

Interfaces**NITEL..****Communications module**

The NITEL.. enables

- RS controllers
- pronto interfaces, and
- PRONTO IRC individual room controllers

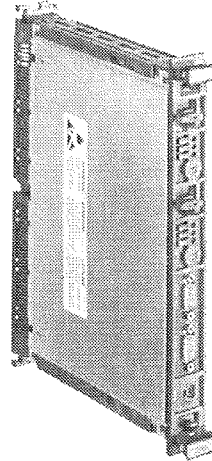
to be operated from a PC running the INTEGRAL DIALOG service software.

It is also used to integrate the INTEGRAL AS1000 control and interlock system into

- the INTEGRAL MS1000 in-house management system, and
- the INTEGRAL TS1500 remote buildings management systems

The NITEL.. is available in different language versions (NITEL0...NITEL4), see manual NT21.

It is also available in combination with RS controllers (NRK14-T../A, NRK16-T../A and NRUT../A).

**NITEL****Technical data**

Supply voltage	Extra low voltage (SELV-E)
Nominal voltage	AC/DC 24 V, 50/60 Hz
- Max. tolerance	-10 / +15%
Power consumption	Max. 7 VA
Fuse	PTC thermistor, 0.9 A
Product data	
80186 section	
- Processor	Intel 80C186, 16 bit
- EPROM	512 kbytes
- RAM	256 kbytes
- Battery-backed RAM	Complete RAM
8032 section	
- Processor	Intel 80C32, 8/16 bit structure
- EPROM	64 kbytes
- RAM	32 kbytes
- Battery-backed RAM	8 kbytes
Back-up battery:	
- Type	Lithium BR-2/3 A
- Voltage	3 V
- Data storage period	3 ... 5 years
Watchdog	Yes
Communication	
RS bus	
- Transmission speed	9600 baud
- Max. cable length (RS bus)	2400 m
- NITEL connection to RS bus	From service socket via 10-core ribbon cable to NARB/A adapter
Service terminal	NBRN operator terminal for direct connection to service socket
PC port	COM2 ¹⁾ /RS232 for PC operation with INTEGRAL DIALOG
- Connection	9-pin D-connector
Local port	COM1 ¹⁾ /RS232 for local alarm printer
- Connection	9-pin D-connector
Weight excluding packaging	0.34 kg
Dimensions (W x H x D)	30 x 262 x 200 mm
Mounting	In NHGB card frame in control panel
Safety	
Product safety	EN 61010-1
- Contamination level	2
Electrical safety	SELV-E (PELV to IEC 364-4-41)
General ambient conditions	
Usage	Installed in control panel
Temperature range	
- Operation	5 ... 45 °C
- Storage	-25 ... 70 °C
Ambient humidity	10 ... 90 % rh, non-condensing
Conformity	This product meets the requirements for CE marking

¹⁾ COM1/COM2 are factory-set to a transmission speed of 2400 baud.

Brief description

The NITEL.. communication module is used both to integrate INTEGRAL AS1000 into higher level management systems with RC1500 management stations and for PC operation of INTEGRAL AS1000 with the INTEGRAL DIALOG service software.

The NITEL.. communications module organises the exchange of data between the management station and the process control level and incorporates a comprehensive range of management functions.

The NITEL.. is a dual processor system, incorporating an 80186 and an 8032 processor. The 80186 section processes the user-definable functions and handles the communication via ports COM1 and COM2 (RC1500, MC1500, VT100, alarm printer etc.). The 8032 section handles communication on the RS bus, the interrogation of automated data points and the direct access to RS data.

The NITEL.. scans and stores all the relevant plant data and prepares it for further processing at the management station. The main functions are as follows:

- Easy integration of RS data points, using the INDAGEN software or the Staefa CAE tool, INTEGRAL PLAN
- Scope for grouping important values into a maximum of ten menus
- Display of up to 900 data points
- Facility to modify setpoints, modifiable outputs and switch-time programmes
- Integration of RS data points into the management station graphics
- Definition of up to 100 alarm messages each with its own priority level and transmission instructions
- Definition of up to ten history samples each with ten inputs
- Three levels of operator access with password protection

See NT21-04 for a detailed description of functions

The NITEL.. can also be used as an interface for PC operation, using INTEGRAL DIALOG service software.

