

2020

CABLE MANAGEMENT PRODUCT GUIDE



WELCOME TO OUR CABLE MANAGEMENT PRODUCT GUIDE



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STEVE TOTTERDELL

Product Manager

This guide has been created for you to keep you up to date with the products within our Cabling Category. If you require any further information on any brands within this guide please do not hesitate to contact me.

Here at Invision I am part of the Product Management team responsible for cabling. I have been with Invision for a couple of years but with a background in AV/Broadcast/Music Production; I cannot oversell the importance of quality, reliable cable.

I have a close working relationship with our manufacturers to provide you with the correct specification and technical information when you need it, so if you have any questions at all, I am here to help.

Steve Totterdell Product Manager



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MARK TAYLOR

Commercial Director

Invision is the UK's fastest growing distributor of market leading systems for today's Smart Home, supplying professional installers with innovative products and integrated solutions.

Our investment in products, training, service and support will continue during 2020, to provide you with one stop access to all the products you need for your next installation. Remember that we stock so you don't have to! All products are available on a next day delivery service to UK mainland destinations.

Our new 2020 product guides, organised by market category, are designed to bring you the very latest information from our exceptional product portfolio and I would welcome your feedback.

Mark Taylor Commercial Director



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ABOUT ICE CABLE SYSTEMS



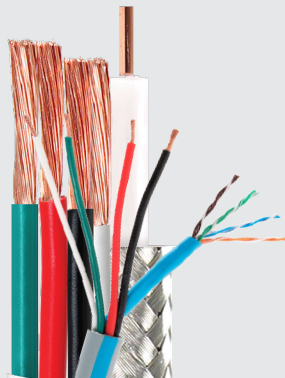
WHAT ICE OFFER...

ICE provide high end products that ensure reliable cable. They don't cut back on copper, including the proper amount in every cable to ensure longevity. Cables are also designed with labour costs in mind, using a 4-inch payout on pull boxes to ensure free flowing cable with no kinks!

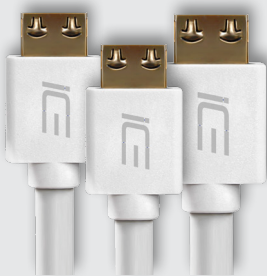
ICE Cable know the competition so you don't have to! When compared to other wire and cable providers like for like, ICE is often less expensive, giving you more for your money.

BETTER IN EVERY WAY POSSIBLE**Pull Boxes**

ICE Cable have solved the biggest problem in the industry, boxes. Combining the BMP box with Reelex Coiling technology has resulted in the best pulling experience available to installers. The box itself has a 4-inch payout hole and is built like a tank using 24kg burst test cardboard. Inside the Reelex box, coils ensure a tangle-free pull and hassle-free installation. Try it once and you'll never go back.

**Cables**

It turns out there are a lot of ways to improve the cable itself to make it faster and more efficient to install. How did ICE Cable do it? Wet slick jackets that pull easier, EZ Strip Tissue that strips easier, and a whole host of other time-saving features - all built into the cable. Individually, these smooth-out the rough edges in the install process. Together, they give you an exceptional installation experience.

**HDMI**

A wish list of HDMI cable technology at extremely competitive prices. With GRIP Lock technology, ultra-compact head design, 18Gbps speed and 20m 4K performance, ICE have crafted the ultimate HDMI Cable. The Clear Series 2 ranges from 0.5m to 20m and features 12lbs of connector pull force, ensuring your connection stays secure and protected. This means reliable installations, fewer service calls, the elimination of baluns and state-of-the-art performance.

CABLE DONE RIGHT

CABLE, DONE RIGHT

Oxygen Free Copper

ICE Cable's Category and Speaker Cables are Oxygen free, making it the perfect conduit to pass noise free audio. Give your high-end speakers the signal they deserve.

Wet Slick Jacket

The special PVC compound provides a shiny look and slick feel, resulting in less friction, easier pulls and more flexibility than a regular, chalky PVC jacket.

Ascending and Descending Foot Markers

Less scrap, more productivity! ICE Cable's foot markers show how much cable is left before you start working. Meaning you avoid wastage and know exactly how much you've used.

Rip Cord and EZ Strip Tissue

ICE Cable's EZ strip tissue allows for the jacket to easily slide off in any climate (once scored). All new cables also include Rip Cords, making the cable as easy to strip away as possible.



HDMI DONE RIGHT

HDMI, DONE RIGHT

GRIP Lock Technology

Special springs on the HDMI plug provide a secure grip, every time. This results in over 3x the strength of a conventional HDMI connector, giving you the most stable connection possible.

Compact Head Design

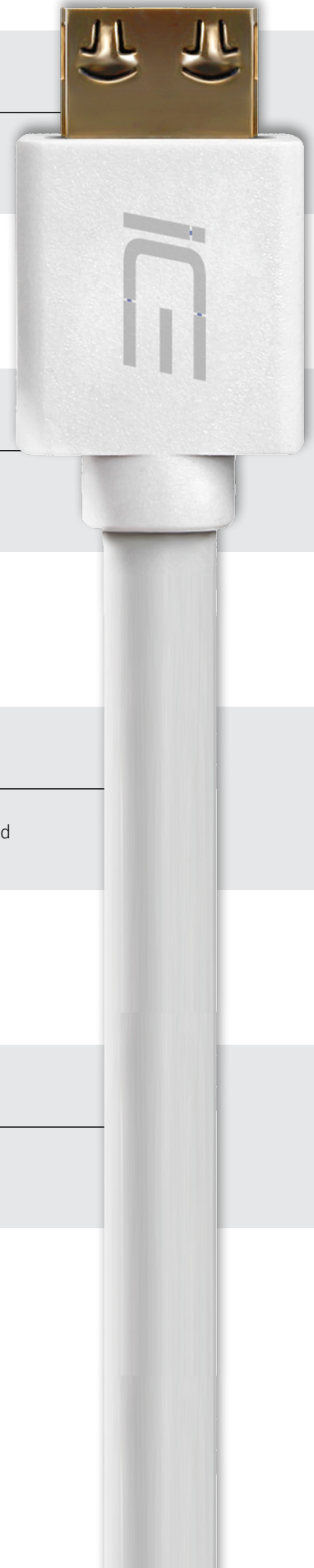
At only 21mm long, ICE Cable's Series 2 cable head is now 40% shorter than the previous model. ICE have also reduced the width and made it thinner, giving you easy access and control in tight spaces.

4K/60Hz up to 20 Metres

Advances in cable technology now means that ICE's cables can achieve perfect 4K/60Hz all the way out to 20m at 18Gbps. Join the 4K revolution and see beautiful imagery how it was originally intended to be seen.

The Perfect Tension

With 12lbs of pull force, the connector won't come out with normal usage. However if your TV falls off the wall, it will pull free, leaving the cable undamaged, unlike the competition.



PULL BOXES DONE RIGHT

PULL BOXES, DONE RIGHT



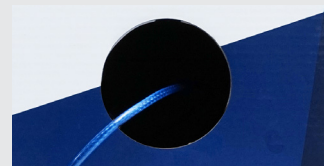
Cable Winding Pattern

Save time where you least expect it. Combined with ICE's larger payout hole, their unique cable wind means less time hassling with the wire and more time working.



Big Mouth Payout

ICE Cable's 4-inch payout hole results in free flowing cable; eliminating kinks, knots, tangles and other pulling problems. Resulting in the smoothest install possible.



24kg Burst Test Card

Translation? Really strong cardboard that holds up to on site abuse and lasts longer under tough conditions. Reinforced handles also help to maintain box integrity.

Cable Winding Pattern

The paper laminate provides the perfect shield, protecting the cable from water damage whilst preventing the box from degrading under harsh site conditions.

LOW SMOKE ZERO HALOGEN

LOW SMOKE ZERO HALOGEN

The Safest Choice

ICE Cable's LSZH cable jackets are composed of the finest thermoplastic compounds to ensure that a limited amount of smoke and no Halogen is released if the cable is exposed to high sources of heat.

Kind to the Environment

By using safer materials, LSZH cable reduces the amount of toxic and corrosive gasses that are released in extreme heat. Perfect for poorly ventilated, ensures that no further damage is incurred.

