

BACnet Integration Guidelines



CoolMasterNet
CooLinkNet
CooLinkHub
CooLinkBridge

BACnet Integration Guidelines



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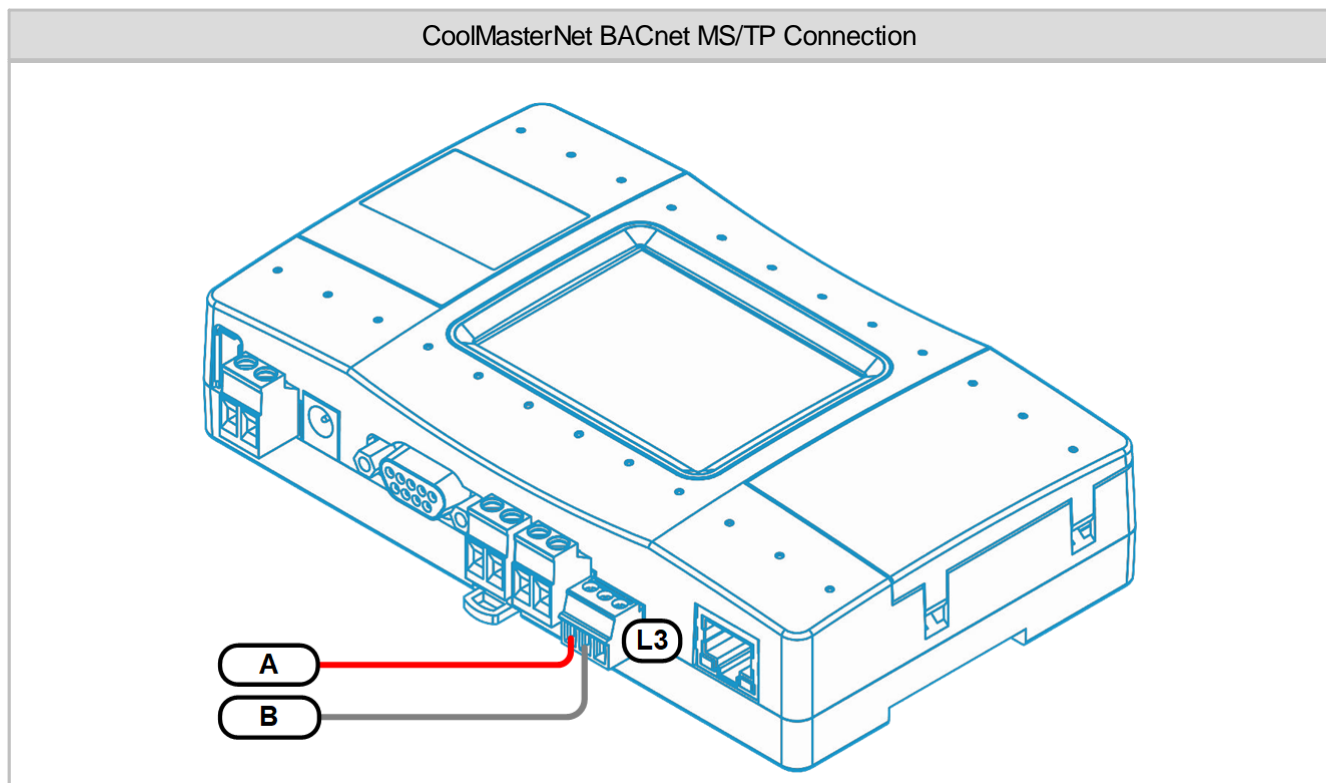


1 Connection

CoolAutomation devices support BACnet MS/TP and/or BACnet IP protocols with accordance to the ANSI/ASHRAE Standard 135-2004.

1.1 BACnet MS/TP Connection

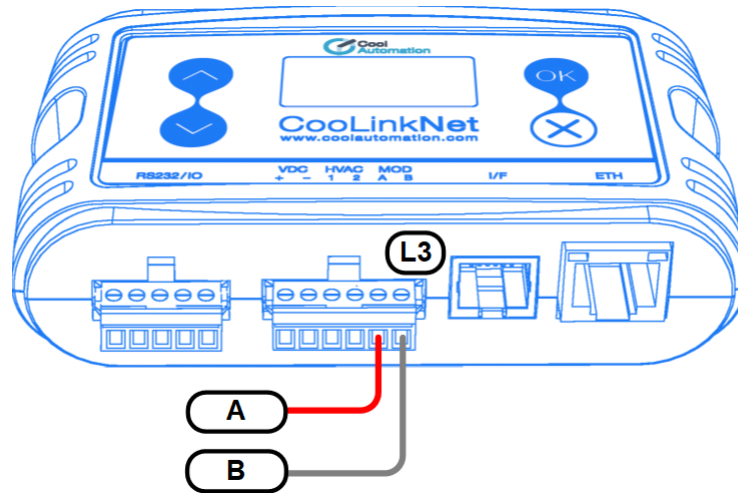
In BACnet MS/TP mode physical connection to the CoolAutomation devices is implemented over “Two-Wire” electrical interface in accordance to EIA/TIA-485 standard. Connection is made via 485-A and 485-B terminals. Ground wire connection is not mandatory but highly recommended.



In CoolMasterNet Line L3 is recommended for BACnet MS/TP connection, although Lines L4, L5, L6 and L7 can also be used for that purpose. Picture above shows connection to Line L3.



CooLinkNet/CooLinkHub/CooLinkBridge BACnet MS/TP Connection



In CooLinkNet/CooLinkHub/CooLinkBridge devices **only** Line L3 can be used for BACnet MS/TP connection.

1.2 BACnet IP Connection

BACnet IP is supported in CoolMasterNet and CooLinkNet/CooLinkHub/CooLinkBridge devices. Devices are communicating on the Ethernet TCP/IP network using UDP protocol. Physical connection in this case is made via RJ45 Ethernet connector.



2 Configuration

CoolAutomation device must be configured to support BACnet functionality. Configuration is made via CoolAutomation's proprietary ASCII_IF interface described in details in [Programmer Reference Manual \(PRM\)](#) document for the corresponding device.

One BACnet MS/TP and one BACnet IP connection can run simultaneously on CoolAutomation device. Additional MS/TP connections are not supported although physical interfaces may be available.

2.1 BACnet MS/TP Configuration

BACnet MS/TP interface module of CoolAutomation device has to be activated by assigning appropriate communication Line. In CoolMasterNet it is highly recommended to use Line L3, although it is possible to use any of the following lines: L4, L5, L6, L7 lines. Using line L3 in CoolLinkNet/CoolLinkHub/CoolLinkBridge for BACnet MS/TP is mandatory.

CoolMasterNet BACnet MS/TP activation:

```
>line type L3 BAC
OK, Boot Required!
```

CoolLinkNet/CoolLinkHub/CoolLinkBridge BACnet MS/TP activation:

```
>line type L3 BAC
OK, Boot Required!
```

Use `line` command to check if BACnet MS/TP module is already activated and to display it's parameters.

CoolMasterNet:

```
>line
L1: DK Master U00/G00 myid:0B
Tx:2/2 Rx:2/2 TO:0/0 CS:0/0 Col:0/0 NAK:0/0
L2: Unused
Tx:0/0 Rx:0/0 TO:0/0 CS:0/0 Col:0/0 NAK:0/0
L3: BACnet TS:0x40(64) DEV_INST:0x000040(64) 9600_8N1
Tx:0/0 Rx:0/0 TO:0/0 CS:0/0 Col:0/0 NAK:0/0
L4: Unused
Tx:0/0 Rx:0/0 TO:0/0 CS:0/0 Col:0/0 NAK:0/0
L5: Unused
Tx:0/0 Rx:0/0 TO:0/0 CS:0/0 Col:0/0 NAK:0/0
L6: Unused
Tx:0/0 Rx:0/0 TO:0/0 CS:0/0 Col:0/0 NAK:0/0
L7: Unused
Tx:0/0 Rx:0/0 TO:0/0 CS:0/0 Col:0/0 NAK:0/0
L8: Unused
Tx:0/0 Rx:0/0 TO:0/0 CS:0/0 Col:0/0 NAK:0/0
OK
```

CoolLinkNet/CoolLinkHub/CoolLinkBridge:

```
>line
L1: Unused
Tx:0/0 Rx:0/0 TO:0/0 CS:0/0 Col:0/0 NAK:0/0
L2: Unused
Tx:0/0 Rx:0/0 TO:0/0 CS:0/0 Col:0/0 NAK:0/0
L3: BACnet TS:0x40(64) DEV_ID_INST:0x000040(64) 9600_8N1
Tx:0/0 Rx:0/0 TO:0/0 CS:0/0 Col:0/0 NAK:0/0
L4: M1M2 Slave U00/G00 Not Connected
Tx:0/0 Rx:0/0 TO:0/0 CS:0/0 Col:0/0 NAK:0/0
L5: Unused
Tx:0/0 Rx:0/0 TO:0/0 CS:0/0 Col:0/0 NAK:0/0
OK
```



Next: VA's have to be configured to use BACnet MS/TP module. See: [VA's Configuration](#).

2.1.1 BACnet MS/TP MAC Address

On MS/TP networks, MAC address or TS (This Station) address is the eight bit address used to identify devices on a single RS-485 subnet. TS can be configured with `line myid` command (in this example TS will be set to 0x41 or 65 decimal):

```
>line myid L3 41
OK, Boot Required!
```

TS can be queried with `bacnet` or `line` command.

2.1.2 BACnet MS/TP Frame Format

The default BACnet MS/TP frame format in CoolAutomation devices is 9600_8N1:

Baud Rate	9600 bps
Data Bits	8
Parity	None
Stop Bits	1

Frame format parameters are configurable with `line baud` command:

```
>line baud L3 19200 8N2
OK, Boot Required!
```

In above example frame format will become 19200 bps, 8 data bits, no parity, 2 stop bits.

2.2 BACnet IP Configuration

BACnet IP module is activated with below command:

```
>bacnet IP enable
OK, Boot Required!
```

BACnet IP server is started by device only after it establishes an Ethernet link and gets proper IP address (dynamic via DHCP or static). Ethernet and IP management is done with `ifconfig` command that is out of the spec of this document.

To query BACnet IP status use `bacnet` command without parameters:

```
>bacnet
Dev instance   : 64 (0x000040)
BACnet IP     : enabled
UDP port      : 47808 (0xBAC0)
BACnet MSTP   : L3
TS address    : 64 (0x40)
OK
```

The default UDP port number used by BACnet IP Server is 47808 (0xBAC0). This is "well-known" Ethernet port assigned for the BACnet IP protocol. If required port number can be changed (new port number in example below will be 503):

```
>bacnet port 503
OK, Boot Required!
```

Next: VA's have to be configured to use BACnet IP Server. See: [VA's Configuration](#).



2.3 VA's Configuration

VA's -Virtual Addresses are used by CoolAutomation devices in order to simplify translation of the Indoor Unit number - UID into Instance Number of the BACnet Object Identifier.

UID is a string in format **Ln.XYY**. For Example:

L1.102 - Indoor Unit 102 on line L1

L2.003 - Indoor Unit 003 on line L2

List of UID's detected (visible) by CoolAutomation device can be retrieved with **ls** command.

```
>ls
L1.100 ON 19C 30C High Fan OK # 0
L1.101 OFF 28C 23C High Cool OK - 0
```

Each UID can have none, one or a number of associated VA's. VA's are plain numbers starting from 1. Device can automatically allocate and associate VA's with existing (visible by **ls** command) UID's:

```
>va auto
OK
```

To query allocated VA's use **va** command without parameters:

```
>va
INDOORS
L1.100 --> 0001 [Hex: 0x0011 | Dec: 00017]
L1.101 --> 0002 [Hex: 0x0021 | Dec: 00033]
OK
```

In example above UID L1.100 has a VA=0001 and UID L1.101 has a VA=0002. Numbers in '[' ']' braces are not applicable for BACnet modules (they are used for Modbus modules).

VA's can be allocated or deallocated (deleted) all together or separately. As shown above for automatic VA's allocation **va auto** command is used. It is possible to allocate VA for specific UID. For example, allocate VA 0004 for UID L1.102:

```
>va + L1.102 0004
OK
```

In this case UID does not have to be detected (visible) by CoolAutomation device at the VA allocation time. It is allowed to allocate a number of VA's for any given UID.

