

TECHNICAL GUIDE



ACRONYMS DESCRIPTION AND POINT LISTING FOR YORK SYNTHESYS™ CV AND VAV/VFD CONTROLS.

N2 COMMUNICATION PROTOCOL



ISO 9001
Certified Quality
Management System



DESCRIPTION

A number of acronyms are used throughout the York Synthesys™ Application and Installation manual. These are specific to the Synthesys™ control. Acronyms are used to refer to input and output hardware points and software parameters such as timing delays and set points. The acronyms used in the Synthesys™ manuals are listed below.

TABLE 1: ACRONYM DESCRIPTIONS

Inputs:

APS - Air Proving Switch (Fan Status)
 AQ - Air Quality (CO2 Sensor)
 BS - Building Static Pressure
 CS1-6 - Compressor Status
 DF - Dirty Filter Status
 DS - Duct Static Pressure
 FS1/2 - Freeze Stat
 FZR - Hot Water Coil Freeze Input
 G - Thermostat input for Fan
 LAR - Low Ambient Resistor
 OAT - Outside Air Temperature
 OCC - Building Occupied Status
 P - Building Purge input
 RAT - Return Air Temperature
 SAT - Supply Air Temperature
 SD - System Shutdown input
 SO - Outside Air Enthalpy
 SR - Return Air Enthalpy
 SSA - Setpoint Adjust
 ST - Space Temperature
 W1 - First Stage Heating call from thermostat
 W2 - Second Stage Heating from Tstat
 Y1 - First Stage Cooling from Tstat
 T2 - Second Stage Cooling from Tstat

Outputs:

C1-C4 - Cooling Outputs 1 through 4
 CF1&2 - Condenser Fan Outputs
 EC - Economizer Control Output
 EAD - Exhaust Air Damper
 EF - Exhaust Fan relay output
 Fan - Supply Fan relay output
 H1&H2 - Heating Stages 1 and 2 output
 HW - Hot Water Valve output
 PE - Power Exhaust System output
 VC - VFD or IGV output
 X - Relay for Alarm Status output

Miscellaneous:

AI - Analog Input
 AO - Analog Output
 BI - Binary Input same as
 BO - Binary Output
 CAV - Constant Air Volume
 VAV - Variable Air Volume
 VFD - Variable Frequency Drive
 IGV - Inlet Guide Vane
 IAQ - Indoor Air Quality
 PI - Proportional-Integral Control

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Points Mapping List for York Synthesys- CV

The list below provides point, address and long name description of accessible I/O's for the N2 communication option on the Synthesys™ control.

Points Mapping List for York Synthesys- CV (Constant Volume Version)- Control support for YK-UNT400-2. The points listed below are available VIA N2 communication only !!

ANALOG INPUTS (* Denotes OPERATOR-DEFINED AI)

<u>Point</u>	<u>Point</u>	
<u>Type</u>	<u>Address</u>	<u>Long Name</u>
----	-----	-----
AI	1	Zone Temp
AI	2	Space Temp SP Offset
AI	3	IAQ Sensor
AI	5	Return Air Temp
AI	6	RA Rel Humid
AI	9	Tstat Interface
AI	10	LAR FZR
AI	11	SAT
AI	12	Building Static Pressure
AI	13	Outdoor Air Temp
AI	14	OA Rel Humid

BINARY INPUTS (* Denotes OPERATOR-DEFINED BI)

<u>Point</u>	<u>Point</u>	
<u>Type</u>	<u>Address</u>	<u>Long Name</u>
----	-----	-----
BI	1	Compressor 1 Status
BI	2	Compressor 2 Status
BI	3	Compressor 3 Status
BI	4	Compressor 4 Status
BI	6	G
BI	7	BI Occupied
BI	8	FreezeStat 1
BI	9	FreezeStat 2
BI	10	Dirty Filter Switch
BI	11	Air Proving Switch
BI	13	BI Shutdown
BI	14	BI Purge

