

## Home solutions – Residential Cabling



Home wiring, communication technology for voice and data, CATV and SAT, multimedia and home automation.



Convincing cabling solutions

# The right decision for the future

## PACE SETTER

**We are helping to fulfill a dream of mankind: to communicate and exchange information in an unrestricted fashion. We have taken on the role of pace setter in the development and manufacturing of passive cabling solutions for communication networks.**

Reichle & De-Massari AG (R&M) is an innovative and independent family business with over 40 years of experience in the information and communication technology market. R&M focuses on Layer 1 connectivity products. Our systems are built to match the speed of information technology and meet the demands of the future.

The unlimited flexibility of a medium size family business with worldwide operations assures our advantage in technology and quality – a competition advantage offering our customers direct added value. R&M has earned the reputation of a leader in quality and technology with its outstanding products. All business processes are ISO 9001:2000 certified.

The ratio of R&D investment to total sales indicates innovative strength. R&M annually allocates approximately

10 percent of its sales to research and development. Today, R&M achieves 35 percent of its sales volume with products, which have been on the market for less than three years. The company holds 80 patents. Development is focused on concrete new customer requirements.

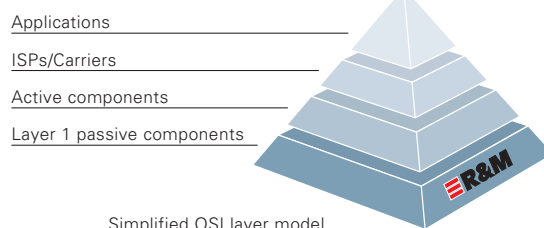
Our particular experience and competence is in the manufacturing of connection and distribution technology for copper and optical fiber networks. Based on these technologies, R&M specializes in four business segments: carrier, enterprise, industrial and residential cabling.

With strategic partnerships and cooperations, we create custom-tailored complete solutions for data networks. Together with first class partners from Layers 1-4 we assure their evaluation and realization.

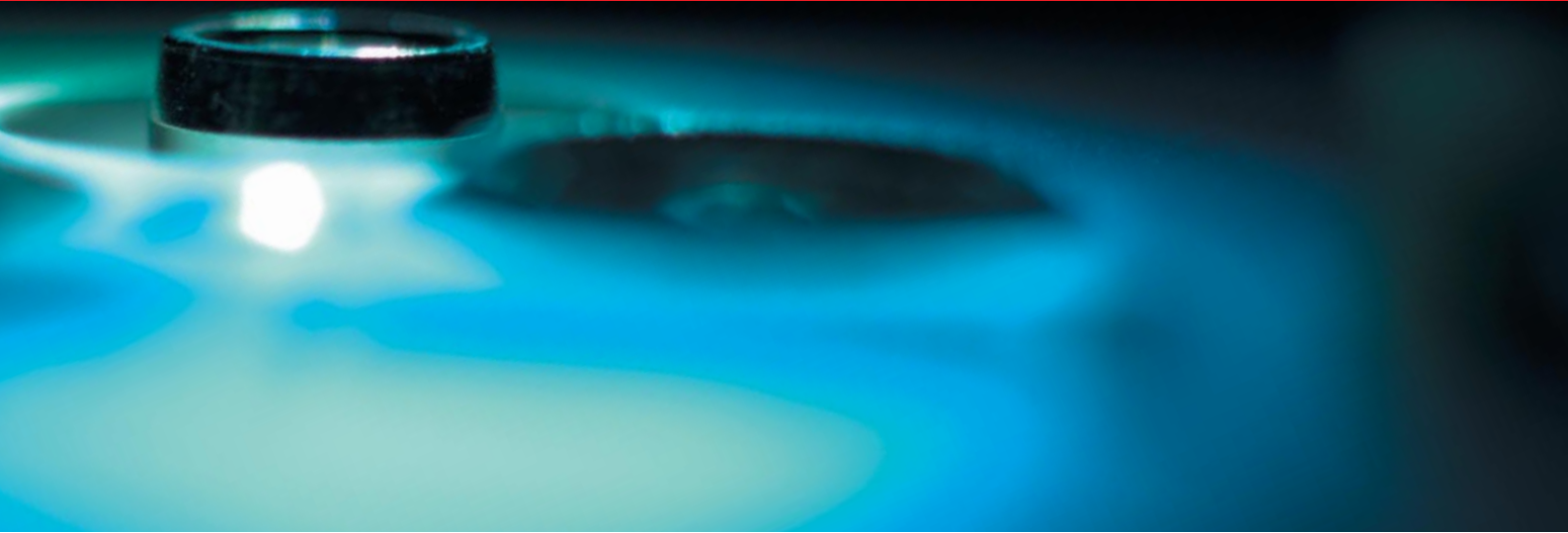
For detailed information please contact our headquarters or one of our R&M partners near you.

