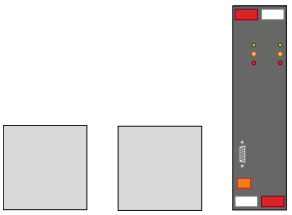
The StfaNICO Driver



The StfaNICO driver connects to a Siemens Building Technologies Landis & Staefa Division INTEGRAL AS1000 building management system. Available for ObSys and Commander.

This document relates to StfaNICO driver version 1.2

Please read the *Commander Manual* or *ObSys Manual* alongside this document, available from *www.northbt.com*

Contents

Compatibility with the Staefa AS1000 System

The StfaNICO driver allows North to interface to a Siemens Building Technologies Landis & Staefa Division INTEGRAL AS1000 building management system.

The driver connects, via an RS232 serial connection, to a single Staefa NICO device (Fig. 1). The NICO allows access to the connected INTEGRAL RS data points which are configured in its database, the *Infolist*. Up to 900 data points can be configured within a NICO.

Other Staefa drivers are available. The StaefaNCRS driver provides access to an INTEGRAL MS2000 system, via an NCRS/NCR, and the StfaWSE driver provides access to a Staefa Control Systems Pronto devices, via a WSE 1 or WSE10.

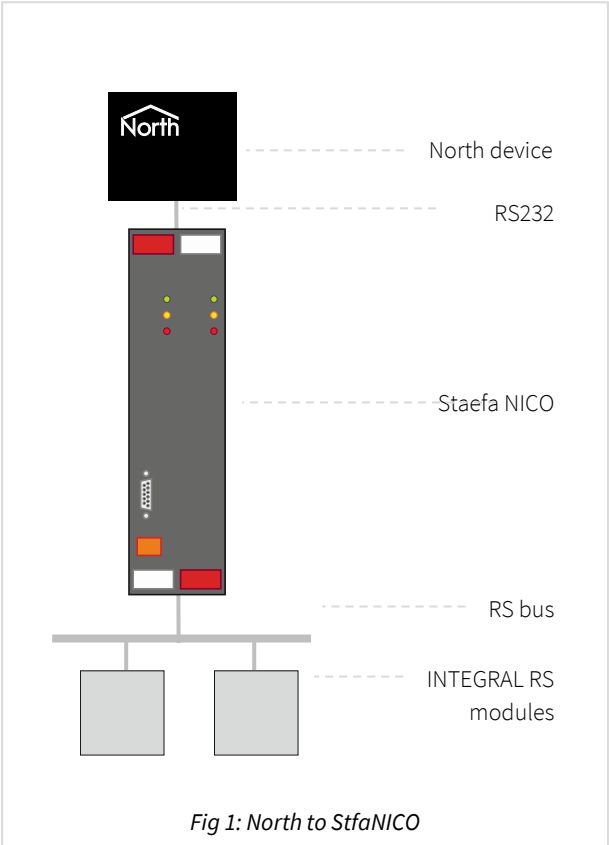


Fig 1: North to StfaNICO

Equipment

Siemens Landis & Staefa Division AS1000 building management system equipment compatible with the driver includes the Klimo integral communication module NICO-N.

Values

The driver can typically access the following datapoint values:

- RS types
- NICO inter-RS types
- Analogue input
- Analogue output
- Digital input
- Digital output
- Setpoint
- Parameter
- Intermediate
- Page
- Change-of-state alarm
- Universal

Prerequisites

The driver will not start requesting objects from the AS1000 System until the NICO is ‘online’.

The NICO requires configuring with a database, or *Infolist*, before its status reports as ‘online’ and the status LED stops flashing. The driver cannot request values from the AS1000 system until the NICO is ‘online’.

The driver requires access to the NICO trunk bus port (COM1). Check both ports of the NICO (RS232 & RS485) are available and not connected to an MS2000 system.

On the NICO, set the trunk bus/COM 1 address to ‘1’.

