



Intelligent Life Care

**Added value at the point of care –
simple, efficient and future-proof**

Sustainable communication for health care environments

Established communication technologies such as analog telephony and analog cable TV are on the verge of being replaced by completely digital solutions. Outstanding changes in care institutions can be used to simultaneously update the nurse call systems and make them fit for the future. Existing systems and structures can be extended intelligently to make the changeover as efficient as possible.

New Technologies Offer Opportunities

This kind of system extension is possible at minimal extra cost with Clino System 99plus. The traditional nurse call system is connected simply with other systems via IP infrastructures. The Clino System 99plus seamlessly combines existing and new nurse call systems thereby creating a homogenous communication solution.

Ready For New Trends

Future services and technology can also be integrated by using standard networks and transfer protocols. Clino System 99plus thus enables you to protect your investment and react flexibly to new requirements and technologies at any time.



Productivity



Networking



Multimedia



Creating added value for care, technology and administration

Clino System 99plus enables added value to be generated at the point of care and thus existing nurse call systems and infrastructures to be optimally integrated.



Comfort and Safety for Patients



Flexible, Interchangeable, Integrated Handsets

Provide all patients with the right level of service in one integrated device. From the nurse call to lighting control to comprehensive room and TV control.



Process Optimization



Electronic Care Documentation

Secure connection to hospital information systems (HIS) and electronic health records (EHR) enables care to be documented in the patient's room. Care processes therefore become more streamlined, transparent and secure.



Efficient Networking



Nurse Call Intercom and Telephony via VoIP

Even for basic nurse call systems, future-proof voice communication is possible via IP networks.



IP TV and Video on Demand

High-quality entertainment can be offered through standardized infrastructures.



Multimedia/Infotainment

Individual entertainment, serving internet, informing and briefing patients: Ultimate convenience is at your patients' fingertips thanks to intelligent touch terminals.



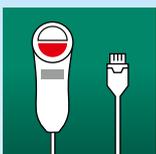
Accounting and Care Management

HIS integration also boosts efficiency in accounting and quality management, as up-to-date patient information is available at all times.



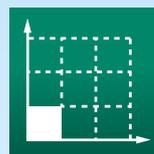
Security and Process Optimization with RFID

RFID enables automatic, audit-proof logging of all messages and secure IT access and access monitoring.



Secure Nurse Call System running on IP Infrastructures

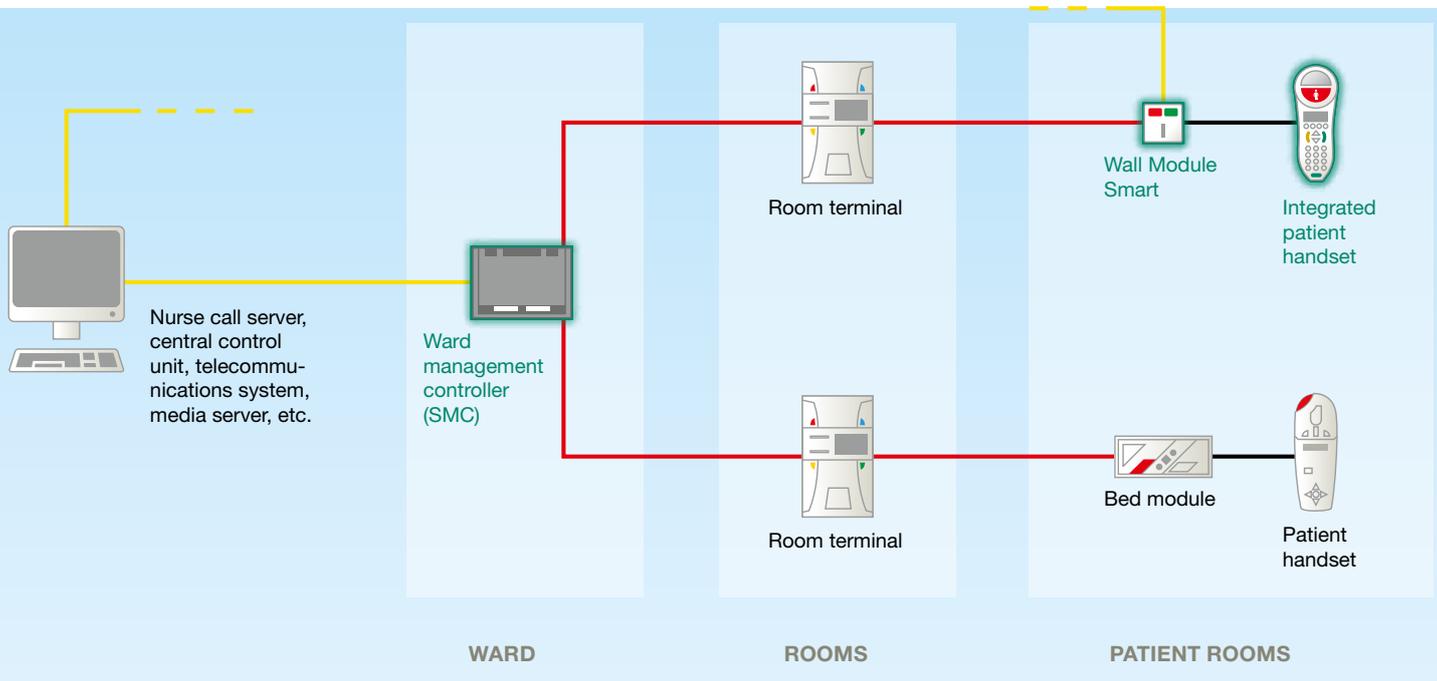
Clinio System 99plus easily combines standard-compliant security in accordance with DIN VDE 0834 with added value via IP infrastructures.



Flexible, Scalable System

Clinio System 99plus and existing systems can be seamlessly integrated or expanded in a modular manner, completely in line with the care facility's needs. Established Ethernet and telephone infrastructures can therefore continue to be used sensibly.

Future-oriented expansion of infrastructures



Only the components colored green in the illustration will be replaced.

Minimum Action, Maximum Effect

Expanding a system with Clino System 99plus enables the desired added value at the point of care to be achieved by replacing just a few components. It is often enough to update the software or replace the control panel technology and the connection units at the point of care. The additional services are then typically provided via existing infrastructures, such as telephone cables.

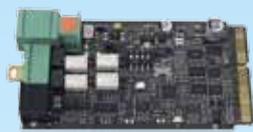
Integration of Existing and New Systems

Ideally, there is no need to lay new cables at room level. Nurse call and network cables are simply combined in a new wall module. This process means that no major renovation of the respective rooms is required. That saves money, time and work!

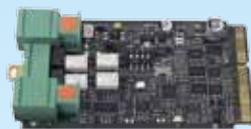
It is therefore no problem to integrate existing installations or operate old and new systems in parallel. Systems can thus be modernized step by step.

Benefits of System Expansion

- No new cabling required
- Simple replacement of bed modules
- The medical supply unit does not have to be approved again
- System migration can be completed in stages
- Minimal restriction of healthcare operations



FBC Clino System 99plus



FBC System 95

The new ward management controller combines old and new systems in an integrated communication platform.

Elegant System Migration

New interfaces and functions can be easily added to the SMC by means of plug-in modules.

Example: Migrating from System 95 to Clino System 99plus only requires the applicable field bus controller FBC 99 to be inserted.

The Control Panel of the Future

The new ward management controller (SMC) is at the heart of all system extensions – and of new installations of Clino System 99plus. It replaces the zone controllers and connects secure nurse calls in accordance with DIN VDE 0834 by using IP infrastructures. You therefore create added value at all levels: for patients, staff, administration and technology. And for the future.

Benefits of an Integrated Communication Platform

- Centralized monitoring and controlling
- Simple operation and maintenance
- Integration options for additional systems, such as fire prevention, voice alarms, DECT
- Future-proof migration for all existing nurse call systems
- Interfaces to the most common bus systems/protocols

Long-term safety: intercom via IP infrastructures

SMC and Clino System 99plus make it very easy to upgrade basic systems with intercom features and even telephony services using network infrastructures and existing telephone infrastructures. The coupling of the nurse call system with VoIP-compliant telephone systems is also possible because the necessary interfaces are already in place. The effect: seamless integration of future IP-based developments in ITT.

Equipping patient rooms intelligently



Scalable Functions at the Point of Care

You can provide every patient with the right device thanks to the new patient handsets. They range from simple models with a single call button to integrated patient handsets. All the models are user-friendly, resistant and easy to clean. The auto-release plug also ensures that the wall installation remains undamaged if the cables are overloaded.