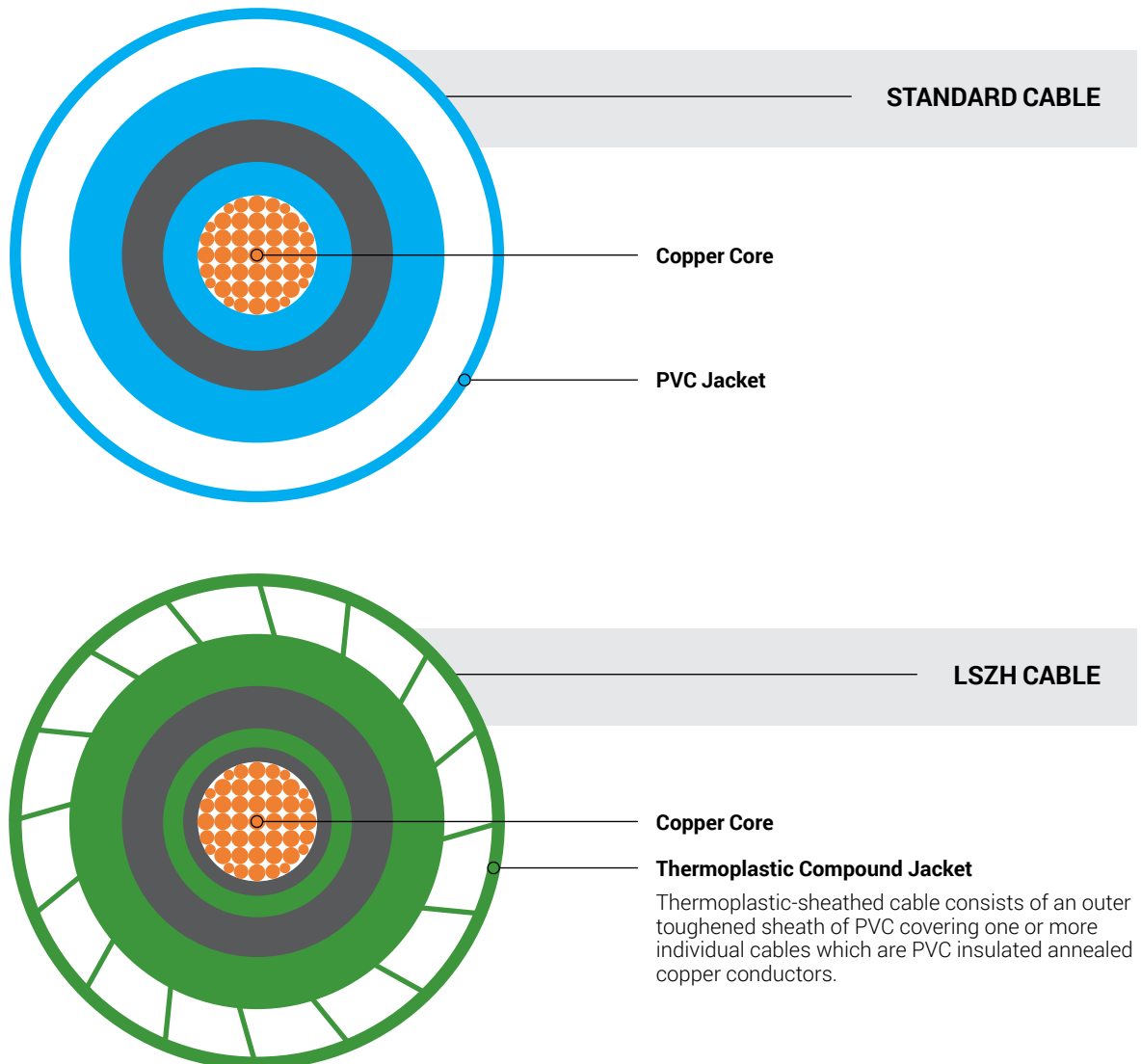
9 F Fluorine	17 Cl Chlorine	35 Br Bromine	53 I Iodine	85 At Astatine
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Free of Halogenated Materials

No Fluorine, no Chlorine, no Bromine, Iodine or Astatine. ICE Cable jackets contain no halogenated materials meaning that there is no danger of toxic contamination if a fire occurs. ICE's cable reduced the damage caused to the respiratory systems of anyone nearby in the event of a fire.

Unchanged Workflow

Change nothing about the way you work, ICE LSZH Cable is compatible with standard connectors and available in the same gauges as regular cable. This means installation is as simple as ever and no time will be wasted in changing the cable to the safer alternative.



CERTIFIED HDBaseT™

The worldwide one-cable standard

With cable certification, you can sleep well knowing your installation is ensured to have full product interoperability and compliance. Transmit 100m with a single hop and up to 800m with 8 hops. Featuring HDBaseT certification, REELEX II technology, UL Listing and ETL performance verification. This is good as it gets.

What is HDBaseT™?

HDBaseT is the global standard for the transmission of ultra-high definition audio and video, Ethernet, controls, USB and up to 100W of power over a single, long-distance cable. For AV, consumer electronics and even industrial PC's, this can be a simple category cable (Cat6 or greater), for up to 100m/328ft. For medical and government application, optical fibre is usually preferred, spanning several kilometers. For automotive, the choice is 100BASE-T1-comparable cable, a single unshielded twister pair (UTP), for up to 15m/50ft.

The HDBaseT™ Alliance

Incorporated in 2010, the HDBaseT alliance was founded by LG, Samsung, Sony and Valens to standardise HDBaseT technology for home and commercial distribution.



Certified to be High Quality

ICE Category cable has been recognised as a certified HDBaseT product, utilising 5Play technology with excellent ratings at long distance and 4K UHD video.



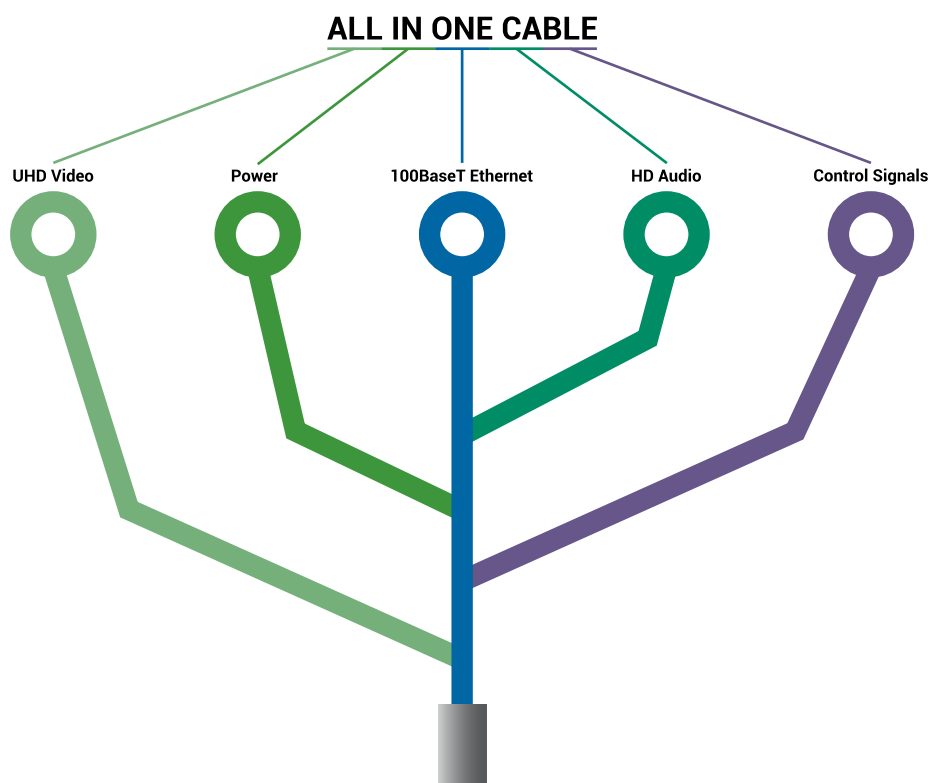
An Elegant Solution, Simplifying Every Installation

ICE Cable has been recognised as a certified HDBaseT™ product, utilising 5Play technology, excellent ratings at long distance and high quality definition for 4K UHD video.

- Residential Installations
- Commercial Installations
- Video Walls
- Digital Signage
- Home Cinemas
- Control systems

5Play™

The cornerstone of HDBaseT technology, 5Play is a feature set that joins uncompressed full HD digital video, audio, 100BaseT Ethernet, Power and various control signals into a **single Cat cable**.



SAFETY CERTIFICATIONS



Certifications exist to ensure that products are meeting or exceeding the requirements of a region's safety codes, while also ensuring that they meet the technological requirements necessary for their installations. This protects consumers against a range of issues, including electric shock, burns and electric arcing.

Compliance/Anti-Counterfeit

Those who design, install and use structured cabling systems have the right to expect uncompromised quality, performance and fire safety. Counterfeit and non-compliant cable and connectivity products are eroding that right and present a formidable challenge.

CCCA leads the fight to confront that challenge. Through testing programs, educational initiatives and screening tools, CCCA alerts the industry to the dangers of counterfeit cable how to avoid being misled by deceptive labels and marking practices. CCCA's anti-counterfeiting efforts include close collaboration with independent testing agencies, U.S. Customs and law enforcement.

Non-Compliant vs. Counterfeit - What's the difference?

In the past, the terms "non-compliant" and "counterfeit" have been used to describe copper clad aluminium (CCA) 4-pair UTP cables. To clarify what is or is not counterfeit, it is recommended that you use the following working definitions, which may be applied to 3 types of CCA cables encountered in communications:

1. If a cable or product falsely bears a manufacturer's name or brand that is descriptive of the product that was not produced by that manufacturer, then the cable be described as **"COUNTERFEIT"**. For example, a Rolex watch not made by Rolex, but by a manufacturer not authorised to use the Rolex name or mark, which are property rights belonging to Rolex.
2. If a cable bears an unauthorised certification mark (e.g. UL or ETL), then the cable is counterfeit as to the mark. The cable may be described as **"BEARING COUNTERFEIT CERTIFICATION"** or **"COUNTERFEIT MARK"**.
3. If a cable bears no certification mark but is marketed and advertised as meeting applicable codes and standards specifications (e.g. Category XX or CM, CMR, CMP fire safety rating), then the cable may be correctly described as **"NON-COMPLIANT"**.

Source: www.cccassoc.org/topics/anti-counterfeit/

Certifications

CL3

General Purpose - Power Limited Circuit (PLTC), this is the rating primarily used for your multi-conductor stranded cables such as alarm wire, speaker wire and control cables.

CL3P

Plenum - Designed for installation in a duct, a plenum space or other spaces that will be used to transport environmental air without being enclosed in a raceway.

CL3R

Riser - Designed for installation in a vertical shaft or for installations where the cables will penetrate more than one floor.

CL3X

Limited Use - Cables for limited use in unconcealed spaces where the exposed length of cable doesn't exceed 3.05m (10ft).

CM

General Purpose - In-wall rated cables designed to be installed where neither Plenum or Riser cables are required.
Same rating applies for all cable marked "CMG".

CMP

Plenum - Designed for installation in a duct, a plenum space or other spaces that will be used to transport environmental air without being enclosed in raceway.
Not for outdoor use or exposure to elements.