To delete all allocated VA's:

```
>va delall
OK
```

Specific VA can also be deleted (below command will delete VA 0004):

```
>va - 0004
OK
```

Alternatively all VA's associated with specific UID can be deleted (below command will delete all VA's associated with UID L1.102):

```
>va - L1.102
OK
```

Once VA's are allocated BACnet MS/TP and/or BACnet IP can be used to access Indoor Unit parameters. Translation of the VA into Instance Number of the BACnet Object Identifier is made according to the scheme below:

Object Identifier bits																															
31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Type										Instance Number																					
										VA							Index														





3 BACnet Tables

Supported Object Types

Object Type	Abbreviation	Read/Write	Encoding
Binary Value	BV	R/W	5
Binary Input	BI	RO	3
Analog Value	AV	R/W	2
Analog Input	AI	RO	0
Multi State Value	MV	R/W	19
Character String Value	CSV	RO	40
Integer Value	IV	RO	45
Positive Integer Value	PIV	R/W	48

3.1 Indoor Unit Objects

Object Identifier bits				Object Description
31	22	21	8 7 0	
Type	Instance			
	VA	Index		
AI		00		Room Temperature
AV		00		Set Temperature
BI		00		HVAC Failure Indication. Present Value = 0 - No Failure Present Value = 1 - Failure. "Active Text" property contains failure code
BI		01		Demand State (Therm_ON)
BI		02		External Terminals Status
BV		00		ON/OFF
BV		01		Filter Sign
BV		02		Lock (prohibit) ON/OFF change from WRC
BV		03		Lock (prohibit) Operation Mode change from WRC
BV		04		Lock (prohibit) Set Temperature change from WRC
BV		05		Global Lock (prohibit)
MV		00		Fan Speed: 1 - Low 2 - Medium 3 - High 4 - Auto 5 - Top 6 - Very Low 7 - Super High 8 - HRV Super High 9 - HRV Low FreshUp 10 - HRV High FreshUP
MV		01		Operation Mode: 1 - Cool 2 - Heat 3 - Auto 4 - Dry 5 - HAUX 6 - Fan 7 - Heat+HAUX 9 - HRV Auto 10 - HRV Bypass 11 - HRV Heat Exchange 12 - HRV Normal
MV		02		Louver 1 - Vertical 5 - Horizontal 2 - 30 deg 3 - 45 deg 4 - 60 deg 6 - Auto (Swing) 7 - Off 8 - No Louver Control
MV		03		Same as Operation Mode with addition of 33 - OFF (Turn off). (CoolMasterNet Version 0.8.0 or higher)
PIV		00		Set Temperature low limit
PIV		01		Set Temperature high limit



3.2 PRO Functionality

3.2.1 DK (Daikin)

3.2.1.1 DK PRO Indoor Units

Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type	Instance						
	VA	Index					
CSV					00	Type Indoor type string	
PIV					01	AirNet AirNet Address	
AI					02	SuctT Suction Temperature [°C]	
AI					03	LiqPipT Liquid Pipe Temperature [°C]	
AI					04	GasPipT Gas Pipe Temperature [°C]	
PIV					05	EVOp EV Opening	
BI					06	TstatOn Thermostat On	

3.2.1.2 DK PRO Outdoor Systems

- VRV4S1, VRV4S2, mini-VRV, VRV-3S, VRV4S-US(RXTQ), VRV-M, VRV-3P

Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type	Instance						
	VA	Index					
CSV					00	Type Outdoor System Type Name	
PIV					01	AirNet AirNet Addr.	
PIV					02	SysHP System HP [hp]	
AI					03	SysCur System Current x 0.1 [A]	
AI					04	TrgtEvT Target Evaporation T x 0.1 [°C]	
PIV					05	TrgtCndT Target Condensing T [°C]	
CSV					06	ErrCode Error code	
BI					07	Cool Cooling	
BI					08	Heat Heating	
BI					09	Vent Ventilation	
BI					10	TstatOn Thermostat ON	
BI					11	ResrtStby Restart stand-by	
BI					12	BkpOp Backup ope.	
PIV					13	DmndState Demand state	

- VRV4S3, VRVX, VRV4-EU

Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type	Instance						
	VA	Index					
CSV					00	Type Outdoor System Type Name	
PIV					01	AirNet AirNet Addr.	
PIV					02	SysHP System HP [hp]	
AI					03	SysCur System Current x 0.1 [A]	
AI					04	TrgtEvT Target Evaporation T x 0.1 [°C]	
PIV					05	TrgtCndT Target Condensing T [°C]	
CSV					06	ErrCode Error code	



Object Identifier bits					Short Name	Object Description
31	22	21	8	7 0		
Type	Instance					
	VA	Index				
BI				07	Cool	Cooling
BI				08	Heat	Heating
BI				09	Vent	Ventilation
BI				10	TstatOn	Thermostat ON
BI				11	ResrtStby	Restart stand-by
BI				12	Dfrst	Defrost
BI				13	StrtupCtl	Startup control
BI				14	BkpOp	Backup ope.
BI				15	OiRtrn	Oil return
PIV				16	DmndState	Demand state
PIV				17	OpCtlMod	Operation control mode
AI				18	TstatOnCap	I/U thermostat ON capacity

• **VRV-M(REYQ8-48M)**

Object Identifier bits					Short Name	Object Description
31	22	21	8	7 0		
Type	Instance					
	VA	Index				
CSV				00	Type	Outdoor System Type Name
PIV				01	AirNet	AirNet Addr.
PIV				02	SysHP	System HP [hp]
AI				03	SysCur	System Current x 0.1 [A]
AI				04	TrgtEvT	Target Evaporation T x 0.1 [°C]
PIV				05	TrgtCndT	Target Condensing T [°C]
CSV				06	ErrCode	Error code
BI				07	Cool	Cooling
BI				08	Heat	Heating
BI				09	Vent	Ventilation
BI				10	TstatOn	Thermostat ON
BI				11	ResrtStby	Restart stand-by
BI				12	BkpOp	Backup ope.
BI				13	CoolHeatPrll	Cool/Heat parallel ope.
PIV				14	DmndState	Demand state

• **VRV4-us(RELQ,RXLQ), VRV-4R**

Object Identifier bits					Short Name	Object Description
31	22	21	8	7 0		
Type	Instance					
	VA	Index				
CSV				00	Type	Outdoor System Type Name
PIV				01	AirNet	AirNet Addr.
PIV				02	SysHP	System HP [hp]
AI				03	SysCur	System Current x 0.1 [A]
AI				04	TrgtEvT	Target Evaporation T x 0.1 [°C]
PIV				05	TrgtCndT	Target Condensing T [°C]
CSV				06	ErrCode	Error code
BI				07	Cool	Cooling
BI				08	Heat	Heating
BI				09	Vent	Ventilation



Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type	Instance		Index				
	VA						
BI					10	TstatOn Thermostat ON	
BI					11	ResrtStby Restart stand-by	
BI					12	Dfrst Defrost	
BI					13	StrtupCtl Startup control	
BI					14	BkpOp Backup ope.	
BI					15	CoolHeatPrll Cool/Heat parallel ope.	
BI					16	OiRtrn Oil return	
PIV					17	DmndState Demand state	
PIV					18	OpCtlMod Operation control mode	
AI					19	TstatOnCap I/U thermostat ON capacity	

• VRV-3R, VRV3C

Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type	Instance		Index				
	VA						
CSV					00	Type Outdoor System Type Name	
PIV					01	AirNet AirNet Addr.	
PIV					02	SysHP System HP [hp]	
AI					03	SysCur System Current x 0.1 [A]	
AI					04	TrgtEvT Target Evaporation T x 0.1 [°C]	
PIV					05	TrgtCndT Target Condensing T [°C]	
CSV					06	ErrCode Error code	
BI					07	Cool Cooling	
BI					08	Heat Heating	
BI					09	Vent Ventilation	
BI					10	TstatOn Thermostat ON	
BI					11	ResrtStby Restart stand-by	
BI					12	BkpOp Backup ope.	
BI					13	CoolHeatPrll Cool/Heat parallel ope.	
PIV					14	DmndState Demand state	

3.2.1.3 DK PRO Outdoor Units

• VRV4S1, VRV4S2, VRV-3S, VRV4S-US(RXTQ), VRV-3P

Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type	Instance		Index				
	VA						
PIV					00	AirNet AirNet Addr.	
PIV					01	HP HP [hp]	
IV					02	AmbT Ambient temperature [°C]	
IV					03	SuctT Suction Temperature [°C]	
IV					04	EvT Evaporating Temperature [°C]	
IV					05	CndT Condensing Temperature [°C]	
PIV					06	InvRS Inverter Revolution Speed [rps]	
PIV					07	EVOp1 EV opening 1 [pls]	
PIV					08	EVOp2 EV opening 2 [pls]	



Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type	Instance		Index				
	VA						
PIV			09		CTSTD1	CT1 (STD1) [A]	
PIV			10		CTSTD2	CT2 (STD2) [A]	
PIV			11		FanStp	Fan step	
IV			12		CiIT	R4T :Coil temp. [°C]	
IV			13		ScCiExtT	Subcooling Coil exit Temp. [°C]	
PIV			14		DschTInv	Disch. temp.(INV) [°C]	
PIV			15		DschTStd1	Disch. temp.(STD1) [°C]	
PIV			16		DschTStd2	Disch. temp.(STD2) [°C]	
IV			17		AccEntrT	Accumulator Entrance Temp. [°C]	
IV			18		RcvrLiqT	Receiver Liquid Temp. [°C]	
PIV			19		InvT	Inverter temp. [°C]	
PIV			20		InvCur	Inverter current [A]	
PIV			21		InvFanCur	INV FAN current [A]	
BI			22		Comp1Inv	Compressor1(INV)	
BI			23		Comp2Std1	Compressor2(STD1)	
BI			24		Comp3Std2	Compressor3(STD2)	
BI			25		OiRtrn	Oil return	
BI			26		HotGas	Hot Gas	
BI			27		CcH1	CH1:Crankcase Heater	
BI			28		CcH2	CH2:Crankcase Heater	
BI			29		CcH3	CH3:Crankcase Heater	
BI			30		SoftStrt	Soft start	
BI			31		ResrtStby	Restart stand-by	
BI			32		MulOi	Multi oil	
BI			33		ErrState	Unit Error stat	
BI			34		EnrgyCutOutp	Energy cut output	
BI			35		HiPRtry	High pressure retry	
BI			36		LoPRtry	Low pressure retry	
BI			37		DischPipRtry	Disch. pipe retry	
BI			38		4WayVlv	4 way valve	
BI			39		Injct	Injection	
BI			40		Dfrst	Defrost	
BI			41		HiPStpDnCtl	H.P. stepping down cntl	
BI			42		LoPStpDnCtl	L.P. stepping down cntl	
BI			43		DmndStpDnCtl	Demand stepping down cntl	
BI			44		InvRtry	INV retry	
BI			45		InvDschStpDnCtl	INV Disch. stepping down cntl	
BI			46		InvOCStpDnCtl	INV OC stepping down cntl	
BI			47		InvFinStpDnCtl	INV Fin stepping down cntl	
BI			48		Std1DschStpDnCtl	STD1 Disch. stepping down cntl	
BI			49		Std1OCStpDnCtl	STD1 OC stepping down cntl	
BI			50		Std2DschStpDnCtl	STD2 Disch. stepping down cntl	
BI			51		Std2OCStpDnCtl	STD2 OC stepping down cntl	