The New Integrated Patient Handset

- Nurse call in accordance with DIN VDE 0834
- Discrete intercom services and telephony (VoIP)
- Room control (lighting, interior lighting, blinds, etc.)
- TV control
- Configurable additional functions, e.g. service call



Integrated patient handset



Patient handset control



Top Functionality in Small Spaces

The new Wall Module Smart provides the broadest range of services and functions in the patients' rooms. It is suitable for all new patient handsets and can be combined with both standard LAN and telephone infrastructures. However, the equipment options also enable supplementary use of wireless networks.

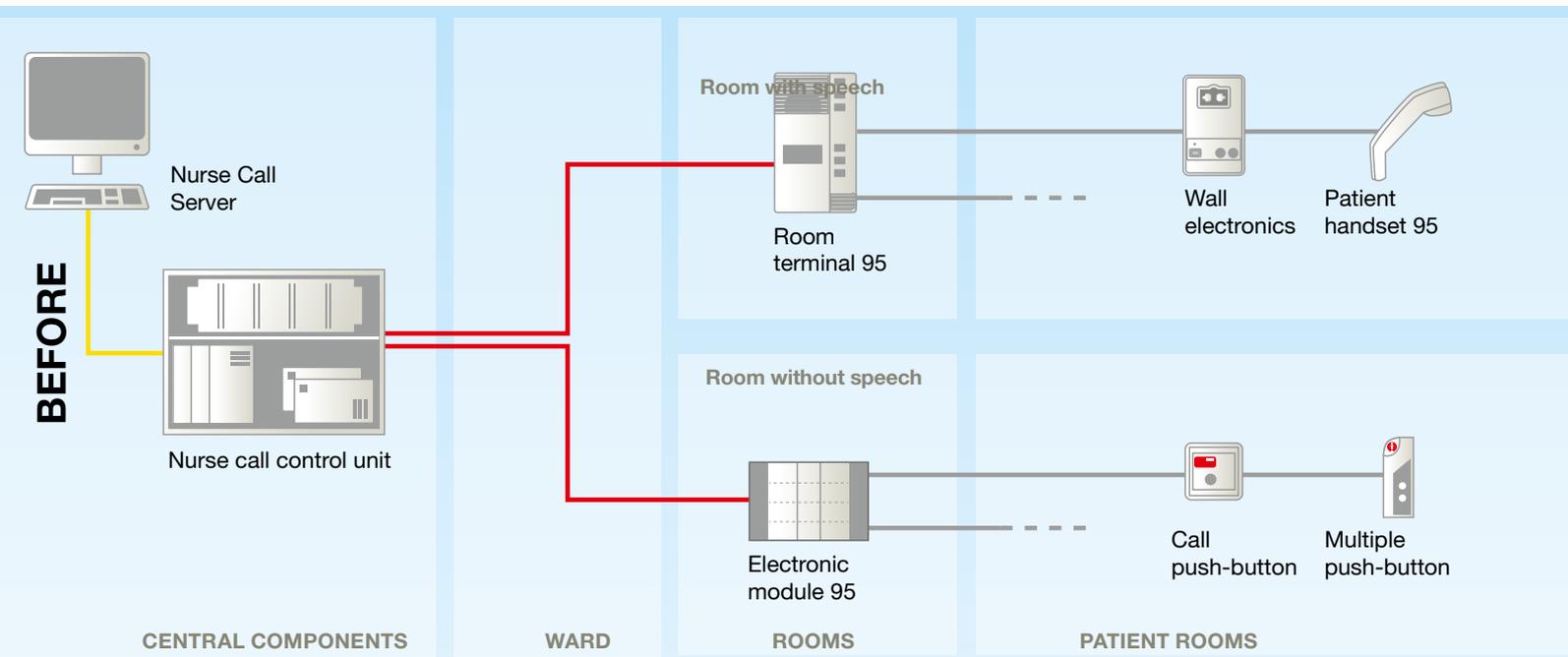
Secure Logging via the Nurse Call System

If the system is fitted with an RFID reader, integrating it into the nurse call system means everything is set up for automatic attendance logging. The time, place and person are recorded when they enter and leave the room. This establishes audit-proof documentation day by day, which improves safety in the care process.

The Wall Module Smart offers:

- DSL and Ethernet connection technology
- 2 IP connections
- Control functions (room technology and TV)

Example of a system extension with a before and after comparison



Example of a room migration (this page: before, page 11: after).



More security and flexibility

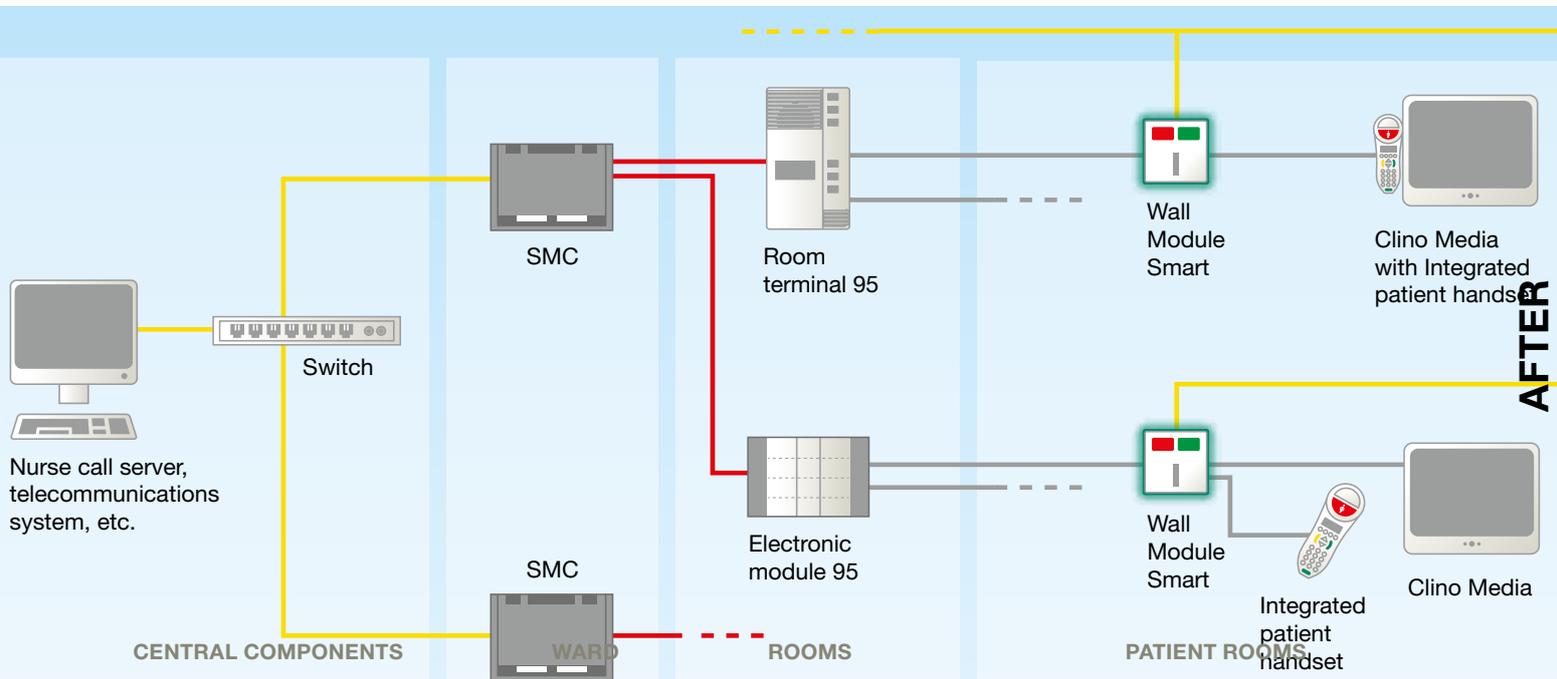
Clino System 99plus uses existing nurse call systems to create a flexibly structured network that can be monitored and controlled centrally. On the wards, Ward Management Controllers (SMC) ensure reliable functionality, short cable distances and top quality in voice nurse calls and telephony. Failures and disruptions therefore remain localized to one ward and can be identified and resolved more swiftly.

Creating future-proof structures

In addition, intelligent networking with the SMC allows every ward to be fitted with individual additional functions. For example, mobile call answering or skills-based routing takes the pressure off the nursing staff. Furthermore, individual comfort functions, from room control to speech functions to multimedia entertainment, can be implemented on a room-by-room basis. The existing nurse call infrastructure is thus supplemented to provide added value to patients, staff, technology and administration.