Using the Driver

On ObSys, the StfaNICO driver is pre-installed. On Commander, the driver is available to download in the file 'Bank3 StfaNICO.cdm'. On all of these North devices, you can use the driver to create an interface to StfaNICO. Once started, you will need to set up the driver before it can communicate with the StfaNICO system.

Making the Cable

Using the RS232 cable specification (Fig. 2), connect the North Device COM port to the PLC 'RS232' port. Connector types at each end of the cable are shown.

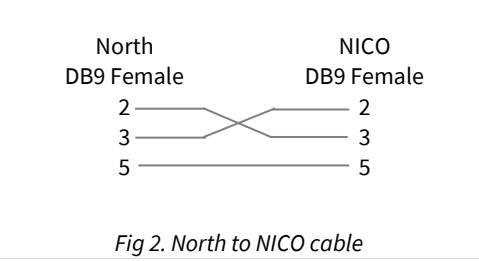


Fig 2. North to NICO cable

The maximum RS232 cable length is 15m and should be as short as possible.

Cables are available from North, order code CABLE/STFANICO/DB9.

Starting the Interface

To start an interface using the StfaNICO driver, follow these steps:

- → **Start Engineering** your North device using ObSys
- → Navigate to **Configuration, Interfaces,** and set a unused **Interface** to 'StfaNICO' to start the particular interface
- → Navigate to the top-level of your North device, then rescan it

The driver setup object (Mc), labelled **Setup**, should now be available. If this object is not available, check an interface licence is available and the driver is installed.

Setting up the Driver

To set up the driver, follow these steps:

- → Navigate to the **StfaNICO Setup** object (Mc). For example, if you started interface 1 with the driver earlier, then the object reference will be 'M1'
- → Set the **RS232 Com Port** (RS.COM) to select which serial port on the North Device is connected to the StfaNICO device
- → Set **Initialisation** (NI) to the type of device attached – 'NICO' or 'Desigo with NICO interface'.

Checking Communications

You can check that the interface is communicating by reading the **Device State** object (DS). A value of 'Online' indicates the driver has connected to, and is communicating with, the Staefa NICO.

Also check object **NICO Actual State** (NS), a value of 'Online' indicates the NICO has been configured with an Infolist and the driver can request values.

On the NICO, LED 'TxC1' will flash when a message is transmitted from NICO to North device.

Object Specifications

Once an interface is started, one or more extra objects become available within the top-level object of the device. As with all North objects, each of these extra objects may contain sub-objects, (and each of these may contain sub-objects, and so on) - the whole object structure being a multi-layer hierarchy. It is possible to navigate around the objects using the ObSys Engineering Software.

Each object is specified below, along with its sub-objects.

Example Object Reference

An example of a reference to an object in the same device: the Staefa NICO (S1) contains NICO Status (NIS), which itself contains a Status (S). Therefore the complete object reference is 'S1.NIS.S'

An example of a reference to an object in a different device: the IP network object (IP) contains Default Commander object (CDIP), which contains the object above ('S1.NIS.S') – therefore the complete object reference is 'IP.CDIP.S1.NIS.S'

Device Top-Level Objects

When an interface is started using the StfaNICO driver, the objects below become available within the top-level object of the device. For example, if interface 1 is started, then the object references 'M1' and 'S1' become available.

Description	Reference	Type
StfaNICO Setup Set up the StfaNICO driver, started on interface *c* (*c* is the interface number)	M*c*	Fixed Container: On the Commander platform this will be *[CDM v20\StfaNICO v12]* On the ObSys platform this will be *[OSM v20\StfaNICO v12]*
Staefa NICO Access Staefa AS1000 NICO connected to interface *c* (*c* is the interface number)	S*c*	Variable Container: *[StfaNICO v12]*

StfaNICO Driver Setup

Object Type: *[OSM v20\StfaNICO v12]*
Object Type: *[CDM v20\StfaNICO v12]*

The StfaNICO driver contains the following objects:

