

METASYS N2 open GATEWAY

Version 2.4 and newer versions

Metasys N2 open

Metasys nodes contains up to 256 Virtual Objects. These virtual objects can be either one of seven region types; 1) Analog Input, 2) Binary Input, 3) Analog Output, 4) Binary Output, 5) Internal Float, 6) Internal Integer and 7) Internal Byte. The Metasys N2 Master performs read and write commands to these Virtual Objects and performs cyclic polling of all the virtual objects as well.

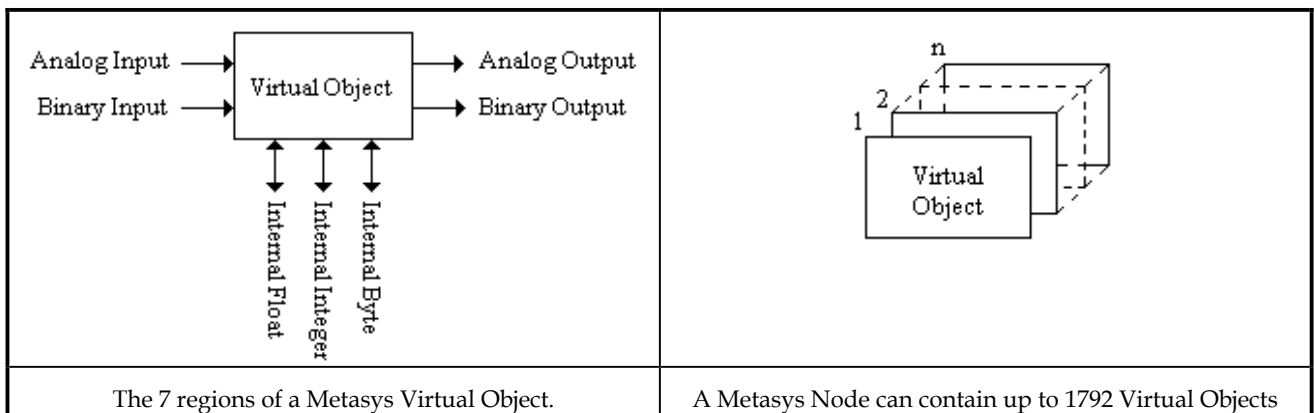
The Gateway transfers data between the N2's virtual objects and the Ventilation unit whenever a data exchange is required. E.g. data transferred from the Ventilation unit written to a dedicated virtual object by the Gateway firmware, which later on is read by the Metasys master or the Metasys master can write data to a virtual object and is then transferred by the Gateway firmware to the Ventilation unit.

Metasys N2 open Virtual Objects

A virtual object contains data of a specific type. These types are called Regions. A Metasys N2 node may contain up to 256 Virtual Objects per region, which in all gives a total of 1792 virtual objects. In smaller systems it might be desirable to limit the number of virtual objects to reduce memory consumption.

The regions are defined as followed:

Region	Type	Short	Description
Region 1	Analog Input	AI	32 bit, IEEE-standard floats.
Region 2	Binary Input	BI	1 bit
Region 3	Analog Output	AO	32 bit, IEEE-standard floats.
Region 4	Binary Output	BO	1 bit
Region 5	Internal Float	IF	32 bit, IEEE-standard floats.
Region 6	Internal Integer	ADI	Signed 16 bit.
Region 7	Internal Byte	IB	8 bit.



Analog Input (AI).32 bit IEEE-standard floats (RO).