Benefits of the New Nurse Call Infrastructure

- Decentralized structures to provide optimum security and flexible adaptation to meet new requirements
- Gentle, step-by-step migration of wards
- Optional integration of existing telecommunications solutions
- Top speech quality at all times
- Remote management for remote access, configuration and remote diagnosis
- Efficient update management (firmware)
- Simplified risk management across the entire system



Successful system migration: A future-proof, flexible system is created at minimal cost.

Function	Old system with speech	Old system without speech	New, extended system
Standard-compliant nurse call	•	•	•
Intercom per room	•		•
Intercom per bed	•		•
Flexible alarm management			•
Mobile call answering			•
Room control			•
Lighting control	•	•	•
TV control	•		•
Telephony	optional		•
Accounting			•
Entertainment			•

Connection to HIS Systems

The Clino System 99plus and Clino Media allow direct connection to the HIS and electronic medical records. Therefore current nursing information can be accessed by the staff at any time, while the systems are protected from unauthorized access. This enables nursing processes to be

optimized, e.g. by enabling care to be documented directly at the point of care. All the data are stored in an audit-proof manner and can also be used for accounting, quality management, care planning and case management purposes.

System description and technology

General

Clino System 99plus is a universally scalable communication system for use in health service care facilities – both with and without intercom functionality. Functions range from the conventional optoacoustic nurse call system to flexible system solutions with digital voice transmission and integrated multimedia products at the point of care. The Clino System 99plus of course complies with the current standards and regulations for nurse call equipment, DIN VDE 0834: 2000-04.

General Functions

The Clino System 99plus was designed as an information and communication platform for professional care and nursing facilities. It supports care organizations through reliable system technology as well as user-friendly and process-oriented applications. In order to cover the full functional range the system is prepared for modular and scalable set-up. The system is based on optoacoustic call signaling which may be expanded by display units. Further options such as intercom communication (digital transmission) and mobile call processing can be successively added. Patients have access to simple device combinations such as call units and multiple push-buttons as well as wall units with integrated patient handsets. Services ranging from standard nurse call units and room control functions (lights, blinds, TV) to telecommunication services are included. It is possible to combine different multimedia solutions (room TV, bedside TV, multimedia) with the nurse call system as comfort solutions at the point of care.

Optionally available system interfaces allow for integration of a variety of alarm and security devices. The operator benefits from a homogeneous system platform in which the responsibilities, priorities and escalation routines are specified by the respective service/care situation.

The easy start-up and flexible networking of wards over IP networks as well as the connection to the telecommunication (TC) network are essential features of the Clino System 99plus. The system has been designed for security and fault tolerance and is divided into three physical installation levels. Planning, installation and service of this complete solution are supported by optimized system tools.

System Concept and Migration

The system technology is downstream compatible and guarantees long-term migration and expansion of the Clino Opt 99 and Clino Phon 99 product lines, as well as enabling the data and intercom interfaces in wards with a Clino Phon 95 call system to

modernize existing infrastructures step by step. The migration concept can be adapted to smaller units as well as entire buildings and includes displaying system notifications, call queries and auxiliary queries as well as staff communication, ward announcements and freely programmable zone linking.

Value Added Services: An Uncluttered Bedside Table

In addition to the conventional functions of a nurse call system, the Clino System 99plus offers extra added value services at the point of care: The integrated patient handset provides users with an ergonomic terminal device for telephony services, room and TV control. The keypad is color-coded, backlit and marked with pictograms, making it really easy to use: The call button is separated from the additional functions. The modern SIP-compatible VoIP telephone is prepared for long-term usage and offers top quality voice communications – also for voice nurse calls. For young and old: The integrated patient handset is ergonomic to hold and the patient's protection is always ensured thanks to the anti-microbial surface and intelligent sensor technology.

Added value services are provided via the corresponding wall module: Regardless of whether it uses a modern CAT5e Ethernet structure or DSL technology which enables existing telephone cables to be upgraded. VoIP can therefore be used at the point of care without making any major infrastructure changes. The TV is controlled in conjunction with an optional control unit and the other services (e.g. room and bed lighting) are also controlled by the wall unit.

The appropriate equipment allows additional services such as the internet, radio streams, infotainment and also a HIS connection to be provided by a multimedia terminal. The multimedia terminal uses the same infrastructure as the integrated patient handset.

Accounting System for Value Added Services

Telephony and TV services, internet use, as well as the patient accounts managed in the system and the related patient cards are managed through the accounting system server. Both access to the respective user account and approval to use value added services are conducted centrally through the system server: The necessary rights are stored in a database system. The issue of patient cards which work with contactless and manipulation-proof RFID technology is also controlled by the system server and can be conducted via either a pay station or a cash terminal. High security requirements on the system require the pay stations and cash terminals, which are linked with the accounting server via the IP data network (Ethernet),

to be registered. The pay station is equipped with a user-friendly touch screen and the input elements are perfectly accessible for the user. Operation is intuitive: From inserting the coins to issuing the patient card and printing the receipt, the entire process is designed to be easily understood. The safe casing protects the device from access by third parties and is joined inseparably with the building through a wall bracket. In addition to the system controller, the pay station houses various coin cassettes, a security bill validator, a printer and a chip card reader.

Process Optimization

External information transmission systems such as DECT, WiFi or GSM as secondary methods of alarm may be optionally used to supplement the escalation of system messages within the nurse call system. Different targets are informed depending on the priority of the system notification, the selection being made according to type of call, call location, time of day (different shifts) as well as the ward/zone. The displayed format, different repeat intervals (and the escalation processes connected to them) as well as the acoustics are adjusted to the priority of the system message. The care staff calls up system messages by using the call-back function. An appropriate communication interface ensures the connection between the mobile terminal device and the location of the call. Intercom is digitally transmitted within the overall system (between zone controller and rooms) thus ensuring optimum communication.

External alarms are forwarded to the Clino System 99plus via predefined, optional system interfaces to hazard detection systems (e.g. fire detection system, medical alarm servers etc.) Messages, either displayed encrypted (in order to avoid panic) or in plain text, are forwarded to the staff in the respective care zones/wards addressed. Software or hardware interfaces are used for the integration of alternative forms of living. Process support services are additional functions of the Clino System 99plus compared with conventional call systems. The use of RFID technology permits contactless but personalized control of the units. The different presence levels as well as dedicated call triggering including special access rights are supported within the system, logged on the operating PC, displayed in the user interface and may be further escalated. Logged protocol data are evaluated by authorized persons in consideration of the appropriate privacy and data protection provisions. The use of RFID transponders helps to locate medical devices within the facility by carrying out a registration of devices in the care and staff rooms: The availability of a device is queried within seconds. RFID technology may also be used for access functions.

Bed Level

Fixed mounted wall modules (Smart, LAN, standard) constitute the interface between the room controller (room terminal, room electronic module) and the mobile handset for the patient or resident.

The mobile call unit enables the patient to trigger a call as well as to control the lights. As a comfortable telephone, the patient handset offers additional control functions for a TV, lighting and blinds as well as for voice communication with the care staff. This can be either in hands-free mode or discretely via the integrated patient handset.

Room Level

Operational, control and display elements (call push-buttons, presence and cancel push-buttons, bed units, corridor lamps etc.) that are allocated to individual rooms are either operated directly at the respective room electronics such as room terminals or room electronics modules, or they are operated via the bed data bus. The bed data bus connects the active components in the rooms such as wall modules (display, RFID, Smart and LAN). Apart from easy installation (bus- or star-wiring) the bed data bus offers configurable individual identification of the bed IDs and the call information.

Floor Level

The room electronics as well as floor level components such as information displays, direction lamps, interface units as well as other active system components are operated by the respective system controller via a corridor data bus. A total of 127 active modules can be managed by one corridor data bus. The total number of addressable active modules per system controller (SMC) – which includes all active bed data bus modules (bed modules, call modules, RFID modules, display modules etc.) – has been set to a maximum of 255. The number of passive system components such as call units, cancel push-buttons, and pull cords is restricted by the power supply available within the room.

Building Level

Ward Management Controllers (SMCs) are interconnected by Ethernet LAN structures; alternatively a zone data bus can be used. The SMCs are installed either centrally or decentrally as specified by the customer. One system may consist of up to 64 units which corresponds to a maximum system size of more than 8,000 rooms. Each SMC can be subdivided into 6 logical zones (care zones). The Clino System 99plus allows a maximum

of 250 logical zones. The redundant loop topology provides a high level of protection against failure of the ward/corridor data bus devices which monitor each other (left/right).