CMR

Riser - Designed for all in-wall and riser applications that do not include plenum or other air-handling spaces.

CMX

Outdoor - This cable has been designed and tested for use in outdoor locations. Before approval, this cable goes through rigorous heat/cold testing as well as sunlight resistance on the outer jacket. **Only cable marked as CMX can be used for external applications.**

FT1

Vertical Flame Test - This is the most basic CSA flame test rating. Equivalent to the CM flame test ratings.

FT4

Vertical Flame Test - This is the most common CSA flame test rating. Equivalent to UL and CMR ratings.

FT6

CSA Flame Test Rating - This is the most rigorous CSA flame test rating. Equivalent to CMP rating.

PRIMAL CABLE

PRIMAL CABLE



FEATURES

Pull Box

Tangle-Free Technology



Markers

Ascending Foot Markers



Copper

Oxygen Free Copper



Reelex II

Certified Winding



Identifier

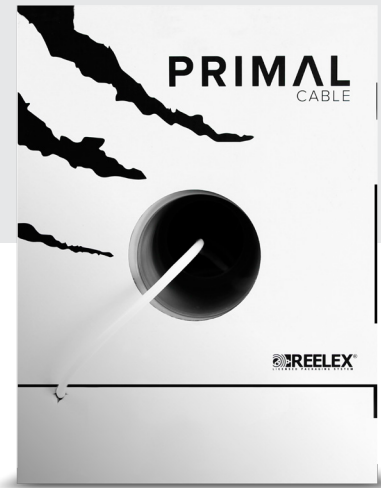
iLabel Marking



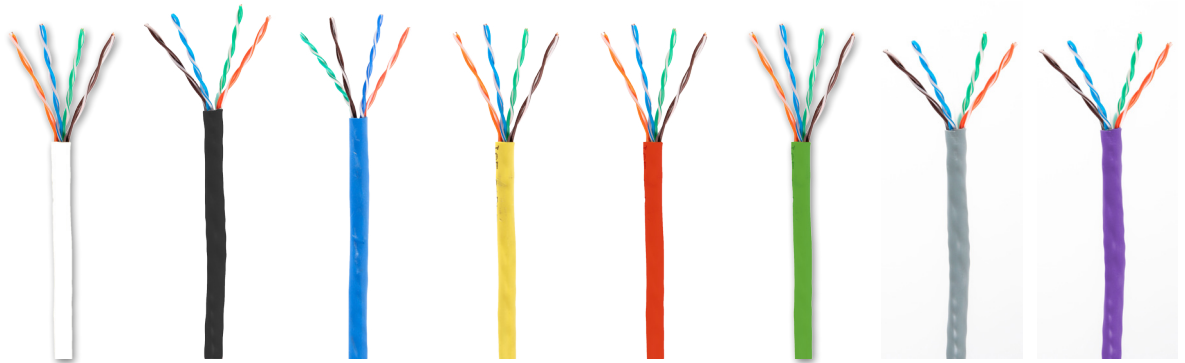
HDBaseT CERTIFIED CABLE. DONE RIGHT.**Reelex technology, safety-rated cable, ground-breaking prices...**

PRIMAL combines unbelievably low prices with the best pulling box in the industry, and with fully flame tested cables, your clients will sleep better at night. This is entry-level cable, done right.

Unsafe products bearing counterfeit or unauthorised UL and ETL markings are a huge problem in the entry-level cable market. ICE Cable don't believe that fire safety should ever be compromised. That's why ICE have flame tested and safety rated every single PRIMAL Cable product.



Item	Description	Colour	Unit	Length
PRCAT6LSZH	23 Gauge, 4 Pair, Solid Core, 550MHz. CMR Rated, LSZH, Rip Cord, HDBaseT Certified		Box	305m (1000ft)

**Features**

ALL	ALL	ALL	ALL	ALL
Big Mouth Payout	Oxygen Free Copper	Foot Markers	iLabel	Round Jackets

Compliance

	FT4/FT6 Rated		CL3/CL3P Rated
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DATA/CATEGORY CABLE



GUARANTEED MINIMUM PERFORMANCE

1080p | Cat 5e

100M

4K | Cat 5e

70M

4K | Cat 6

100M

FEATURES

Pull Box

Tangle-Free Technology



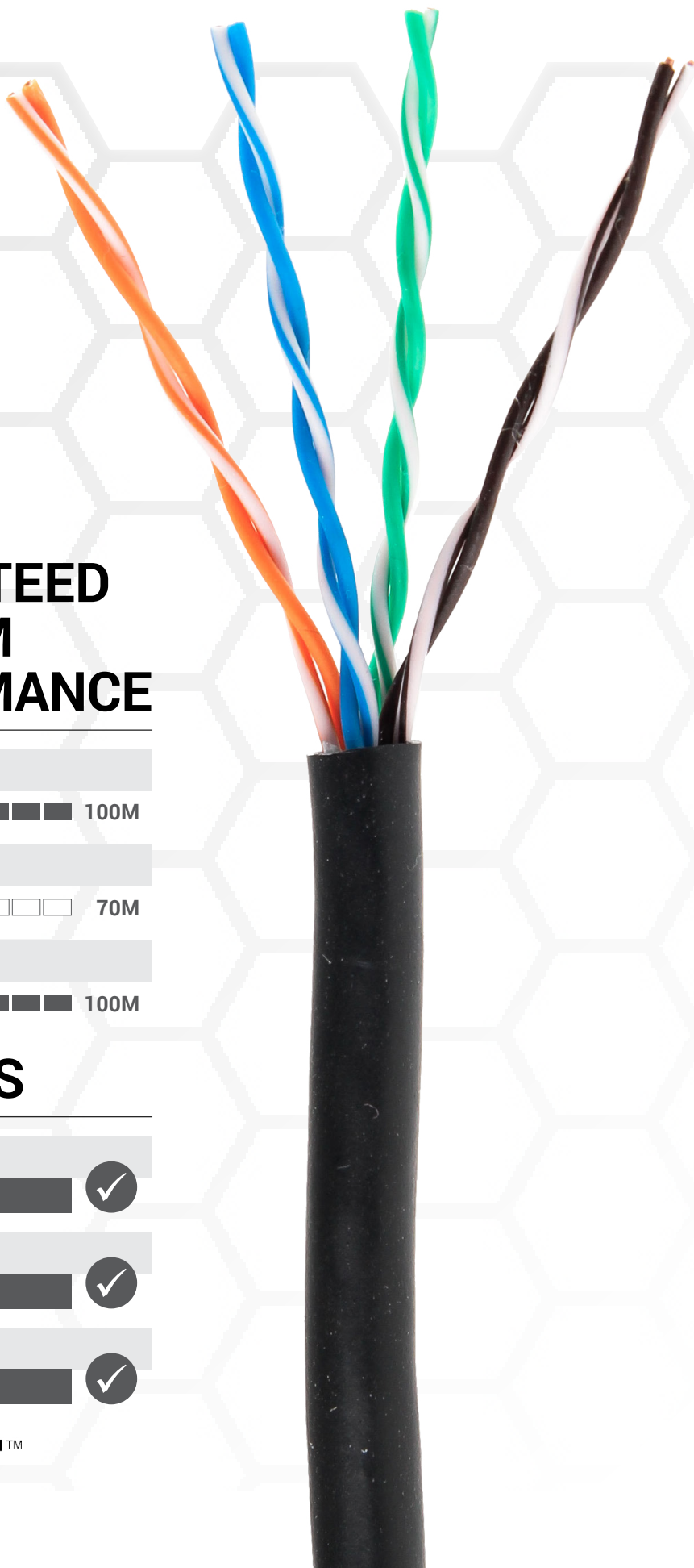
Copper

Oxygen Free Copper



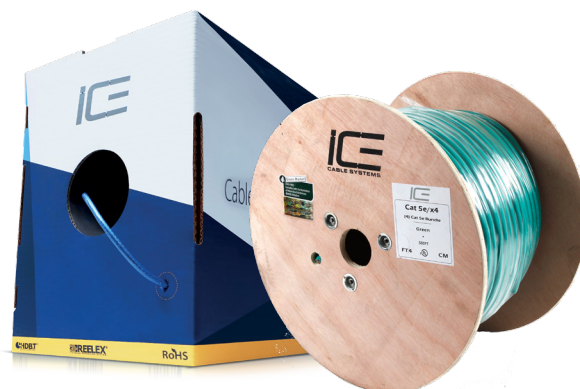
Reelex





Certified Winding



HDBaseT CERTIFIED CABLE. DONE RIGHT.**The perfect cable is just an order away...**

Outdoor LSZH, Shielded, Direct Burial and more.
All perfect for advanced installations where quality and speed is key.



Item	Description	Colour	Unit	Length
Cat 6a/LSZH	23 Gauge, 4 Pair, Solid Core, 550mHz, CMR Rated, Rip Cord, HDBaseT Certified		Spool	305m (1000ft)
Cat 6/LSZH/Shielded	23 Gauge, 4 Pair, Solid Core, 550mHz, CMR Rated, Shielded, LSZH, HDBaseT Certified		Spool	305m (1000ft)
Cat 6/Outdoor	23 Gauge, 4 Pair, Solid Core, 550mHz, CMR Rated, UV Resistant, HDBaseT Certified		Spool	305m (1000ft)
Cat 7/LSZH	23 Gauge, 4 Pair, Solid Core, 600mHz, Shielded Over Foil Twisted Pairs, LSZH, CMR Rated		Spool	305m (1000ft)



All Data/Category cable models above have been certified by the **HDBaseT Alliance** and **WyreStorm**.
For more information, call us on 01359 270280.