### Our vision:

We want to be Number 1 for Layer 1 in specific markets.



Simplified OSI layer model



### **DIGITAL LIFESTYLE – MORE THAN COMPUTER AND MULTIMEDIA**

The media utilization in private residences is increasing in a lasting manner. Already 40 to 60 percent of households in Western Europe – depending on the region – have a computer. The portion of broadband Internet connections of all networked households will have reached 30 percent in Europe in the year 2008.

The networking of residential spaces extends well beyond telecommunications, Internet, broadcasting and entertainment. Soon, refrigerator, stove, alarm systems and the entire home automation are expected to be online. Washing machines with Internet connection and interactive televisions are already a reality.

This technology expresses an attitude: digital lifestyle. This includes individuality, convenience and a multitude of options. Private customers and consumers desire:

- more capacity and bandwidth everywhere
- optional use of various media
- free choice of access systems
- availability of the services at any time
- networking of all kinds of devices
- flexible locations and applications
- convenience, security, easy operation
- esthetics and design instead of cable clutter

### **MORE DEMANDING CABLING REQUIREMENTS IN RESIDENTIAL SPACES**

The commonly known cabling solutions can no longer cover these market needs. Today, installations must be viewed in a more comprehensive way based on the media and communications desires. They must allow entire residential spaces to be networked quickly and easily. A multimedia residential, entertainment or experience environment is envisioned. This can be implemented with Residential Cabling.

Our solutions are distinguished by clearly arranged structure, great installation convenience as well as protection of the investments made.

### **A MARKET WITH POTENTIAL**

R&M has recognized the need, which results from the trend for networking in the home environment. Residential Cabling is a market with great development potential and is defined as a strategic business segment. As an R&M partner you profit from this potential and the joint market development.



# Networked residential spaces

## NEW NEEDS

**Take a moment to look back! Nobody had a private Internet connection ten years ago. Today, the desire is to use the computer for games, stock-exchange information and news in every room and to surf at high speed in the home office and to control home automation.**

### **RESIDENTIAL CABLING – CABLING FOR IMPROVED LIVING**

The need of people for a pleasant and more and more comfortable home environment also is waiting to be fulfilled in the multimedia and communications age. The task comprises the designing of cabling in the private living space in a multifunctional, flexible, operation-friendly and guaranteed-for-the-future fashion, making it available everywhere and avoiding health impairments.

### **OPPORTUNITIES THROUGH DIVERSITY OF THE TARGET MARKETS AND APPLICATIONS**

Residential Cabling represents more than cabling of homes. The specific opportunities are found in the diversity of target markets and applications. It is here where the demand occurs:

- upscale residential market
- gated communities, housing estates
- home office
- hotels, resorts
- residential establishments and nursing homes
- hospitals, clinics, medical offices
- health and social services
- training and conference rooms
- cruise ships, yachts
- fitness, sports facilities