- **VRV4S3, VRVX, VRV4-EU**



Object Identifier bits					Short Name	Object Description
31	22	21	8	7 0		
Type	Instance					
	VA	Index				
PIV				00	AirNet	AirNet Addr.
PIV				01	HP	HP [hp]
PIV				02	Inv1RotAmnt	INV 1 rotation amount [rps]
PIV				03	Inv2RotAmnt	INV 2 rotation amount [rps]
PIV				04	Fan1RotAmnt	Fan 1 rotation amount [rpm]
PIV				05	Fan2RotAmnt	Fan 2 rotation amount [rpm]
PIV				06	FanStp	Fan step
PIV				07	EVOp1	EV opening 1 [pls]
PIV				08	EVOp2	EV opening 2 [pls]
PIV				09	EVOp3	EV opening 3 [pls]
BI				10	Complnv1	Compressor 1(INV1)
BI				11	Complnv2	Compressor 2(INV2)
BI				12	CcH1	CH1:Crankcase Heater
BI				13	CcH2	CH2:Crankcase Heater
BI				14	4WayVlv	4 way valve
BI				15	OiRtrn1	Oil return 1
BI				16	AccOiRtrn	Accumulator oil return
BI				17	OiRtrn2	Oil return 2
BI				18	4WayVlvHeat	4 way valve(Heating)
BI				19	ErrState	Unit Error stat
BI				20	DrnPanHtr	Drain pan heater
BI				21	EnrgyCutOutp	Energy cut output
BI				22	HiPRtry	High pressure retry
BI				23	LoPRtry	Low pressure retry
BI				24	DischPipRtry	Disch. pipe retry
BI				25	OHSby	Overheating stand-by
BI				26	Inv1Stby	INV1 stand-by
BI				27	Inv2Stby	INV2 stand-by
BI				28	HiPStpDnCtl	H.P. stepping down cntl
BI				29	LoPStpDnCtl	L.P. stepping down cntl
BI				30	DmndStpDnCtl	Demand stepping down cntl
BI				31	Comp1DsSchStpDnCtl	Comp.1 Disch. stepping down cntl
BI				32	Comp2DsSchStpDnCtl	Comp.2 Disch. stepping down cntl
BI				33	Comp1OCStpDnCtl	Comp.1 OC stepping down cntl
BI				34	Comp2OCStpDnCtl	Comp.2 OC stepping down cntl
BI				35	Inv1FinStpDnCtl	INV1 Fin stepping down cntl
BI				36	Inv2FinStpDnCtl	INV2 Fin stepping down cntl

- VRV4S3, VRVX, VRV4-EU

Object Identifier bits					Short Name	Object Description
31	22	21	8	7 0		
Type	Instance					
	VA	Index				
PIV				00	AirNet	AirNet Addr.
IV				01	AmbT	Ambient temperature [°C]
PIV				02	DschTComp1	Discharge pipe temp.(Comp.1) [°C]
PIV				03	DschTComp2	Discharge pipe temp.(Comp.2) [°C]
IV				04	EvT	Evaporating Temperature [°C]
IV				05	CndT	Condensing Temperature [°C]



Object Identifier bits					Short Name	Object Description
31	22	21	8	7 0		
Type	Instance					
	VA	Index				
IV				06	HexT	Heat exchanger temp. [°C]
IV				07	HexLiqT	Heat exchanger liquid pipe temp. [°C]
IV				08	ScHexGasT	Subcooling heat exchanger gas temp. [°C]
IV				09	ScHexLiqT	Subcooling heat exchanger liquid temp. [°C]
PIV				10	CompSrfT	Compressor surface temp. [°C]
IV				11	AccInlT	Accumulator inlet temp. [°C]
PIV				12	Comp1Cur	Comp.1 current [A]
PIV				13	Comp2Cur	Comp.2 current [A]
IV				14	Inv1FinT	INV1 fin temp. [°C]
IV				15	Inv2FinT	INV2 fin temp. [°C]
PIV				16	InvFanCur	INV FAN current [A]

- mini-VRV, VRV-M

Object Identifier bits					Short Name	Object Description
31	22	21	8	7 0		
Type	Instance					
	VA	Index				
PIV				00	AirNet	AirNet Addr.
PIV				01	HP	HP [hp]
IV				02	AmbT	Ambient temperature [°C]
IV				03	SuctT	Suction Temperature [°C]
IV				04	EvT	Evaporating Temperature [°C]
IV				05	CndT	Condensing Temperature [°C]
PIV				06	EVOp1	EV opening 1 [pls]
PIV				07	EVOp2	EV opening 2 [pls]
PIV				08	CTSTD1	CT1 (STD1) [A]
PIV				09	CTSTD2	CT2 (STD2) [A]
PIV				10	FanStp	Fan step
IV				11	CilT	R4T :Coil temp. [°C]
IV				12	ScCilExtT	Subcooling Coil exit Temp. [°C]
PIV				13	DschTInv	Disch. temp.(INV) [°C]
PIV				14	DschTStd1	Disch. temp.(STD1) [°C]
PIV				15	DschTStd2	Disch. temp.(STD2) [°C]
IV				16	RcvrLiqT	Receiver Liquid Temp. [°C]
PIV				17	InvT	Inverter temp. [°C]
PIV				18	InvCur	Inverter current [A]
PIV				19	InvFanCur	INV FAN current [A]
BI				20	Comp1Inv	Compressor1(INV)
BI				21	Comp2Std1	Compressor2(STD1)
BI				22	Comp3Std2	Compressor3(STD2)
BI				23	OiRtrn	Oil return
BI				24	HotGas	Hot Gas
BI				25	CcH1	CH1:Crankcase Heater
BI				26	CcH2	CH2:Crankcase Heater
BI				27	CcH3	CH3:Crankcase Heater
BI				28	SoftStrt	Soft start
BI				29	ResrtStby	Restart stand-by
BI				30	MulOi	Multi oil
BI				31	ErrState	Unit Error stat



Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type	Instance		Index	7			0
	VA	Index					
BI					32	EnrgyCutOutp	Energy cut output
BI					33	HiPRtry	High pressure retry
BI					34	LoPRtry	Low pressure retry
BI					35	DischPipRtry	Disch. pipe retry
BI					36	4WayVlv	4 way valve
BI					37	Injct	Injection
BI					38	Dfrst	Defrost
BI					39	HiPDroCtl	High pres. drooping cntl.
BI					40	LoPDroCtl	Low pres. drooping cntl.
BI					41	InvDschDroCtl	INV Disch. pipe drooping cntl.
BI					42	InvCurDroCtl	INV current drooping cntl.
BI					43	InvFinDroCtl	INV fin drooping cntl.
BI					44	Std1DschDroCtl	INV fin drooping cntl.
BI					45	Std1OCDroCtl	INV fin drooping cntl.
BI					46	Std2DschDroCtl	INV fin drooping cntl.
BI					47	Std2OCDroCtl	INV fin drooping cntl.
BI					48	InvStby	INV stand-by
BI					49	RcvrGasIn	SVL:Receiver gas in
BI					50	RcvrGasOut	SVG:Receiver gas out
BI					51	StpUnGasOut	SVSG:StopUnit Gas out
BI					52	StpUnLiqPipCls	SVSL:StopUnit Liquid pipe close
IV					53	OiPEqT	Oil Pres. equalizer Temp. [°C]
PIV					54	InvFrq	Inverter frequency [Hz]

• VRV-M(REYQ8-48M)

Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type	Instance		Index	7			0
	VA	Index					
PIV					00	AirNet	AirNet Addr.
PIV					01	HP	HP [hp]
IV					02	AmbT	Ambient temperature [°C]
IV					03	SuctT	Suction Temperature [°C]
IV					04	EvT	Evaporating Temperature [°C]
IV					05	CndT	Condensing Temperature [°C]
PIV					06	EVOp1	EV opening 1 [pls]
PIV					07	EVOp2	EV opening 2 [pls]
PIV					08	EVOp3	EV opening 3 [pls]
PIV					09	CTSTD1	CT1 (STD1) [A]
PIV					10	CTSTD2	CT2 (STD2) [A]
PIV					11	FanStp	Fan step
IV					12	CilT	R4T :Coil temp. [°C]
IV					13	ScCilExtT	Subcooling Coil exit Temp. [°C]
PIV					14	DschTInv	Disch. temp.(INV) [°C]
PIV					15	DschTStd1	Disch. temp.(STD1) [°C]
PIV					16	DschTStd2	Disch. temp.(STD2) [°C]
IV					17	RcvrLiqT	Receiver Liquid Temp. [°C]
PIV					18	InvT	Inverter temp. [°C]
PIV					19	InvCur	Inverter current [A]



Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type	Instance		VA	Index			
	PIV						
BI					21	Comp1Inv	Compressor1(INV)
BI					22	Comp2Std1	Compressor2(STD1)
BI					23	Comp3Std2	Compressor3(STD2)
BI					24	OiRtrn	Oil return
BI					25	HotGas	Hot Gas
BI					26	CcH1	CH1:Crankcase Heater
BI					27	CcH2	CH2:Crankcase Heater
BI					28	CcH3	CH3:Crankcase Heater
BI					29	SoftStrt	Soft start
BI					30	ResrtStby	Restart stand-by
BI					31	MulOi	Multi oil
BI					32	ErrState	Unit Error stat
BI					33	EnrgyCutOutp	Energy cut output
BI					34	HiPRtry	High pressure retry
BI					35	LoPRtry	Low pressure retry
BI					36	DischPipRtry	Disch. pipe retry
BI					37	4WayVlv1	4-way valve 1
BI					38	4WayVlv2	4-way valve 2
BI					39	Dfrst	Defrost
BI					40	HiPDroCtl	High pres. drooping cntl.
BI					41	LoPDroCtl	Low pres. drooping cntl.
BI					42	InvDschDroCtl	INV Disch. pipe drooping cntl.
BI					43	InvCurDroCtl	INV current drooping cntl.
BI					44	InvFinDroCtl	INV fin drooping cntl.
BI					45	Std1DschDroCtl	INV fin drooping cntl.
BI					46	Std1OCDroCtl	INV fin drooping cntl.
BI					47	Std2DschDroCtl	INV fin drooping cntl.
BI					48	Std2OCDroCtl	INV fin drooping cntl.
BI					49	InvStby	INV stand-by
BI					50	RcvrGasIn	SVL:Receiver gas in
BI					51	RcvrGasOut	SVG:Receiver gas out
BI					52	StpUnGasOut	SVSG:StopUnit Gas out
BI					53	StpUnLiqPipCls	SVSL:StopUnit Liquid pipe close
BI					54	HiPRduVlv	Y7S:High pressure reducing valve
IV					55	OiPEqT	Oil Pres. equalizer Temp. [°C]
PIV					56	InvFrq	Inverter frequency [Hz]
IV					57	CilGas1T	R81T:Coil gas 1 temp. [°C]
IV					58	CilGas2T	R81T:Coil gas 2 temp. [°C]

• VRV4-us(RELQ,RXLQ), VRV-4R

Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type	Instance		VA	Index			
	PIV						
PIV					01	HP	HP [hp]
PIV					02	Inv1RotAmnt	INV 1 rotation amount [rps]
PIV					03	Inv2RotAmnt	INV 2 rotation amount [rps]



Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type	Instance		Index				
	VA						
PIV					04	Fan1RotAmnt Fan 1 rotation amount [rpm]	
PIV					05	Fan2RotAmnt Fan 2 rotation amount [rpm]	
PIV					06	FanStp Fan step	
PIV					07	EVOp1 EV opening 1 [pls]	
PIV					08	EVOp2 EV opening 2 [pls]	
PIV					09	EVOp3 EV opening 3 [pls]	
PIV					10	EVOp4 EV4 pls.(receiver gas purge) [pls]	
PIV					11	EVOp5 EV5 pls.(cooling refrigerant) [pls]	
PIV					12	EVOp6 EV6 pls.(leak detection) [pls]	
BI					13	Complnv1 Compressor 1(INV1)	
BI					14	Complnv2 Compressor 2(INV2)	
BI					15	CcH1 CH1:Crankcase Heater	
BI					16	CcH2 CH2:Crankcase Heater	
BI					17	4WayVlv 4 way valve	
BI					18	OiRtrn1 Oil return 1	
BI					19	OiRtrn2 Oil return 2	
BI					20	ErrState Unit Error stat	
BI					21	4WayVlvUpr 4-way valve(upper heat exchanger)	
BI					22	4WayVlvUndr 4-way valve(under heat exchanger)	
BI					23	SolVlv Sol. valve(shutoff liquid pipe)	
BI					24	DrnPanHtr Drain pan heater	
BI					25	EnrgyCutOutp Energy cut output	
BI					26	HiPRtry High pressure retry	
BI					27	LoPRtry Low pressure retry	
BI					28	DischPipRtry Disch. pipe retry	
BI					29	OHSby Overheating stand-by	
BI					30	Inv1Stby INV1 stand-by	
BI					31	Inv2Stby INV2 stand-by	
BI					32	HiPStpDnCtl H.P. stepping down cntl	
BI					33	LoPStpDnCtl L.P. stepping down cntl	
BI					34	DmndStpDnCtl Demand stepping down cntl	
BI					35	Comp1DschStpDnCtl Comp.1 Disch. stepping down cntl	
BI					36	Comp2DschStpDnCtl Comp.2 Disch. stepping down cntl	
BI					37	Comp1OCStpDnCtl Comp.1 OC stepping down cntl	
BI					38	Comp2OCStpDnCtl Comp.2 OC stepping down cntl	
BI					39	Inv1FinStpDnCtl INV1 Fin stepping down cntl	
BI					40	Inv2FinStpDnCtl INV2 Fin stepping down cntl	