Description	Reference	Type
RS232 COM Port	RS.COM	Obj\Num:1…8; Adjustable
Intialisation Select the connected device	NI	Obj\ENum: 0…1; Adjustable Values: 0=NICO; 1=Desigo with NICO interface
Maximum Table Index When scanning the system from ObSys, the driver will attempt to access each datapoint. Set this object to the maximum index expected from the NICO. For example if set to '250', the driver will attempt to scan objects COS1 to COS250, DA1 to DA250, DE1 to DE250, etc.	MTI	Obj\Num:0…1000
Device State 'Online' indicates the driver has connected to and initialized the NICO interface	DS	Obj\ENum: 0..1 Values: 0=Initialising; 1=Online
NICO State Indicates if the NICO has been configured with the infolist database. The driver will not start requesting objects from the AS1000 System until the NICO is 'Online'.	NS	Obj\ENum: 0…5 Values: 0=Initialising; 1=Online; 2=Loading Strategy; 3=No Strategy; 5=Booting
Digital State Change flag When set to 'Yes', writing to the objects DO.S, UDO.S or PGD.S also sets their auto/manual state to 'manual'. When set to 'No', writing to the objects DO.S, UDO.S, or PGD.S leaves their manual/auto state unchanged.	DSC	Obj\NoYes; Adjustable

Staefa NICO System

Object Type: *[StfaNICO v12]*

The Staefa NICO system contains the following objects.

The object index, *x*, may be in the range 1…1000 but dependent on the configuration of the NICO database.

Description	Reference	Type
NICO Status Describes the mode the NICO is in	NIS	Fixed Container: *[StfaNICO v12\NIS]*
Page D *x*	PGD*x*	Fixed Container: *[StfaNICO v12\RSPGD]*
Page Parameter *x*	DW*x*	Fixed Container: *[StfaNICO v12\RSDW]*
Digital Input *x*	DI*x*	Fixed Container: *[StfaNICO v12\RSDI]*
Digital Output *x*	DO*x*	Fixed Container: *[StfaNICO v12\RSDO]*
Clock Channel *x*	DU*x*	Fixed Container: *[StfaNICO v12\RSDU]*
Change of State Alarm *x*	COS*x*	Fixed Container: *[StfaNICO v12\RSCOS]*
Digital Setpoint *x*	DS*x*	Fixed Container: *[StfaNICO v12\RSDS]*
Digital Parameter *x*	DP*x*	Fixed Container: *[StfaNICO v12\RSDP]*
Digital Intermediate *x*	DZ*x*	Fixed Container: *[StfaNICO v12\RSDZ]*
Digital Inter-RS Input *x*	DE*x*	Fixed Container: *[StfaNICO v12\RSDE]*
Digital Inter-RS Output *x*	DA*x*	Fixed Container: *[StfaNICO v12\RSDA]*
RS Status *x*	S*x*	Fixed Container: *[StfaNICO v12\RSS]*
Universal Digital Input *x*	UDI*x*	Fixed Container: *[StfaNICO v12\RSUDI]*
Universal Digital Output *x*	UDO*x*	Fixed Container: *[StfaNICO v12\RSUDO]*
Page A *x*	PGA*x*	Fixed Container: *[StfaNICO v12\RSPGA]*
Universal Analogue Input *x*	UAI*x*	Fixed Container: *[StfaNICO v12\RSUAI]*
Universal Analogue Output *x*	UAO*x*	Fixed Container: *[StfaNICO v12\RSUAO]*
Universal Setpoint *x*	US*x*	Fixed Container: *[StfaNICO v12\RSUS]*
Universal Parameter *x*	UP*x*	Fixed Container: *[StfaNICO v12\RSUP]*
Universal Intermediate *x*	UZ*x*	Fixed Container: *[StfaNICO v12\RSUZ]*
Universal Inter-RS Input *x*	UE*x*	Fixed Container: *[StfaNICO v12\RSUE]*
Universal Inter-RS Output *x*	UA*x*	Fixed Container: *[StfaNICO v12\RSUA]*
Run-Time Totaliser *x*	RTT*x*	Fixed Container: *[StfaNICO v12\RSRTT]*

Description	Reference	Type
NICO Inter-RS Digital *x*	NIDA*x*	Fixed Container: *[StfaNICO v12\NIDA]*
NICO Inter-RS Analogue *x*	NIUA*x*	Fixed Container: *[StfaNICO v12\NIUA]*

NICO Status (NIS)

Object Type: *[StfaNICO v12\NIS]*

The NICO Status datapoint describes the mode the NICO is in.