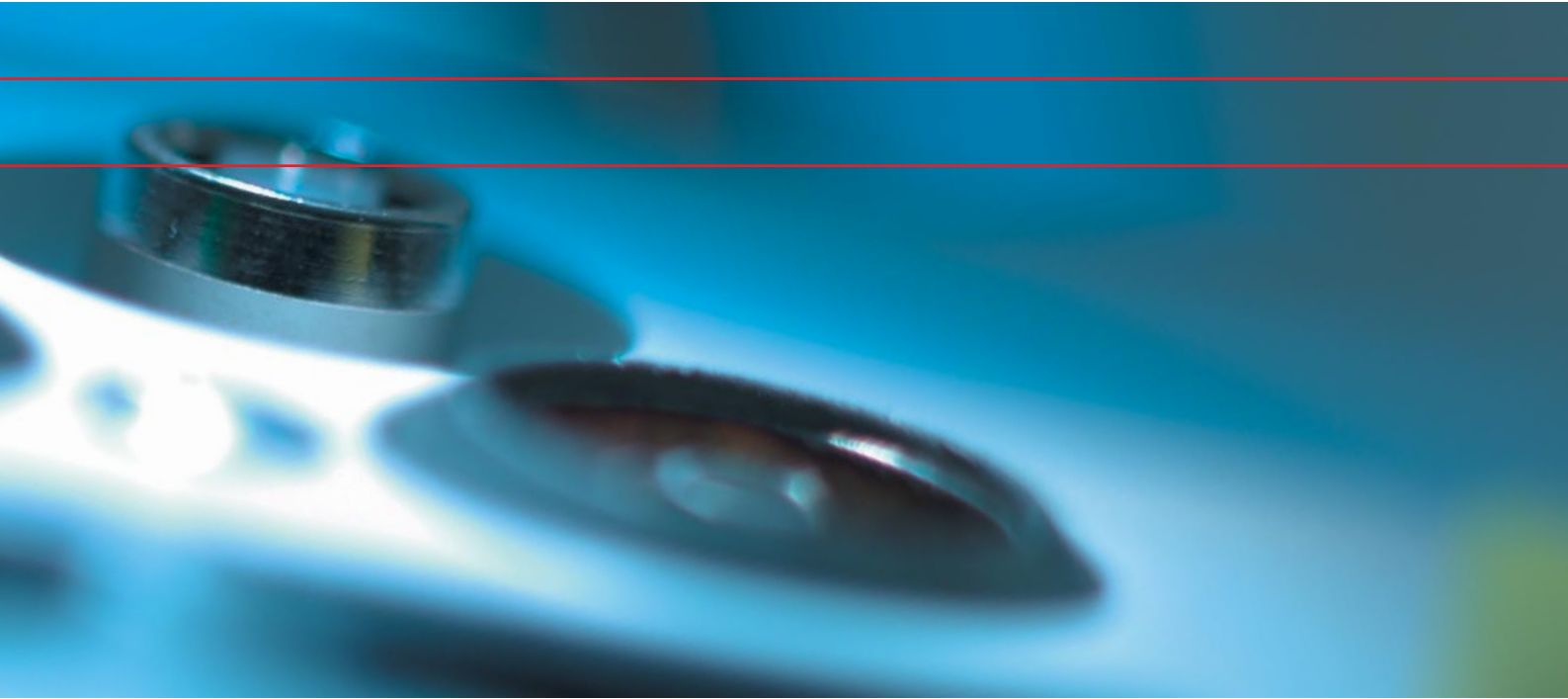
An abundance of applications meet up in these sectors or are demanded by the end customers. Examples are:

- analog/digital telecommunications
- Internet via ISDN, xDSL (ADSL, HDSL)
- PC network, Ethernet, POF (Plastic Optical Fiber – RCC45®)
- home office network, VPN (Virtual Private Network)
- video on demand, videoconferencing
- CATV (cable TV), satellite, radio, sound (home surround sound/home cinema)
- networking of game consoles (multimedia)
- networking of WLAN access points
- facility management; home automation and security technology, remote access and monitoring



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### **STRUCTURED CABLING IN THE LIVING SPACE**

A unique concept of structured cabling for living spaces is the result of our product development. It integrates all network accesses, media connections and communications possibilities and consolidates them in every room.

Three important components suffice for the implementation of this concept:

- central communications distributor
- star cabling
- multimedia outlets in the rooms

The product line corresponds to the standards of universal building cabling (ISO 11801 and EN 50173). It offers exclusive installation advantages.

### **EASY HANDLING, QUICK INSTALLATION**

The communication distributor has standardized mounting dimensions and can be accommodated in hallways or auxiliary rooms. Passively, the box contains ISDN and POTS distributors, an RJ45 patch panel, a coaxial splitter and a multi-plug.

It can be equipped without tools with NT, data, CATV and DSL modems, router, switch and hub.

The star-like installation provides additional advantages such as the quick mounting on top of empty tubes, easy troubleshooting and level calculation.

The multimedia outlet is a cornerstone in building cabling. It contains five interfaces and corresponds to the standardized mounting dimensions. Thus, for the first time it is possible to make all communications services available via a single outlet. The modular inserts can be adapted to individual needs or applications. A tangential cable entry simplifies the installation. With the use of novel terminal clamps every coaxial cable can be contacted without tools. The installer saves valuable time.

### **ADVANTAGES FOR RESIDENTS AND REAL-ESTATE CONTRACTORS**

The R&M concept of structured cabling in the residential environment offers users and real-estate contractors numerous advantages and options:

- distributor and outlet are extremely operation-friendly, so that versed lay people can quickly establish their private network themselves
- residents obtain complete freedom of choice and utilize the network according to the principle of Plug & Play

- the system is open to new technologies and thus guaranteed for the future
- frequently, extension cords become obsolete, esthetics and security maintain priority
- quality, benefit and value of the real estate are increased.



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For clearly arranged installations: the central communication distributor

# Unique concept

## PROFESSIONAL SOLUTIONS

**The market needs are obvious. The technical multimedia cabling demands in the residential environment are enormous. Professional product development is the next step. R&M has developed a unique concept of structured cabling for residential spaces.**

### R&M HOME WIRING CONCEPT WITH THE MULTIMEDIA OUTLET AND A COMMUNICATIONS DISTRIBUTOR

With the new multimedia outlet from R&M, structured cabling, adapted to the special needs, is possible for the first time also for residential environments. Via a central communications distributor, which accommodates all active (NT, HUB, CATV modem, ADSL modem, router, etc.) and passive components, star-like multimedia outlets are developed. Some of the features of the new R&M home wiring concept are an optimal price/performance ratio, quick and easy installation, expansion possible at any time and absolute future orientation.