N2 Idx	Name	Min/Max verA	Min/Max verB
1	SA temp.	0-40.00°C	-55.00-125.00°C
	Current supply air temperature.		
2	EA temp.	0-40.00°C	-55.00-125.00°C
	Current exhaust air temperature.		
3	OUT-D temp.	-20.00-40.00°C	-55.00-125.00°C
	Current outdoor air temperature.		
4	FP temp.	0-40.00°C	-55.00-125.00°C
	Current frost protection temperature.		
5	SA-Regulator.	0-40.00°C	-55.00-125.00°C
	Current supply air regulator temperature setpoint.		
6	SF level.	0-100.0%	0-100.0%
	Current running level for the supply air fan.		
7	EF level.	0-100.0%	0-100.0%
	Current running level for the exhaust air fan.		
8	EA filter level.	0-100.0%	0-2000Pa
	Current level for the exhaust air filter.		
9	SA filter level.	0-100.0%	0-2000Pa
	Current level for the supply air filter.		
10	Heat exch. Level.	0-100.0%	0-100.0%
	Current level for the heat exchanger.		
11	Reheat level.	0-100.0%	0-100.0%
	Current level for the reheater coil.		
12	Cooling level.	0-100.0%	0-100.0%
	Current level for cooling.		
13	SF flow.	0-4000l/s	0-8000l/s
	Current supply air fan flow.		
14	EF flow.	0-4000l/s	0-8000l/s
	Current exhaust air fan flow.		
15	SF VAV level.	0-100.0%	0-100.0%
	Current level of the supply air input signal for the VAV/Forcing function .		

16	EF VAV level.	0-100.0%	0-100.0%
	Current level of the exhaust air input signal for the VAV/Forcing function .		
17	SF filter alarm level.	Not used	0-2000Pa
	Current alarm level for the supply air filter.		
18	EF filter alarm level.	Not used	0-2000Pa
	Current alarm level for the exhaust air filter.		
19	SF flow regulation.	0-4000l/s	0-8000l/s
	Current supply fan regulator flow setpoint.		
20	EF flow regulation.	0-4000l/s	0-8000l/s
	Current exhaust fan regulator flow setpoint.		
21	EA temp regulation.	0-40.00°C	0-40.00°C
	Current exhaust air regulator temperature setpoint.		
22	SF VAV regulation.	Not used	0-100.0%
	Current level for the supply fan VAV regulator.		
23	EF VAV regulation.	Not used	0-100.0%
	Current level for the exhaust fan VAV regulator.		
24	Coolforcing level.	0-100.0%	0-100.0%
	Current level for coolforcing.		

Binary Input (BI). 1bit (RO).

N2 Idx	Name	Min/Max verA	Min/Max verB
1	Cool energy recovery.	0-1	0-1
	Indicates if the function is active.		
2	Summer night cooling.	0-1	0-1
	Indicates if the function is active.		
3	Group alarm-A	0-1	0-1
	Indicates if the alarm relay output-A is active.		
4	Group alarm-B	0-1	0-1
	Indicates if the alarm relay output-B is active.		
5	Highspeed operation.	0-1	0-1
	Indicates all operating cases.		
6	Lowspeed operation.	0-1	0-1
	Indicates all operating cases.		
7	Stop.	0-1	0-1
	Indicates all operating cases.		
8	Heating indication relay.	Not used	0-1
	Indicates if the heating function is active.		
9	Cooling relay, stage 1.	0-1	0-1
	Indicates if the cooling function stage 1 is active.		
10	Cooling relay, stage 2.	Not used	0-1
	Indicates if the cooling function stage 2 is active.		
11	Cooling compressor 1.	Not used	0-1
	Indicates if the compressor 1, in Cooler is active.		
12	Cooling compressor 2.	Not used	0-1
	Indicates if the compressor 2, in Cooler is active.		
13	Reserve 1.	0	0
	Not used in this version.		
14	Reserve 2.	0	0
	Not used in this version.		
15	Reserve 3.	0	0
	Not used in this version.		
16	Reserve 4.	0	0
	Not used in this version.		