• VRV4-us(RELQ,RXLQ), VRV-4R

Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type	Instance		Index				
	VA						
PIV					00	AirNet AirNet Addr.	
IV					01	AmbT Ambient temperature [°C]	
PIV					02	DschTComp1 Discharge pipe temp.(Comp.1) [°C]	
IV					03	DschTComp2 Discharge pipe temp.(Comp.2) [°C]	
IV					04	EvT Evaporating Temperature [°C]	
IV					05	CndT Condensing Temperature [°C]	



Object Identifier bits					Short Name	Object Description
31	22	21	8	7 0		
Type	Instance					
	VA	Index				
IV				06	HexT	Heat exchanger temp. [°C]
IV				07	HexLiqT	Heat exchanger liquid pipe temp. [°C]
IV				08	HexGasTUp	Heat exchanger gas pipe temp.(upper) [°C]
IV				09	HexGasTLo	Heat exchanger gas pipe temp.(low) [°C]
IV				10	HexLiqTUp	Heat exchanger liquid pipe temp.(upper) [°C]
IV				11	HexLiqTLo	Heat exchanger liquid pipe temp.(low) [°C]
IV				12	ScHexGasT	Subcooling heat exchanger gas temp. [°C]
IV				13	ScHexLiqT	Subcooling heat exchanger liquid temp. [°C]
IV				14	SuctT	Suction Temperature [°C]
IV				15	CompSuctPipT	Comp. suction pipe temp. [°C]
PIV				16	CompSrfT	Compressor surface temp. [°C]
IV				17	RcvrInltT	Receiver inlet temp. [°C]
IV				18	RcvrGasPrqT	Receiver gas purge temp. [°C]
PIV				19	Comp1Cur	Comp.1 current [A]
PIV				20	Comp2Cur	Comp.2 current [A]
IV				21	Inv1FinT	INV1 fin temp. [°C]
IV				22	Inv2FinT	INV2 fin temp. [°C]
PIV				23	InvFanCur	INV FAN current [A]

• VRV-3R, VRV3C

Object Identifier bits					Short Name	Object Description
31	22	21	8	7 0		
Type	Instance					
	VA	Index				
PIV				00	AirNet	AirNet Addr.
PIV				01	HP	HP [hp]
IV				02	AmbT	Ambient temperature [°C]
IV				03	SuctT	Suction Temperature [°C]
IV				04	EvT	Evaporating Temperature [°C]
IV				05	CndT	Condensing Temperature [°C]
PIV				06	InvRS	Inverter Revolution Speed [rps]
PIV				07	EVOp1	EV opening 1 [pls]
PIV				08	EVOp2	EV opening 2 [pls]
PIV				09	EVOp	EV opening [pls]
PIV				10	CTSTD1	CT1 (STD1) [A]
PIV				11	CTSTD2	CT2 (STD2) [A]
PIV				12	FanStp	Fan step
PIV				13	DschTInv	Disch. temp.(INV) [°C]
PIV				14	DschTStd1	Disch. temp.(STD1) [°C]
PIV				15	DschTStd2	Disch. temp.(STD2) [°C]
IV				16	InvT	Inverter temp. [°C]
PIV				17	InvCur	Inverter current [A]
PIV				18	InvFanCur	INV FAN current [A]
BI				19	Comp1Inv	Compressor1(INV)
BI				20	Comp2Std1	Compressor2(STD1)
BI				21	Comp3Std2	Compressor3(STD2)
BI				22	OiRtrn	Oil return
BI				23	HotGas	Hot Gas
BI				24	CcH1	CH1:Crankcase Heater



Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type	Instance		VA	Index			
	BI						
BI				26	CcH3	CH3:Crankcase Heater	
BI				27	SoftStrt	Soft start	
BI				28	ResrtStby	Restart stand-by	
BI				29	ErrState	Unit Error stat	
BI				30	EnrgyCutOutp	Energy cut output	
BI				31	HiPRtry	High pressure retry	
BI				32	LoPRtry	Low pressure retry	
BI				33	DischPipRtry	Disch. pipe retry	
BI				34	4WayVlv	4 way valve	
BI				35	4WayVlv2	4-way valve 2	
BI				36	Dfrst	Defrost	
BI				37	HiPStpDnCtl	H.P. stepping down cntl	
BI				38	LoPStpDnCtl	L.P. stepping down cntl	
BI				39	DmndStpDnCtl	Demand stepping down cntl	
BI				40	InvRtry	INV retry	
BI				41	InvDschStpDnCtl	INV Disch. stepping down cntl	
BI				42	InvOCStpDnCtl	INV OC stepping down cntl	
BI				43	InvFinStpDnCtl	INV Fin stepping down cntl	
BI				44	Std1DschStpDnCtl	STD1 Disch. stepping down cntl	
BI				45	Std1OCStpDnCtl	STD1 OC stepping down cntl	
BI				46	Std2DschStpDnCtl	STD2 Disch. stepping down cntl	
BI				47	Std2OCStpDnCtl	STD2 OC stepping down cntl	
BI				48	EVByP	EV bypass	
BI				49	RfrgGasPrg	Refrigerant regu. gas purging	
BI				50	RfrgLiq	Refrigerant regu. liquid	
BI				51	RfrgDsching	Refrigerant regu. discharging	
BI				52	RfrgDsCh	Refrigerant regu. discharge	
BI				53	OpOutp	Operation output	
IV				54	HexT	Heat exchanger temp. [°C]	
IV				55	HexGasT	Heat Ex. Gas temp. [°C]	
IV				56	HexLiqT	Heat exchanger liquid pipe temp. [°C]	
IV				57	ScHexGasT	Subcooling heat exchanger gas temp. [°C]	
IV				58	ScHexLiqT	Subcooling heat exchanger liquid temp. [°C]	
IV				59	EVLiqT	EV liquid pipe temp. [°C]	

3.2.2 ME (Mitsubishi Electric)

3.2.2.1 ME PRO Indoor Units

- F/P

Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type	Instance		VA	Index			
	CSV						
AI				01	TH1	Room Thermistor [°C]	
AI				02	TH2	Liquid Pipe Thermistor [°C]	



Object Identifier bits					Short Name	Object Description
31	22	21	8	7 0		
Type	Instance					
	VA	Index				
AI				03	TH3	Gas Pipe Thermistor [°C]
AI				04	SH	Super Heat [°C]
AI				05	SC	Super Cool [°C]
IV				06	Li	LEV opening pulse

• PUHZ

Object Identifier bits					Short Name	Object Description
31	22	21	8	7 0		
Type	Instance					
	VA	Index				
CSV				00	Type	Indoor type string
AI				01	TH1	Room Thermistor [°C]
AI				02	TH2	Liquid Pipe Thermistor [°C]
AI				03	TH3	Gas Pipe Thermistor [°C]
AI				04	TH4	Thermistor 4 [°C]
AI				05	TH5	Thermistor 5 [°C]
AI				06	TH6	Thermistor 6 [°C]
AI				07	TH7	Thermistor 7 [°C]
AI				08	TH8	Thermistor 8 [°C]
PIV				09	FAN	Fan capacity
PIV				10	HZ	Frequency
AI				11	SC	Super Cool
IV				12	LevA	LEV pulse of indoor unit
IV				13	LevB	LEV pulse of indoor unit

• LOSSNEY

Object Identifier bits					Short Name	Object Description
31	22	21	8	7 0		
Type	Instance					
	VA	Index				
CSV				00	Type	Indoor type string
AI				01	TH1	Room Thermistor [°C]
AI				02	TH2	Liquid Pipe Thermistor [°C]
PIV				03	SA	Supply Air
PIV				04	EA	Exhaust Air

3.2.2.2 ME PRO Outdoor Units

• PUMY-P100-140Y/VHM/36-48NHMU

Object Identifier bits					Short Name	Object Description
31	22	21	8	7 0		
Type	Instance					
	VA	Index				
CSV				00	Type	Outdoor System Type Name
BI				01	TH3	Thermistor 3 x 0.1 [°C]
PIV				02	TH4	Thermistor 4 x 0.1 [°C]
BI				03	TH6	Thermistor 6 x 0.1 [°C]
BI				04	TH7	Thermistor 7 x 0.1 [°C]



Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type		Instance					
VA	Index						
BI				05	TH8	Thermistor 8 x 0.1 [°C]	
BI				06	63HS	High pressure sensor x 0.1 [kg/cm2]	
BI				07	Vdc	COMP bus voltage x 0.1 [V]	
BI				08	li	Input Current x 0.1 [A]	
BI				09	lc	Compressor Current x 0.1 [A]	
PIV				10	F(Hz)	All temporary frequencies [Hz]	
BI				11	FAN	Fan output [Hz]	
BI				12	Pdm	Target high pressure x 0.1	
BI				13	ETm	Target Evaporation Temperature x 0.1 [°C]	
PIV				14	SC	Sub Cool x 0.1	
BI				15	SCm	Target Sub Cool x 0.1	
PIV				16	LEV1	Linear expansion valve	
AI				17	LEV2	Linear expansion valve	
AI				18	LEV3	LEV3 Pulse [pls]	
AI				19	LEV4	Linear expansion valve	

• PUMY-P*V/Y/NH/KM(BR4/UR4/SR1/C-C/-A)

Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type		Instance					
VA	Index						
CSV				00	Type	Outdoor System Type Name	
IV				01	TH2	Thermistor 2 x 0.1 [°C]	
BI				02	TH3	Thermistor 3 x 0.1 [°C]	
				03	TH4	Thermistor 4 x 0.1 [°C]	
BI				04	TH6	Thermistor 6 x 0.1 [°C]	
				05	TH7	Thermistor 7 x 0.1 [°C]	
BI				06	TH8	Thermistor 8 x 0.1 [°C]	
				07	63HS	High pressure sensor x 0.1 [kg/cm2]	
BI				08	63LS	Pressure sensor x 0.1 [kg/cm2]	
BI				09	Vdc	COMP bus voltage x 0.1 [V]	
BI				10	li	Input Current x 0.1 [A]	
				11	lc	Compressor Current x 0.1 [A]	
BI				12	F(Hz)	All temporary frequencies [Hz]	
BI				13	FAN	Fan output [Hz]	
				14	Pdm	Target high pressure x 0.1	
BI				15	ETm	Target Evaporation Temperature x 0.1 [°C]	
				16	SC	Sub Cool x 0.1	
BI				17	SCm	Target Sub Cool x 0.1	
				18	LEV1	Linear expansion valve	
BI				19	LEV2	Linear expansion valve	
				20	LEV3	LEV3 Pulse [pls]	
BI				21	LEV4	Linear expansion valve	

• PURY-P [capacity], PUHY-P [capacity]



Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type		Instance					
VA	Index						
CSV					00	Type	Outdoor System Type Name
AI					01	TH1	Thermistor 1 x 0.1 [°C]
AI					02	TH2	Thermistor 2 x 0.1 [°C]
BI					03	TH3	Thermistor 3 x 0.1 [°C]
AI					04	TH4	Thermistor 4 x 0.1 [°C]
AI					05	TH5	Thermistor 5 x 0.1 [°C]
AI					06	TH6	Thermistor 6 x 0.1 [°C]
AI					07	TH7	Thermistor 7 x 0.1 [°C]
					08	TH8	Thermistor 8 x 0.1 [°C]
BI					09	TH9	Thermistor 9 x 0.1 [°C]
					10	TH10	Thermistor 10 x 0.1 [°C]
AI					11	TH12	Thermistor 12 x 0.1 [°C]
AI					12	63HS	High pressure sensor x 0.1 [kg/cm2]
AI					13	63LS	Pressure sensor x 0.1 [kg/cm2]
IV					14	THHS	Thermistor 9 x 0.1 [°C]
BI					15	THBOX	Thermistor in box x 0.1 [°C]
AI					16	Tc	Condensing temperature x 0.1 [°C]
PIV					17	Te	Evaporating temperature x 0.1 [°C]
					18	F(Hz)	All temporary frequencies [Hz]
PIV					19	FAN	Fan output [Hz]
AI					20	QjC	Total capacity Cool
AI					21	QjH	Total capacity Heat
PIV					22	SCo	Heat exchanger outlet subcooling x 0.1 [°C]
PIV					23	SCc	Coil outlet subcooling x 0.1 [°C]
PIV					24	SHb	Coil bypass outlet superheat x 0.1 [°C]