On the room and floor level (horizontal level), the Clino System 99plus hybrid system solution is based on wire-saving field bus technology. Different security mechanisms ensure reliable data transmission in data and voice services. SMCs (vertical level) in the backbone area are networked over POF/HCF fiber optics technology and over standardized ETH technology. During planning and installation of the system alternative networking between buildings and campus is feasible. Call transmission over telephone lines (PSTN) can be realized as a supplement. The Clino System 99plus offers continuous monitoring of the infrastructures used and the installed system components: Structural measures ensure a maximum level of security during operation and prevent critical escalation scenarios.

Networking and Data Services

Cabling over ETH LAN and/or fiber optic LAN depends on the specifications of conventional network design. Wards are networked one by one using suitable switches/routers (IEEE802.3) which automatically recognize the required transmission rates. Port-based VLAN network components with QoS/ToS facilitate prioritization of the nurse call services over voice services. Due to safety reasons all IP components (control panels, servers) work with consistent IP addresses (10.1.x.y), which are not used by other disciplines (e.g. GLT, medical equipment etc.). In order to use deviating IP addresses, configuration is carried out over an optional DHCP server. The service PC is integrated into the network landscape via the second ETH LAN interface.

Control Functions

Display messages, flashing sequences of the corridor and zone indicator lamps as well as acoustic call notifications are controlled and synchronized by the SMCs. The system messages are differentiated by varying types of calls (alarm call, emergency call, call) and their priority, and are distributed within the ward/zone. The system distinguishes up to 23 freely definable types of calls (e.g. door calls, alarm, service calls) and offers flexibly configurable call processing that can be customized. Configurable inputs and interface units are used to integrate third-party disciplines and alarm contacts as well as interface with external systems. One intercom channel is available per SMC which can be used for communication between care personnel and patients and – in connection with a door communication system – even with visitors.

Audio Interfaces

The standardized telecommunications interfaces support mobile processing of calls via wireless terminal devices (DECT, WiFi, GSM). The available return telephone numbers (from the MSN pool) are dynamically allocated to the incoming system messages (e.g. calls, emergency calls, alarm calls) in accordance with the predefined configuration (SMC). The respective return call number is transmitted to the receiver (e.g. DECT end device) in order to initiate the call query.

Configuration and Display of Messages

The service PC is used to configure the overall Clino System 99plus. From this central location it is possible to configure and – if available – update the firmware of all components administered in the system. If the overall system is expanded or changed, the configuration will be updated in accordance with the operator's requirements.

The user interface provides a graphic and tabular display of system messages according to priority, call type and time of call: They are displayed via graphics that resemble the ward/zone. Optional: The user interface is fully functional during client server operation in order to integrate more service PCs into the Clino System 99plus.

Integration of External Systems

External systems are connected via the Clino System 99plus service PC. Individual software modules can be optionally combined with the nurse call system.

- Fire alarm system (FAS): Faults, pre-alarms and fire alarms are non-reactively transmitted from the FAS to the nurse call system. Messages transferred to the nurse call system are optionally forwarded to the communication system (DECT, WLAN, GSM).
- Message transfer system: Messages of the nurse call system are optionally transmitted to DECT, Wi-Fi or GSM message transfer systems as a secondary alarm. Different targets are informed depending on the priority of the system message.
- Care system for disoriented persons: Clino Guard alarm signals are transmitted to the nurse call system, if patients with dementia or other residents leave the care facility's monitored area.

Control Units

In areas where voice functionality is not supported, room terminals or room electronic modules assume full control of all call functions in the room as well as the emergency function in case of control panel technology problems and/or line faults. Standard functions include call identification and call notification as well as the presence function with call forwarding for the nursing staff. Room terminals allow communication between patients and/or residents and care staff, which makes care provision even more efficient. With a view to control organizational processes, duty rooms are equipped with a master station which is connected to the network over an interface.

Information Display and Dashboard Units

Large displays are used for showing care staff specific information in the hallways within a ward. Depending on specific needs, plain text messages are represented on monochrome or two-colored dot matrix displays. System messages are displayed by priority. Data from monitoring/telemetry systems can also be processed.

Room Displays

Room terminals and display modules are designed to display alphanumeric system messages using a backlit LCD. Master stations are equipped with a full graphic display unit to show multiple messages.

Auto-release Plug System

Connection cables for patient handsets and multiple push-buttons are equipped with a patented system plug. Independent of which direction the cable is pulled into, the plug is automatically discharged from the auto-release plug system to prevent damaging the system or the wall unit.

System Messages

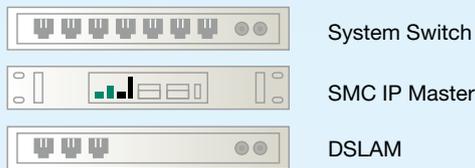
All system messages are prioritized and displayed in the Clino System 99plus. Signaling complies with VDE 0834 specifications and can be adapted to project-specific requirements: Call types, priorities, optical signaling and acoustic call forwarding are configurable.

System overview Clino System 99plus

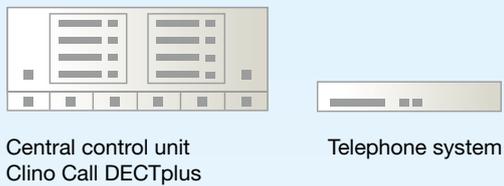
Configuration



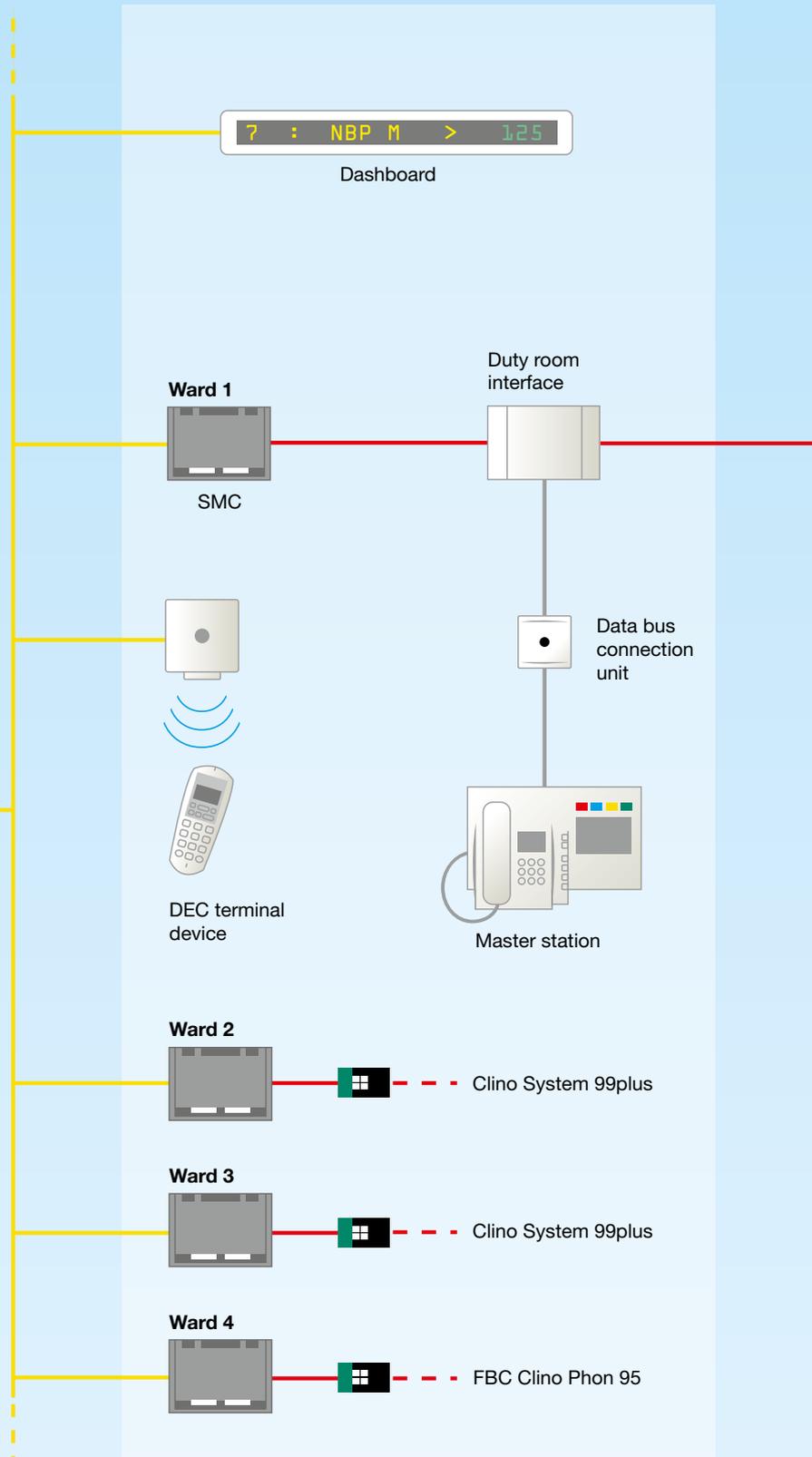
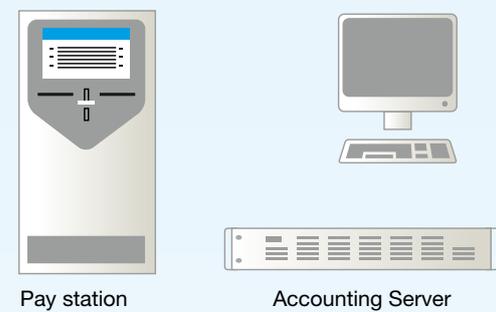
Networking

