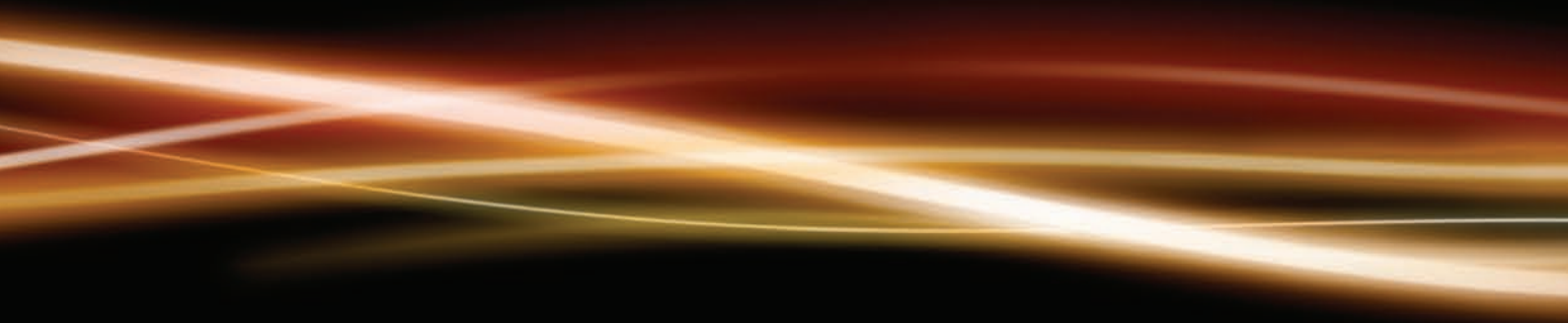
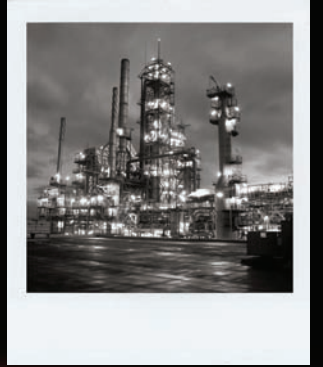
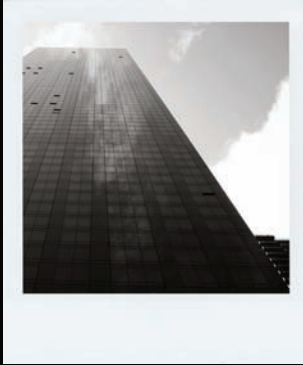


# **LANmark-7A**

HIGH-SPEED COPPER SOLUTION  
FOR 40 GIGABIT APPLICATIONS







## LANmark-7A

### **High-Speed Copper Solution For 40 Gigabit and Beyond**

LANmark-7A copper cabling is able to support higher bandwidths and faster line speeds. It allows the next generation Ethernet standard to advance to 40 Gigabit per second using shielded twisted pair copper cabling.

Screened Category 6A copper cabling has already become the newest paradigm for large corporations, financial institutes and data centres where 500MHz bandwidth to run 10Gbps speeds is required. But the bandwidth of Category 6A over 100m is limited at 30G.

Next generation applications like 40G to 100G Ethernet demand higher frequency solutions such as Category 7A screened copper cabling.

### **LANmark-7A GG45 – Twice the Bandwidth – Half the Cross Talk**



“High bandwidth capacity makes this system particularly ideal for simultaneous sharing of multiple applications, including HD video, data, voice and Ethernet without signal loss or line speed reductions.”

GERD BACKHAUS,  
Sales Manager



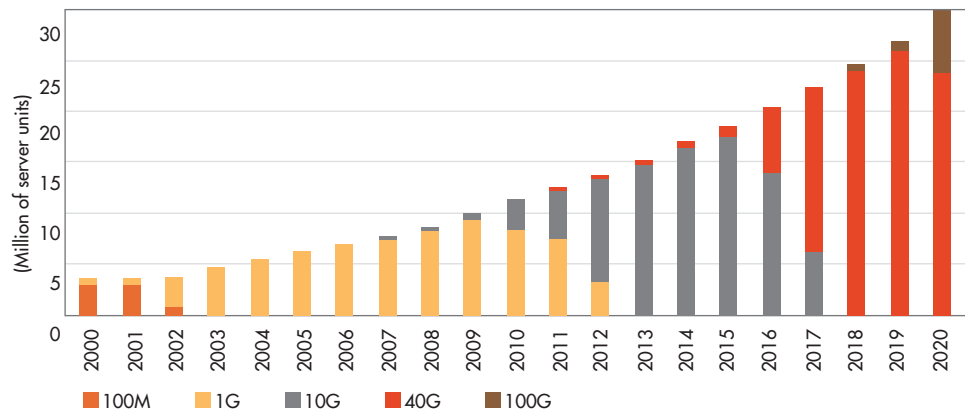
“Studies based on the Shannon-Hartley theorem prove that capacity up to 50G over 100 metre lengths is achievable.”