17	Alarm no. 1.	0-1	0-1
18	Alarm no. 2.	0-1	0-1
19	Alarm no. 3.	0-1	0-1
20	Alarm no. 4.	0-1	0-1
21	Alarm no. 5.	0-1	0-1
22	Alarm no. 6.	0-1	0-1
23	Alarm no. 7.	0-1	0-1
24	Alarm no. 8.	0-1	0-1
25	Alarm no. 9.	0-1	0-1
26	Alarm no. 10.	0-1	0-1
27	Alarm no. 11.	0-1	0-1
28	Alarm no. 12.	0-1	0-1
29	Alarm no. 13.	0-1	0-1
30	Alarm no. 14.	0-1	0-1
31	Alarm no. 15.	0-1	0-1
32	Alarm no. 16.	0-1	0-1
33	Alarm no. 17.	0-1	0-1
34	Alarm no. 18.	0-1	0-1
35	Alarm no. 19.	0-1	0-1
36	Alarm no. 20.	0-1	0-1
37	Alarm no. 21.	0-1	0-1

38	Alarm no. 22.	0-1	0-1
39	Alarm no. 23.	0-1	0-1
40	Alarm no. 24.	0-1	0-1
41	Alarm no. 25.	0-1	0-1
42	Alarm no. 26.	0-1	0-1
43	Alarm no. 27.	0-1	0-1
44	Alarm no. 28.	0-1	0-1
45	Alarm no. 29.	0-1	0-1
46	Alarm no. 30.	0-1	0-1
47	Alarm no. 31.	0-1	0-1
48	Alarm no. 32.	0-1	0-1
49	Alarm no. 33.	0-1	0-1
50	Alarm no. 34.	0-1	0-1
51	Alarm no. 35.	0-1	0-1
52	Alarm no. 36.	0-1	0-1
53	Alarm no. 37.	0-1	0-1
54	Alarm no. 38.	0-1	0-1
55	Alarm no. 39.	0-1	0-1
56	Alarm no. 40.	0-1	0-1
57	Alarm no. 41.	0-1	0-1

58	Alarm no. 42.	0-1	0-1
59	Alarm no. 43.	0-1	0-1
60	Alarm no. 44.	0-1	0-1
61	Alarm no. 45.	0-1	0-1
62	Alarm no. 46.	0-1	0-1
63	Alarm no. 47.	0-1	0-1
64	Alarm no. 48.	0-1	0-1
65	Alarm no. 49.	Not used	0-1
66	Alarm no. 50.	Not used	0-1
67	Alarm no. 51.	Not used	0-1
68	Alarm no. 52.	Not used	0-1
69	Alarm no. 53.	Not used	0-1
70	Alarm no. 54.	Not used	0-1
71	Alarm no. 55.	Not used	0-1
72	Alarm no. 56.	Not used	0-1
73	Alarm no. 57.	Not used	0-1
74	Alarm no. 58.	Not used	0-1
75	Alarm no. 59.	Not used	0-1
76	Alarm no. 60.	Not used	0-1
77	Alarm no. 61.	Not used	0-1

Analog Output (AO). 32bit IEEE-standard floats (R/W).

N2 Idx	Name	Min/Max verA	Min/Max verB
1	SF lowspeed.	0-4000 l/s	0-8000 l/s
	Air flow setpoint of the supply air fan running at lowspeed.		
2	SF highspeed.	0-4000 l/s	0-8000 l/s
	Air flow setpoint of the supply air fan running at highspeed.		
3	SF maxspeed.	0-4000 l/s	0-8000 l/s
	Air flow max. limit of the supply air fan.		
4	EF lowspeed.	0-4000 l/s	0-8000 l/s
	Air flow setpoint of the exhaust air fan running at lowspeed.		
5	EF highspeed.	0-4000 l/s	0-8000 l/s
	Air flow setpoint of the exhaust air fan running at highspeed.		
6	EF maxspeed.	0-4000 l/s	0-8000 l/s
	Air flow max. limit of the supply air fan.		
7	SA temp set.	10.00-30.00°C	10-40.00°C
	Supply air temperature setpoint.		
8	ERS DIFF.	0-7.00°C	1.00-10.00°C
	Differential temperature at ERS-reg.		
9	ERS Brakepoint.	12.00-30.00°C	10.00-30.00°C
	Brakepoint temperature at ERS-reg.		
10	EA temp set.	10.00-30.00°C	10.00-40.00°C
	Exhaust air temperature setpoint.		
11	Alarmlimit SF filter.	0-99.0%	0-99.0%
	Alarmlimit setpoint of the supply air filter.		
12	Alarmlimit EF filter.	0-99.0%	0-99.0%
	Alarmlimit setpoint of the exhaust air filter.		
13	SN-COOL EA temp Start.	17.00-27.00°C	20.00-30.00°C
	Temperature limit for the summer-night cooling function.		
14	SN-COOL EA temp Stop.	12.00-22.00°C	10.00-18.00°C
	Temperature limit for the summer-night cooling function.		
15	SN-COOL OUT temp Start.	5.00-15.00°C	10.00-15.00°C
	Temperature limit for the summer-night cooling function.		