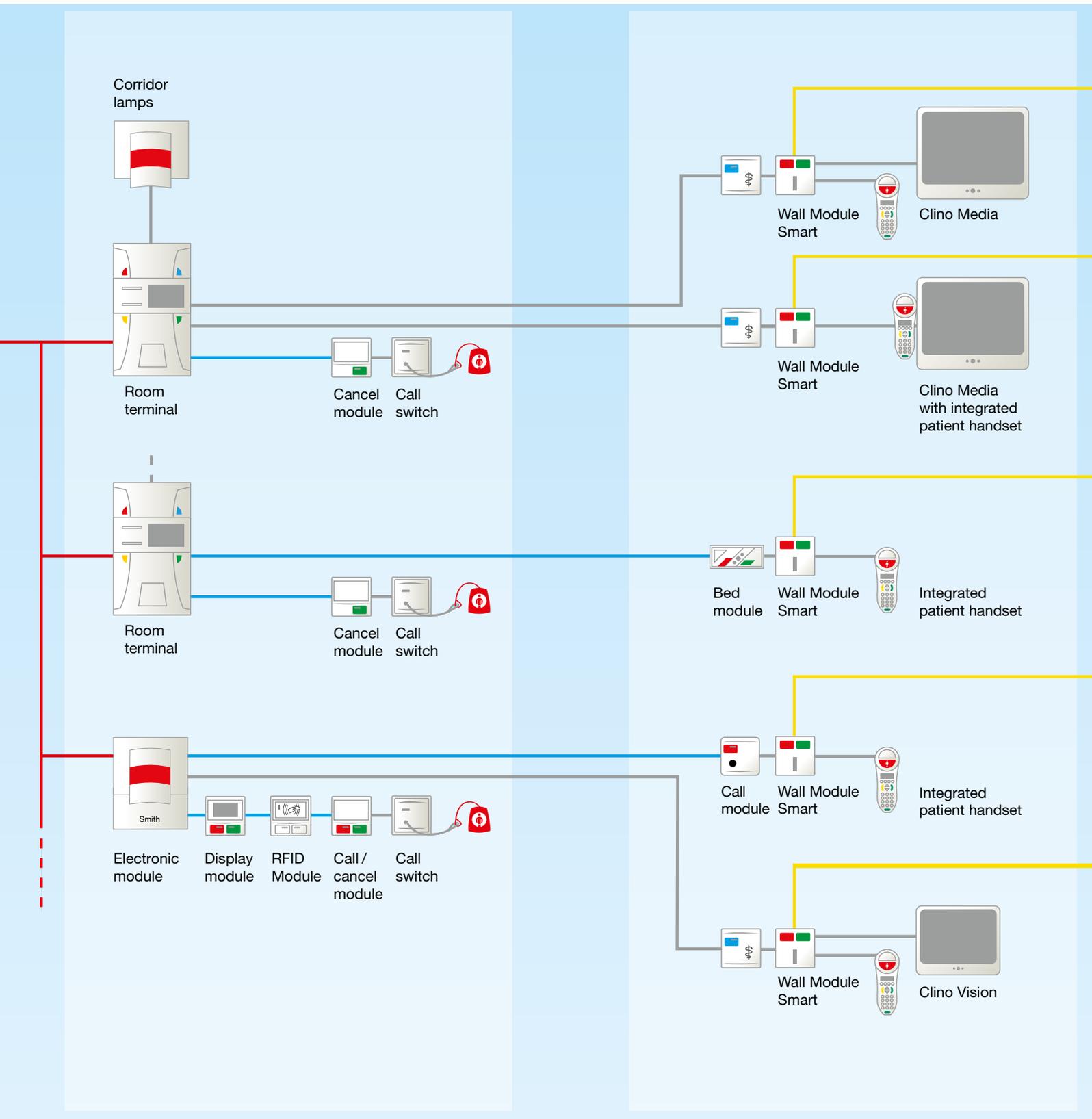


Telephony



Administration / Accounting





— Ethernet/LAN
— Corridor data bus

— Direct connection
— Bed data bus

Example: room with intercom, telephony and multimedia options



In conjunction with the Wall Module Smart, the integrated patient handsets offer patients a comfortable solution, and the integration of the nurse call system and the IP data network supports a number of functions, e.g. TV and room control, patient telephony with accounting and mobile and inpatient call queries. Other IP-based devices such as IP TV or a laptop can be connected using an additional RJ45 socket.



In conjunction with the Wall Module Smart, the media terminal provides an optimal basis for innovative solutions at the point of care. It offers a range of entertainment and added-value services, such as VoIP, IP TV, video on demand, media streaming and Internet and intranet access, via IP data network. In addition, process-orientated applications such as secure access to the HIS/EPR via a user-friendly touch screen are also possible.

Example: room with integrated telephony and optional mobile call processing



RFID module with an integrated call and cancel button for personalizing the care processes and controlling access.



Wall Module Smart and intelligent patient handset with control, telephone and billing functions, and an auto-release plug system.



Pull cord for spray water protected call initiation and call/cancel unit for acknowledging calls from the wet room.



Professional patient TV and multimedia devices – wall or bedside option. The TV control module is used for simple control and permits audio transmission through the patient handsets of the nurse call system.

Example: administration and accounting of added-value services



Comfortable configuration software for telephony, TV and Internet services. The user account is accessed through the user interface, the access rights of the patient are stored in the accounting system and the patient cards are managed accordingly. The invoicing options, user categories and access right and billing models can be adapted to the requirements of a particular project in a flexible way. The patient card is scanned in the integrated patient handset.



Compact pay station with the option of issuing patient cards (ISO format), upgrading the patient account and returning cards. A simple touch screen user interface offers multilingual operation and a clear overview. When a card is issued, the patient receives a printed receipt.

Example: central installation for system extension



Information and communication systems containing a 19" distribution cabinet with server, system switch, UPS and optional active component (DSLAM) for exploiting existing 2-wire installations such as analog telephone lines as a transport medium for standard IP protocols for VoIP telephony, IP TV, Internet access and similar broadband services, in conjunction with a Wall Module Smart.



Central equipment of a nurse call system containing a 19" distribution cabinet with nurse call server, system switch, UPS and ward management controllers (SMC) in a 19" system rack. The system rack can accommodate up to seven units, e.g. as a replacement for nurse call systems during the migration of a Clino Phon 95 system.

Product overview

Clino System 99plus

72700A1

Ward Management Controller (SMC)



Ward Management Controller (SMC), surface mount design, as a control unit for an organizational unit such as a ward or living area. It is a modular central control unit with two slots for the optional field bus cards (FBC). There is an option to provide power redundantly via a decentralized power supply installed in the ward or living area. It monitors and synchronizes all data traffic and intercom connections (conversations, announcements) within the organizational unit and coordinates communication with other central control units via IP communication (zone data bus or ETH-LAN). In addition, it controls display screens and acoustic call messages in accordance with stipulated priorities/ service (zone linking) within a system. It has flexible configuration options for types of call, groups, services, general announcements, display texts, device parameters, system language, etc. depending on customer requirements, via the server (PC) with a comfortable Windows GUI. It uses a maximum of 64 central control units with up to 250 logical groups (sub-groups). Networking is implemented via the ETH-LAN IP interface (data/audio) and the optional zone data bus POF (data/audio). It includes an integrated gateway function for forwarding data/audio signals from the upstream bus interface (ETH-LAN, zone data bus) to the corridor data bus. It supports the compatibility mode for existing system installations with the zone controllers 72660x; a firmware update of the basic systems installed may be required. A master control unit (in the case of Ethernet: without corridor data bus) is set up to communicate with the upstream server via ETH and to control the escalation of all system alerts within the entire system. It is prepared for future firmware updates subject to license and equipped with an SD card slot to enable the use of additional service features. It is installed centrally or decentrally (surface mount design) in environments pursuant to environmental category I. Project-specific planning of central equipment is required for more than 500 rooms.

