

# INTEGRUS System



INTEGRUS is a system for wireless distribution of audio signals via infrared radiation. It can be used in a simultaneous interpretation system for international conferences where multiple languages are used. The INT-TXO Transmitter OMNEO allows INTEGRUS to interact with the DICENTIS Conference System. In combination with the INT-L1A1, it enables a total of 31 languages and 1 floor.

## System overview

### Advanced digital technology

The INTEGRUS Wireless language distribution system incorporates unique, specially developed Bosch IR-Digital technology that is characterized by a number of features:

- INTEGRUS conforms to IEC 61603, part 7, the industry standard for digital infrared transmission for language distribution.
- The use of the 2-8 MHz frequency band eliminates disturbance from all types of lighting systems.
- Error correction by means of a Reed Solomon coder, plus the threshold for bit error ratio, ensures a high audio quality.
- The digital transmission protocol allows to send for additional information, for example the synchronization of the number of channels in use.
- The application of digital technology results in a very high sound quality with a signal-to-noise ratio of 80 dB.

### Characteristics of infrared distribution

Infrared radiation is an ideal medium for audio distribution. Invisible to the human eye, it can carry multiple channels over relatively large distances, each with a separate language. Above all, as a wireless

- ▶ Excellent audio quality
- ▶ Advanced digital technology
- ▶ Infrared for freedom of movement for participants
- ▶ Simultaneous interpretation
- ▶ User-friendly channel selection

distribution system, conference participants can receive interpretations without being physically connected to the system.

### No interference from lighting systems

One of the limitations of traditional infrared language distribution systems was interference from lighting. The problem was particularly acute with newer (fluorescent) lighting systems, which operate at higher frequencies and therefore cause more interference. The INTEGRUS system has completely solved this problem by using a much higher frequency band for audio distribution (2 – 8 MHz). Freedom from interference from all types of venue lighting brings two major advantages:

- Audio quality is greatly improved.
- Systems can be used much more easily on a rental basis, because they will be compatible with all types of venue lighting.



**Audio quality**

The INTEGRUS system offers greatly improved audio quality. Better compression techniques and a higher signal-to-noise ratio mean that the received signal is much clearer. There is no interference from lighting systems. Greater intelligibility makes the system less tiring to use over extended periods. Participants can maintain their concentration more easily during a long conference session.

**Number of channels**

INTEGRUS gives the user real flexibility in choosing the number of required channels. INTEGRUS can provide a maximum of 32 audio channels, 31 different interpretations plus the floor. Which is more than enough to accommodate even the largest international conferences.

**Installation and maintenance of the system**

The INTEGRUS system is easy to install. The installation time is largely determined by the time required to position and to align the radiators. The connection of the transmitters is straightforward and quick. The language settings configured in the DICENTIS system are automatically copied by the INT-TXO. All information regarding the installation, the configuration and the system status are available in the INTEGRUS settings page.

The circuitry in the transmitter and the matching circuitry in the radiators monitor effectively the radiators. The status of the radiators is indicated on the transmitter display and by the LEDs on each radiator. The system is also easy to maintain. Maintenance of the pocket receivers generally involves recharging or replacing the used batteries. Once installed, the system can easily be extended to accommodate more conference participants by adding the required number of extra pocket receivers. The basic system structure will remain the same.

**Testing coverage**

The INTEGRUS pocket receivers have an ingenious feature, which allows installers to test the coverage of radiators without the need for measuring equipment. Simply by walking throughout the venue with a pocket receiver in measuring mode, it is possible to check the coverage at every point. This makes it easy to see whether extra radiators are required or if the positioning of the existing ones should be altered.

**Integrated charging electronics**

A breakthrough in technology has made receiver charging more reliable than ever. The process is regulated from the INTEGRUS system IC. In addition, each receiver has integrated electronics to allow it to manage its own charging process. This ensures optimum charging performance and maximum battery lifetime.

**Connection to the DICENTIS Conference System**

The INT-TXO Transmitter OMNEO connects the INTEGRUS system to the DICENTIS Conference System to enable wireless language distribution. The

transmitter has four channels out of the box (0-3). This number can be extended with a maximum of 28 INT-L1A1 licenses for a total of 31 languages plus the floor.