SPEAKER CABLE



FEATURES

Markers

Ascending Foot Markers



Rated

Direct Burial



Cover

Wet Slick Jackets



Pull Box

Tangle-Free Technology



Cable

EZ Strip Tissue



Copper

Oxygen Free Copper



PERFECT SOUND ACROSS ANY DISTANCE

This is your go-to speaker cable...

ICE Reference Speaker Cables feature all of ICE's best technologies. The ICE Speaker Series is designed for application in which the thinnest possible cable is required.



Item	Description	Colour	Unit	Length
16-2FX	16 Gauge, 2 Conductors, Wet Flex, Direct Burial, OFC, 65 Strand, Tissue		Box	152.5m (500ft)
16-4FX	16 Gauge, 4 Conductors, Wet Flex, Direct Burial, OFC, 65 Strand, Tissue		Box	152.5m (500ft)
14-2FX	14 Gauge, 2 Conductors, Wet Flex, Direct Burial, OFC 105 Strand, Tissue		Box	152.5m (500ft)
14-4FX	14 Gauge, 4 Conductors, Wet Flex, Direct Burial, OFC, 105 Strand, Tissue		Box	152.5m (500ft)
16-2LSZH	16 Gauge, 2 Conductors, Low Smoke Zero Halogen		Box	152.5m (500ft)
16-4LSZH	16 Gauge, 4 Conductors, Low Smoke Zero Halogen		Box	152.5m (500ft)
14-2LSZH	14 Gauge, 2 Conductors, Low Smoke Zero Halogen		Box	152.5m (500ft)
14-4LSZH	14 Gauge, 4 Conductors, Low Smoke Zero Halogen		Box	152.5m (500ft)

Features

FX/CS	FX	FX	FX	FX	FX/CS	FX/CS	FX
Big Mouth Payout	Wet Slick Jacket	Direct Burial Ratings	EZ Strip Tissue	Oxygen Free Copper	Foot Markers	iLabel	Round Jackets

Compliance

	FT4/FT6 Rated		CL3/CL3P Rated
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COAXIAL CABLE



FEATURES

Connector

Perfect Pairing



Identifier

iLabel Marking



Cable

EZ Strip Tissue



Copper

Oxygen Free Copper



THE HIGHEST RESOLUTION POSSIBLE

Wide varieties of Coaxial Cables in stock...

We stock a wide variety of Coaxial Cables including Low Smoke Zero Halogen, Plenum and Non-Plenum.

To find out which connector works best with your chosen cable, see the "Connector Pairing" column on the chart below.



Item	Description	Colour	Connector Pairing	Unit	Length
RG-59/Mini	25 Gauge, Solid BC Centre, 95% BC Shield		N/A	Box	305m (1000ft)
RG-6QS	18 Gauge, Solid CCS Centre, Quad Shield 60/40%		F 6U/Q, RCA 6U/Q, BNC 6U/Q	Box	305m (1000ft)
RG-6QS/BC	18 Gauge, Solid BC Centre, Quad Shield 60/40%		F 6U/Q, RCA 6U/Q, BNC 6U/Q	Box	305m (1000ft)
WF 100/LSZH	18 Gauge (1.0mm ²) Solid BC Centre, Foam Core, LSZH		N/A	Box	305m (1000ft)

Features

RG	RG	RG
Big Mouth Payout	Wet Slick Jacket	iLabel

Compliance

	FT4/FT6 Rated
	CMR/CMP Rated



STRUCTURED WIRING



FEATURES

Bundle

Custom Building



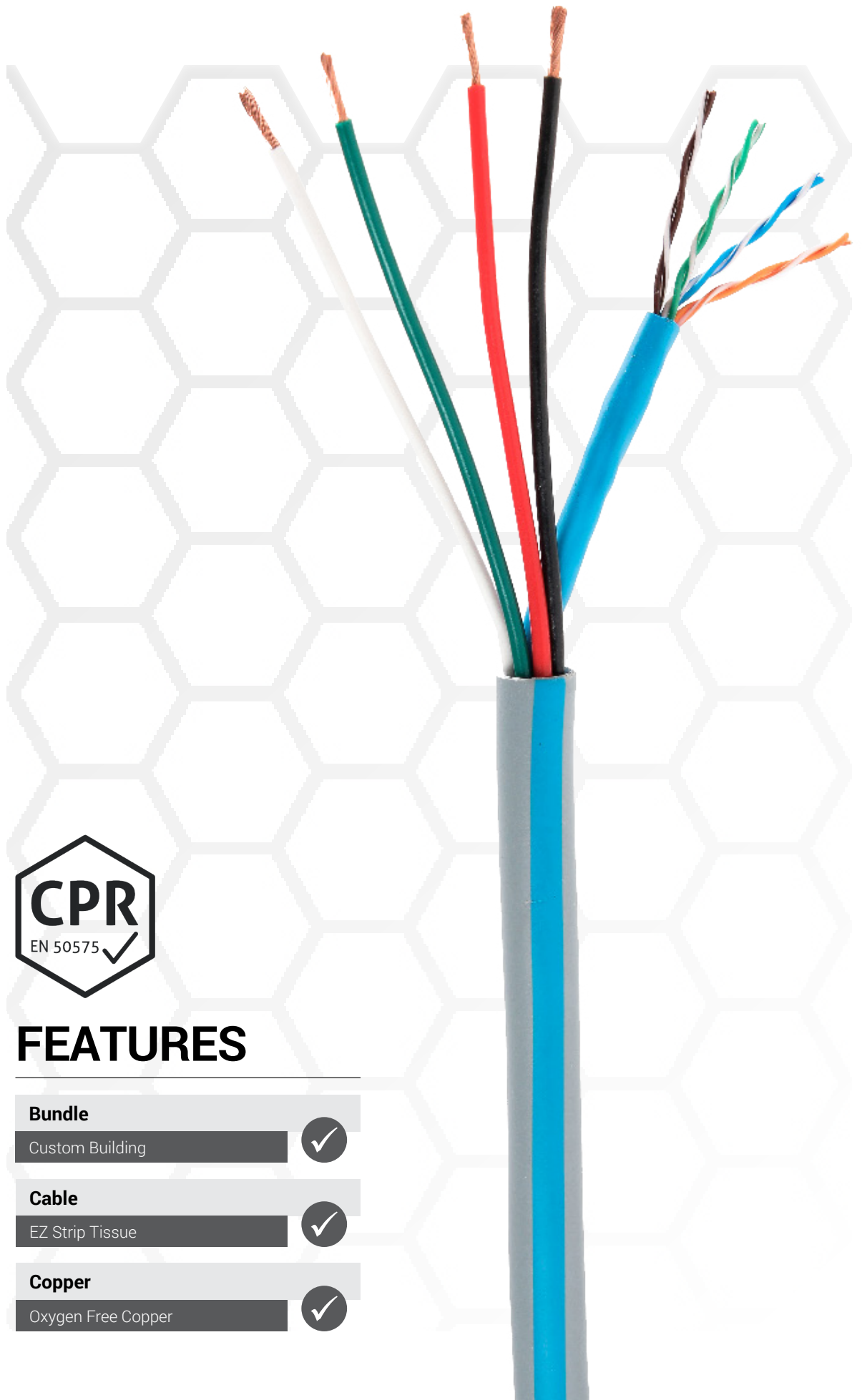
Cable

EZ Strip Tissue



Copper

Oxygen Free Copper




CUSTOM CRAFTED CONVENIENCE

A Custom Solution...

All about convenience. Structured wiring offers a custom solution allowing the advantage of having several cables bundled together within one jacket.

The single cable solution to any problem.





Item	Description	Colour	Unit	Length
3Cat 6/1RG-6	(1) RG-6 Quad Shield CCS + (3) Cat 6/550MHz		Spool	152.5m (500ft)

Custom Bundling





Not seen what you are after? ICE Cable also offer custom built bundles. The cables are skip wrapped, allowing you to combine them without the need for an outer jacket. Just let your Regional Sales Manager know which cables you want to combine and they'll help you get the job done.

Features

ALL	ALL	ALL
		
Big Mouth Payout	Wet Slick Jacket	Direct Burial

Compliance

	FT4/FT6 Rated
	CMR/CMP Rated



AUTOMATION AND LUTRON CABLE



FEATURES

Control

Integrates with all major control systems



Pull Box

Tangle-Free Technology



Cable

EZ Strip Tissue



Copper

Oxygen Free Copper



AUTOMATION WITHOUT DELAY

Integration? No Problem...

Connect with the most popular control systems on the market. ICE offers a simple solution allowing you to communicate with various hardware swiftly and efficiently.



Best of Friends

ICE Cable plays well with others, allowing for perfect connection to almost any control system.



*Compatible with most major manufacturers

Item	Description	Colour	Unit	Length
Control Yellow (CresNet/CresCat)	(1) 22-2 with Shield and Drain + (1) 18-2		Box	305m (1000ft)
Lutron Green	18 Gauge, 2 Conductors + 22 Gauge, 2 Conductor Shielded		Box	305m (1000ft)

Features

ALL	ALL	ALL
Big Mouth Payout	Wet Slick Jacket	Direct Burial

Compliance

(Control Yellow)

(Lutron Green)

	CMR/CMP Rated		CL3/CL3P Rated
	FT4/FT6 Rated		FT4/FT6 Rated

HDMI CABLE

FEATURES

Quality

4K Capability



Speed

High Speed (18Gbps)



Locking

12lbs Pull Force (GRIP)



Plug

Compact 21mm Plug



Cable

EZ Strip Tissue



Copper

Oxygen Free Copper



PERFECT CONNECTION EVERY TIME

Rock Solid Connection...

Connect with the most popular control systems on the market. ICE offers a simple solution allowing you to communicate with various hardware swiftly and efficiently.