Performance features

- Operation as a master/slave central control unit depending on address assignment/configuration
- Communication (data/audio) with additional control units via ETH-LAN and the POF zone data bus (max. 64)

Service functions:

- Software download for system components (if possible), firmware update, remote maintenance/SNMP function (with PC), commissioning the base unit
- SD card slot for future firmware or license updates
- Connection board for surface mounting
- Central and decentral installation
- Option of redundant power supply via secondary feed-in
- Local emergency operation if the system master control unit fails
- Sequential monitoring of the active components connected, additional control units in the overall system and PC communication pursuant to DIN VDE 0834
- 2 x relay contacts to alert to disruptions (NOC/NCC)
- Galvanic isolation from other SMCs by ETH-LAN or POF connection
- Status display via LEDs
- Flash for storing the system's data
- Max. number of SMCs: 64
- Max. number of (logical) groups: 250 (per system)

Safety features:

- Receipt of data in case of network failure pursuant to DIN VDE 0834 (UPS required)



Ward Management Controller (SMC), prepared for mounting in a system rack or in connection with the 19" front panel to be installed in a distribution cabinet. It is designed as a control unit for an organizational unit such as a ward or living area. It is a modular central control unit with two slots for the optional field bus cards (FBC). There is the option to provide power redundantly via a decentralized power supply installed in the ward or living area. It monitors and synchronizes all data traffic and intercom connections (conversations, announcements) within the organizational unit and coordinates communication with other central control units via IP communication (zone data bus or ETH-LAN). In addition, it controls display screens and acoustic call messages in accordance with stipulated priorities/service (zone linking) within a system. There are flexible configuration options for types of call, groups, services, general announcements, display texts, device parameters, system language, etc. depending on customer requirements, via the server (PC) with a comfortable Windows GUI. It uses a maximum of 64 central control units with up to 250 logical groups (sub-groups). Networking is implemented via the ETH-LAN IP interface (data/audio) and the optional zone data bus POF (data/audio). It has an integrated gateway function for forwarding data/audio signals from the upstream bus interface (ETH-LAN, zone data bus) to the corridor data bus. It supports the compatibility mode for existing system installations with the zone controllers 72660x; a firmware update of the basic systems installed may be required. A master control unit (in the case of ETH-LAN: without corridor data bus) is set up to communicate with the upstream server via ETH-LAN and to control the escalation of all system alerts within the entire system. It is prepared for future firmware updates subject to license and equipped with an SD card slot to enable the use of additional service features. It is installed centrally or decentrally (surface mount design) in environments pursuant to environmental category I. Project-specific planning of central equipment is required for more than 500 rooms.

Performance features

- Operation as a master/slave central control unit depending on address assignment/configuration
 - Communication (data/audio) with additional control units via ETH-LAN and the POF zone data bus (max. 64)
 - Option of redundant power supply via secondary feed-in
 - Local emergency operation if the system master control unit fails
 - Sequential monitoring of the active components connected, additional control units in the overall system and PC communication pursuant to DIN VDE 0834
 - 2 x relay contact to alert disruptions (NOC/NCC)
 - Galvanic isolation from other SMCs by ETH-LAN or POF connection
 - Status display via LEDs
 - Flash for storing the system's data
 - Max. number of SMCs 64
 - Max. number of (logical) groups: 250 (per system)
- Service functions:
- Software download for system components (if possible), firmware update, remote maintenance/SNMP function (with PC), commissioning the base unit
 - SD card slot for future firmware and license updates
 - Front panel for mounting in the system rack
 - Central and decentral installation

Safety features:

- Receipt of data in case of network failure pursuant to DIN VDE 0834 (UPS required)

72700C1

Field Bus Card (FBC) System 99plus



Plug-in board for the upstream Ward Management Controller (SMC) to manage a maximum of 127 active system components in the corridor data bus, such as room terminals, room electronic modules, information displays and other units. The corridor data bus of a field bus card can be segmented into up to six sub-groups. There is an option to feed in the Ward Management Controller's redundant power supply via a decentralized power supply installed in the ward or living area. There is an option to include a bus terminator to terminate the corridor data bus (data/audio). An additional repeater (data/audio) is required after 64 active system components. There is the option to update the firmware of active system components (providing it is supported by the units). It is prepared for future device functionality subject to license to enable the use of additional service features.

Performance features

- Plug-in board for SMC
- Connection terminals for the corridor data bus (data/audio)
- Connection terminals for the power supply
- Service socket for the configuration module (KFM)
- Communication interface to the active system components in the corridor data bus (data/audio)
- Length of corridor data bus: 500m (data/audio), max. 2500m (with repeaters)
- Corridor data bus repeater: max. four items (for data/audio respectively)
- Number of corridor data bus modules: 127 (required after 64 repeaters)
- Number of corridor data bus plus bed bus modules: 255

72700D1

Field Bus Card (FBC) System 95



Plug-in board for the upstream Ward Management Controller (SMC) to manage a maximum of 40 (50) active system components in the data bus, such as room terminals, room electronic modules, interface units and other units. The data bus of a field bus card can be segmented into up to six sub-groups. There is an option to feed in the Ward Management Controller's redundant power supply via a decentralized power supply installed in the ward or living area. An additional data amplifier (data/audio) is required after 400m. It is prepared for future device functionality subject to license to enable the use of additional service features. Compatibility checks must be conducted on existing system installations.

Performance features

- Plug-in board for SMC
- Connection terminals for data bus (data/audio)
- Connection terminals for the power supply
- Communication interface to the active system components in the data bus (data/audio)
- Length of data bus: 400m (data/audio), implemented as a loop or spur
- Data amplifiers: max. 2 items (for data/audio respectively)
- Number of corridor data bus users:
 - 40 (operating mode VDE 0834:2000-04)
 - 50 (operating mode VDE 0834:1993)

72700E1

Field Bus Card (FBC) POF-POF



Plug-in board for the upstream Ward Management Controller (SMC) as a communication interface to other active system components in the zone data bus such as zone controllers, Ward Management Controllers and additional units. The zone data bus of a field bus card is set up as a double loop circuit with an incoming and outgoing loop (SL/SR). Depending on the type of cable used, varying distances can be bridged. Automatic monitoring of the cabling in accordance with DIN VDE 0834 provides an option to feed in the Ward Management Controller's redundant power supply via a decentralized power supply installed in the ward or living area. Compatibility checks must be conducted when extending existing system installations.

Performance features

- Plug-in board for SMC
- Connection sockets for zone data bus SL, SR (data/audio)
- Connection terminals for the power supply
- Communication interface to the active system components in the zone data bus (data/audio)
- Length of zone data bus: 50m (POF fibers), 150m (HCS fibers), 1 km (FO fibers 50/125 μ)
- Number of users of the zone data bus: 75

72700Z1

Power Supply 24VDC, in accordance with EN 60601-1-1



Single-phase power supply (2A) for constant DC supply of the Ward Management Controller, fitted with a P1J plug. It is protected against short-circuits, overloads and power surges, with EN60601-1 approval for the healthcare sector B (e.g. intensive care).

72700Z2

19" System Rack for 7 SMCs of Version 72700B1



System rack for mounting a maximum of 7 Ward Management Controllers (SMC) in a 19" distribution cabinet. Supplied as a kit.

72700Z3

19" Front Panel for SMCs of Version 72700B1



Front panel with handles for mounting the Ward Management Controller (SMC) in a 19" distribution cabinet (2HE).

Note: Power supply units, UPS units and accessories are detailed in our main catalog – Download the PDF version from the "Service" area of www.ackermann-clino.de.



Performance features

- Recommended minimum configuration with the rack PC (19" technology):
- Rack housing for distribution cabinet (19")
- Main board with Celeron T3100 1.9GHz, Low Power
- RAM min. 4GB
- 2* hard drives (HDD) min. 250GB, RAID-1
- Super Multi DVD drive (incl. software)
- Software package for data backup
- VGA graphics card
- 3* RS232, 4* USB, 1* Firewire
- 2* RS422
- 3* LAN Ethernet (10/100/1000MBit)
- Mouse and keyboard
- Windows XP Professional (MUI)
- Basic configuration „Ackermann“
- Database management system
- Application software for Clino System 99plus

Rack PC (19") for installation in a distribution cabinet (19") as the central interface to the System 99plus and to external systems such as a DECT system, alarm detector system and IT. This high-quality unit is used for configuration and recording in the Clino System 99plus. It consists of a computer with keyboard, mouse, HDD with RAID-1 connection, DVD-CDR/RW and the system interfaces required (serial, LAN, USB). Use of a 230V AC (19") UPS module is recommended.