ANALOG OUTPUTS (* Denotes OPERATOR-DEFINED AO)

<u>Point</u>	<u>Point</u>	
<u>Type</u>	<u>Address</u>	<u>Long Name</u>
----	-----	-----
AO	1	Econ Damper
AO	2	Exhaust Damper
AO	4	Hot Water Valve

BINARY OUTPUTS (* Denotes OPERATOR-DEFINED BO)

<u>Point</u>	<u>Point</u>
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Type	Address	Long Name
BO	1	Cool 1
BO	2	Cool 2
BO	3	Cool 3
BO	4	Cool 4
BO	5	Condensor Fan 1
BO	6	Condensor Fan 2
BO	8	Heat 1
BO	9	Heat 2
BO	11	SUPPLY FAN
BO	12	EXHAUST FAN
BO	13	X

PARAMETERS (* Denotes MONITOR ONLY Parameters)

Point	Point			
Type	Address	Long Name	Short Name	Value
<u>Sensor Enables</u>				
BD	70	Space Sensor Enable	SpcSnsEn	0
<u>Fan</u>				
BD	80	Fan Overrun	FanOver	0
BD	79	FanOnSensorMode	FanOnSen	1
<u>UnoccOvrTime</u>				
ADF	92	Unoccupied Ovr Time	UnOvrTm	60
<u>Limits</u>				
ADF	65	Cooling Lockout On OAT	ClgLckOA	45.0
ADF	66	Heating Lockout On OAT	HtgLckOA	75.0
ADF	74	Comp 1 Trip Limit	Cmp1Trip	45.0
ADF	75	Comp 2 Trip Limit	Cmp2Trip	50.0
ADF	76	Comp 3 Trip Limit	Cmp3Trip	50.0
ADF	77	Comp 4 Trip Limit	Cmp4Trip	50.0
<u>Economizer</u>				
ADF	78	OA Enth Number	OAEnth	27.0
ADF	67	Econ First Stage Setpt	1stStgSP	55.0
ADF	68	Econ Second Stage Setpt	2ndStgSP	50.0
BD	71	EconLdgToCntrlSAT	EcnLdg	1
ADF	81	MinPos	MinPos	20.0
ADF	71	MaxEconPosForDemandVent	MxEcnDV	50.0
ADF	98	Econ Ldg Of Heating SP	EcnLdgHt	150.0
<u>Power Exhaust</u>				
ADF	207	Maximum EF Off Time	MaxEFOff	40.0
ADF	79	EF Turn On Setpoint	EFOnSP	60.0
ADF	80	EF Turn Off Setpoint	EFOffSP	20.0
ADF	201	Maximum EF On Time	MaxEFOn	6.0
ADF	72	Bldg Pressure Setpoint	BldgSP	0.1
ADF	90	EAD Turn On SP	EADOnSP	80.0
ADF	91	EAD Turn Off SP	EADOffSp	20.0

Setpoints

ADF	82	Occ Cooling Setpoint	OccClgSP	72.0
ADF	83	Unocc Cooling Setpoint	UnClgSP	85.0
ADF	84	Occ Heating Setpoint	OccHtgSP	68.0
ADF	85	Unocc Heating Setpoint	UnHtgSP	60.0
ADF	70	Space Setpoint Offset	SpcSPOff	3.0
ADF	86	Demand Ventilation Setpt	DmdVntSP	1000
ADF	87	IAQ Sensor Range	IAQSnsRg	5000
ADF	88	Hydronic 1st Stg SP	Hyd1stSP	130.0
ADF	89	Hydronic 2nd Stg SP	Hyd2ndSP	145.0
ADF	93	SAT Alarm SP for Clg	SATAmClg	100
ADF	94	SAT Alarm SP for Htg	SATAmHtg	0

Modes

BD	67	SAT Cntrl For Cooling	SATClg	1
BD	84	Dirty Filter Sw Option	DrtyFltr	0
BD	83	Alarm Input	AlarmInp	0
BD	73	Cooling Mode Enable	ClgMdEnb	1
BD	74	Heating Mode Enable	HtgMdEnb	1