### R&M MEETS INTERNATIONAL STANDARDS

The new R&M home wiring concept meets the current standards according to EN 50173 and all relevant standards of communications technology.

### NOT ONLY FOR THE HOME

The new R&M multimedia outlet can be used for new buildings as well as for expansion of existing installations. In addition to the private home there are other suitable installation possibilities, such as hospitals, residential establishments, hotels and restaurants, in brief, all businesses and establishments with a comprehensive multimedia need. The multimedia outlets are appropriate for applications in the area of CATV (cable

television), satellite and terrestrial receiver facilities. The multimedia outlet can be expanded with various communications applications thanks to the modular interface. The multimedia outlet fits optimally in the new home wiring concept from R&M and thus combines practically all communication connections in a single outlet. It also can be used for existing installations without any problems and allows upgrading of existing installations.

### PERFORMANCE FEATURES

- individual and loop-through outlets
- complete product line
- modular, can be configured with RJ45 connection modules (inserts)
- upgrading with modular inserts also possible subsequently
- patented, rational, secure and screw-less connection technology with "Pop-up Screw Terminal"
- thanks to novel, tangential cable entry of the coaxial cable, the minimum bending radii can be maintained without any problem
- separate connection for incoming and outgoing coaxial cable
- mini-coax up to standard cable can be inserted without any problems
- outstanding electrical characteristics
- complies with the highest European standard (EN 50083 – shielding class A)
- accepted by renowned international carriers
- installation depth – only 23 mm

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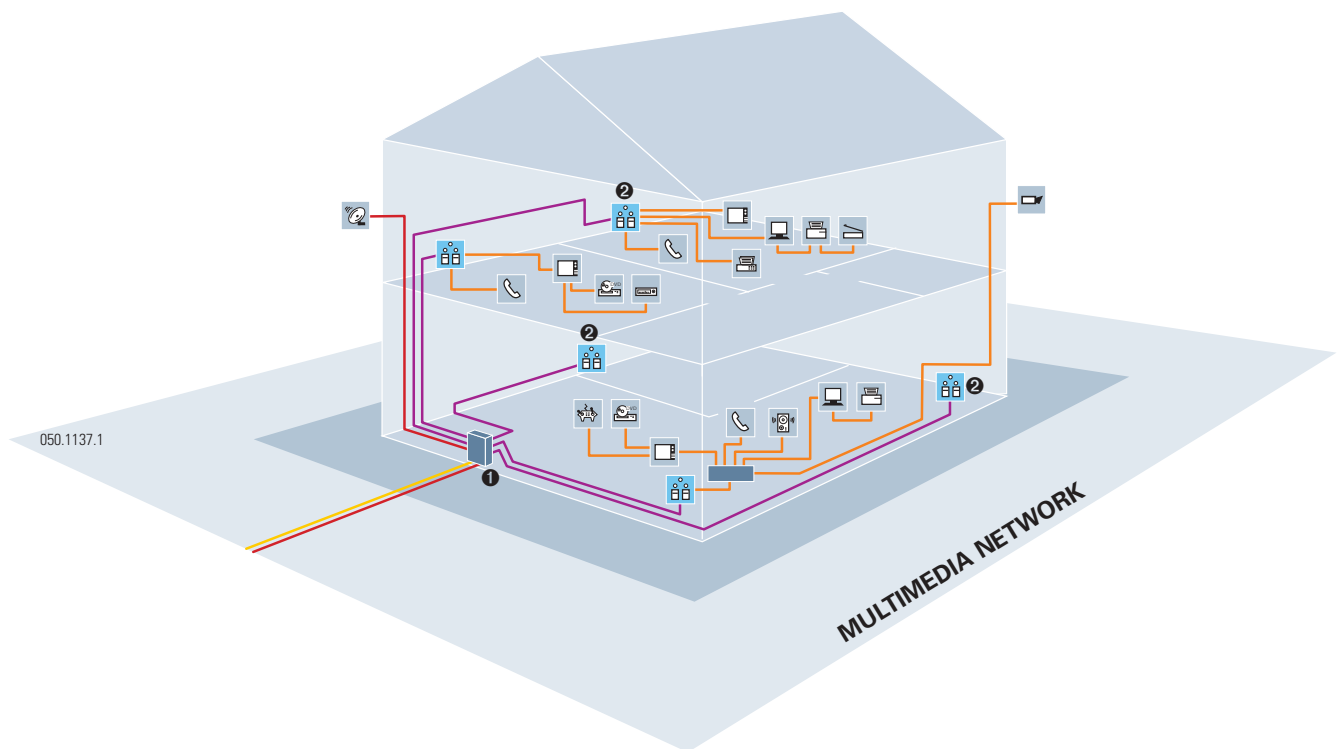
### Mechanical data (all multimedia outlets)

