SPINNER || MNCS® – In-Building Solutions

High Frequency Performance Worldwide
www.spinner-group.com
Today people need:
24/7 availability and high quality of wireless voice and data services, also in buildings

Without In-Building Solution:
- poor coverage
- low data rates

With In-Building Solution:
- excellent coverage
- high data rates

Why are In-Building Solutions becoming more important?
- Meanwhile 75% of data traffic is originated indoors
- Landline replacement by mobile devices
- Wired broadband replacement by radio technologies
- No network coverage from outside due to strong RF signal attenuation by walls and coated windows
- Growing capacity demand by smartphones, tablets, data cards
- Overloading of cell towers
SPINNER MNCS® – In-Building Solutions
We provide outstanding technology for complex applications and various types of venues

We enable our customers to ensure indoor coverage for complex networks. Multi-carrier and multi-operator systems are our core competence. Offering our support and experience worldwide.

Who are our customers:

- Airports
- Malls
- Mobile Network Operators
- Integrators
- Installers
- Original Equipment Manufacturer
- Building Owners
- Architects and Planning Engineers
- Hotels
- Enterprises
- Real Estate Companies
- Hospitals
- Railway Companies
- Public Transport Operators
- Exhibition Centres
- Sports and Event Arena Operators
SPINNER MNCS® – Combiner
Excellent for flexible broadband multi-operator connections

SPINNER provides the appropriate solution for your requirements. Various mounting/housing options are available. Your priorities determine the solution SPINNER provides, whether that be technical performance, flexibility, installation limitations, etc.

SPINNER DAS Components

19" modular combiner factory design
Compact combiner in customized 19" rack
Combining plate for wall or ceiling mounting
Universal combining box
**SPINNER MNCS® – DAS components**

**Loads & Attenuators**
- Absorption or attenuation of RF energy
- Frequency range up to 6 GHz
- Low intermodulation
- N, 7-16 connectors

**Symmetric Divider – Splitter**
- Splitting up signal in two or more equal shares
- Frequency range from 330 MHz up to 2700 MHz
- 2 to 4 outputs
- N, 7-16 connectors

**Unsymmetric Divider – Tapper**
- Splitting up signal in two pre-defined shares
- Frequency range from 174 MHz up to 2700 MHz
- 2 outputs
- N, 7-16 connectors

**Feeder & Jumper Cables**
- Easy assembly
- Low insertion loss
- Outstanding VSWR & PIM values
- Excellent long term performance

**Coaxial Connectors**
- Easy assembly on site
- Low intermodulation
- Low VSWR
- Suitable for standard RF cables of all manufactures

**No power consumption**
- No waste of energy
- Green technology
- Environment protection
- No cooling required

**Installation effort**
- Factory design
- Factory mounted & tested
- 19” standard module design

**Customer benefits**
- No configuration effort on site
- Very short downtimes
- Fast & easy installation
- Flexible & upgradable
- Future proof
- Sustainable

**Customer benefits**
- Excellent network coverage
- Less call drops
- Reduced churn rate
- High data rates

**High technical performance**
- Low insertion loss
- High isolation
- Low PIM

**Overall cost saving**
- Low investment
- Low operation costs
- No maintenance
- No operating system
- Shared infrastructure costs

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Hamburg is the largest international airport in Northern Germany. Almost 14 million passengers and more than 160,000 flights per year make it the fifth largest airport in Germany. Approximately 70 airlines offer services connecting Hamburg to around 120 destinations worldwide.

SPINNER supplied the combining systems for 4 mobile network operators in order to enhance the wireless coverage. The task was complicated as it involved routing twenty UMTS, twelve GSM1800 and eight GSM900 sectors to 13 antenna sites in line with the local technical requirements.
In the megacities around the equator, a large part of leisure time is spent inside air-conditioned building complexes. A reliable mobile network provision and internet access are therefore important conditions for the success of such facilities.

A leading operator of large shopping centres has used SPINNER MNCS® combiners for the mobile network supply of his properties for years. Combiners are therefore used to provide passive antenna distribution systems (DAS) with 13 different mobile network signals.

In Jakarta alone, more than 50 malls have already been equipped with this type of system.

A perfect example of this is the Kuningan Ambassador Mall which includes 17,746 square metres of sales space on seven floors and a 32 floor apartment building. This mall was equipped with more than 120 DAS antennas and the mobile network signals of all Indonesian mobile network operators.

In addition, more than seven kilometres of high-frequency cables were also laid in the building. The system has functioned perfectly and to the full satisfaction of its users for years, even under extreme climatic conditions.