Description	Reference	Type
Status	S	Obj\ENum: Range 0…5; Where: 0=Initialising, 1=Online (strategy loaded), 2=Loading strategy, 3=No strategy; 5=Booting (on power-up)

Page D (RSPGD)

Object Type: *[StfaNICO v12\RSPGD]*

A Page D digital RS datapoint (RSPGD) represents a page (only one line).

Page D datapoints have two objects storing the current value: a physical on/off – State object (S); and a manual/automatic mode – Manual State object (M).

Adjusting the value of the Page D using these two objects individually may be difficult using Data Transfers or another integration method. The driver provides two options to adjust the physical state and manual mode in one operation.

With the driver object Digital State Change object (DSC) enabled, adjusting the State object (S) will also set mode to 'manual'. Set the Value to 'A', or use the Manual State object (M) to release the output to 'automatic'.

Alternatively, the Value Manual object (VM) provides control of both state and mode values together.

Description	Reference	Type
Status On/Off state of datapoint	S	Obj\OffOn; Adjustable
Manual State Automatic/Manual mode of datapoint. 'Yes' indicates manual state, controlled by user or North device. 'No' indicates automatic state, controlled by RS-module or installation	M	Obj\NoYes; Adjustable
Value Manual This object combines the status and automatic mode. Examples: Set '1|0' for on-manual mode Set '0' (without auto) for off-manual mode Set '0|1' for off-automatic mode	VM	Obj\Text; Adjustable In the format: *Value|Auto* Where: *Value* is of type OffOn indicating the status *Auto* is of type NoYes with '1' indicating automatic

RS Digital Input

Object Type: *[StfaNICO v12\RSDW]*
Object Type: *[StfaNICO v12\RSDI]*
Object Type: *[StfaNICO v12\RSDZ]*
Object Type: *[StfaNICO v12\RSDE]*
Object Type: *[StfaNICO v12\RSDA]*
Object Type: *[StfaNICO v12\RSUDI]*

RS Digital Input type objects include the following datapoints:

- Page Parameter (RSDW)
- Digital Input (RSDI)
- Digital Intermediate (RSDZ)
- Digital Inter-RS input (RSDE)
- Digital Inter-RS output (RSDA)
- Universal Digital Input (RSUDI)

RS Digital Input contains:

Description	Reference	Type
Status	S	Obj\OffOn

RS Digital Setpoint

Object Type: *[StfaNICO v12\RSDS]*
Object Type: *[StfaNICO v12\RSDP]*

RS Digital Setpoint type objects include the following datapoints

- Digital Setpoint (RSDS)
- Digital Parameter (RSDP)

This value of this data point is stored in EEPROM within the RS-module and should not be adjusted more frequently than once per hour.

RS Digital Setpoint contains:

Description	Reference	Type
Status	S	Obj\OffOn; Adjustable

RS Digital Output

Object Type: *[StfaNICO v12\RSDO]*
Object Type: *[StfaNICO v12\RSUDO]*

RS Digital Output type objects include the following datapoints:

- Digital Output (RSDO)
- Universal Digital Output (RSUDO)

Digital Outputs have two objects storing the current value: a physical on/off – State object (S); and a manual/automatic mode – Manual State object (M).

Adjusting the value of the Digital Output using these two objects individually may be difficult using Data Transfers or another integration method. The driver provides two options to adjust the physical state and manual mode in one operation.

With the driver object Digital State Change object (DSC) enabled, adjusting the State object (S) will also set mode to 'manual'. Set the Value to 'A', or use the Manual State object (M) to release the output to 'automatic'.