Terminal range for the inner-conductor of the coaxial cable:  $\varnothing$  0.5–1.3 mm  
Overall coaxial cable diameter:  $\varnothing$  4.2–7.5 mm





## INSTALLATION WITH THE FUTURE IN MIND



### ❶ Central distributor

With patch panel 21 x RJ45 for covering up to ten multimedia outlets. CATV distributor as well as active devices (ISDN, NT, splitter, hub, switch, router, etc.) can be easily integrated.

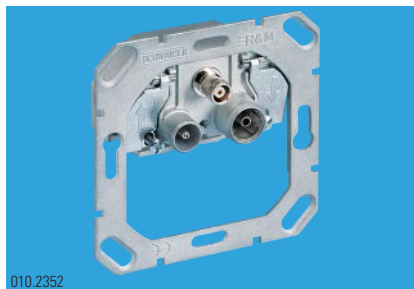
### ❷ Multimedia outlets

3 coaxial connector sockets allow the connection of radio, TV and CATV setup box or modem. In addition, the RJ45 connection points permit the connection of an Ethernet network and a telephone (analog or digital).

# The Performers

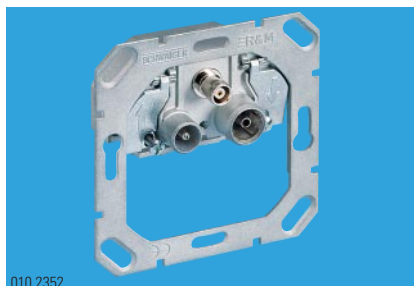
## AN OUTLET FOR THE FUTURE

With time, living and working requirements change, new technological developments appear more quickly and workplaces are increasingly moved into the private sphere. Therefore, it is tremendously important that the installations and cabling are cleverly planned, not only regarding costs, but also in particular with a view to the future, possible applications.



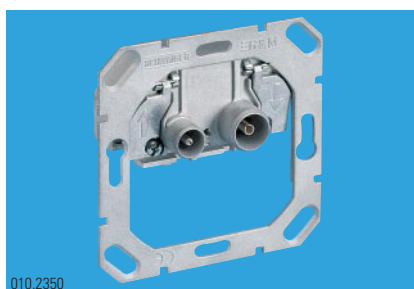
**Broadband modem outlets, 30 MHz**  
R/TV connections in IEC technology. With MiniDat socket for cable modem (complete with ®Wisi WIC-LIC). Downward capable, loop-through frequency range 47–862 MHz, feedback channel 5–30 MHz

Individual outlet <sup>1)</sup> 4 dB <sup>2)</sup> n.a. DAT30M-04  
Loop-through outlet <sup>1)</sup> 11 dB <sup>2)</sup> 4.5 db DAT30M-11  
Loop-through outlet <sup>1)</sup> 15 dB <sup>2)</sup> 2.4 db DAT30M-15  
Loop-through outlet <sup>1)</sup> 19 dB <sup>2)</sup> 2.0 db DAT30M-19  
Loop-through outlet <sup>1)</sup> 23 dB <sup>2)</sup> 2.0 db DAT30M-23



**Broadband modem outlets, 65 MHz**  
R/TV connections in IEC technology. With MiniDat socket for cable modem (complete with ®Wisi WIC-LIC). Downward capable, loop-through frequency range 87–862 MHz, feedback channel 5–65 MHz

Individual outlet <sup>1)</sup> 4 dB <sup>2)</sup> n.a. DAT65M-04  
Loop-through outlet <sup>1)</sup> 11 dB <sup>2)</sup> 4.5 db DAT65M-11  
Loop-through outlet <sup>1)</sup> 15 dB <sup>2)</sup> 2.4 db DAT65M-15  
Loop-through outlet <sup>1)</sup> 19 dB <sup>2)</sup> 2.0 db DAT65M-19  
Loop-through outlet <sup>1)</sup> 23 dB <sup>2)</sup> 2.0 db DAT65M-23