Sensor Fault Enable

BD	75	OAH Sensor Enable	OAHsnsEn	0
BD	76	RAH Sensor Enable	RAHsnsEn	0
BD	77	RAT Sensor Enable	RATsnsEn	0
BD	87	BldgStatic Sensor Enable	BldgSnsE	0

Comfort Ventilation

ADF	95	CVM Max Economizer Posn	CVMMaxDp	80
BD	82	ComfortVentilationMode	CVMode	0
ADF	96	CVM SAT Band Hi Setpt	CVMHiSP	80.0
ADF	97	CVM SAT Band Low Setpt	CVMLoSP	70.0

Points Mapping List for York Synthesys- VAV/VFD

Points Mapping List for York Synthesys- VAV/VFD (Variable volume version)- Control support for YK-UNT401-2 The points listed are available VIA N2 communication only !!

ANALOG INPUTS (* Denotes OPERATOR-DEFINED AI)

<u>Point</u>	<u>Point</u>	
<u>Type</u>	<u>Address</u>	<u>Long Name</u>
----	-----	-----
AI	1	Zone Temp
AI	2	Space Temp SP Offset
AI	3	IAQ Sensor
AI	4	Duct Static Pressure
AI	5	Return Air Temp
AI	6	RA Rel Humid
AI	9	Tstat Interface
AI	10	LAR FZR
AI	11	SAT
AI	12	Building Static Pressure
AI	13	Outdoor Air Temp
AI	14	OA Rel Humid

BINARY INPUTS (* Denotes OPERATOR-DEFINED BI)

<u>Point</u>	<u>Point</u>		
<u>Type</u>	<u>Address</u>	<u>Long Name</u>	
----	-----	-----	-----
BI	1	Compressor 1 Status	
BI	2	Compressor 2 Status	
BI	3	Compressor 3 Status	
BI	4	Compressor 4 Status	
BI	6	G	
BI	7	BI Occupied	
BI	8	FreezeStat 1	
BI	9	FreezeStat 2	
BI	10	Dirty Filter Switch	
BI	11	Air Proving Switch	
BI	13	BI Shutdown	
BI	14	BI Purge	

ANALOG OUTPUTS (* Denotes OPERATOR-DEFINED AO)

<u>Point</u>	<u>Point</u>		
<u>Type</u>	<u>Address</u>	<u>Long Name</u>	
----	-----	-----	-----
AO	1	Econ Damper	
AO	2	Exhaust Damper	
AO	3	VFD IGV Command	
AO	4	Hot Water Valve	

BINARY OUTPUTS (* Denotes OPERATOR-DEFINED BO)

<u>Point</u>	<u>Point</u>		
<u>Type</u>	<u>Address</u>	<u>Long Name</u>	
----	-----	-----	-----
BO	1	Cool 1	
BO	2	Cool 2	
BO	3	Cool 3	
BO	4	Cool 4	
BO	5	Condensor Fan 1	
BO	6	Condensor Fan 2	
BO	8	Heat 1	
BO	9	Heat 2	
BO	11	SUPPLY FAN	
BO	12	EXHAUST FAN	
BO	13	X	

PARAMETERS (* Denotes MONITOR ONLY Parameters)

<u>Point</u>	<u>Point</u>				
<u>Type</u>	<u>Address</u>	<u>Long Name</u>	<u>Short Name</u>	<u>Value</u>	
----	-----	-----	-----	-----	-----
<u>Sensor Enables</u>					
BD	70	Space Sensor Enable	SpcSnsEn	0	