• PURY-P [capacity]

Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type		Instance					
VA	Index						
CSV					00	Type	Outdoor System Type Name
AI					01	TH2	Thermistor 2 x 0.1 [°C]
BI					02	TH3	Thermistor 3 x 0.1 [°C]
AI					03	TH4	Thermistor 4 x 0.1 [°C]
AI					04	TH5	Thermistor 5 x 0.1 [°C]
AI					05	TH6	Thermistor 6 x 0.1 [°C]
AI					06	TH7	Thermistor 7 x 0.1 [°C]
BI					07	TH9	Thermistor 9 x 0.1 [°C]
					08	TH10	Thermistor 10 x 0.1 [°C]
AI					09	TH11	Thermistor 11 x 0.1 [°C]
AI					10	TH12	Thermistor 12 x 0.1 [°C]
AI					11	63HS	High pressure sensor x 0.1 [kg/cm2]
AI					12	63LS	Pressure sensor x 0.1 [kg/cm2]
IV					13	THHS	Thermistor 9 x 0.1 [°C]
AI					14	Tc	Condensing temperature x 0.1 [°C]
PIV					15	Te	Evaporating temperature x 0.1 [°C]
PIV					16	F(Hz)	All temporary frequencies [Hz]



Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type		Instance					
VA	Index						
PIV			17		FAN	Fan output [Hz]	
AI			18		QjC	Total capacity Cool	
AI			19		QjH	Total capacity Heat	

• PURY-(E)P [capacity], PURY-(W) [capacity]

Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type		Instance					
VA	Index						
CSV			00		Type	Outdoor System Type Name	
AI			01		TH3	Thermistor 3 x 0.1 [°C]	
AI			02		TH4	Thermistor 4 x 0.1 [°C]	
AI			03		TH5	Thermistor 5 x 0.1 [°C]	
AI			04		TH6	Thermistor 6 x 0.1 [°C]	
AI			05		TH7	Thermistor 7 x 0.1 [°C]	
AI			06		63HS1	Pressure sensor x 0.1 [kg/cm2]	
AI			07		63LS	Pressure sensor x 0.1 [kg/cm2]	
IV			08		THHS	Thermistor 9 x 0.1 [°C]	
BI			09		Tc	Condensing temperature x 0.1 [°C]	
BI			10		Te	Evaporating temperature x 0.1 [°C]	
BI			11		Vdc	COMP bus voltage x 0.1 [V]	
PIV			12		Iu	U-Phase current effective value x 0.1 [A]	
PIV			13		Iw	W-Phase current effective value x 0.1 [A]	
BI			14		F(Hz)	All temporary frequencies [Hz]	
PIV			15		FAN	Fan output [Hz]	
BI			16		Foc	Temporary frequency [Hz]	
BI			17		QjC	Total capacity Cool	
BI			18		QjH	Total capacity Heat	

• PURY-(E)P [capacity], PURY-(E) [capacity]

Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type		Instance					
VA	Index						
CSV			00		Type	Outdoor System Type Name	
AI			01		TH3	Thermistor 3 x 0.1 [°C]	
AI			02		TH4	Thermistor 4 x 0.1 [°C]	
AI			03		TH5	Thermistor 5 x 0.1 [°C]	
AI			04		TH6	Thermistor 6 x 0.1 [°C]	
AI			05		TH7	Thermistor 7 x 0.1 [°C]	
AI			06		63HS1	Pressure sensor x 0.1 [kg/cm2]	
AI			07		63LS	Pressure sensor x 0.1 [kg/cm2]	
IV			08		THHS	Thermistor 9 x 0.1 [°C]	
BI			09		Tc	Condensing temperature x 0.1 [°C]	
BI			10		Te	Evaporating temperature x 0.1 [°C]	
BI			11		Vdc	COMP bus voltage x 0.1 [V]	
PIV			12		Iu	U-Phase current effective value x 0.1 [A]	
PIV			13		Iw	W-Phase current effective value x 0.1 [A]	



Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type		Instance					
VA	Index						
PIV					14	FAN Fan output [Hz]	
BI					15	QjC Total capacity Cool	
BI					16	QjH Total capacity Heat	

• PURY-P [capacity]

Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type		Instance					
VA	Index						
CSV					00	Type Outdoor System Type Name	
AI					01	TH1 Thermistor 1 x 0.1 [°C]	
AI					02	TH2 Thermistor 2 x 0.1 [°C]	
AI					03	TH5 Thermistor 5 x 0.1 [°C]	
AI					04	TH6 Thermistor 6 x 0.1 [°C]	
AI					05	TH7 Thermistor 7 x 0.1 [°C]	
AI					06	63HS High pressure sensor x 0.1 [kg/cm ²]	
AI					07	63LS Pressure sensor x 0.1 [kg/cm ²]	
IV					08	THHS Thermistor 9 x 0.1 [°C]	
AI					09	Tc Condensing temperature x 0.1 [°C]	
PIV					10	Te Evaporating temperature x 0.1 [°C]	
PIV					11	Vdc COMP bus voltage x 0.1 [V]	
PIV					12	Iu U-Phase current effective value x 0.1 [A]	
PIV					13	Iw W-Phase current effective value x 0.1 [A]	
					14	F(Hz) All temporary frequencies [Hz]	
PIV					15	FAN Fan output [Hz]	
AI					16	QjC Total capacity Cool	
AI					17	QjH Total capacity Heat	

• PURY-P [capacity]

Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type		Instance					
VA	Index						
CSV					00	Type Outdoor System Type Name	
AI					01	TH5 Thermistor 5 x 0.1 [°C]	
AI					02	TH6 Thermistor 6 x 0.1 [°C]	
AI					03	TH7 Thermistor 7 x 0.1 [°C]	
AI					04	TH11 Thermistor 11 x 0.1 [°C]	
AI					05	63HS High pressure sensor x 0.1 [kg/cm ²]	
AI					06	63LS Pressure sensor x 0.1 [kg/cm ²]	
AI					07	Tc Condensing temperature x 0.1 [°C]	
PIV					08	Te Evaporating temperature x 0.1 [°C]	
PIV					09	Vdc COMP bus voltage x 0.1 [V]	
PIV					10	Iu U-Phase current effective value x 0.1 [A]	
PIV					11	Iw W-Phase current effective value x 0.1 [A]	
PIV					12	F(Hz) All temporary frequencies [Hz]	
PIV					13	FAN Fan output [Hz]	
AI					14	QjC Total capacity Cool	



Object Identifier bits					Short Name	Object Description
31	22	21	8	7 0		
Type		Instance				
VA	Index					
AI			15	QjH	Total capacity Heat	
PIV			16	SCo	Heat exchanger outlet subco olin x 0.1 [°C]	
PIV			17	SCc	Coil outlet subcooling x 0.1 [°C]	
PIV			18	SHb	Coil bypass outlet superheat x 0.1 [°C]	

• PURY-P [capacity]

Object Identifier bits					Short Name	Object Description
31	22	21	8	7 0		
Type		Instance				
VA	Index					
CSV			00	Type	Outdoor System Type Name	
AI			01	TH5	Thermistor 5 x 0.1 [°C]	
AI			02	TH6	Thermistor 6 x 0.1 [°C]	
AI			03	TH7	Thermistor 7 x 0.1 [°C]	
AI			04	TH11	Thermistor 11 x 0.1 [°C]	
AI			05	TH12	Thermistor 12 x 0.1 [°C]	
AI			06	63HS	High pressure sensor x 0.1 [kg/cm2]	
AI			07	63LS	Pressure sensor x 0.1 [kg/cm2]	
AI			08	Tc	Condensing temperature x 0.1 [°C]	
PIV			09	Te	Evaporating temperature x 0.1 [°C]	
PIV			10	Vdc	COMP bus voltage x 0.1 [V]	
PIV			11	Iu	U-Phase current effective value x 0.1 [A]	
PIV			12	Iw	W-Phase current effective value x 0.1 [A]	
PIV			13	F(Hz)	All temporary frequencies [Hz]	
PIV			14	FAN	Fan output [Hz]	
AI			15	QjC	Total capacity Cool	
AI			16	QjH	Total capacity Heat	
PIV			17	SCo	Heat exchanger outlet subco olin x 0.1 [°C]	
PIV			18	SCc	Coil outlet subcooling x 0.1 [°C]	
PIV			19	SHb	Coil bypass outlet superheat x 0.1 [°C]	

• PURY-P [capacity] (T/Y)LMU

Object Identifier bits					Short Name	Object Description
31	22	21	8	7 0		
Type		Instance				
VA	Index					
CSV			00	Type	Outdoor System Type Name	
AI			01	TH3	Thermistor 3 x 0.1 [°C]	
AI			02	TH4	Thermistor 4 x 0.1 [°C]	
AI			03	TH5	Thermistor 5 x 0.1 [°C]	
AI			04	TH6	Thermistor 6 x 0.1 [°C]	
AI			05	TH7	Thermistor 7 x 0.1 [°C]	
AI			06	63HS1	Pressure sensor x 0.1 [kg/cm2]	
AI			07	63LS	Pressure sensor x 0.1 [kg/cm2]	
IV			08	THHS	Thermistor 9 x 0.1 [°C]	
BI			09	Tc	Condensing temperature x 0.1 [°C]	
BI			10	Te	Evaporating temperature x 0.1 [°C]	
			11	Vdc	COMP bus voltage x 0.1 [V]	



Object Identifier bits					Short Name	Object Description
31	22	21	8	7 0		
Type		Instance				
VA	Index					
PIV			12		lu	U-Phase current effective value x 0.1 [A]
PIV			13		lw	W-Phase current effective value x 0.1 [A]
BI			14		F(Hz)	All temporary frequencies [Hz]
PIV			15		FAN	Fan output [Hz]
BI			16		Foc	Temporary frequency [Hz]
BI			17		QjC	Total capacity Cool
BI			18		QjH	Total capacity Heat

• **PURY-P [capacity] YLM-A**

Object Identifier bits					Short Name	Object Description
31	22	21	8	7 0		
Type		Instance				
VA	Index					
CSV			00		Type	Outdoor System Type Name
AI			01		TH3	Thermistor 3 x 0.1 [°C]
AI			02		TH4	Thermistor 4 x 0.1 [°C]
AI			03		TH5	Thermistor 5 x 0.1 [°C]
AI			04		TH6	Thermistor 6 x 0.1 [°C]
AI			05		TH7	Thermistor 7 x 0.1 [°C]
BI			06		TH9	Thermistor 9 x 0.1 [°C]
			07		TH11	Thermistor 11 x 0.1 [°C]
AI			08		63HS1	Pressure sensor x 0.1 [kg/cm ²]
AI			09		63LS	Pressure sensor x 0.1 [kg/cm ²]
IV			10		THHS	Thermistor 9 x 0.1 [°C]
BI			11		Tc	Condensing temperature x 0.1 [°C]
BI			12		Te	Evaporating temperature x 0.1 [°C]
			13		Vdc	COMP bus voltage x 0.1 [V]
PIV			14		lu	U-Phase current effective value x 0.1 [A]
PIV			15		lw	W-Phase current effective value x 0.1 [A]
BI			16		F(Hz)	All temporary frequencies [Hz]
PIV			17		FAN	Fan output [Hz]
BI			18		Foc	Temporary frequency [Hz]
BI			19		QjC	Total capacity Cool
BI			20		QjH	Total capacity Heat