Item	Description	Colour	Length
Standard HDMI			
HDMIS205M	Clear Series 2 HDMI Cable, 18Gbps, 60Hz 4:4:4, High Speed with Ethernet, Grip Lock, UL and FT4 Rated		0.5m
HDMIS21M	Clear Series 2 HDMI Cable, 18Gbps, 60Hz 4:4:4, High Speed with Ethernet, Grip Lock, UL and FT4 Rated		1m
HDMIS22M	Clear Series 2 HDMI Cable, 18Gbps, 60Hz 4:4:4, High Speed with Ethernet, Grip Lock, UL and FT4 Rated		2m
HDMIS23M	Clear Series 2 HDMI Cable, 18Gbps, 60Hz 4:4:4, High Speed with Ethernet, Grip Lock, UL and FT4 Rated		3m
HDMIS25M	Clear Series 2 HDMI Cable, 18Gbps, 60Hz 4:4:4, High Speed with Ethernet, Grip Lock, UL and FT4 Rated		5m
HDMIS275M	Clear Series 2 HDMI Cable, 18Gbps, 60Hz 4:4:4, High Speed with Ethernet, Grip Lock, UL and FT4 Rated		7.5m
Active HDMI			
HDMIS210M	Clear Series 2 Active HDMI Cable, 18Gbps, 60Hz 4:4:4, High Speed with Ethernet, Grip Lock, UL and FT4 Rated		10m
HDMIS215M	Clear Series 2 Active HDMI Cable, 18Gbps, 60Hz 4:4:4, High Speed with Ethernet, Grip Lock, UL and FT4 Rated		15m
HDMIS220M	Clear Series 2 Active HDMI Cable, 18Gbps, 60Hz 4:4:4, High Speed with Ethernet, Grip Lock, UL and FT4 Rated		20m

Features

HDMI	HDMI	HDMI
Grip Lock Connectors	Clear Quality 4K Capability	High Speed

Compliance

	CMR/CMP Rated
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WyreStorm

ABOUT WYRESTORM



WHAT WYRESTORM OFFER...

They're a leading manufacturer of award winning 4K and full HD AV signal distribution and control solutions for PRO AV/commercial, residential/custom install and retail markets. Specialising in providing innovative single platform and hybrid solutions, WyreStorm products are developed to minimise system complexity and connectivity for increased ease of installation and reliability, while offering exceptional performance and functionality for the best value and end-user experience.

WyreStorm are a manufacturer proud to offer clear, unbiased opinions and advice. They aim to demystify what can be at times a confusing landscape with clear, impartial advice focused on dealer and end-user satisfaction to ensure the right technology is used and the right application achieved.

OPTICAL HDMI

NEXT GENERATION CONTENT NEEDS NEXT GENERATION CONTENT DELIVERY

2160p
4:4:4 60

Experience the latest 4K UHD with HDR content in all its uncompressed 18Gbps glory with WyreStorm 10m, 15m, 20m and 30m HDMI cables using the latest active optical transmission technology.

Supporting video 4K/60 4:4:4 8-bit and HDR 12-bit at 4:2:2 with HDCP 2.2 for compatibility with the latest 4K UHD content, CAB-HAOC cables handle multichannel audio up to DTS:X and Dolby Atmos. What's more, when it comes to aiding control of devices, they also keep things effortlessly simple with support for both ARC and CEC.

Perfect for point to point use or as part of a WyreStorm 4K UHD matrix switcher system where mirrored HDMI outputs can be used to their full potential, these cables are an ideal solution for any environment where copper transmission may be susceptible to electromagnetic or radio frequency interference.

With install experience as important as transmission quality, our CAB-HAOC cables come ready spooled with 20mm heads easily fed through conduits and colour coded/labelled connections improving ease of install, cable management and adding that personal touch to your installation.

The perfect accessory to any WyreStorm 4K UHD distribution and an absolute must for today's AV projects requiring rock solid delivery of the latest content over full bandwidth 18Gbps HDMI.



PRODUCTS:

CAB-HAOC-10
CAB-HAOC-15

CAB-HAOC-20
CAB-HAOC-30

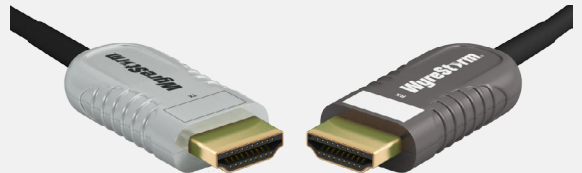
18Gbp/s Over Active Optical HDMI Cable

CAB-HAOC-10 | CAB-HAOC-15 | CAB-HAOC-20 | CAB-HAOC-30

2160p
4:4:4 60

- Uncompressed optical transmission of 18Gbps HDMI content to 10m/33ft
- Supports full bandwidth 2160p 60Hz at 4:4:4 8-bit
- Compatible with latest UHD HDR content at 4:2:0 60Hz 12-bit, including HDR-10 and Dolby Vision
- Perfect for use in environments with excessive EM or RF interference
- High quality aluminium construction with low-profile 20mm/0.79" head
- ARC and CEC enabled for true native HDMI communication
- Supports HDCP 2.2 content encryption

4K HDR HDMI ARC HDCP 2.2

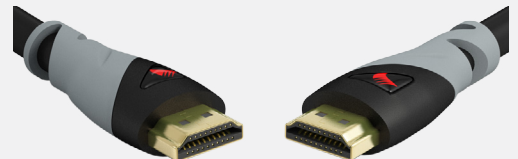


WyreStorm Express High Speed HDMI Cable

EXP-HDMI-0.5M | 1.0M | 2.0M | 3.0M | 5.0M | 10.0M | 15.0M

- High bandwidth, high speed 4K UHD and HD compatible
- Available in 0.5m/1.6ft, 1m/3.2ft, 3m/9.8ft, 5m/16.4ft, 10m/32.8ft, 15m/49.2ft cable lengths
- High quality, premium grade cable
- HDMI v1.4 certified
- Gold plated connections and 99.999% oxygen free copper cable/conductors (OFC) enhances conductivity
- Durable, cable sleeve to prevent twisting and snagging
- HDMI Male/Male Type A connectors

4K HDR HDMI ARC HDCP 2.2



WyreStorm 24Gbps 4-core Active Optical HDMI Cable

EXP-CAB-HAOC-2 | EXP-CAB-HAOC-4 | EXP-CAB-HAOC-6 | EXP-CAB-HAOC-8

- Ready for future HDCP 2.3 content encryption
- True native HDMI communication ensures CEC and ARC communication between compatible devices
- Supports emerging HDMI technologies such as ALLM (Auto Low Latency Mode) and VRR (Variable Refresh Rate)
- Perfect for use in environments with excessive EM or RF interference
- Kevlar protected communication cores
- High quality aluminum construction with low-profile 20mm/0.79" TX head
- Supplied coiled in box

4K HDR HDMI ARC HDCP 2.2



WyreStorm 24Gbps 4-core Active Optical HDMI Cable

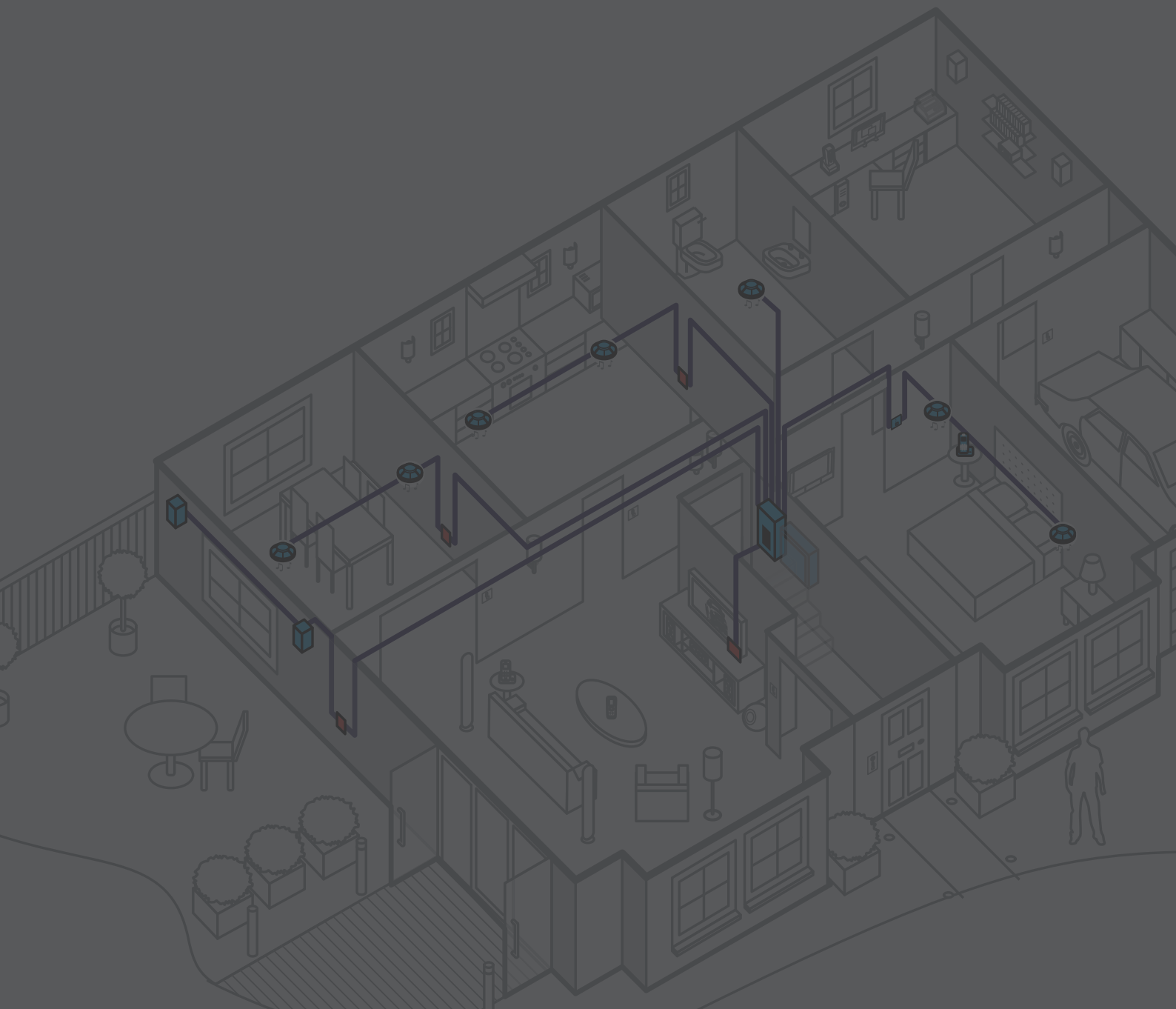
CAB-HAOC-30-C | CAB-HAOC-40-C | CAB-HAOC-50-C