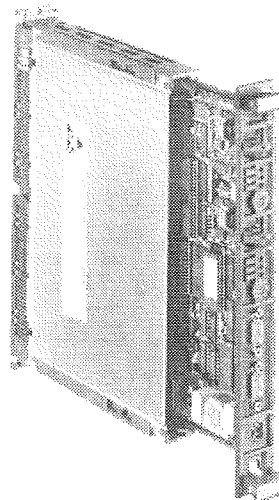
See K21-12.50 for commissioning

INDAGEN

INDAGEN (INtegrated DAtabase GENerator) is a program developed by Staefa Control System for selecting and creating a list of data points from the individual RS module SAPIM structures.

Construction

Essentially, the NITEL.. card module consists of a card housing and a plug-in printed circuit board.



Ordering information

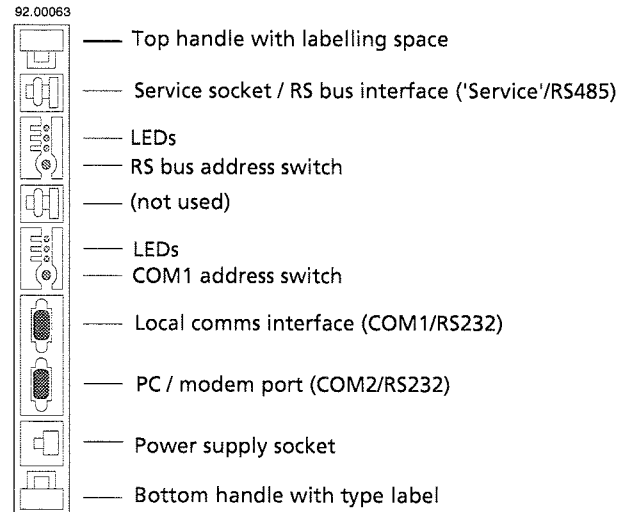
The NHGB card housing must be ordered separately.

The NHGB housing (see K21-02.18) comprises the card frame and a base receptacle. The latter provides the plug-in base for the electronic card and, at the same time, enables the NITEL.. to be electrically connected to any directly adjacent RS card modules without additional wiring.

Interfaces

Front plate

The printed circuit board and the front plate form a single unit. The front plate incorporates the following elements:



NICO-N

Any of the following may be plugged into the *service socket*:

- NBRN.. operator terminal
- NABBS/A adapter for remote NBRN.. operator terminal
- NARB/A adapter for RS bus
- NARC adapter with interface converter for RS bus

The *LEDs* indicate normal operation and faults. The upper group generally indicates the following:

- Green = Power on
- Yellow = Communication TXRS
(lights up to indicate data transmission on RS bus)
- Red = Status

The lower group of LEDs indicates communication as follows:

- Yellow TXC1 (lights up to indicate transmission to local port, COM1)
- TXC2 (lights up to indicate data transmission to PC port, COM2)
- RXC2 (lights up to indicate data received from PC port, COM2)

Each of the *address switches* has 16 positions:

- The *Addr COM1* switch (1 ... 16) is set to 16 for applications using INTEGRAL DIALOG. For RC1500 applications any address may be selected.
- The *Addr RS bus* switch (17...32) is used to set the "participant address" (the address of the RS bus user). It is important to ensure, however, that the address selected will not clash with an existing address when the NITEL is connected to the RS bus.

The *connection sockets* may be used for the following:

- COM1/RS485 (not used)
- COM1/RS232 Local alarm printer
- COM2/RS232 Modem, RC1500, MC1500, VT100 terminal for external operation, Minitel or INTEGRAL DIALOG

The last socket (above the type label) is used for the power supply to the NITEL..

All the connectors can be secured mechanically.

See page 6 for a detailed description of the COM ports and interfaces.

Caution:

Do not touch the PCB!

Electronic components can be damaged by electrostatic discharge. Handling the PCB without observing electrostatic precautions invalidates the warranty.

Battery

A replaceable lithium battery provides protection against data losses (battery life approx. 5 years).