16	SF VAV higspeed set.	0-100.0%	0-100.0%
	Duct pressure setpoint of the supply air fan running at higspeed.		
17	EF VAV higspeed set.	0-100.0%	0-100.0%
	Duct pressure setpoint of the exhaust air fan running at higspeed.		
18	Min SA temp.	0-18.00°C	10.00-20.00°C
	Min. supply air temperature setpoint in conjunction with EA-regulation.		
19	Max SA temp.	19.00-60.00°C	30.00-50.00°C
	Max. supply air temperature setpoint in conjunction with EA-regulation.		
20	SF downreg. NZ.	Not used	0-9.90°C
	Neutralzone before dowregulation of the supply air fan gains.		
21	SF VAV lowspeed set.	Not used	0-100.0%
	Duct pressure setpoint of the supply air fan running at lowspeed.		
22	EF VAV lowspeed set.	Not used	0-100.0%
	Duct pressure setpoint of the exhaust air fan running at lowspeed.		
23	Outdoor temp comp. X1.	Not used	-30.00-(-10.00)°C
	Indicate where the winter comp. curve ends.		
24	Outdoor temp comp. X2.	Not used	-10.00-15.00°C
	Indicate where the winter comp. curve begins.		
25	Outdoor temp comp. X3.	Not used	15.00-25.00°C
	Indicate where the summer comp. curve begins.		
26	Outdoor temp comp. X4.	Not used	25.00-40.00°C
	Indicate where the summer comp. curve ends.		
27	Outdoor temp comp. Y1.	0-10.00°C	0-10.00°C
	Indicate the maximum level of winter comp.		
28	Outdoor temp comp. Y2.	-10.00-10.00°C	-10.00-10.00°C
	Indicate the maximum level of summer comp.		
29	Outdoor flow comp. X1.	Not used	-30.00-(-10.00)°C
	Indicate where the winter comp. curve ends.		
30	Outdoor flow comp. X2.	Not used	-10.00-20.00°C
	Indicate where the winter comp. curve begins.		

31	Outdoor flow comp. Y1.	Not used	0-50.0%
	Indicate the maximum level of winter comp.		
32	Neutral zone.	0.50-5.00°C	0.50-10.00°C
	Setting of neutral zone size.		
Min/max for Par. 7, 8, 9, 10, 18, 19 are limited from the AHU handterminal.			

Binary Output (BO). 1bit (R/W).

N2 Idx	Name	Min/Max verA	Min/Max verB
1	Hightspeed operation.	0-1	0-1
	Controls the AHU from S-CL stop or lowspeed to hightspeed operation.		
2	Lowspeed operation.	0-1	0-1
	Controls the AHU from S-CL stop to lowspeed operation.		
3	Stop.	0-1	0-1
	Controls the AHU to stop.		
4	Switch-clock func.	0-1	0-1
	0=Lowspeed-Hightspeed.		
	VerA 1=Stop-Lowspeed.		
	VerB 1=Stop-Lowspeed-Hightspeed.		
5	Outdoor temp compensation.	0-1	0-1
	Used to enable the function.		
6	Summer night cooling.	0-1	0-1
	Used to enable the function.		
7	Alarm reset.	0-1	0-1
	Reset for active alarms.		

Internal Integer (ADI). Signed 16bit.