**Functions****Simultaneous interpretation**

For international conferences with multiple languages, it is of utmost importance that all participants understand what is being said. As such, a system that enables interpreters to interpret simultaneously the speaker's language is almost indispensable. The interpretations are distributed throughout the conference venue. Participants can select their language of choice and listen to it through headphones.

**Infrared distribution**

The most effective method of distributing the interpretations is by using an infrared language distribution system. Infrared means wireless, so participants have total freedom of movement. Infrared means information integrity, because distributed signals cannot pass beyond the conference hall. And now, with the Bosch INTEGRUS system, infrared means better than ever audio quality, with no interference from hall lighting.

In simple terms, an infrared distribution system consists of a transmitter, one or more radiators and a number of pocket receivers. Various accessories are also available, such as headphones, cables and battery chargers.

The transmitter is the central element in the INTEGRUS system. The INT-TXO accepts inputs from the DICENTIS system and modulates these signals on to carrier waves. It then transmits the waves to radiators located elsewhere in the room. The output of the radiators is intensity-modulated infrared radiation. Each participant is supplied with a pocket receiver. In turn, the pocket receiver has a lens to collect the infrared signal and direct it to a sensor. These signals are then decoded back into interpretation languages. Participants use a channel selector to choose their preferred language and it passes to the participants' headphones.

**Freedom of movement for the participants**

With an infrared system, participants have great freedom in movement throughout the conference room. As the interpretations are transmitted through the air, there is no physical connection to the system. The only limitations are the walls of the venue. The pocket receivers used by participants to pick up interpretations are lightweight, portable and unobtrusive. They can be easily slipped into a shirt or a jacket pocket.



**Conference hall privacy**

Conferences can often involve discussion of sensitive information, where it is important that any audio distribution does not compromise security. Unframed radiation is unable to pass through opaque structures such as walls. The conference venue acts as a barrier to stop infrared radiation from escaping and being overheard.



**Language distribution in adjacent halls**

Infrared systems are ideally-suited for conference centers with a number of separate halls. Since walls are opaque to infrared radiation, there is no interference between separate conferences.

**User-friendly channel selection**

The INTEGRUS pocket receivers offer the user the exact amount of channels available. The participants no longer have to scroll through unused channels before reaching the required signal. All pocket receivers in the system update automatically if the number of available channels changes.

**Room coupling**

For distributing interpretations to multiple rooms, the transmitter has a Master/Slave operating mode. Separate slave transmitters can be located in the other rooms, providing exactly the same functionality as the master transmitter and providing local outputs for radiators. Multiple transmitters remove the need to connect the radiators required for the additional rooms to only one transmitter. The amount of wiring required is reduced and the risk of capacity overload disappears.

**Complete integration**

INTEGRUS integrates seamlessly with the DICENTIS Conference system. The Transmitter OMNEO and the 1 Additional language license allow for a maximum 31 different languages, plus floor.



**Music distribution and hearing assistance**

INTEGRUS offers more than just language (interpretation) distribution. The flexibility and the high audio quality of the system also make it suitable for:

- Music distribution: In places as diverse as fitness centers and factories, it can provide a choice of music for listeners in locations throughout the premises.
- High-quality audio distribution: Multi-lingual cinemas can offer different language soundtracks in the same hall.
- Hearing assistance: Helps the hard-of-hearing in places like theaters and other public buildings.
- Concert halls and life theaters: Public venues can distribute the amplified sound in high quality to the musicians on stage without interference or risk of feedback.
- Distribution of instructions: TV studios can use the system to distribute instructions from the control gallery to the cameramen without RF interference.

- Tour guides: Canal boats and museums can offer their customers the tour information in their own language with high audio quality.
- Musicians on stage: The system provides the audio required for performances.
- Interpretation schools: It is possible to distribute the floor and the interpretation on, respectively, the left and right channel for listening to simultaneously to both.