BAUDOQUIN BAREEL,  
R&D Director

## One solution fits all

Many experts predict a dominant migration to 40G in the server market within the next 10 years. It is expected that Video on Demand (VoD) services will double internet data volumes up to 2015. Server to switch connections within data centers will need 40G to support the massive data volumes transferred with this service.

Forecast of the development of server to switch interfaces



To cope with these bandwidth requirements, IEEE has started to develop a 40G protocol that uses copper as well as parallel fibre media. Of all existing standardised copper cabling classes, only Category 7A can properly handle this data rate to support:

- ISP backbones
- High-definition VoD and online interactive gaming
- Corporate data centres & SANs
- High-performance computing
- HD/SDTV, security video, Fast/Gigabit Ethernet

## Achieving 40G with Category 7A

LANmark-7A meets the performance requirements for line speeds up to 40Gbps. Theoretical studies based on the Shannon-Hartley theorem prove that even applications up to 50G over 100 metre lengths would be achievable. 40 Gigabits per second can be run with some headroom in order to reduce the error rate.

This is nearly four times the performance capacity of traditional Category 6A cabling, which is achievable because LANmark-7A offers double the bandwidth with half the crosstalk of Category 6A.

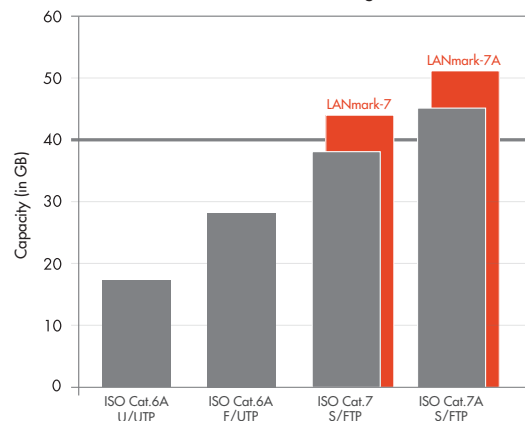
|        | LANmark-7A      | Category 6A    |
|--------|-----------------|----------------|
| • NEXT | 60dB at 1000MHz | 30dB at 500MHz |
| • FEXT | 50dB at 1000MHz | 25dB at 500MHz |
| • RL   | 8dB at 1000MHz  | 8dB at 500MHz  |

## The solution to next-generation speeds

LANmark-7A uses a 4-pair, shielded twisted pair cable with individual pair foils (S/FTP) in horizontal cable and patch cords, and the backward compatible GG45 as connector.

A LANmark-7A channel exceeds the Category 7A standard requirements, providing a transmission capacity of more than 50Gbps due its built-in headroom.

Shannon Capacity for 4-pair channels  
Nexans Modelling



LANmark-7A is a fully integrated part of the LANmark product family and shares some of its successful concepts including:

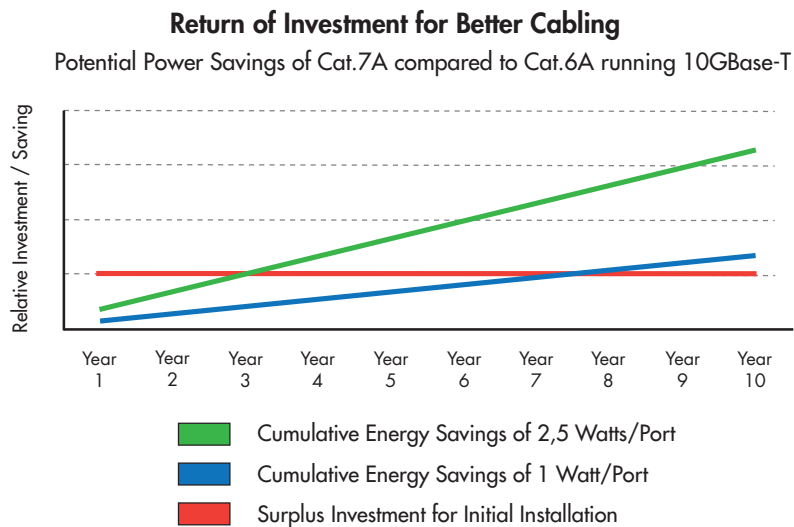
- a common range of structural hardware (panels and outlets);
- a common wire organiser facilitating the same installation techniques used for Category 5 and Category 6;
- common installation tools – easy-to-install features allow secure and fast installation with instant earthing and grounding.