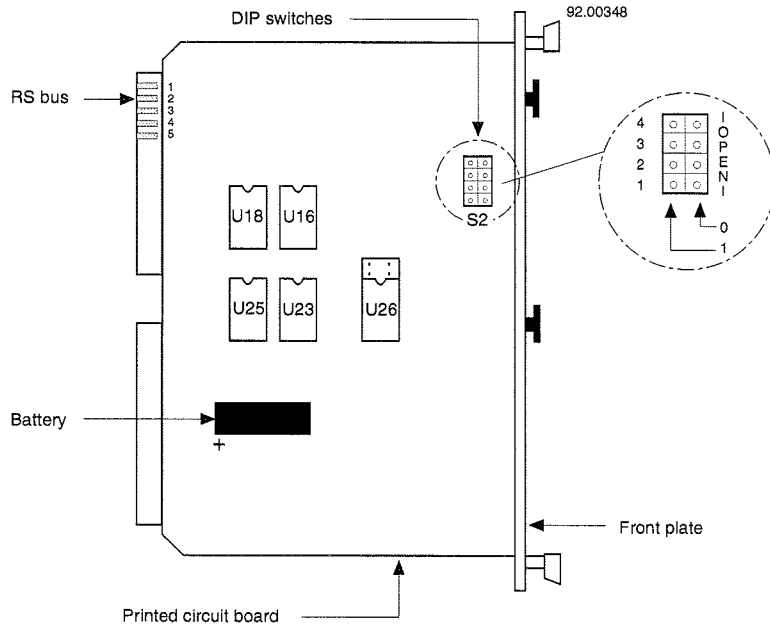
Used and faulty batteries must be disposed of in accordance with local regulations.

Printed circuit board

The printed circuit board and the front plate form a single unit which can be inserted and removed from the card housing by the two handles. When correctly in place, the front plate locks into the card frame.

DIP switch (S2)

There are four DIP switches on the printed circuit board, used to set the RS bus address, the operating mode and the transmission speed (baud rate).



1) Factory setting; other baud rates should only be used in special cases, e.g. for service purposes.

<i>RS bus address settings</i>		<i>Mode settings INTEGRAL DIALOG</i>		<i>Baud rate settings RS bus</i>	
1		2		3	4
0	Addresses 1 ... 16	0	Service mode	1	1 9600 baud 1)
1	Addresses 17 ... 32 (as engraved)	1	Normal operation	0	1 4800 baud
				1	0 2400 baud
				0	0 1200 baud