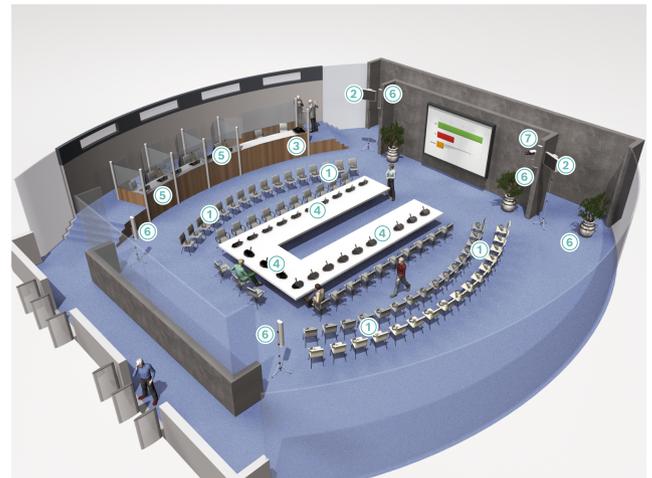
**Installation/configuration notes**

**Example 1**



1	INTEGRUS Pocket Receiver with headphone
2	INTEGRUS Radiator
3	DICENTIS Discussion device with touchscreen
4	DICENTIS Interpreter desks
5	Microphone
6	Line Array Loudspeakers

**Example 2**



1	INTEGRUS Pocket Receiver with headphone
2	INTEGRUS Radiator
3	INTEGRUS OMNEO Transmitter
4	DICENTIS Discussion device with touchscreen
5	DICENTIS Interpreter desks
6	Line Array Loudspeakers
7	Camera System

**Technical specifications**

Refer to individual product datasheets for details on technical specifications.

**Ordering information**

**LBB4511/00 Radiator for medium size area**  
 Integrus medium-power radiator to cover up to 1300 m<sup>2</sup> (13993 ft<sup>2</sup>).  
 Order number **LBB4511/00 | F.01U.074.362**

**LBB4512/00 Radiator for large size area**  
 Integrus high-power radiator to cover up to 2600 m<sup>2</sup> (27986 ft<sup>2</sup>).  
 Order number **LBB4512/00 | F.01U.074.363**

**INT-TXO Transmitter OMNEO**  
 Integrus 4-channel transmitter.  
 Order number **INT-TXO | F.01U.351.763**

**DCNM-IDESK Interpreter desk**  
 Single-user interpreter desk  
 Order number **DCNM-IDESK | F.01U.314.659**

**DCNM-IDESKVID Interpreter desk with video output**  
 Single-user interpreter desk with video output  
 Order number **DCNM-IDESKVID | F.01U.326.553**

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## Software Options

### INT-L1AL 1 Additional language license

License to add one language channel to INT-TXO.  
Order number **INT-L1AL | F.01U.406.605**

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## Services

### EWE-DCNIDE-IW 12 mths wrty ext Interpreter Desk

12 months warranty extension  
Order number **EWE-DCNIDE-IW | F.01U.348.765**

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### EWE-INTRAD-IW 12 mths wrty ext Integrus Radiator

12 months warranty extension  
Order number **EWE-INTRAD-IW | F.01U.348.736**

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### EWE-INTTXO-IW 12 mths wrty ext Transmitter OMNEO

12 months warranty extension  
Order number **EWE-INTTXO-IW | F.01U.406.935**

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#### Represented by:

##### Europe, Middle East, Africa:

Bosch Security Systems B.V.  
P.O. Box 80002  
5600 JB Eindhoven, The Netherlands  
Phone: + 31 40 2577 284  
[www.boschsecurity.com/xc/en/contact/](http://www.boschsecurity.com/xc/en/contact/)  
[www.boschsecurity.com](http://www.boschsecurity.com)

##### Germany:

Bosch Sicherheitssysteme GmbH  
Robert-Bosch-Ring 5  
85630 Grasbrunn  
Tel.: +49 (0)89 6290 0  
Fax: +49 (0)89 6290 1020  
[de.securitysystems@bosch.com](mailto:de.securitysystems@bosch.com)  
[www.boschsecurity.com](http://www.boschsecurity.com)

##### North America:

Bosch Security Systems, LLC  
130 Perinton Parkway  
Fairport, New York, 14450, USA  
Phone: +1 800 289 0096  
Fax: +1 585 223 9180  
[onlinehelp@us.bosch.com](mailto:onlinehelp@us.bosch.com)  
[www.boschsecurity.com](http://www.boschsecurity.com)

##### Asia-Pacific:

Robert Bosch (SEA) Pte Ltd, Security Systems  
11 Bishan Street 21  
Singapore 573943  
Phone: +65 6571 2808  
Fax: +65 6571 2699  
[www.boschsecurity.com/xc/en/contact/](http://www.boschsecurity.com/xc/en/contact/)  
[www.boschsecurity.com](http://www.boschsecurity.com)