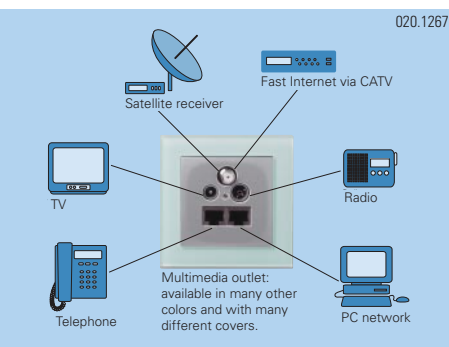
**Broadband outlets R/TV**  
R/TV connections in IEC technology. Frequency range 5–862 MHz

Individual outlet <sup>1)</sup> 4 dB <sup>2)</sup> n.a. RTV000-04  
Loop-through outlet <sup>1)</sup> 11 dB <sup>2)</sup> 3.0 db RTV000-11  
Loop-through outlet <sup>1)</sup> 15 dB <sup>2)</sup> 1.5 db RTV000-15  
Loop-through outlet <sup>1)</sup> 19 dB <sup>2)</sup> 1.7 db RTV000-19  
Loop-through outlet <sup>1)</sup> 23 dB <sup>2)</sup> 1.5 db RTV000-23



**SAT + R/TV outlets**  
R/TV connections in IEC technology. With F sockets for satellite receivers. Frequency range 47–2150 MHz

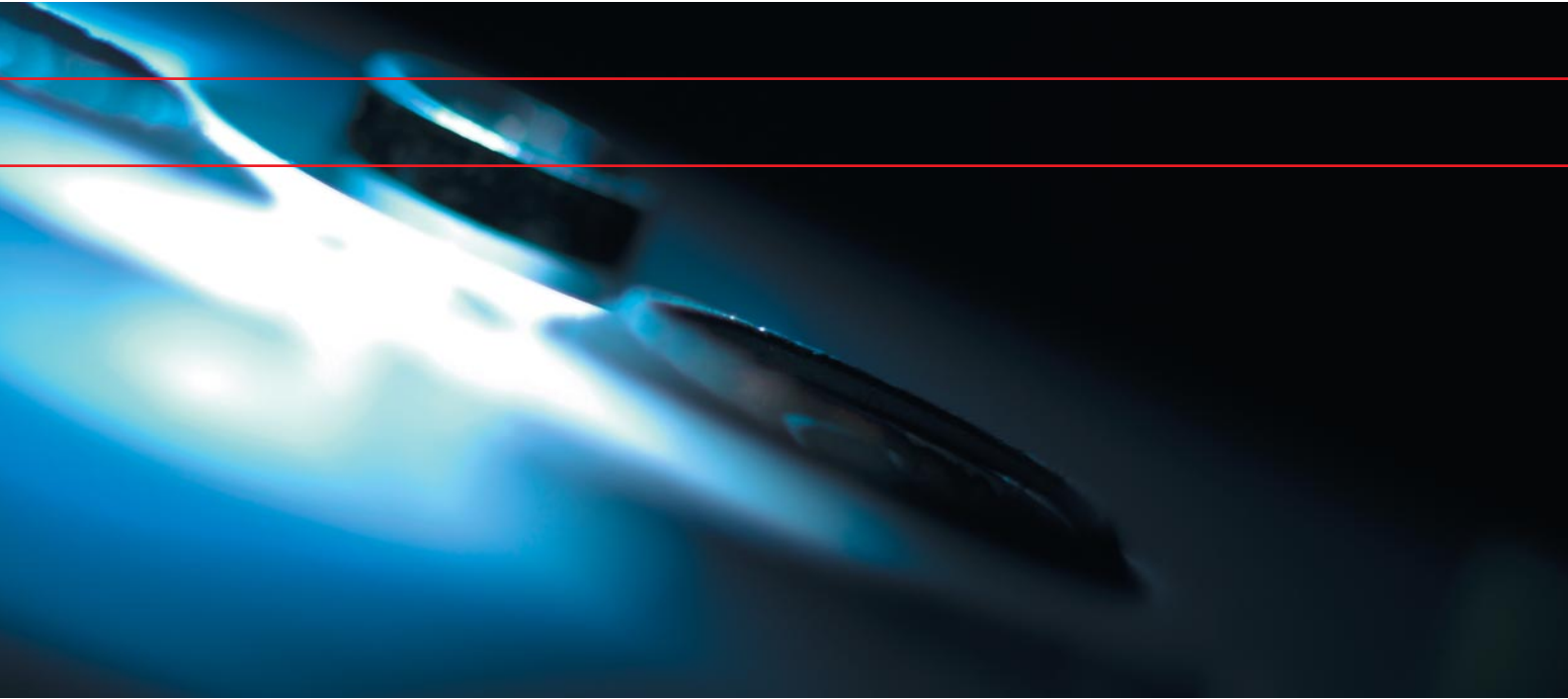
Individual outlet <sup>1)</sup> 2–3 dB <sup>2)</sup> n.a. SAT00F-02