LANmark products cover all performance classes – 100, 250, 500, 600, 1000, and 1200MHz – and are based on a 1-connector format (Snap-In) commonly used in panels and outlets. They provide a homogeneous solution that enables easy upgrade to higher speeds over time.

## Efficient with energy

### Saving energy

- Thanks to its superior insertion loss LANmark-7A can reach longer distances running 10G Ethernet in data centre mode, which means up to 40% less power is needed to send data. Especially data centres with long server rows benefit here. LANmark-7A allows server rows to be 10 cabinets longer compared to Cat.6A and still run in low power mode.
- In addition the superior internal crosstalk of LANmark-7A allows noise cancellers to be turned down creating future potential energy savings of up to another 35% over Cat.6A. The potential energy savings over time are enormous. If the full potential energy savings are exploited by the server adapter card, LANmark-7A cabling has the potential to generate payback after the 3rd year with ongoing year on year savings.



### Improved power loading efficiency

- Compared to point-to-point twinax solutions for 40Gbps speeds, LANmark-7A offers long distance support that go far beyond the 7 meters of twinax. This allows for greater design flexibility ensuring less hotspots and more evenly balanced cooling. Contributing to efficient use of energy.

### Power up devices using LANmark-7A

- Especially in office environments more and more connected devices can be powered via Power over Ethernet (PoE) using LAN cabling. LANmark-7A reduces the effect of heating of bundled cables, allowing for larger bundles and longer distances compared to lower grade cabling.



“With a century of experience and a global presence, Nexans has the quality engineering, technical expertise and service reputation to meet the evolution to 40G and beyond.”

MARTIN ROSSBACH,  
Director Product &  
Market Development



“LANmark products are the best solution to the unrelenting growth of higher speed Ethernet standards and energy efficiency requirements”

MARIANNE SERVEZ,  
Marketing Manager



**GGRZ (Germany)**  
Data centre

Major IT systems and infrastructure provider relies on Nexans Cat.7 and fibre-optic solutions to build reliable, future-proof data centre for Westfälisch-Lippische Vermögensverwaltungsgesellschaft (WLV).



**IKEA (Kuwait)**  
Retail

IKEA selects Nexans LANmark-7 cabling with GG45 connectors to meet current communications, data and security needs with built-in capacity for future growth.



**PRE-TERM COPPER**

- Jack-Jack, Jack-Plug or Plug-Plug units
- Single or bundles of units available
- Shielded Cat.7 or 7A performance
- Optimized design for installation in large bundles and high density patching racks, ideal for Data Centres
- Coding of all units or assemblies for traceability
- Labeling of the pre-terminated units and packing according to customer's wishes
- Fully covered by the Nexans 25 years warranty

**CONNECTOR**

- GG45 12 contact cable jack
- "2 in 1" connector which combines RJ45 and GG45 interface
- Runs 2 transmission modes
  - » RJ45 mode for 1Gbps and 10Gbps (500MHz)
  - » High-speed GG45 Mode for 40Gbps (1000MHz)
- Backwards compatible and future ready
- Cat.7A compliant
- Instant earthing and grounding features
- Part numbers: N420.735 and N420.736