• **PUHY-EP [capacity] YLM-A, PUHY-P [capacity] YKB**

Object Identifier bits					Short Name	Object Description
31	22	21	8	7 0		
Type		Instance				
VA	Index					
CSV			00		Type	Outdoor System Type Name
AI			01		TH2	Thermistor 2 x 0.1 [°C]
AI			02		TH3	Thermistor 3 x 0.1 [°C]
AI			03		TH4	Thermistor 4 x 0.1 [°C]
AI			04		TH5	Thermistor 5 x 0.1 [°C]
AI			05		TH6	Thermistor 6 x 0.1 [°C]
AI			06		TH7	Thermistor 7 x 0.1 [°C]
AI			07		TH9	Thermistor 9 x 0.1 [°C]



Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type		Instance					
VA		Index					
BI					08	TH11 Thermistor 11 x 0.1 [°C]	
AI					09	63HS1 Pressure sensor x 0.1 [kg/cm ²]	
AI					10	63HS2 Pressure sensor x 0.1 [kg/cm ²]	
AI					11	63LS Pressure sensor x 0.1 [kg/cm ²]	
IV					12	THHS Thermistor 9 x 0.1 [°C]	
BI					13	Tc Condensing temperature x 0.1 [°C]	
BI					14	Te Evaporating temperature x 0.1 [°C]	
AI					15	Vdc COMP bus voltage x 0.1 [V]	
PIV					16	lu U-Phase current effective value x 0.1 [A]	
PIV					17	lw W-Phase current effective value x 0.1 [A]	
BI					18	F(Hz) All temporary frequencies [Hz]	
PIV					19	FAN Fan output [Hz]	
BI					20	Foc Temporary frequency [Hz]	
BI					21	QjC Total capacity Cool	
BI					22	QjH Total capacity Heat	
BI					23	SCo Heat exchanger outlet subco olin x 0.1 [°C]	
PIV					24	SCc Coil outlet subcooling x 0.1 [°C]	
BI					25	SHb Coil bypass outlet superheat x 0.1 [°C]	
					26	LEV1 Linear expansion valve	

• **PUHY-EP [capacity] YLM-A**

Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type		Instance					
VA		Index					
CSV					00	Type Outdoor System Type Name	
AI					01	TH2 Thermistor 2 x 0.1 [°C]	
AI					02	TH3 Thermistor 3 x 0.1 [°C]	
AI					03	TH4 Thermistor 4 x 0.1 [°C]	
AI					04	TH5 Thermistor 5 x 0.1 [°C]	
AI					05	TH6 Thermistor 6 x 0.1 [°C]	
AI					06	TH7 Thermistor 7 x 0.1 [°C]	
					07	TH9 Thermistor 9 x 0.1 [°C]	
BI					08	TH11 Thermistor 11 x 0.1 [°C]	
AI					09	63HS1 Pressure sensor x 0.1 [kg/cm ²]	
AI					10	63HS2 Pressure sensor x 0.1 [kg/cm ²]	
AI					11	63LS Pressure sensor x 0.1 [kg/cm ²]	
IV					12	THHS Thermistor 9 x 0.1 [°C]	
BI					13	Tc Condensing temperature x 0.1 [°C]	
BI					14	Te Evaporating temperature x 0.1 [°C]	
AI					15	Vdc COMP bus voltage x 0.1 [V]	
PIV					16	lu U-Phase current effective value x 0.1 [A]	
PIV					17	lw W-Phase current effective value x 0.1 [A]	
PIV					18	FAN Fan output [Hz]	
BI					19	QjC Total capacity Cool	
BI					20	QjH Total capacity Heat	
BI					21	SCo Heat exchanger outlet subco olin x 0.1 [°C]	
PIV					22	SCc Coil outlet subcooling x 0.1 [°C]	



Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type		Instance					
VA	Index						
BI			23		SHb	Coil bypass outlet superheat x 0.1 [°C]	
			24		LEV1	Linear expansion valve	

• PUHY-P [capacity] YNW-A, PUHY-P [capacity] YNW-A

Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type		Instance					
VA	Index						
CSV			00		Type	Outdoor System Type Name	
AI			01		TH2	Thermistor 2 x 0.1 [°C]	
AI			02		TH3	Thermistor 3 x 0.1 [°C]	
AI			03		TH4	Thermistor 4 x 0.1 [°C]	
AI			04		TH5	Thermistor 5 x 0.1 [°C]	
AI			05		TH6	Thermistor 6 x 0.1 [°C]	
AI			06		TH7	Thermistor 7 x 0.1 [°C]	
			07		TH9	Thermistor 9 x 0.1 [°C]	
BI			08		TH11	Thermistor 11 x 0.1 [°C]	
BI			09		TH12	Thermistor 12 x 0.1 [°C]	
AI			10		63HS1	Pressure sensor x 0.1 [kg/cm2]	
AI			11		63HS2	Pressure sensor x 0.1 [kg/cm2]	
AI			12		63LS	Pressure sensor x 0.1 [kg/cm2]	
IV			13		THHS	Thermistor 9 x 0.1 [°C]	
BI			14		Tc	Condensing temperature x 0.1 [°C]	
BI			15		Te	Evaporating temperature x 0.1 [°C]	
AI			16		Vdc	COMP bus voltage x 0.1 [V]	
PIV			17		Iu	U-Phase current effective value x 0.1 [A]	
PIV			18		Iw	W-Phase current effective value x 0.1 [A]	
BI			19		F(Hz)	All temporary frequencies [Hz]	
PIV			20		FAN	Fan output [Hz]	
BI			21		Foc	Temporary frequency [Hz]	
BI			22		QjC	Total capacity Cool	
BI			23		QjH	Total capacity Heat	
BI			24		SCo	Heat exchanger outlet subco olin x 0.1 [°C]	
PIV			25		SCc	Coil outlet subcooling x 0.1 [°C]	
BI			26		SHb	Coil bypass outlet superheat x 0.1 [°C]	
			27		LEV1	Linear expansion valve	

• PUHY-P [capacity] YNW-A

Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type		Instance					
VA	Index						
CSV			00		Type	Outdoor System Type Name	
AI			01		TH2	Thermistor 2 x 0.1 [°C]	
AI			02		TH3	Thermistor 3 x 0.1 [°C]	
AI			03		TH4	Thermistor 4 x 0.1 [°C]	
AI			04		TH5	Thermistor 5 x 0.1 [°C]	
AI			05		TH6	Thermistor 6 x 0.1 [°C]	



Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type		Instance					
VA		Index					
AI					06	TH7 Thermistor 7 x 0.1 [°C]	
					07	TH9 Thermistor 9 x 0.1 [°C]	
BI					08	TH11 Thermistor 11 x 0.1 [°C]	
BI					09	TH12 Thermistor 12 x 0.1 [°C]	
AI					10	63HS1 Pressure sensor x 0.1 [kg/cm2]	
AI					11	63HS2 Pressure sensor x 0.1 [kg/cm2]	
AI					12	63LS Pressure sensor x 0.1 [kg/cm2]	
IV					13	THHS Thermistor 9 x 0.1 [°C]	
BI					14	Tc Condensing temperature x 0.1 [°C]	
BI					15	Te Evaporating temperature x 0.1 [°C]	
AI					16	Vdc COMP bus voltage x 0.1 [V]	
PIV					17	Iu U-Phase current effective value x 0.1 [A]	
PIV					18	Iw W-Phase current effective value x 0.1 [A]	
PIV					19	FAN Fan output [Hz]	
BI					20	QjC Total capacity Cool	
BI					21	QjH Total capacity Heat	
BI					22	SCo Heat exchanger outlet subco olin x 0.1 [°C]	
PIV					23	SCc Coil outlet subcooling x 0.1 [°C]	
BI					24	SHb Coil bypass outlet superheat x 0.1 [°C]	
					25	LEV1 Linear expansion valve	

• PUHY-(E)P [capacity]

Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type		Instance					
VA		Index					
CSV					00	Type Outdoor System Type Name	
AI					01	TH2 Thermistor 2 x 0.1 [°C]	
AI					02	TH3 Thermistor 3 x 0.1 [°C]	
AI					03	TH4 Thermistor 4 x 0.1 [°C]	
AI					04	TH5 Thermistor 5 x 0.1 [°C]	
AI					05	TH6 Thermistor 6 x 0.1 [°C]	
AI					06	TH7 Thermistor 7 x 0.1 [°C]	
AI					07	63HS1 Pressure sensor x 0.1 [kg/cm2]	
AI					08	63LS Pressure sensor x 0.1 [kg/cm2]	
IV					09	THHS Thermistor 9 x 0.1 [°C]	
BI					10	Tc Condensing temperature x 0.1 [°C]	
BI					11	Te Evaporating temperature x 0.1 [°C]	
BI					12	Vdc COMP bus voltage x 0.1 [V]	
PIV					13	Iu U-Phase current effective value x 0.1 [A]	
PIV					14	Iw W-Phase current effective value x 0.1 [A]	
BI					15	F(Hz) All temporary frequencies [Hz]	
PIV					16	FAN Fan output [Hz]	
BI					17	Foc Temporary frequency [Hz]	
BI					18	QjC Total capacity Cool	
BI					19	QjH Total capacity Heat	
BI					20	SCo Heat exchanger outlet subco olin x 0.1 [°C]	
PIV					21	SCc Coil outlet subcooling x 0.1 [°C]	



Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type		Instance					
VA		Index					
BI				22	SHb	Coil bypass outlet superheat x 0.1 [°C]	

• PUHY-(E)P [capacity]

Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type		Instance					
VA		Index					
CSV				00	Type	Outdoor System Type Name	
AI				01	TH2	Thermistor 2 x 0.1 [°C]	
AI				02	TH3	Thermistor 3 x 0.1 [°C]	
AI				03	TH4	Thermistor 4 x 0.1 [°C]	
AI				04	TH5	Thermistor 5 x 0.1 [°C]	
AI				05	TH6	Thermistor 6 x 0.1 [°C]	
AI				06	TH7	Thermistor 7 x 0.1 [°C]	
AI				07	63HS1	Pressure sensor x 0.1 [kg/cm2]	
AI				08	63LS	Pressure sensor x 0.1 [kg/cm2]	
IV				09	THHS	Thermistor 9 x 0.1 [°C]	
BI				10	THBOX	Thermistor in box x 0.1 [°C]	
BI				11	Tc	Condensing temperature x 0.1 [°C]	
BI				12	Te	Evaporating temperature x 0.1 [°C]	
BI				13	Vdc	COMP bus voltage x 0.1 [V]	
PIV				14	Iu	U-Phase current effective value x 0.1 [A]	
PIV				15	Iw	W-Phase current effective value x 0.1 [A]	
BI				16	F(Hz)	All temporary frequencies [Hz]	
PIV				17	FAN	Fan output [Hz]	
BI				18	Foc	Temporary frequency [Hz]	
BI				19	QjC	Total capacity Cool	
BI				20	QjH	Total capacity Heat	
BI				21	SCo	Heat exchanger outlet subcooling x 0.1 [°C]	
PIV				22	SCc	Coil outlet subcooling x 0.1 [°C]	
BI				23	SHb	Coil bypass outlet superheat x 0.1 [°C]	
				24	LEV1	Linear expansion valve	
BI				25	LEV2	Linear expansion valve	

• PUHY-(E)P [capacity]

Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type		Instance					
VA		Index					
CSV				00	Type	Outdoor System Type Name	
AI				01	TH2	Thermistor 2 x 0.1 [°C]	
AI				02	TH3	Thermistor 3 x 0.1 [°C]	
AI				03	TH4	Thermistor 4 x 0.1 [°C]	
AI				04	TH5	Thermistor 5 x 0.1 [°C]	
AI				05	TH6	Thermistor 6 x 0.1 [°C]	
AI				06	TH7	Thermistor 7 x 0.1 [°C]	
AI				07	63HS1	Pressure sensor x 0.1 [kg/cm2]	
AI				08	63LS	Pressure sensor x 0.1 [kg/cm2]	



Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type		Instance					
VA	Index						
IV					09	THHS Thermistor 9 x 0.1 [°C]	
BI					10	Tc Condensing temperature x 0.1 [°C]	
BI					11	Te Evaporating temperature x 0.1 [°C]	
BI					12	Vdc COMP bus voltage x 0.1 [V]	
PIV					13	Iu U-Phase current effective value x 0.1 [A]	
PIV					14	Iw W-Phase current effective value x 0.1 [A]	
PIV					15	FAN Fan output [Hz]	
BI					16	QjC Total capacity Cool	
BI					17	QjH Total capacity Heat	
BI					18	SCo Heat exchanger outlet subco olin x 0.1 [°C]	
PIV					19	SCc Coil outlet subcooling x 0.1 [°C]	
BI					20	SHb Coil bypass outlet superheat x 0.1 [°C]	