Alternatively, the Value Manual object (VM) provides control of both state and mode values together.

This value of this data point is stored in EEPROM within the RS-module and should not be adjusted more frequently than once per hour.

An RS Digital Output contains:

Description	Reference	Type
Status On/Off state of datapoint.	S	Obj\OffOn; Adjustable
Manual State Automatic/Manual mode of datapoint. 'Yes' indicates manual state, controlled by user or North device. 'No' indicates automatic state, controlled by RS-module or installation	M	Obj\NoYes; Adjustable
Value Manual This object combines the status and automatic mode. Examples: Set '1|0' for on-manual mode Set '0' for off-manual mode Set '0|1' for off-automatic mode	VM	Obj\Text; Adjustable In the format: *Value|Auto* Where: *Value* is of type OffOn indicating the status *Auto* is of type NoYes with '1' indicating automatic

RS Analogue Input

Object Type: *[StfaNICO v12\RSUAI]*
Object Type: *[StfaNICO v12\RSUZ]*
Object Type: *[StfaNICO v12\RSUE]*
Object Type: *[StfaNICO v12\RSUA]*

RS Analogue Input type objects include the following datapoints:

- Universal Analogue Input (RSUAI)
- Universal Intermediate (RSUZ)
- Universal Inter-RS Input (RSUE)
- Universal Inter-RS Output (RSUA)

An RS Analogue Input contains:

Description	Reference	Type
Value	V	Obj\Float
Units	U	Obj\Text: max. 5 chars.

RS Analogue Setpoint

Object Type: *[StfaNICO v12\RSUS]*
Object Type: *[StfaNICO v12\RSUP]*
Object Type: *[StfaNICO v12\RSRTT]*

RS Analogue Setpoint datapoints include the following:

- Universal Setpoint (RSUS)
- Universal Parameter (RSUP)
- Run-Time Totaliser (RSRTT)

This value of this data point is stored in EEPROM within the RS-module and should not be adjusted more frequently than once per hour.

RS Analogue Setpoint datapoints contain:

Description	Reference	Type
Value	V	Obj\Float; Adjustable
Units	U	Obj\Text: max. 5 chars.

Universal Analogue Output (RSUAO)

Object Type: *[StfaNICO v12\RSUAO]*

A Universal Analogue Output RS datapoint (RSUAO) has two objects storing the current value: a physical value – Value object (V); and a manual/automatic mode – Manual State object (M).

Adjusting the value of the Universal Analogue Output using these two objects individually may be difficult using Data Transfers or another integration method. The driver provides two options to adjust the physical state and manual mode in one operation.

With the driver object Digital State Change object (DSC) enabled, adjusting the Value object (V) will also set mode to 'manual'. Set the Value to 'A', or use the Manual State object (M) to release the output to 'automatic'.

Alternatively, the Value Manual object (VM) provides control of both value and mode together.

This value of this data point is stored in EEPROM within the RS-module and should not be adjusted more frequently than once per hour.

A Universal Analogue Output contains:

Description	Reference	Type
Value	V	Obj\Float; Adjustable
Units	U	Obj\Text…5 chars.
Manual State Automatic/Manual mode of datapoint. 'Yes' indicates manual state, controlled by user or North device. 'No' indicates automatic state, controlled by RS-module or installation	M	Obj\NoYes; Adjustable When adjusting, only the value 'No' (automatic) is supported
Value Manual This object combines the status and automatic mode. Example: Set '12.3|1' for 12.3 in automatic mode Set '6|1' for value 6 in automatic mode	VM	Obj\Text; Adjustable In the format: *Value*|*Auto* Where: *Value* is of type Float indicating the value *Auto* is of type NoYes with '1' indicating automatic

Clock Channel (RSDU)

Object Type: *[StfaNICO v12\RSDU]*

The Clock Channel digital RS datapoint (RSDU) contains:

Description	Reference	Type
Status	S	Obj\OffOn; Adjustable

Change of State Alarm (RSCOS)

Object Type: *[StfaNICO v12\RSCOS]*

The Change of State Alarm digital RS datapoint (RSCOS) indicates the alarm state of the RS-module.