R&M multimedia outlet and its applications

<sup>1)</sup> Connection attenuation <sup>2)</sup> Loop-through attenuation





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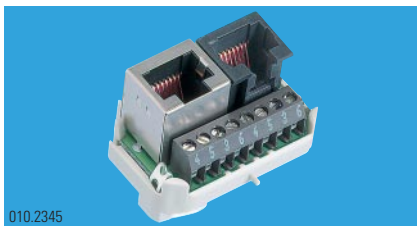
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### RJ45 CONNECTION MODULE

All RJ45 inserts from the "R&M swissline" product line are appropriate for all applications in the areas of ISDN, xDSL and analog telephony (class B, according to ISO IEC 11801 and EN 50173).

The Cat. 5e inserts are additionally suitable for the expansion of smaller networks. These inserts provide Category 5e performance according to ISO IEC 11801 and EN 50173. Thanks to the terminal clamps with wire protection, bus systems (ISDN), xDSL and analog telephony can be easily implemented. The screw clamps allow, without any problems, the contact of up to two wires of 0.8 mm diameter. All RJ45 inserts are available in a shielded and unshielded version.

Performance features:

- all RJ45 inserts meet Class B requirements according to ISO-IEC 11801 and EN 50173
- the simple or double RJ45 inserts additionally meet the Category 3 requirements according to ISO IEC 11801 and EN 50173
- the Cat. 5e RJ45 inserts meet the Category 5e requirements according to ISO IEC 11801 and EN 50173
- simple and time-saving R&M patented shielding contacting (for shielded versions)
- inserts can be combined freely
- screw clamps with wire protection
- all screw clamps are marked with the appropriate RJ45 contact number
- rack for termination resistor (snap-in installation)

### Mechanical, electrical and transmission features (measured at 20 °C)

#### Mechanical data (all RJ45 inserts)

Number of RJ45 sockets	1/2/4
RJ45 socket	according to IEC 603-7
Mating cycles	min. 750
Maximum wire Ø	2 x 0.8 mm (AWG 18)
Shielding contacting	with shield reed (on cable)

#### Electrical data (all RJ45 inserts)

Volume resistivity < 300 mΩ (terminal socket)
Insulation resistance > 500 mΩ (500 VDC)
Dielectric strength 1000 VAC eff. 1 min
Current carrying capacity 1 A

#### Category 5e inserts

Attenuation < 0.4 dB at 100 MHz
JEXT > 43 dB at 100 MHz
FEXT > 35.1 dB at 100 MHz
Return loss > 20 dB at 100 MHz

# For every location and applica

## CHOOSE SECURITY

All our systems are superior regarding security and protection and equipped with extras, which already cover the needs of the future.



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Left: Security level 3 with Safe Clip  
Right: Security level 3 with Plug Guard

### R&M SECURITY SYSTEM

What happens when children while playing pull on the network connector or lay people mix-up the sockets?

Do you often work outside without having to consider the environmental effects, such as dust or moisture, which is damaging for the technical equipment? Therefore, Residential Cabling also comprises the security needs of the users and additional features.

### THREE SECURITY LEVELS TO PROTECT DANGEROUS NETWORK FAILURE

Small component, great effect: In approximately 70 percent of network problems, cables and connectors may be the source of error – with dramatic consequences. R&M has developed an imposing security system.

Security level 1 supports the proper connection of the cables through opti-

cal color-coding. The color-coding, in the form of a clip, is attached to the connectors and sockets.

Level 2 guarantees the constructional security. It is mechanically not possible to connect a connection cable with a wrong connection point.