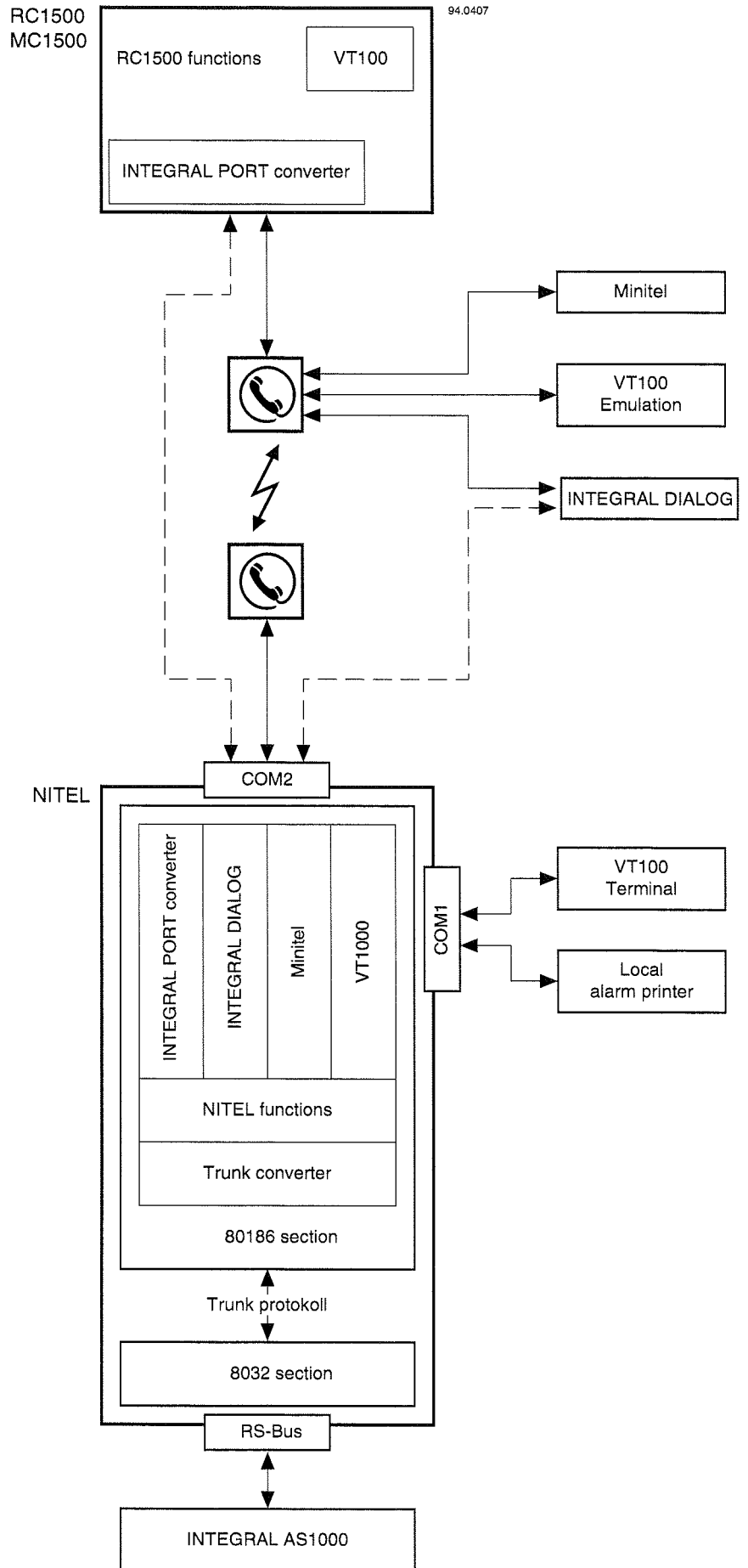
Mounting

The card modules can be installed in the control panel as follows:

- Housing screwed directly to control panel base
- Mounting on two rails
- Mounting in a 19" fixed or hinged rack

See K21-10 for detailed mounting instructions

Interface ports and communication system



Modem port (COM2/RS232)

As shown in the diagram on the previous page, the NITEL.. uses this port to communicate with the various devices and protocols. When the management station is operated in conjunction with the NITEL., the INTEGRAL PLAN protocol is used for data protection and synchronisation. As soon as the first valid digit of a communication is received, the NITEL.. is able to determine whether or not this protocol is being used. If not, then VT100 sequences are received, enabling a VT100 terminal or Minitel to establish communication with the NITEL.. via this port.

- RC1500 communication: The RC1500 may be connected to the NITEL.. either by modem, or directly (with a null modem cable).
- VT100 emulation: The NITEL.. can be operated remotely from a PC terminal
- Minitel communication: In countries where this facility is available, the NITEL.. can be operated remotely by Minitel
- *staefa dialog*: This port can also be used for the *staefa dialog* service software for the interrogation of the RS controllers (NIBB emulation)

Access from a terminal via the COM2 port can be disabled in the NITEL.. *Communication* menu.

NRK14-T../A and NRK16-T../A

The NRK14-T../A and the NRK16-T../A have no local port. However, in the NITEL.. "Interfaces" menu, it is possible to configure COM2 to enable a VT100 terminal or local printer to be connected for local operation.

Local port (COM1/RS232)

The NITEL.. (and NRUT../A) have a second RS232 port which can be used to connect a VT100 terminal directly for local operation, or to connect a local alarm printer.

The simultaneous use of ports COM1 and COM2 is governed by certain restrictions. As a general rule:

- The local terminal cannot be used while the RC1500 is communicating with the NITEL..
- The RC1500 cannot establish communication with the NITEL.. while local operation is in progress (i.e. as soon as the user has logged into the NITEL.. menus)

These measures are designed to avoid conflicts such as would occur if the RC1500 and local terminal were operated simultaneously.

Exception: Even while local operation is in progress, the NITEL.. can establish communication with the RC1500 for the purpose of transmitting alarm messages.

RS bus interface (Service/RS485)

This interface is controlled by the 8032 section of the NITEL.. and is used to connect the RS controllers. It enables the RS controllers to communicate with each other and with the 8032 section. The 8032 section uses this bus to sample current data points at regular intervals.

Internal trunk

The trunk protocol is used between the 80186 and 8032 sections inside the NITEL.. . The protocol allows the 80186 section to collect the current data point values from the 8032 section. The "Infolist" (points list of AS1000 data values) is also downloaded via the internal trunk.