Revolutionary **2 in 1**  
connector technology



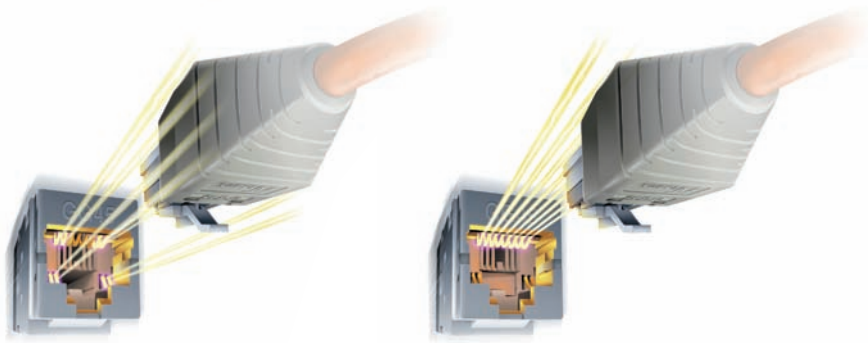
**CABLE**

- S/FTP construction with 4 individually screened pairs
- Superior performance at all frequencies up to 1000MHz and 1200MHz
- Very high screening efficiency
- No alien cross talk (AXT)
- Fully Cat.7A compliant
- Part numbers: N100.371/N100.373 and N100.382/N100.384

**PATCH CORD**

- RJ45 patch cord:
  - » RJ45 8 contact patch cord compatible with today's active equipment (1Gbps and 10Gbps)
  - » Up to 500MHz
  - » Cat.6A compliant
  - » Part number: N101.22Gxx
- High Speed GG45 patch cord
  - » GG45 8 contact high-speed plug for future migration
  - » Individual screened pairs to provide 4 fully shielded channels end to end
  - » Up to 1000MHz
  - » Cat.7A compliant
  - » Part number: N101.23Axx





### LANmark-7A: using revolutionary GG45 connector technology

You no longer have to gamble with cabling for today's needs at the risk of not being able to meet future advancements in speed and bandwidth.

Fully shielded LANmark-7A with the unique GG45 connector lets you prepare now for tomorrow's standards. The system is revolutionary because it is both backward compatible with conventional RJ45 connectivity and today's applications, and forward-ready to accept 40G challenges and beyond. The easy to connect GG45 system is fully standardised (IEC 60603-7-7/IEC 60603-7-71).

High bandwidth capacity makes this system particularly ideal for simultaneous sharing of multiple applications, including HD video, data, voice and Ethernet without signal loss or line speed reductions.

- Original RJ45 connector stops at Category 6A cabling.
- The revolutionary GG45 interface started with 600MHz (Category 7) and now meets the 1000MHz standard (Category 7A).
- It is the connector required in ISO11801 for Category 7 and 7A due to its backwards compatibility.
- LANmark-7A GG45 connector fits all structural hardware designed for Snap-In connectors.
- With 360 degree screening and a fully closed rear cover, the GG45 has excellent coupling attenuation and outstanding immunity from alien cross talk and other interference.
- The system is **truly scalable**. Start with RJ45 patch cords for 1G today, eventually upgrade to faster 10Gbase-T using RJ45 patch cords, and as increased performance is needed, migrate to higher speeds using Category 7A cords.

If growth and expansion are in your future, this is the system you need today.

### Proven performance

Nexans has already installed various Cat.7 and Cat.7A systems successfully throughout the world and continues to invest in product development.

## LANmark-7A

connect to tomorrow



25 year warranty



40 Gigabit



### G.O. Sars (Norway) Maritime

Operated and owned by the Norwegian Institute of Marine Research and the University of Bergen, this research vessel relied on Nexans Cabling Solutions to provide the resilient cabling and network infrastructure needed to support its on-board network.



### DKV (Germany) Healthcare

When health insurance company DKV expanded its premises, it relied on Nexans to install a future-proof cabling infrastructure.

## About Nexans

With energy as the basis of its development, Nexans, the worldwide leader in the cable industry, offers an extensive range of cables and cabling systems. The Group is a global player in the infrastructure, industry, building and Local Area Network markets. Nexans addresses a series of market segments from energy, transport and telecom networks to shipbuilding, oil and gas, nuclear power, automotive, electronics, aeronautics, handling and automation. With an industrial presence in 39 countries and commercial activities worldwide, Nexans employs 23,500 people and had sales in 2008 of 6.8 billion euros.

In the field of LAN Cabling Systems, Nexans Cabling Solutions offer a complete range of products and value added services providing improved reliability and reduced cost of ownership for Network Managers, together with faster installation times for installers.

In addition to LANmark™ brand cabling systems, Nexans also specialises in LANsense™ Intelligent Infrastructure Management (IIM) products including Environmental Monitoring and Access Control (EMAC) devices. Nexans offers an unrivalled choice of LAN infrastructure solutions to a global customer based through an extensive network of regional offices and Key Account Management team.



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