.Limits Alarm Delay	min	R/W	152	408	664	(n-1)*256+128+24
24	Anti-Hunting Constant	min	R/W	153	409	665	(n-1)*256+128+25
25	Stand-by Cycle Base Time	h	R/W	154	410	666	(n-1)*256+128+26
26	Not Used	-	-	155	411	667	(n-1)*256+128+26
27	Number of LAN Units	n	R/W	156	412	668	(n-1)*256+128+28
28	Not Used	-	-	157	413	669	(n-1)*256+128+29
29	Circuit 1 Electronic Valve Position	step	R	158	414	670	(n-1)*256+128+30
30	Circuit 2 Electronic Valve Position	step	R	159	415	671	(n-1)*256+128+31