During normal operation an RSCOS has the status '0' (no alarm). If an alarm occurs, it changes to '1' (alarm unacknowledged). Setting the state to '3' (acknowledge alarm), acknowledges the alarm and the status will change to '2' (alarm acknowledged).

Once the alarm has recovered, the status changes to '3' (no alarm now). Set state to '0' to delete the alarm.

The Change of State Alarm contains:

Description	Reference	Type
Status	S	Obj\ENum: Range 0…3: Adjustable Read value meaning: 0=No Alarm; 1=Alarm unacknowledged; 2=Alarm acknowledged; 3=No alarm now (although point was in alarm) Adjust value meaning: 0=Clear alarm (used when state=3), 3=Acknowledge alarm (used when state=1)

RS Status (RSS)

Object Type: *[StfaNICO v12\RSS]*

The RS Status digital datatype (RSS) represents the RS-module status, describing if it is structured or not. Structured implied a valid SAPIM-structure is implemented.

Description	Reference	Type
Status	S	Obj\ENum: 0…1; Where: 0=Not Structured, 1=Structured

Page A (RSPGA)

Object Type: *[StfaNICO v12\RSPGA]*

The Page A analogue RS datapoint (RSPGA) specifies the operating mode of the RS module.

A Page A datapoint has two objects storing the current value: a physical value – Value object (V); and a manual/automatic mode – Manual State object (M).

Adjusting the value of the Page A using these two objects individually may be difficult using Data Transfers or another integration method. The driver provides two options to adjust the physical state and manual mode in one operation.

With the driver object Digital State Change object (DSC) enabled, adjusting the Value object (V) will also set mode to 'manual'. Set the Value to 'A', or use the Manual State object (M) to release the output to 'automatic'.

Alternatively, the Value Manual object (VM) provides control of both value and mode together.

A Page A contains:

Description	Reference	Type
Current Strategy	V	Obj\Float: 0…100; Adjustable
Manual State Indicates how the active operating mode was set: 'Yes' indicates manually, controlled by user or North device. 'No' indicates automatically, by RS-module or installation	M	Obj\NoYes; Adjustable When adjusting, only the value 'No' (automatic) is supported
Value Manual This object combines the status and automatic mode	VM	Obj\Text; Adjustable In the format: *Value*|*Auto* Where: *Value* is of type Num indicating the Current Strategy *Auto* is of type NoYes with '1' indicating automatic

NICO Inter-RS Digital (NIDA)

Object Type: [StfaNICO v12\NIDA]

The NICO Inter-RS Digital datapoint (NIDA) sends digital values between NICO devices on the RS bus.

The NICO can only send inter-RS digital values when all digital inter-RS telegrams installed in the NICO have been written at least once by the controller.

Description	Reference	Type
Status	S	Obj\OffOn; Adjustable

NICO Inter-RS Analogue (NIUA)

Object Type: [StfaNICO v12\NIUA]

The NICO Inter-RS Analogue datapoint (NIUA) sends analogue values between NICO devices on the RS bus.

The NICO can only send inter-RS analogue values when all analogue inter-RS telegrams installed in the NICO have been written at least once by the controller.

Description	Reference	Type
Value	V	Obj\Float; Adjustable
Units	U	Obj\Text…5 chars.

Driver Versions

Version	Build Date	Details
1.0	01/01/94	Driver released
1.1	29/07/99	Mod: added initialisation for NIDES
1.1	04/02/00	Fix: Modified IEEE float byte order
1.2	15/08/00	Mod: baud rate fixed at 9600 Mod: request NICO status every 30s to prevent auto-baud. Use this state to detect when NICO online and will accept requests.
1.2	02/08/01	Mod: Add support for writing 'A' with DSC enabled.

Next Steps…

If you require help, contact support on 01273 694422 or visit *www.northbt.com/support*

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