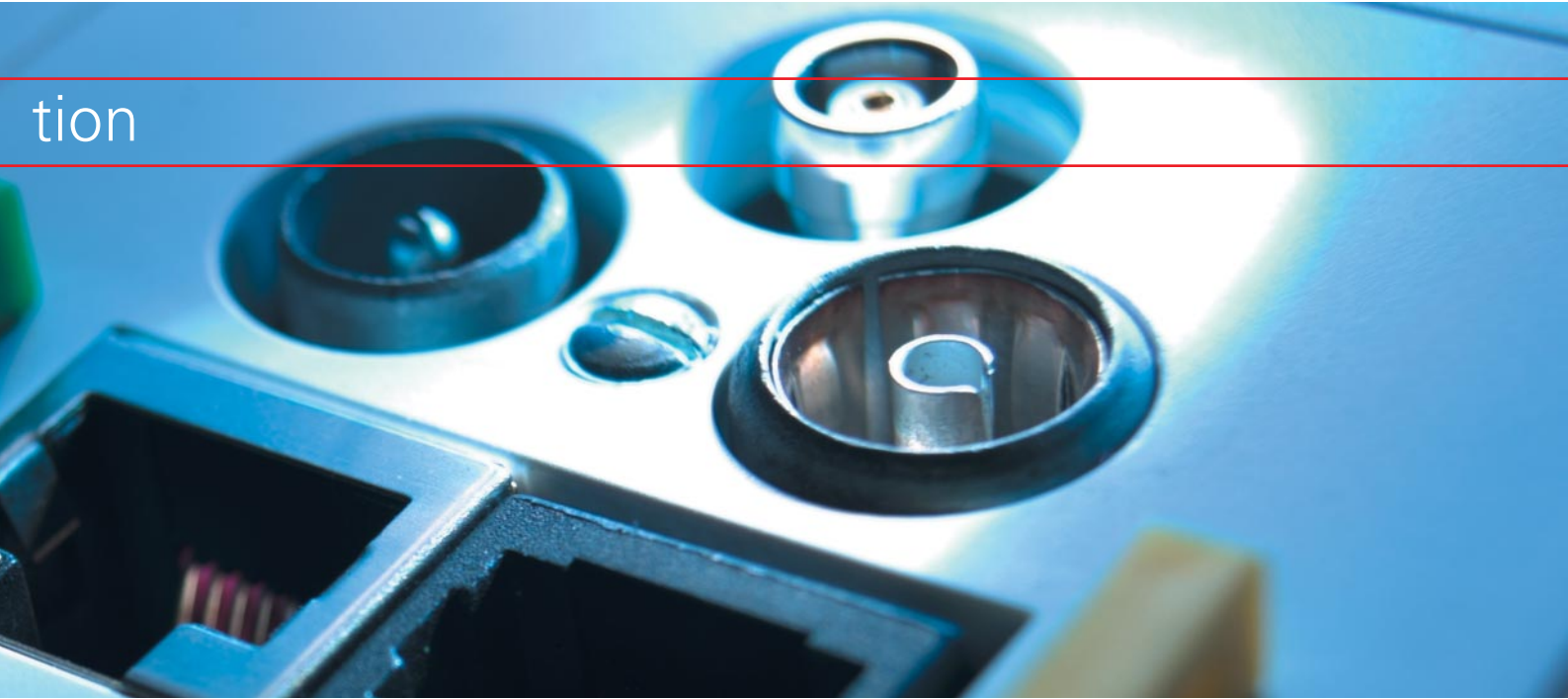
Security level 3 goes a step further: A Plug Guard can only be unlocked with the matching key. Therefore, accidental removal of cables is impossible.

### SPLASH LINE PROTECTS FROM DUST AND MOISTURE

Today, computer and network connections (regulator, monitoring etc.) are also needed where conditions are everything but optimal – for example in kitchens, bathrooms, garages and basements, on balconies or in garden sheds. In all these locations, dust, dirt, liquids and other environmental effects can impair the connection quality. In combination with appropriate outlets, R&M Splash Line protects the connections against dust and water splashes, up to protection class IP54.

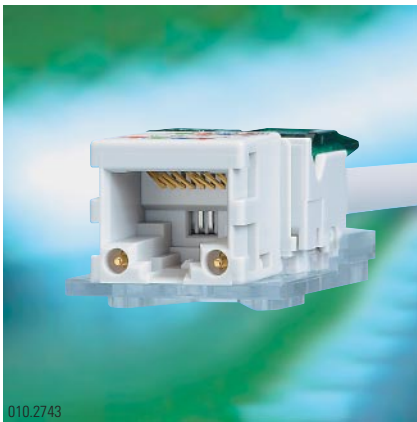


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R&M Splash Line: protection against dust and water



**THE PRODUCT LINE FOR RESIDENTIAL CABLING ALSO INCLUDES**

Multiple outlets, covers, connectors, power and fiber optics solutions, cable guides, connection modules, platforms, installation cabinets, tools and much more.



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Connection module with power



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Connection module with POF (Plastic Optical Fiber)

R&M is participating in numerous initiatives for promoting communications technology as well as standardization in the residential environment.



An initiative of ZVEI

[www.intelligent-living.com](http://www.intelligent-living.com)



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#### **Headquarters**

Reichle & De-Massari AG  
Binzstrasse 31  
CHE-8622 Wetzikon/Switzerland  
Telephone HQ +41 (0)44 933 81 11  
Telefax HQ +41 (0)44 930 49 41

#### **Sales Switzerland**

Buchgrindelstrasse 13  
CHE-8622 Wetzikon/Switzerland  
Telephone +41 (0)44 931 97 77  
Telefax +41 (0)44 931 93 29

[www.rdm.com](http://www.rdm.com)

#### **The R&M partner near you**

Austria  
Benelux  
China  
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