It is equipped with application software for the following functions:

- Configuration tool Clino System 99plus
- Allocation of room configuration
- Definition of nurse call system functions and parameters
- Setting up of call types, call type groups, call type enhancement
- Configuration of actuators for control of external systems (e.g. lights, blinds)
- Setting up radio and TV channels
- Service functions
- Database management system for data storage
- System management tools for system analysis
- Network functions for system access
- Freely configurable services (zone network/linkage)
- Assignment of time-defined duties
- Selection of call type groups for duties
- Definition of specific forwarding of messages between nurse call system zones
- Freely configurable announcement functions (general announcements)
- Selection of targets for general announcements
- Fault monitoring and fault reporting (in accordance with DIN VDE 0834)
- Graphic and tabular display of messages according to priority, call type and time of call
- Presence alert PR1 and PR2

- Call indication (normal call, WC call, doctor call, priority call, etc.)
- Fault warning (in accordance with DIN VDE 0834 Application Area II)
- Call answering (only in conjunction with a master station)
- Call cancellation (only in conjunction with a master station)
- Calling rooms (only in conjunction with a master station)
- General announcement in room or selected targets (only in conjunction with a master station)
- Input and administration of patient data including bed occupation (manual)
- Access control by user identification (if necessary)
- Data output on a connected printer

Optionally:

- Message transmission to a wireless message system (e.g. personal paging system - PPS - or telecommunications system -DECT-)
- Freely configurable pager addresses for messages from nurse call system groups
- Definition of the display format for the messages to be transmitted
- Setting up of different shifts (e.g. day, night shift)
- Assignment of repeat intervals, acoustic call signals, etc.

765M304

Server Accounting Systems 19" Technology

Performance features

- Recommended minimum configuration of the rack PC (19" technology):
- Rack housing for distribution cabinet (19")
- Barebone Superserver with INTEL Core I3 (min. 3GHz) CPU
- Min. 16GB 1066MHZ DDR3
- Gigabit Ethernet Controllers
- Hot-swap SATA 150GB
- One version of Windows 7 Ultimate 64Bit
- Basic configuration „Ackermann“
- Database management system
- Application software for the accounting system

Server accounting system for telephone, TV and internet services. Patient cards used in the system (ISO format) are managed via the accounting server. The system controls access to the respective user account in the accounting system. Rights are stored on the accounting server. ISO cards with contactless RFID technology (125 kHz) are issued to the patients via the pay stations and they are registered in the accounting system. The accounting server controls the patient's approval to use the available services. This unit integrates the pay stations and cash terminals into the system; they are networked via the ETH-LAN IP interface. The ISO card data are fed into the integrated patient handset. A license for 25 "iPH integrated patient handsets with a telephone function" is included.

It is equipped with application software for the following functions:

- Accounting configuration tool
- Definition of functions and parameters of the telephony and TV functions
- Setting up of pay stations, cash terminals
- Configuration of the numbers used
- Database management system for data storage

- System management tools for system analysis
- Assignment of fee structures for telephony, internet, TV
- A license package for 25 "iPH integrated patient handsets with a telephone function".

83WE190

Software License for the Accounting System

License for 25 "iPH integrated patient handsets with a telephone function" to extend the server's accounting system to cover telephone and TV services and internet usage.

74956L

19" TFT Data Monitor



19" data monitor (TFT device) to be connected to a computer or server.

Performance features

- 46 cm visible diagonal
- Graphical display up to 1280 x 1024 points

- Power management according to electronic medical records
- Plug-and-play pursuant to VESA
- Tilt-swivel base

79822A

Card reader for PC workstation



Card reader using RFID technology (125 kHz) for a PC workstation, equipped with a USB interface. It is used to allocate the respective patient account to the patient card with its individual parameters in the accounting system.

79810E

Pay Station for the Accounting System



Pay station with the option of issuing cards, upgrading the patient account and taking back cards. It controls the integrated industrial PC and is used for configuration and logging purposes. There is the option to set the maximum amount to be paid in, the coins which are accepted and other project-specific parameters. The respective patient account is allocated in the accounting system via the patient card with its individual parameters. The pay stations are operated in online mode, i.e. there is constant communication with the accounting server. A simple touch screen user interface ensures multilingual operation and a clear overview. The issue tray for coins and receipts is placed within easy reach and sight and can therefore also be used easily by wheelchair users. The pay station is housed in a powder-coated, stainless steel safe casing, fitted with a security lock. The pay station is mounted using a wall bracket. Coins are accepted by means of a N.O. contact, electronic coin checking and a coin filter to sort the inserted coins. It is fitted with three coin cassettes to issue coins (different sorts); two of these cassettes are incorporated into the coin circulation. A sophisticated security bill validator is also integrated to accept Euro bills (up to EUR 50). The motorized chip card reader issues and takes back patient cards, whereby cards taken back are not recirculated immediately for hygiene reasons. Receipts are created for patients by the fast printer for thermal paper (80mm wide) at a print speed of up to 150mm/sec.

Performance features

- Secure, stainless steel safe casing
- Issue and return at an ergonomic height
- Equipped for the disabled in accordance with DIN 24972
- Extremely comfortable to use
- Touch screen user interface
- Three coin cassettes
- Dispenser for patient cards
- Motorized chip card reader
- Swift receipt printer
- Uninterrupted power supply
- Integrated LAN interface
- Three-point lock via a bolt drive
- Drill-resistant clip-in cylinder

79809A1

Thermal Paper Roll for the Pay Station



Replacement paper roll in high-quality thermal paper for the pay station's thermal printer.

79821A

Patient Card for the Accounting System



ISO card for the patients using contactless RFID technology (125 kHz). It is used to gain access to the respective user account in the accounting system. Rights are stored on the accounting server. Cards are issued via the pay stations or at the PC workstation. The ISO card data are fed into the integrated patient handset.

79823A1

DSLAM 48 Port Annex A, Master Type



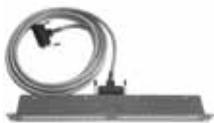
48 Port DSLAM to use existing telecommunications infrastructure (a/b or ISDN) for DSL technology. It provides up to 48 ADSL interfaces in connection with the DSL wall module at the point of care for a high level of data transmission and flexibility in the ward area. It has integrated splitters, the requisite DSL control electronics and wired network interfaces. It automatically recognizes 100/1000 Mbps interfaces for the network connections, while supporting QoS control. It is fitted with two plug-in GBIC slots in "Small" form factor (SFP) for the optional fiber optic connection to Gigabit Ethernet. It includes integrated safety features such as IEEE 802.1x port-based authentication and access control lists to ensure that only authorized devices/applications have access to the LAN. Temperature and overheating is monitored to ensure optimum functionality of the device.

Performance features

- Supports ADSL, ADSL2, ADSL2+ via POTS/ISDN
- Up to 48 ADSL2/2+ interfaces
- 2 x 100/1000 BASED TX
- 2 x GBE interfaces
- Integrated splitters
- Graphical WEB interface for configuration
- Monitoring of temperature and overheating
- RS-232 console

79823Z1

RJ21 – RJ21 Connectors Incl. Patchboard (24 RJ11 Ports)



RJ21 cable with patchboard to provide wiring for the IP DSLAM. It combines the individual cables of the existing telecommunications system with the patchboard of the IP DSLAM via RJ11 sockets.

79823Z2

RJ21 Telephone Connector to Open End



RJ21 cable to connect the IP DSLAM with the patchboard, in which the individual pairs of wires are already incorporated (typically in RJ11 sockets). It combines the individual cables of the existing telecommunications system with the IP DSLAM.

79823B1

GBIC Module, Multimode Type



GBIC Module AGM731F as a plug-in board for a standard SFP GBIG slot. A 1000Base-SX connection for multimode fiber-optics (FO) with Gigabit-speed smart switches and managed switches is provided.

Performance features

- Plug-in board for system switch
- SFP GBIC fiber module
- 1000BASE-SX Standard
- LC connector
- Supports 50 μm (length: 550m) and 62.5 μm (length: 260m)
- Multimode fiber (MMF) cable

79823F1

Multimode fiber SC-LC Sx



High-quality fiber optic multimode patch cable 50/125 μm , duplex, LC/PC to SC/PC, length 2m. It connects the GBIC module (SC) with a patch panel (LC).