• PUHY-(E)P [capacity]

Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type		Instance					
VA	Index						
CSV					00	Type Outdoor System Type Name	
AI					01	TH2 Thermistor 2 x 0.1 [°C]	
AI					02	TH3 Thermistor 3 x 0.1 [°C]	
AI					03	TH4 Thermistor 4 x 0.1 [°C]	
AI					04	TH5 Thermistor 5 x 0.1 [°C]	
AI					05	TH6 Thermistor 6 x 0.1 [°C]	
AI					06	TH7 Thermistor 7 x 0.1 [°C]	
AI					07	63HS1 Pressure sensor x 0.1 [kg/cm2]	
AI					08	63LS Pressure sensor x 0.1 [kg/cm2]	
IV					09	THHS Thermistor 9 x 0.1 [°C]	
BI					10	THBOX Thermistor in box x 0.1 [°C]	
BI					11	Tc Condensing temperature x 0.1 [°C]	
BI					12	Te Evaporating temperature x 0.1 [°C]	
BI					13	Vdc COMP bus voltage x 0.1 [V]	
PIV					14	Iu U-Phase current effective value x 0.1 [A]	
PIV					15	Iw W-Phase current effective value x 0.1 [A]	
PIV					16	FAN Fan output [Hz]	
BI					17	QjC Total capacity Cool	
BI					18	QjH Total capacity Heat	
BI					19	SCo Heat exchanger outlet subco olin x 0.1 [°C]	
PIV					20	SCc Coil outlet subcooling x 0.1 [°C]	
BI					21	SHb Coil bypass outlet superheat x 0.1 [°C]	
					22	LEV1 Linear expansion valve	
BI					23	LEV2 Linear expansion valve	

• BC



Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type		Instance					
VA		Index					
CSV					00	Type Outdoor System Type Name	
AI					01	T1 BC T1 x 0.1 [°C]	
AI					02	T2 BC T2 x 0.1 [°C]	
BI					03	T3 BC T3 x 0.1 [°C]	
AI					04	T4 BC T4 x 0.1 [°C]	
AI					05	T5 BC T5 x 0.1 [°C]	
AI					06	T6 BC T6 x 0.1 [°C]	
AI					07	P1 BC P1 High pressure x 0.1 [kg/cm ²]	
BI					08	P2 BC P2 High pressure x 0.1 [kg/cm ²]	
PIV					09	P3 BC P3 Intermediate pressure x 0.1 [kg/cm ²]	
AI					10	L1 BC L1 Liquid level control	
AI					11	L2 BC L2 Liquid level control	
AI					12	L3 BC L3 Liquid level control	
					13	L4 BC L4 Liquid level control	

- BC(main)

Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type		Instance					
VA		Index					
CSV					00	Type Outdoor System Type Name	
AI					01	T1 BC T1 x 0.1 [°C]	
AI					02	T2 BC T2 x 0.1 [°C]	
AI					03	T5 BC T5 x 0.1 [°C]	
AI					04	T6 BC T6 x 0.1 [°C]	
AI					05	P1 BC P1 High pressure x 0.1 [kg/cm ²]	
PIV					06	P3 BC P3 Intermediate pressure x 0.1 [kg/cm ²]	
AI					07	L1 BC L1 Liquid level control	
AI					08	L3 BC L3 Liquid level control	

- BC(main), BC(main)

Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type		Instance					
VA		Index					
CSV					00	Type Outdoor System Type Name	
AI					01	T1 BC T1 x 0.1 [°C]	
AI					02	T2 BC T2 x 0.1 [°C]	
AI					03	T5 BC T5 x 0.1 [°C]	
AI					04	T6 BC T6 x 0.1 [°C]	
AI					05	P1 BC P1 High pressure x 0.1 [kg/cm ²]	
PIV					06	P3 BC P3 Intermediate pressure x 0.1 [kg/cm ²]	
AI					07	L1 BC L1 Liquid level control	
AI					08	L2 BC L2 Liquid level control	
AI					09	L3 BC L3 Liquid level control	

- BC(sub)



Object Identifier bits					Short Name	Object Description
31	22	21	8	7 0		
Type		Instance				
VA		Index				
CSV		00			Type	Outdoor System Type Name
AI		01			T2	BC T2 x 0.1 [°C]
AI		02			T5	BC T5 x 0.1 [°C]
AI		03			L3	BC L3 Liquid level control

3.2.3 LG

3.2.3.1 LG PRO Indoor Units

Object Identifier bits					Short Name	Object Description
31	22	21	8	7 0		
Type		Instance				
VA		Index				
PIV		00			Capa	Capacity
PIV		01			EEV	Electronic Expansion Valve
AI		02			PipeIn	Pipe In
AI		03			PipeOut	Pipe Out
AI		04			SC/SH	Super Cool/Super Heat

3.2.3.2 LG PRO Outdoor Units

- Multi V IV

Object Identifier bits					Short Name	Object Description
31	22	21	8	7 0		
Type		Instance				
VA		Index				
CSV		00			Type	Outdoor System Type Name
CSV		01			Mode	Operation Mode
PIV		02			Err	Error Code
AI		03			AvgT	Average indoor temperature [°C]
PIV		04			HiPrsTrg	Target high pressure [KPa]
PIV		05			HiPrsTrc	Current high pressure [KPa]
PIV		06			LoPrsTrg	Target low pressure [KPa]
PIV		07			LoPrsTrc	Current low pressure [KPa]
AI		08			ComprRatio	Compression ratio x 0.1
AI		09			SHTrg	Target degree of super heat x 0.1 [°C]
AI		10			SHTrc	Current degree of super heat x 0.1 [°C]
AI		11			SCTrc	Current degree of subcooling x 0.1 [°C]
AI		12			SCSHTrg	Target degree of subcooling and super heat x 0.1 [°C]
AI		13			SCSCTrc	Current degree of subcooling and super heat x 0.1 [°C]
PIV		14			Inv1TrgFrq	Inverter 1 target frequency [Hz]
PIV		15			Inv1TrcFrq	Inverter 1 current frequency [Hz]
PIV		16			Inv2TrgFrq	Inverter 2 target frequency [Hz]
PIV		17			Inv2TrcFrq	Inverter 2 current frequency [Hz]
PIV		18			Fan1Trg	FAN target RPM [rpm]
PIV		19			Fan1Trc	FAN1 current RPM [rpm]
PIV		20			Fan2Trc	FAN2 current RPM [rpm]



Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type		Instance					
VA		Index					
PIV					21	MainEEV Main EEV [pls]	
PIV					22	SubEEV Sub EEV [pls]	
PIV					23	ScEEV Subcooling EEV [pls]	
PIV					24	EqEEV Oil supply EEV [pls]	
PIV					25	ViEEV1 Vapor injection EEV1 [pls]	
PIV					26	ViEEV2 Vapor injection EEV2 [pls]	
AI					27	AirT Outdoor air temperature x 0.1 [°C]	
AI					28	SuctT Compressor suction temperature x 0.1 [°C]	
AI					29	BubT Condenser temperature x 0.1 [°C]	
AI					30	DewT Evaporator temperature x 0.1 [°C]	
AI					31	Inv1DisT Inverter 1 discharge temperature x 0.1 [°C]	
AI					32	Inv2DisT Inverter 2 discharge temperature x 0.1 [°C]	
AI					33	HexT Heat exchanger pipe temperature x 0.1 [°C]	
AI					34	UpHexT Top heat exchanger pipe temperature x 0.1 [°C]	
AI					35	LoHexT Bottom heat exchanger pipe temperature x 0.1 [°C]	
AI					36	ScInT Subcooling inlet temperature x 0.1 [°C]	
AI					37	ScOutT Subcooling outlet temperature x 0.1 [°C]	
AI					38	LiqT Liquid pipe temperature x 0.1 [°C]	
AI					39	Inv1InCT Inverter 1 input current x 0.1 [A]	
AI					40	Inv2InCT Inverter 2 input current x 0.1 [A]	
PIV					41	Inv1InVT Inverter 1 input voltage [V]	
PIV					42	Inv2InVT Inverter 2 input voltage [V]	
PIV					43	Inv1PwrFrq Inverter 1 power frequency [Hz]	
PIV					44	Inv2PwrFrq Inverter 2 power frequency [Hz]	
AI					45	Inv1PhsCT Inverter 1 phase current x 0.1 [A]	
AI					46	Inv2PhsCT Inverter 2 phase current x 0.1 [A]	
AI					47	Fan1PhsCT Fan1 phase current x 0.1 [A]	
AI					48	Fan2PhsCT Fan2 phase current x 0.1 [A]	
PIV					49	FanDcLnk Fan DC LINK voltage [V]	
PIV					50	Inv1DcLnk Inverter 1 DC LINK voltage [V]	
PIV					51	Inv2DcLnk Inverter 2 DC LINK voltage [V]	
PIV					52	Inv1IpmT Inverter 1 IPM temperature [°C]	
PIV					53	Inv2IpmT Inverter 2 IPM temperature [°C]	
AI					54	FanHtSnkT Outdoor fan heat sink temperature x 0.1 [°C]	
PIV					55	DrifSnow Drifted snow	
BI					56	Accum Oil return valve	
BI					57	4way 4 WAY valve	
BI					58	HexVlv Heat exchanger valve	
BI					59	HexUpVlv Heat exchanger top valve	
BI					60	HexDnVlv Heat exchanger bottom valve	
BI					61	RcvIn Normal close valve	
BI					62	RcvOut Normal open valve	
BI					63	SuctVlv Suction valve	
BI					64	Inv1HtVlv Inverter1 heater	
BI					65	Inv2HtVlv Inverter2 heater	
BI					66	OilLv1 Oil level 1	
BI					67	OilLv2 Oil level 2	



3.2.4 Samsung

3.2.4.1 Samsung PRO Indoor Units

Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type		Instance					
		VA	Index				
CSV					00	Type Indoor type string	
AI					01	Capacity Capacity [HP]	
AI					02	Evaln Evaporation temperature IN1 [°C]	
AI					03	EvaOut Eva temperature OUT1 [°C]	
PIV					04	EEV EEV1	
BI					05	MTFC MTFC Status	
PIV					06	ESP Auto ESP	
AI					07	DisT Discharge(Duct) temperature [°C]	
AI					08	DisCool Discharge Set temp.(Cool) [°C]	
AI					09	DisHeat Discharge Set temp.(Heat) [°C]	
PIV					10	BstrFan1 Booster Fan1 [RPM]	
PIV					11	BstrFan2 Booster Fan2 [RPM]	
PIV					12	BstrFan3 Booster Fan3 [RPM]	
BI					13	WindFr Wind Free	
BI					14	DisCtrl Discharge control	

3.2.4.2 Samsung PRO Outdoor Units

- DVM-S

Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type		Instance					
		VA	Index				
CSV					00	Type Outdoor System Type Name	
PIV					01	OpMode Operation Mode	
PIV					02	OpStat Operation Status	
PIV					03	ErrCode Error Code	
PIV					04	Cap Capacity [hp]	
AI					05	CurPow Control Watt-meter x 0.001 [kW]	
PIV					06	TrgFreq1 Target Frequency1 [Hz]	
PIV					07	OrdFreq1 Order Frequency1 [Hz]	
PIV					08	CurFreq1 Current Frequency1 [Hz]	
PIV					09	TrgFreq2 Target Frequency2 [Hz]	
PIV					10	OrdFreq2 Order Frequency2 [Hz]	
PIV					11	CurFreq2 Current Frequency2 [Hz]	
AI					12	HiPrs High Pressure x 0.1 [kg/cm2]	
IV					13	SatTPd Saturated T_Pd [°C]	
AI					14	LoPrs Low Pressure x 0.1 [kg/cm2]	
IV					15	SatTPs Saturated T_Ps [°C]	
AI					16	MidPrs Mid Pressure x 0.1 [kg/cm2]	
AI					17	DisT1 Discharge1 x 0.1 [°C]	
AI					18	DisT2 Discharge2 x 0.1 [°C]	
PIV					19	TstOp Test Operation(UP)	
AI					20	CompTop1 Comp Top1 x 0.1 [°C]	



Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type		Instance					
VA	Index						
AI				21	CompTop2	Comp Top2 x 0.1 [°C]	
AI				22	OutT	Outdoor temperature x 0.1 [°C]	
AI				23	CompCur1	Compressor current1 x 0.1 [A]	
AI				24	CompCur2	Compressor current2 x 0.1 [A]	
AI				25	IPM1T	IPM1 temperature x 0.1 [°C]	
AI				26	IPM2T	IPM2 temperature x 0.1 [°C]	
AI				27	CondOutT	CondOut temperature x 0.1 [°C]	
AI				28	LiqTubT	Liquid tube temperature x 0.1 [°C]	
AI				29	Suct1T	Suction1 temperature x 0.1 [°C]	
AI				30	Suct2T	Suction2 temperature x 0.1 [°C]	
PIV				31	MainEEV	Main EEV	
PIV				32	EviEEV	EVI EEV	
AI				33	EviIn	EVI IN x 0.1 [°C]	
AI				34	EviOut	EVI OUT x 0.1 [°C]	
PIV				35	OutFnSt	Outdoor Fan Step	
AI				36	PFCM	PFCM Temperature x 0.1 [°C]	
BI				37	Comp1	Comp1	
BI				38	Comp2	Comp2	
BI				39	4Way	4Way valve	
BI				40	HotGas1	Hot Gas Bypass1	
BI				41	HotGas2	Hot Gas Bypass2	
BI				42	MainCool	Main Cooling	
BI				43	EEVlv	EEV Valve	
BI				44	EviSol1	EVI Solenoid Valve1	
BI				45	EviSol2	EVI Solenoid Valve2	
BI				46	EviBps	EVI Bypass	
BI				47	CCH1	Comp Coil Heater1	
BI				48	CCH2	Comp Coil Heater2	

3.2.5 Gree GMV5

3.2.5.1 Gree GMV5 PRO Indoor Units

Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type		Instance					
VA	Index						
CSV				00	Model	Indoor model name string	
PIV				01	GenVer	General Protocol Version	
PIV				02	UnitVer	Unit Protocol Version	
PIV				03	PwrTp	Power Type	
AI				04	RatedCap	Rated Capacity	
IV				05	InPipT	Inlet Pipe Temp	
IV				06	OutPipT	Outlet Pipe Temp	
IV				07	OutAirT	Outlet Air Temp	
PIV				08	EXV	EXV Status	
BI				09	AuxE-Htr	Aux E-heater	
BI				10	Ms/Sl	Master IDU	
BI				11	SolVlvHt	Solenoid valve of heating	



Object Identifier bits					Short Name	Object Description
31	22	21	8	7 0		
Type		Instance				
		VA	Index			
BI		12			LoPrsSolVlv	Low pressure of solenoid valve
BI		13			BpsSolVlv	By-pass solenoid valve

3.2.5.2 Gree GMV5 PRO Outdoor Units

• GMV5

Object Identifier bits					Short Name	Object Description
31	22	21	8	7 0		
Type		Instance				
		VA	Index			
CSV				00	Type	Outdoor System Type Name
AI				01	RatedCap	Rated Capacity x 0.1 [kW]
PIV				02	MsSlStat	Master-Slave Status
PIV				03	GenVer	General Protocol Version
PIV				04	UnitVer	Unit Protocol Version
PIV				05	PwrTp	Power Type
PIV				06	FanTp	Fan Type
PIV				07	FanEmerg	Fan Emergency
IV				08	OutT	Outdoor Temp [°C]
PIV				09	Comp1OpFreq	Comp1 Operation Frequency [Hz]
PIV				10	Comp2OpFreq	Comp2 Operation Frequency [Hz]
PIV				11	Fan1OpFreq	Fan1 Operation Frequency [Hz]
PIV				12	Fan2OpFreq	Fan2 Operation Frequency [Hz]
IV				13	MdlHp	Module HP [°C]
IV				14	MdlLp	Module LP [°C]
IV				15	Comp1DisT	Comp1 Discharge Temp [°C]
IV				16	Comp1ShT	Comp1 Shell Temp [°C]
IV				17	Comp2DisT	Comp2 Discharge Temp [°C]
IV				18	Comp2ShT	Comp2 Shell Temp [°C]
IV				19	DfrsT1	Defrosting Temp1 [°C]
IV				20	SubClLiqT	Subcooler Liq Temp [°C]
IV				21	SubClGsT	Subcooler Gas Temp [°C]
IV				22	SepInT	Separator Inlet Temp [°C]
IV				23	SepOutT	Separator Outlet Temp [°C]
PIV				24	HtEXV	Heating EXV [Pls]
PIV				25	FanStcPrs	High Static Pressure
BI				26	Comp1Stat	Comp1 Status
BI				27	Comp2Stat	Comp2 Status
BI				28	4wayVlv1	4-way Valve1
BI				29	LpMrsVlv	LP Measure Valve
AI				30	Comp1Cur	Comp1 Current [A]
PIV				31	Comp1BsbV	Comp1 Basbar Voltage [V]
IV				32	Comp1IpmT	Comp1 IPM Temp [°C]
AI				33	Fan1Cur	Fan1 Current [A]
PIV				34	Fan1BsbV	Fan1 Basbar Voltage [V]
IV				35	Fan1IpmT	Fan1 IPM Temp [°C]
AI				36	Comp2Cur	Comp2 Current [A]
PIV				37	Comp2BsbV	Comp2 Basbar Voltage [V]



Object Identifier bits					Short Name	Object Description
31	22	21	8	7 0		
Type		Instance				
VA		Index				
IV				38	Comp2IpmT	Comp2 IPM Temp [°C]
AI				39	Fan2Cur	Fan2 Current [A]
PIV				40	Fan2BsbV	Fan2 Basbar Voltage [V]
IV				41	Fan2IpmT	Fan2 IPM Temp [°C]

• GMV5 HR

Object Identifier bits					Short Name	Object Description
31	22	21	8	7 0		
Type		Instance				
VA		Index				
CSV				00	Type	Outdoor System Type Name
AI				01	RatedCap	Rated Capacity x 0.1 [kW]
PIV				02	MsSlStat	Master-Slave Status
PIV				03	GenVer	General Protocol Version
PIV				04	UnitVer	Unit Protocol Version
PIV				05	PwrTp	Power Type
PIV				06	FanTp	Fan Type
PIV				07	FanEmerg	Fan Emergency
IV				08	OutT	Outdoor Temp [°C]
PIV				09	Comp1OpFreq	Comp1 Operation Frequency [Hz]
PIV				10	Comp2OpFreq	Comp2 Operation Frequency [Hz]
PIV				11	Fan1OpFreq	Fan1 Operation Frequency [Hz]
PIV				12	Fan2OpFreq	Fan2 Operation Frequency [Hz]
IV				13	MdlHp	Module HP [°C]
IV				14	MdlLp	Module LP [°C]
IV				15	Comp1DisT	Comp1 Discharge Temp [°C]
IV				16	Comp1ShT	Comp1 Shell Temp [°C]
IV				17	Comp2DisT	Comp2 Discharge Temp [°C]
IV				18	Comp2ShT	Comp2 Shell Temp [°C]
IV				19	DfrsT1	Defrosting Temp1 [°C]
IV				20	SubClLiqT	Subcooler Liq Temp [°C]
IV				21	SubClGsT	Subcooler Gas Temp [°C]
IV				22	SepInT	Separator Inlet Temp [°C]
IV				23	SepOutT	Separator Outlet Temp [°C]
PIV				24	HtEXV	Heating EXV [PIs]
PIV				25	FanStcPrs	High Static Pressure
BI				26	Comp1Stat	Comp1 Status
BI				27	Comp2Stat	Comp2 Status
BI				28	4wayVlv1	4-way Valve1
BI				29	LpMrsVlv	LP Measure Valve
BI				30	4wayVlv2	4-way Valve2
BI				31	OiRtVlv1	Oil Return Valve1
BI				32	OiRtVlv2	Oil Return Valve2
AI				33	Comp1Cur	Comp1 Current [A]
PIV				34	Comp1BsbV	Comp1 Basbar Voltage [V]
IV				35	Comp1IpmT	Comp1 IPM Temp [°C]
AI				36	Fan1Cur	Fan1 Current [A]
PIV				37	Fan1BsbV	Fan1 Basbar Voltage [V]
IV				38	Fan1IpmT	Fan1 IPM Temp [°C]



Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type		Instance					
VA	Index						
AI					39	Comp2Cur Comp2 Current [A]	
PIV					40	Comp2BsbV Comp2 Basbar Voltage [V]	
IV					41	Comp2IpmT Comp2 IPM Temp [°C]	
AI					42	Fan2Cur Fan2 Current [A]	
PIV					43	Fan2BsbV Fan2 Basbar Voltage [V]	
IV					44	Fan2IpmT Fan2 IPM Temp [°C]	
IV					45	Comp1BkOiT Comp1 Back Oil Temp [°C]	
IV					46	Comp2BkOiT Comp2 Back Oil Temp [°C]	
PIV					47	SbcIEXV Subcooler EXV [PIs]	

3.2.6 HT (Hitachi)

Enter topic text here.

3.2.6.1 HT PRO Indoor Units

Object Identifier bits					Short Name	Object Description	
31	22	21	8	7			0
Type		Instance					
VA	Index						
PIV					00	iE Expected V Opening %	
AI					01	TI Liquid Pipe Temp [°C]	
AI					02	Tg Gas Pipe Temp [°C]	
AI					03	Ti Intake Air Temp [°C]	
AI					04	To Discharge Air Temp [°C]	
PIV					05	fd Requested Frequency [Hz]	
AI					06	Tr Remote Sensor Temp [°C]	



4 Commands Reference

[line](#)
[bacnet](#)
[va](#)

4.1 bacnet

SYNOPSIS

```
bacnet
bacnet IP enable
bacnet IP disable
bacnet port <PORT>
bacnet instance <DEV_INST>
```

DESCRIPTION

- Without parameters `bacnet` command displays current bacnet configuration.
- `bacnet IP` command is used to enable or disable BACnet IP module.
- `bacnet port` command is used to configure UDP port used by BACnet IP module.
- `bacnet instance` command is used to configure Device Instance of the Device Object Identifier. `DEV_INST` is a decimal number. After changing Device Instance device must be restarted.

EXAMPLE

See examples in [Configuration](#) chapter.

4.2 line

SYNOPSIS

```
line
line type <Ln> BAC
line myid <Ln> <TS>
line baud <Ln> <FRAME>
```

DESCRIPTION

`<Ln>` parameter denotes communication line number like for example: `L3` or `L4`.

- Without parameters `line` command prints status of all communication lines available in specific device.
- `line type` command is used to activate BACnet MS/TP module on line `<Ln>`.
- `line myid` command is used to change TS address. `<TS>` parameter should be provided as hexadecimal number without leading 0x.
- `line baud` command is used to change BACnet MS/TP frame format for line `<Ln>`. `<FRAME>` parameter format is `<BAUD>_<8|9><N|E|O><1|2>`. Supported baud rates for `<BAUD>` parameter are: 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200. Frame format change is effective only after power reset.

EXAMPLE

See examples in [BACnet MS/TP Configuration](#) chapter.



4.3 va

SYNOPSIS

```
va
va auto
va + <UID> <VA>
va delall
va - <UID> | <VA>
va ram <N>
```

DESCRIPTION

<UID> parameter denotes Indoor Unit identifier/number like for example: L1.100 or L2.003. <VA> parameter denotes VA number in decimal format.

- Without parameters `va` command prints status of all allocated VA's.
- `va auto` command is used to automatically distribute VA's for all detected UID's one to one. Previously allocated VA's will be deleted
- `va + <UID> <VA>` command will allocate VA for given UID. Number of VA's allocated for UID is not limited.
- `va delall` command will delete all allocated VA's.
- `va - <UID>` will delete all allocated VA's for given UID.
- `va - <VA>` will delete specific VA.
- `va ram <N>` resizes RAM memory used for VA's. Parameter <N> denotes a desired total number of VA's that can be allocated. By default N=170. VA's memory resize is effective only after power reset.

EXAMPLE

See examples in [VA's Configuration](#) chapter.