<u>Fan</u>				
BD	80	Fan Overrun	FanOver	0
<u>UnoccOvrTime</u>				
ADF	92	Unoccupied Ovr Time	UnOvrTime	60
<u>Limits</u>				
ADF	65	Cooling Lockout On OAT	ClgLckOA	45.0
ADF	66	Heating Lockout On OAT	HtgLckOA	75.0
ADF	74	Comp 1 Trip Limit	Cmp1Trip	45.0
ADF	75	Comp 2 Trip Limit	Cmp2Trip	50.0
ADF	76	Comp 3 Trip Limit	Cmp3Trip	50.0
ADF	77	Comp 4 Trip Limit	Cmp4Trip	50.0
<u>Economizer</u>				
ADF	78	OA Enth Number	OAEnth	27.0
BD	71	EconLdgToCntrlSAT	EcnLdg	1
ADF	81	MinPos	MinPos	20.0
ADF	71	MaxEconPosForDemandVent	MxEcnDV	50.0
ADF	98	Econ Ldg Of Heating SP	EcnLdgHt	150.0
<u>Power Exhaust</u>				
ADF	207	Maximum EF Off Time	MaxEFOff	40.0
ADF	79	EF Turn On Setpoint	EFOOnSP	60.0
ADF	80	EF Turn Off Setpoint	EFOffSP	20.0
ADF	201	Maximum EF On Time	MaxEFOOn	6.0
ADF	72	Bldg Pressure Setpoint	BldgSP	0.1
ADF	90	EAD Turn On SP	EADOnSP	80.0
ADF	91	EAD Turn Off SP	EADOffSP	20.0
<u>Setpoints</u>				
ADF	82	Occ Cooling Setpoint	OccClgSP	72.0
ADF	83	Unocc Cooling Setpoint	UnClgSP	85.0
ADF	84	Occ Heating Setpoint	OccHtgSP	68.0
ADF	85	Unocc Heating Setpoint	UnHtgSP	60.0
ADF	70	Space Setpoint Offset	SpcSPOff	3.0
ADF	86	Demand Ventilation Setpt	DmdVntSP	1000
ADF	87	IAQ Sensor Range	IAQSnsRg	5000
ADF	88	Hydronic 1st Stg SP	Hyd1stSP	130.0
ADF	89	Hydronic 2nd Stg SP	Hyd2ndSP	145.0
ADF	93	SAT Alarm SP for Clg	SATAmClg	100
ADF	94	SAT Alarm SP for Htg	SATAmHtg	0
<u>Modes</u>				
BD	67	SAT Cntrl For Cooling	SATClg	1
BD	84	Dirty Filter Sw Option	DrtyFltr	0
BD	83	Alarm Input	AlarmInp	0
BD	73	Cooling Mode Enable	ClgMdEnb	1
BD	74	Heating Mode Enable	HtgMdEnb	1
<u>Sensor Fault Enable</u>				
BD	75	OAH Sensor Enable	OAHsnsEn	0
BD	76	RAH Sensor Enable	RAHsnsEn	0
BD	77	RAT Sensor Enable	RATsnsEn	0
BD	87	BldgStatic Sensor Enable	BldgSnsE	0

VAV

ADF	110	Max MWU Time	MxMWTm	120
ADF	100	VAV Setpt for SAT Reset	VAVReset	72.0
ADF	101	VAV Low SAT SP for Clg	VAVLowSP	55.0
ADF	102	VAV High SAT SP for Clg	VAVHiSP	60.0
ADF	103	MWU RAT Setpoint	MWRATSP	70.0
ADF	104	Duct Static High Limit	DctHiLm	4.5
BD	110	NW MWU Command	TBD	0
BD	111	Morning Warm Up	MWU	0
ADF	105	Duct Static Prop Band	DctPB	-10.0
ADF	106	Duct Static Integ Time	DctInt	50.0
ADF	107	Duct Static Pressure SP	DctSP	1.5
BD	112	VAV Operation with Tstat	VAVTstat	0
BD	113	VAV Occupied Heating	VAVOcCHt	0

For additional detailed information on the “Synthesys” control system please refer to the Millennium/Synthesys Technical application and programming guide. PN # 036-18201-000.