- Ready for future HDCP 2.3 content encryption
- True native HDMI communication ensures CEC and ARC communication between compatible devices
- Supports emerging HDMI technologies such as ALLM (Auto Low Latency Mode) and VRR (Variable Refresh Rate)
- Perfect for use in environments with excessive EM or RF interference
- Kevlar protected communication cores
- High quality aluminum construction with low-profile 20mm/0.79" TX head
- Fixed Type-D head with detachable Type-A head on RX side for ease of installation

4K HDR HDMI ARC HDCP 2.2



AV TESTING EQUIPMENT & WIRING GUIDELINES



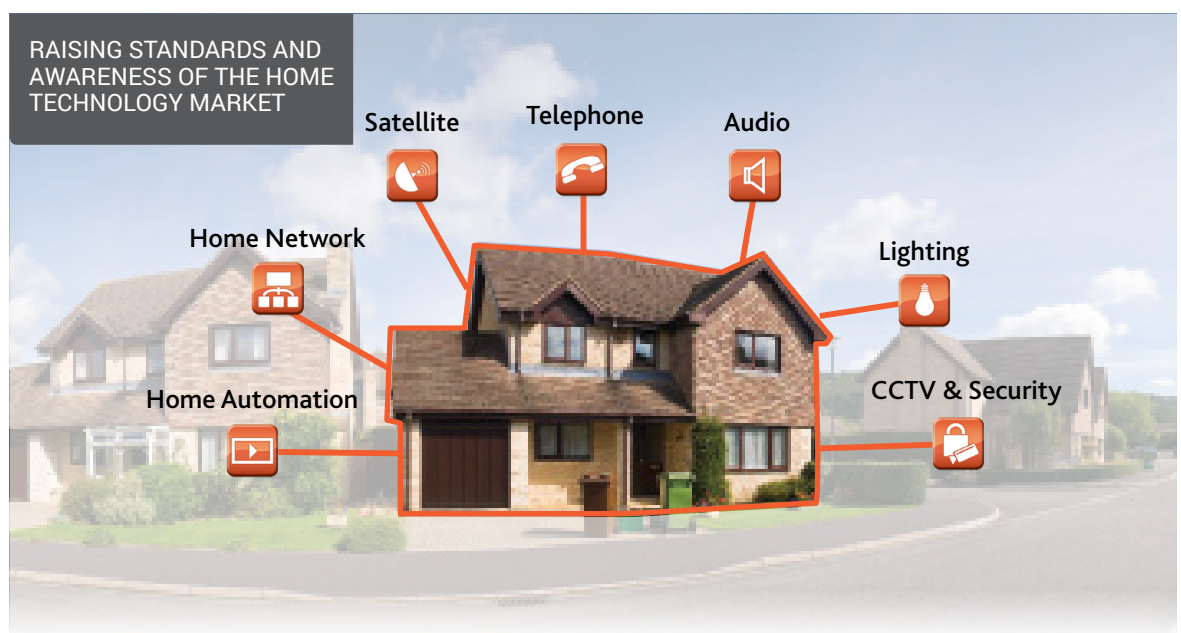
WHO ARE CEDIA

The Custom Electronic Design and Installation Association (CEDIA) is the international trade organisation representing the home electronic systems industry.

Their members specialise in the planning, design, supply and installation of automated electronic systems for the modern, intelligent home. The Association was founded in 1989 and has more than 3000 member companies worldwide. CEDIA is a not for profit Association and has offices located in the UK, the US, China and Australia.

CEDIA was created to develop and deliver educational programmes, Certification and trade shows to make sure that the industry is kept up to date with skills and technology relevant to this specialist market. Core to CEDIA is also raising the awareness and profile of the industry and the Association's members to a wide variety of audiences.

Home owners, builders, architects and interior designers are increasingly recognising CEDIA members as a professional resource. CEDIA is governed by its members, many of whom volunteer generously to ensure their peers have the finest education and industry support possible.



CEDIA'S AIM

The aim of these CEDIA Recommended Wiring Guidelines is to provide homeowners, builders, electricians and developers with guidance for the installation of the cabling infrastructure that is important to support today's digital and connected lifestyles.

CEDIA understands that though they would always recommend that you talk to a CEDIA specialist as soon as possible in your project life cycle, you may wish to undertake the project yourself. If at any time there is ever ambiguity, uncertainty or you would like further advice, please contact a CEDIA member company (www.cedia.org). The most expensive cable that can be installed is the one that did not get installed in the first place. Mistakes can be costly so it is vital to get the cabling infrastructure correct the first time round.

CEDIA™

The following information was supplied to us by CEDIA.

Full details on wiring guidelines can be found on the CEDIA website.

Scan code to download your copy NOW
or visit <http://www.cedia.co.uk/publications>



GRADES OF INSTALL

Each CEDIA wiring Grade has a minimum cabling requirement defined as a benchmark to correctly wire the services within the home. As the Grade level increases so does the complexity and level of product /technology that is required to correctly specify and design a system. **Grade 1** systems are simple enough that they can be installed by a homeowner with confident technical abilities, or by a qualified electrician. **Grade 2** system cabling demands some additional design input , they also can require a more complex installation depending on the multi room equipment to be installed and so may need help from a specialist CEDIA member. Due to the bespoke and customisable nature of **Grade 3** systems it is always recommended that a CEDIA member is consulted as early as possible in the project cycle life.

GRADE 1

A Grade 1 cabling infrastructure involves installing a combination of twisted pair data cable (called Cat 5e or Cat 6a) in combination with TV and satellite Coaxial cable (typically called CX100 or WF100) to most rooms in the house excluding lavatories and bathrooms. This will allow easy delivery of internet services, home networking, TV, Satellite, radio, telephone, conferencing and other entertainment services to these rooms. Modern construction techniques are very unfriendly to high speed wireless connections (WiFi) and a cable infrastructure will allow the wireless equipment to be optimally located for good signal strength and speed.

MINIMUM CABLING



CX100 or WF100
Cat 5e or Cat 6a

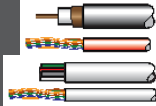
INSTALLATION

A homeowner or
qualified electrician

GRADE 2

A Grade 2 cabling infrastructure includes all the cables in a Grade 1 infrastructure in addition to cables designed to enable the installation of whole house entertainment systems. These systems allow the use of discreetly hidden speakers and in wall control points to deliver and control a wide range of entertainment options. Used in conjunction with the cables installed for Grade 1, a Grade 2 system can deliver high quality music and TV pictures around a home fed from a central equipment hub.

MINIMUM CABLING



CX100 or WF100
Cat5e or Cat6a
Cat 5e or Cat 6a
+ 4 core

INSTALLATION

A qualified electrician (with audio
system installation experience) or
CEDIA member

GRADE 3








A Grade 3 system encompasses all the cables in a Grades 1 and 2 in addition to cables designed for Home Automation. This functionality can include a lighting control system, motorised curtains and blinds access control systems, CCTV networks, environmental and heating control, as well as systems that allow all of the above to be controlled and integrated by a single control system using in wall controls and hand held remote controls. Due to the bespoke nature of some of these systems, unlike Grade 1 and 2 generic recommendations cannot be made so it is essential to discuss your requirements for these advanced systems with a CEDIA member.

MINIMUM CABLING

Bespoke depending on design

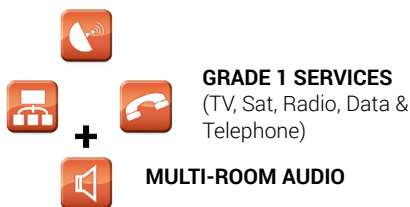
INSTALLATION

CEDIA member only

SERVICE DESCRIPTION	DESCRIPTION	GRADE 1	GRADE 2	GRADE 3
 Satellite, radio, digital and cable TV	Cabling for Satellite television, Freeview TV and Radio. Also provision for cable TV.	✓	✓	✓
 Home network - Broadband and Wireless Internet	Cabling for a wired home network and a robust wireless network.	✓	✓	✓
 Telephone	Cabling for telephone points and for devices requiring a telephone line connection (such as Sky).	✓	✓	✓
 Multi Room audio	Cabling for speakers (such as in-ceiling) and audio control points from a AVHE (Audio Video Head End) location.		✓	✓
 Scene setting lighting and blind control	Cabling for lighting control system and automated blinds, cabling and systems can vary.			✓
 Home Automation	Bespoke cabling to allow control of multiple systems within the home.			✓
 CCTV and Security	Bespoke cabling for CCTV and security coverage of the home, usually following a security risk assessment and design.			✓

GRADE 2 SERVICES

In addition to services provided in Grade 1, a Grade 2 wired home includes the provision of wiring a number of multi-room audio zones.