Performance features

- 1000BASE standard
- SC/LC connector
- 50 μm multimode fiber (MMF) cable
- Fiber type: Multimode 50 μm
- Speed: 1000 Base SX
- Length: 2m
- Socket 1: LC
- Socket 2: SC



Gigabit Ethernet switch for maximum data transmission and flexibility in the backbone area. It includes a fully manageable “core” switch with 24 ports and automatic recognition of the 10/100/1000Mbps network interface for the wired connections; all connections are QoS controlled. It is fitted with four plug-in GBIC slots in “Small” form factor (SFP) for the optional fiber optic connection to Gigabit Ethernet. In addition, it is equipped with four high-speed slots to allow modular expansion for a 10-Gigabit Ethernet or a 24-Gigabit stacking connection. The layer 3 switch functionality provides reliable routing between VLAN and network segmentation, it is possible to configure a stack of up to eight units in a bi-directional loop with 48Gbps (one IP address). It includes integrated safety features such as IEEE 802.1x port-based authentication and access control lists to ensure that only authorized devices/applications have access to the LAN. Security management is provided via secure socket layer (SSLv3) for the web interface and secure shell (SSH) for command line entry. Several switches can be controlled using SNMPv3 of the ProSafe Network Management Software NMS100 (Option).

Performance features

- Manageable core switch
- Stack configuration possible (max. 8 switches)
- Forwarding mode: Store-and-forward
- High performance: 144Gbps; 107.1 Mpps
- IEEE 802.3i/u/ab/z/x/ae
- 10BASE-T
- 100BASE-TX/FX
- 1000BASE-T/X
- IEEE 802.3x Flow Control
- IEEE 802.3ae 10000BASE-X
- 24 RJ-45 10/100/1000 ports with auto uplink
- Four shared SFP ports for fiber-optic Gigabit interfaces
- Two built-in 10Gigabit SFP+ ports
- Two optional 10Gigabit module connections
- RS-232 console



Gigabit Ethernet switch for high level data transmission and flexibility in the ward area. It includes a controllable switch with 24 ports and automatic recognition of the 10/100/1000Mbps network interface for the wired connections; all connections are QoS controlled. It is fitted with four plug-in GBIC slots in “Small” form factor (SFP) for the optional fiber optic connection to Gigabit Ethernet. It can be configured to a stack of up to six units (one IP address). It includes integrated safety features such as IEEE 802.1x port-based authentication and access control lists to ensure that only authorized devices/applications have access to the LAN.

Performance features

- Stack configuration possible (max. 6 switches)
- Forwarding mode: Store-and-forward
- High performance: 48 Gbps
- IEEE 802.3u/ab/z/x
- 10BASE-T
- 100BASE-TX
- 1000BASE-T/X
- IEEE 802.3x Flow Control
- 24 RJ-45 10/100/1000 ports with auto uplink
- Four shared SFP ports for fiber-optic Gigabit interfaces
- Web-based configuration
- Backup/restoration (config.)
- Password access control
- Capable of firmware upgrade



The requisite call and control functions are provided via the Wall Module Smart. The patient terminal or alternatively a multifunctional terminal device can be connected by a system plug. Bedside speech (discrete/hands-free) is possible in connection with the integrated patient handset iPH with telephony service in order to communicate with the nursing staff. Services such as speech (VoETH), telephone functions (VoIP/SIP) and future value-added services are offered at the point of care via the DSL infrastructure. This DSL infrastructure also requires central control units. The Wall Module Smart is connected to a room controller by an individual call input line to identify the specific point of care. Up to two light sources and a TV can be controlled via separate control outputs. If the pre-defined load on the handset's connection cable is exceeded, the patient terminal's system plug detaches itself from the Wall Module Smart, in order to prevent destruction of mechanics.

Installation:

- Installation/mounting in a wall box suitable for ETH-LAN

Performance features

Equipped with:

- One system socket for the system plug, to enable connection of the patient terminal or other multifunctional terminal devices
- One ETH-LAN socket to connect an additional network device
- Galvanic isolation in accordance with DIN 60950, separation pursuant to EN 60601.1.1 must be implemented using appropriate protective measures

Inputs/outputs:

- TV control
- TV audio
- Two relay outputs

Functions:

- Nurse call initiation/cancellation
- Transmission of voice nurse calls, data, TV audio (bed data bus/ETH-LAN)
- Lighting control function
- TV control function
- Other configurable system functions



Integrated iPH patient handset with ergonomic shape, adapted to be simple and user-friendly. It has different control functions for the telephony, TV/radio functions, etc. and for billing services. Designed with a multi-line LC display including an illuminated background and an integrated RFID care reader, the patient handset enables patients to make calls, control device functions in their immediate area (light, blinds) as well as conduct simple voice communication with the nursing staff. The patient handset can be used as a fully-functional telephone. The patient terminal has an easy-to-clean surface and is ergonomic to hold thanks to the all-round rubber seal; the housing is coated with an anti-microbial substance to kill existing bacteria and prevent them from multiplying. The keyboard is fitted with color-coded function keys (TV, radio, telephone, service), additional keys (channel selection, volume, lighting buttons) and a clear telephone keyboard. The integrated speakers also act as a receiver for the TV audio; alternatively the audio signal can be transmitted via the headphone socket (3.5 mm jack plug). The data from the patient card are fed in and user-specific device functions activated via the RFID card reader (patient, alternatively staff). This enables the available services to be clearly assigned and facilitates billing of the telephone and TV functions and additional services. It is prepared for future firmware updates subject to license to enable the use of additional service features. The handset is placed in a purpose-built bracket which can be located either on the wall or on the bedside table.

Mechanical configuration:

- Plastic housing with antimicrobial surface, color RAL 9016
- Front call buttons with symbols
- Color-coded operational functions
- Coordinated touch-sensitive keypad with pressure point and illuminated background
- IP54 version
- All-round rubber seal protects against impact and is comfortable to handle
- Replaceable connection cable
- Replaceable housing

Performance features

- Graphic LC display to
- Display patient-relevant data
- Different languages
- (D/GB/F/I/ESP/NL/user-specific)
- Shortcut keys for the functions
- TV, radio, telephone, service
- Red call push button with LED reassurance lamp and orientation lamp in accordance with VDE 0834
- Lighting control
- Channel selection key for TV/radio
- Control, to turn it on, off and change channels
- Function keys to adjust the local audio volume
- Telephone keyboard 0-9, #, * and color-coded keys to start and end calls
- Control electronics for HMI (operation), integrated device functions and security-relevant services
- Telephone (VoIP) for operation on an extension, SIP-compatible contactless RFID card reader to read chip cards for the accounting and authentication functions (user, staff)
- And usage of services with user-specific rights
- Integrated microphone for intercom function (call system/telephony) in discrete or hands-free mode
- 3.5 mm jack plug to connect headphones
- System plug with an auto-release function

74137Z2

Connection cable for the Integrated Patient Handset iPH Tel., Typ 1

Connection cable for an iPH integrated patient handset with a telephone function. This version includes a system plug for a Wall Module Smart.

74137Z3

Hanging Mount for iPH Tel. Integrated Patient Handset



Bracket for the patient handset to place the device either on the wall or on the bedside table. The device is coated with an anti-microbial substance to kill existing bacteria and prevent them from multiplying.

74137Z6

Replacement Housing for iPH Tel. Integrated Patient Handset



Replacement housing for an iPH integrated patient handset with a telephone function. The device is coated with an anti-microbial substance to kill existing bacteria and prevent them from multiplying.

89760B

Headphones with 3.5mm Jack Plug



Headphones for patient handset and TV/radio with volume control.

Performance features

- One adjustable strap
- Two foam-padded auricles
- 1.8m connection cable

Your specialists:

Novar GmbH a Honeywell Company
Dieselstraße 2
41469 Neuss, Germany
Tel.: +49 2137-17-0 (Administration)
Tel.: +49 2137-17-600 (Customer Service)
Fax: +49 2137-17-286
Internet: www.ackermann-clino.com
E-Mail: info@ackermann-clino.com

Honeywell Life Safety Austria GmbH
Lemböckgasse 49
1230 Vienna, Austria
Tel.: +43 1 600 6030
Fax: +43 1 600 6030-900
Internet: www.hls-austria.at
E-Mail: hls-austria@honeywell.com

Part No. D800404.G0
November 2011
Subject to change without notice.
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