N2 Idx	Name	Min/Max verA	Min/Max verB	R/W
1	Second	0-59	0-59	R/W
	The AHU internal time.			
2	Minute	0-59	0-59	R/W
	The AHU internal time.			
3	Hour	0-23	0-23	R/W
	The AHU internal time.			
4	Date	0-31	0-31	R/W
	The AHU internal time.			
5	Weekday	1-7	1-7	R/W
	The AHU internal time.			
6	Month	1-12	1-12	R/W
	The AHU internal time.			
7	Year	2000-2099	2000-2099	R/W
	The AHU internal time.			
8	Operation mode	1-200	0-255	RO
	VerA indicates the AHU handterminal menu. VerB operationstatus for the AHU. 00=Stop alarm, 01=Manual stop, 02=Ext.stop, 03=RS232 stop, 04=S-CL stop, 10=Manual LS, 11=S-CL LS, 12=Ext.LS, 13=RS232 LS, 14=Prolonged LS, 20=Manual HS, 21=Ext.HS, 22=RS232 HS, 23=S-CL HS, 24=Prolonged HS, 30=SN-Cool, 31=Reecooling, 40=Manual test OP, 41=Duct airflow adj, 42=Filtercalibration.			
9	Delayed ext. LS_min.	Not used	0-59	RO
	Remaining time for prolonged lowspeed.			
10	Delayed ext. LS_hour.	Not used	0-23	RO
	Remaining time for prolonged lowspeed.			
11	Delayed ext. HS_min.	0-59	0-59	RO
	Remaining time for prolonged highspeed.			
12	Delayed ext. HS_hour.	0-23	0-23	RO
	Remaining time for prolonged highspeed.			
13	Alarm No.	0-48	0-49	RO
	Active alarm No.			
14	Temperature regulation.	1-3	1-3	R/W
	Setting of temperature regulation type. 1=ERS, 2= SA, 3=EA.			

15	ERS-step.	1-4	1-4	R/W
	Setting for step at ERS temperature regulation.			
16	Delayed ext. HS_hour Set.	0-3	0-23	R/W
	Setting for prolonged highspeed.			
17	Delayed ext. HS_min Set.	0-59	0-59	R/W
	Setting for prolonged highspeed.			
18	Delayed ext. LS_hour Set.	Not used	0-23	R/W
	Setting for prolonged lowspeed.			
19	Delayed ext. LS_min Set.	Not used	0-59	R/W
	Setting for prolonged lowspeed.			
20	Flow regulation.	1-3	0-3	R/W
	VerA setting of flow/fan regulation type. 1=Flow, 2=VAV, 3=Boost/forcing. VerB setting of flow/fan regulation type. 0=Flow, 1=VAV-pressure, 2=VAV-demand 3=Boost/forcing.			
21	Reg.speed temp SA.	Not used	0-9	R/W
	Setting for temperature regulation speed.			
22	Reg.speed temp EA.	Not used	0-9	R/W
	Setting for temperature regulation speed.			
23	Reg.speed VAV SA.	Not used	0-9	R/W
	Setting for VAV regulation speed.			
24	Reg.speed VAV EA.	Not used	0-9	R/W
	Setting for VAV regulation speed.			
25	Filtertest time hour.	0-23	Not used	R/W
26	Filtertest time min.	0-59	Not used	R/W
27	Switch clock Channel1 start-minut	0-59	0-59	R/W
28	Switch clock Channel1 start-hour	0-23	0-23	R/W
29	Switch clock Channel1 stop-minut	0-59	0-59	R/W
30	Switch clock Channel1 stop-hour	0-23	0-23	R/W
31	Switch clock Channel1 period	0-9	0-10,128-138	R/W