GRADE 2 DESCRIPTION

Cabling as listed in **Grade 1** PLUS:

Additional 4 core speaker + Cat5e cabling for a multi room audio system.

Each speaker cable and Cat5e are run together, and provide wiring for an 'audio zone'. These cables must all start from a single location, known as the AVHE (Audio Video Head End). The AVHE is located at ELVHE location.

Additional cabling must be run to a suitable main living space location where **Grade 1** cabling has been terminated - e.g. the main lounge. This cabling is referred to as the 'Remote AVHE cabling', and provides links to the AVHE for additional audio sources.

	DESCRIPTION	CABLING	CONNECTIONS (A TO B)
AUDIO ZONE	2 x Speakers locations 1 x Control point	1 x Cat5e 1 x 4 core speaker 1 x WF100	Speakers via control point — AVHE
REMOTE AVHE	Additional cabling for audio sources	2 x Cat5e 2 x WF100 + Grade 1 cabling	Remote AVHE location — AVHE

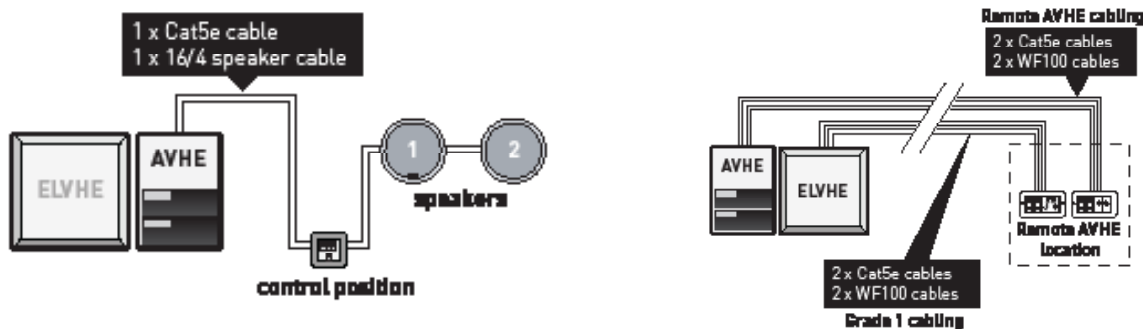
Each audio zone to be wired for multi-room audio will have a Cat5e+4 core speaker cable run via a suitable control position (typically a switch level backbox), and then from the control position to the first speaker and then looped to the second speaker. This is the principle of the CEA/CEDIA 2030-A standard. Wiring in this way allows for the following options.

OPTION 1 - a remote keypad to be located in each room with a central amplifier.

OPTION 2 - a remote sensor installed at each speaker with a central amplifier.

OPTION 3 - a Cat 5e based speaker (with internal amplifier) with the speaker cable being used for power.

*Remote AVHE cabling - two additional Cat 5e and two additional Coax cables should be run to the AVHE location from the ELVHE. Grade 1 cabling should also be available at this location.



AUDIO CABLING

Cat5e (reference standard - TIA/EIA-568A) and 4 core speaker cabling (4 core speaker cable with 4 cores of 16 gauge). A 'shotgun' Cat5e and 4 core speaker cable helps to minimise cable runs.

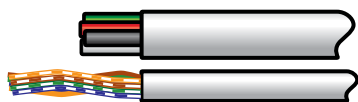
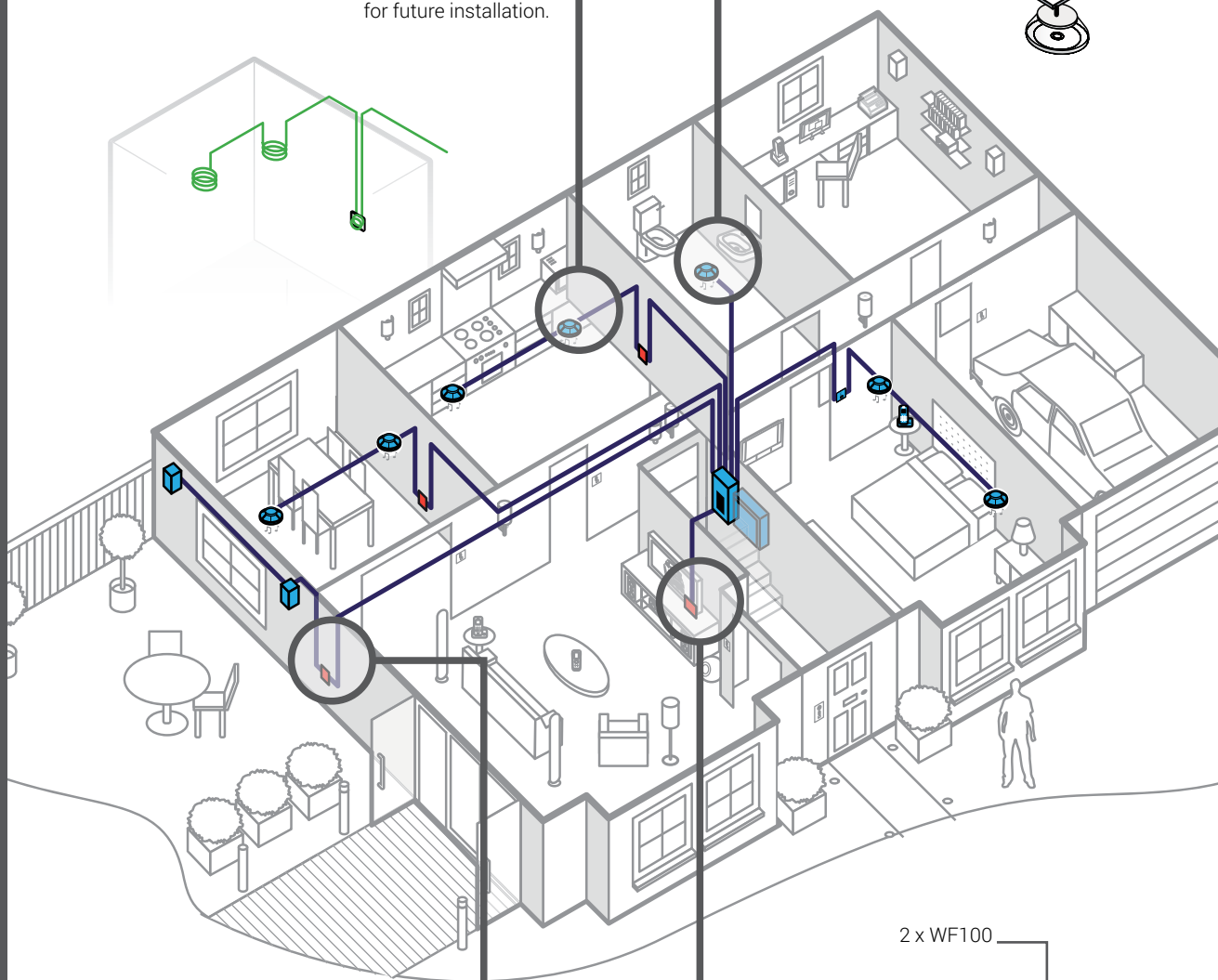
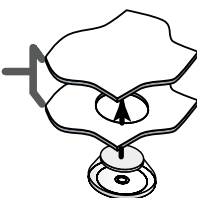


GRADE 3 INSTALL

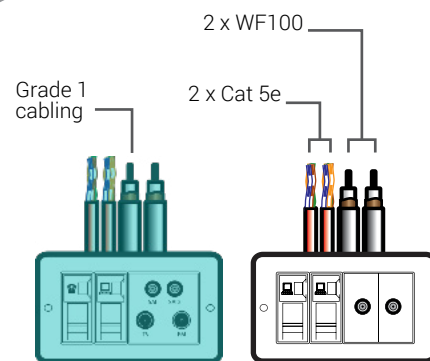
15cm cable coils should be left at speaker pre-wire locations and 30cm coils in backboxes. All speaker locations should be accurately recorded for future installation.

In-ceiling speaker locations will need to be coordinated so that an unobstructed installation is possible. Avoid locating next to joist, beam or pipework.

Minimum 200mm diameter void, 100mm clear depth required for installation of in-ceiling speakers.



1x Cat 5e + 1x 4 core speaker cable run via a control point location to speakers. This is called an Audio Zone. Shotgun cable can help minimise cable runs.

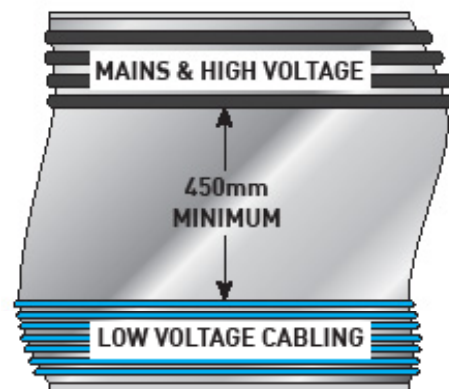


Additional cabling (2x Cat 5e + 2x WF100) is required for the REMOTE AVHE. Grade 1 cabling (2x Cat 5e + 2x WF100) should also be available here.