	VerA 0=Not active. 1=Monday. 2=Tuesday. 3=Wednesday. 4=Thursday. 5=Friday. 6=Saturday. 7=Sunday. 8=Monday..Friday. 9=Monday..Sunday.			
	VerB 0=HS 128=LS Not active. 1=HS 129=LS Monday. 2=HS 130=LS Tuesday. 3=HS 131=LS Wednesday. 4=HS 132=LS Thursday. 5=HS 133=LS Friday. 6=HS 134=LS Saturday. 7=HS 135=LS Sunday. 8=HS 136=LS Monday..Friday. 9=HS 137=LS Monday..Sunday. 10=HS 138=LS Saturday..Sunday.			
32	Switch clock Channel2 start-minut	0-59	0-59	R/W
33	Switch clock Channel2 start-hour	0-23	0-23	R/W
34	Switch clock Channel2 stop-minut	0-59	0-59	R/W
35	Switch clock Channel2 stop-hour	0-23	0-23	R/W
36	Switch clock Channel2 period	0-9	0-10,128-138	R/W
37	Switch clock Channel3 start-minut	0-59	0-59	R/W
38	Switch clock Channel3 start-hour	0-23	0-23	R/W
39	Switch clock Channel3 stop-minut	0-59	0-59	R/W
40	Switch clock Channel3 stop-hour	0-23	0-23	R/W
41	Switch clock Channel3 period	0-9	0-10,128-138	R/W
42	Switch clock Channel4 start-minut	0-59	0-59	R/W
43	Switch clock Channel4 start-hour	0-23	0-23	R/W
44	Switch clock Channel4 stop-minut	0-59	0-59	R/W
45	Switch clock Channel4 stop-hour	0-23	0-23	R/W
46	Switch clock Channel4 period	0-9	0-10,128-138	R/W
47	Switch clock Channel5 start-minut	0-59	0-59	R/W
48	Switch clock Channel5 start-hour	0-23	0-23	R/W
49	Switch clock Channel5 stop-minut	0-59	0-59	R/W
50	Switch clock Channel5 stop-hour	0-23	0-23	R/W
51	Switch clock Channel5 period	0-9	0-10,128-138	R/W
52	Switch clock Channel6 start-minut	0-59	0-59	R/W
53	Switch clock Channel6 start-hour	0-23	0-23	R/W
54	Switch clock Channel6 stop-minut	0-59	0-59	R/W
55	Switch clock Channel6 stop-hour	0-23	0-23	R/W

56	Switch clock Channel6 period	0-9	0-10,128-138	R/W
57	Switch clock Channel7 start-minut	0-59	0-59	R/W
58	Switch clock Channel7 start-hour	0-23	0-23	R/W
59	Switch clock Channel7 stop-minut	0-59	0-59	R/W
60	Switch clock Channel7 stop-hour	0-23	0-23	R/W
61	Switch clock Channel7 period	0-9	0-10,128-138	R/W
62	Switch clock Channel8 start-minut	0-59	0-59	R/W
63	Switch clock Channel8 start-hour	0-23	0-23	R/W
64	Switch clock Channel8 stop-minut	0-59	0-59	R/W
65	Switch clock Channel8 stop-hour	0-23	0-23	R/W
66	Switch clock Channel8 period	0-9	0-10,128-138	R/W
67	ServicePeriod	0-99	0-99	R/W
	AHU setting for Service period month.			
68	Air handling unit.	0-1	0,2	RO
	0=No communication.			
	1=Version 4 or A.			
	2=Version B.			
69	Coolforcing.	0-2	0-2	R/W
	Setting of coolforcing.			
	0=Not active.			
	1=Comfort.			
	2=Economy.			
70	Operating time.	0-9999	0-9999	RO
	Shows how many 24-hour days the unit operated.			
71	Program version.	Not used	0-65535	RO
	Program version in GOLD AHU.			
72	Copy of BO 1-7. (PV 2.5)	0-65535	0-65535	R/W
	Bit 0 = BO 1 (Highspeed operation). Bit 1 = BO 2 (Lowspeed operation). Bit 2 = BO 3 (Stop). Bit 3 = BO 4 (Switch-clock function). Bit 4 = BO 5 (Outdoor temp compensation). Bit 5 = BO 6 (Summer night cooling). Bit 6 = BO 7 (Alarm reset).			