ELECTRICAL REQUIREMENTS

Low voltage and Extra Low Voltage cabling requires some special consideration when being run around the property. Due to the type of signals they carry, they are susceptible to interference from mains and high voltage cabling. A qualified electrician will be able to run these cables with this in mind, some guidelines are:

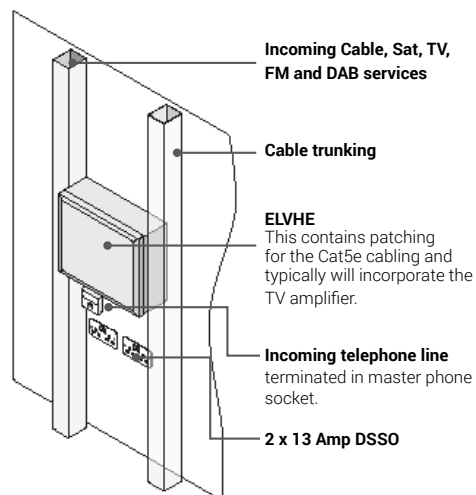
- Ensure all exposed cables (or those run underground) are sufficiently protected.
- If sockets are not to be terminated, leave tails on all cables - 3 metres at the equipment site, 30cm at a backbox.
- Label cables in a unique fashion using the supplied labels, fix near the backbox.
- Ensure cable entry into backboxes is from the bottom of or top of the backbox
- Cables shouldn't run parallel to mains/lighting cables for any distance greater than 2m, unless at least 4550mm apart. There are no problems if cables just cross at 90 degrees.



EXTRA LOW VOLTAGE HEAD END (ELVHE)

The ELVHE is where the incoming services and most cables will run back to. A location for this needs to be determined for the electrical contractor at an early stage. The ELVHE can be hidden away under the stairs or in a utility room, for example. It needs to be placed somewhere accessible and at an appropriate height from the floor so an electrician or engineer can safely work on it.

The panel needs 2 x 13 Amp double switched socket outlets located close to it. It is recommended that cable management be provided to run the cables to the ELVHE. Trunking can be used to feed cables directly into the cable knock-outs, or run alongside as indicated. The electrical contractor will decide the best way of managing the cables.

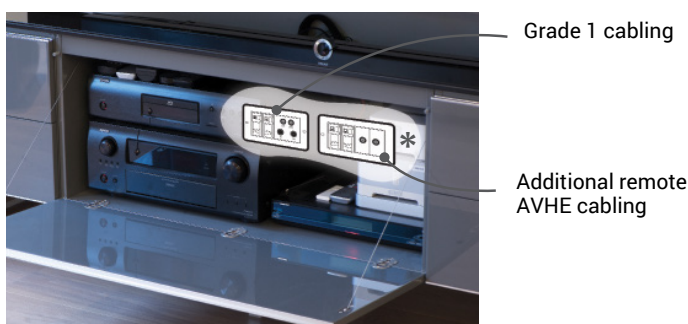


AUDIO VIDEO HEAD END (AVHE)

The AVHE is located at the ELVHE. A suitable patch or enclosure panel may be installed or shelving could be provided for the equipment (with the cables being terminated in a backbox with a faceplate at the shelving location). Ensure there is appropriate mains power adjacent to any head end equipment. Any AVHE location will need to be suitably ventilated.

REMOTE AVHE CABLING

The remote AVHE cabling should be run to a suitable main living space location where the Grade 1 cabling has been terminated - e.g. the main lounge. Consideration should be made as to where to house the audio sources and amplifier components - this may often be within a piece of joinery. Any equipment will need to be suitably ventilated.



Don't forget that suitable mains power supply will be required for the remote AVHE and any head end equipment.

TERMINATION'S

DO

Use sweeping bends, no tighter than the curve of a Coke can.

DON'T

Bend ratio = 4x diameter
Don't allow the cable to form right angles or sharp bends.

DO

Use tie wraps loosely on large bundles.

DON'T

Do not overstress cables by over tightening cable ties, especially to the point where crush stress is visible

DON'T

Don't allow the cable to kink, knot or snag while pulling it off the spool or out of the box; deforming the pair-twist will alter the performance of the cable.

DON'T

Don't allow the cable to kink, knot or snag while pulling it off the spool or out of the box; deforming the pair-twist will alter the performance of the cable.

DO

Use j-hooks or similar devices designed to support cables.

DON'T

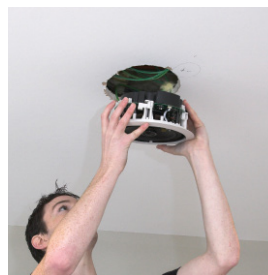
Do not overstress cables by overloading.



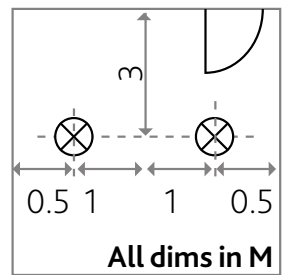
Pull cable using less than 25 pounds (11.3Kg) of pull-force.



Use a cable pulling accessory.



Ensure 15cm cable coils are left at speaker pre-wire locations to allow for easy installation.



Record any pre-wire locations accurately.

IMPORTANCE OF TESTING

"Fixing a fault at second fix is 10 times cheaper than fixing a fault at commissioning."

Do not leave all the testing to the end - perform appropriate testing at each stage. After each Cat5e cable has been terminated it must be continuity tested and wire mapped.

There are three categories of testing: **Verification, Qualification, Certification**

1 - VERIFICATION

Verification answers the following question:

"Do I have end to end continuity and a proper wiremap on the cable?"

Verification Tools Provide:

Basic Tools.
Basic continuity wiremap
Shorts or open in a cable
More Advanced Tools
Length and tone tracing



2 - QUALIFICATION

Qualification answers the following question:

"Can this cabling link support the bandwidth requirements of the network and applications?"

Qualification Tools Provide:

Identification of links that will not support certain network speeds and technologies. Distance to performance faults like crosstalk. Assurance that existing cabling will support new technologies, like Gigabit Ethernet (GBE) and VoIP, before upgrading.



3 - CERTIFICATION

Certification answers the following question:

"Does this cable comply with performance requirements of the International TIA or ISO standards?"

The definition of performance and the level ("Category or Class") of performance is defined by industry standards TIA/EIA-568B defines Cat5e, Cat6a, ISO/IEC 11801 and 61935 define Class C, D, E and F.

Industry standards specify a level of performance based on bandwidth analysis that is independent of a particular network technology.

ISO
TIA

WIREFAPPING

The wiremap shows some common examples of incorrect terminations that can show up in testing. These are used for testing to make sure pin 1 on patch panel goes to pin 1 on outlet etc.

Additional testing is possible for: Continuity, Shorts, Crossed Pairs, Reversed Pairs. Split Pairs will not be detected by a simple wiremap test, Split pairs will undermine balanced line operation. More sophisticated test required to detect split pairs.



For more information on these guidelines check out CEDIA's Wiring Requirements Guide.
SCAN THE QR CODE TO DOWNLOAD THE GUIDE





MURIDEO TESTING EQUIPMENT

Murideo was created out of the need to bring more modern tools to the Custom/Commercial AV Integrator market. With in depth knowledge brought on from years of experience in the electronics industry, Murideo are determined to bring cutting edge tools to the world at large that were previously only available to select groups.



FRESCO SIX-A UHD AND HDR ANALYZER

This is a 18Gbps 4K Analyzer that can read HDR data at the same time as giving you live video preview. This is the new standard in analyzers, and paired with the Fresco SIX-G Generator becomes a full calibration and testing system.



FRESCO SIX-G GENERATOR

The Murideo SIX-G is for the AV Integration market to confirm HDMI 2.0(a) and HDCP 2.2 operation at the 18Gbps level. Additionally, the SIX-G is an excellent troubleshooting tool for distributed HDMI systems and a reference source for video calibration and is compatible with calMAN.



FOX AND HOUND TESTING KIT

This 18Gbps Generator and Analyzer kit was built as the ideal testing unit for all custom and commercial integrators. The Fox & Hound Test Kit comes with an 18Gbps Generator and 18Gbps Analyzer; these tools allow you to confirm correct bandwidth, HDCP, resolution, timing, HDR metadata and many more options that could cause system hiccups if not treated correctly.



FRESCO SIX-G AND SIX-A TEST SUITE

The Murideo Fresco pair comes with an 18Gbps Generator and 18Gbps Analyzer; these tools allow you to confirm correct bandwidth, HDCP, resolution, timing, HDR metadata and many more options. You are able to connect these devices directly to your computer to expanding your testing with a free software that comes with your pair. The Murideo Fresco pair is a must have for any HDMI Specialist, Calibrator, AV Product Manufacture, HDMI Cable Manufacture, Custom/Commercial Integrators, Content Masters and more.

CABLE INSTALLERS

What does CPR mean for installers?

The construction Products Regulation (CPR) is a game changer for the supply of cable into the UK market as it makes it a legal requirement for cable to be tested and approved to agreed performance criteria.

Up until this point, it has not been illegal for substandard cable to be imported and sold in the UK. For contractors therefore, and for reputable cable manufacturers, the introduction of CPR is to be heartily welcomed as it introduces some legally binding regulations around the quality of cable offered for sale.

From 1st July 2017, all cable to be used for permanent installation in buildings must be tested for its performance in relation to fire. The tests required relate to the way the cables behave in a fire, rather than the ability of the cable to resist the effect of fire.

To be CPR compliant, a cable must be accompanied by a Declaration of Performance (DoP) to demonstrate that it has been tested and certified by a legally appointed notified testing body to comply with the relevant performance tests.

This puts a whole new level of responsibility on the manufacturers, distributors and wholesalers of cables, but makes life easier for contractors and installers.

As you would expect, ICE Cable has been working towards this new regulation for years and all Ice cable is fully compliant with the regulations. ICE Cable are delighted that the new regulations will help to remove substandard cable from the market: another step forward in the drive to improve the safety of products used in UK buildings.

For contractors buying cable made by reputable manufacturers and supplied through reputable wholesalers, the new regulation simply provides further assurance that the cable purchased performs as it should.



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<div data-bbox="403 1352 895 1404">AnyCo Ltd, PO Box 21, B-1050, Brussels, Belgium</div> <div data-bbox="633 1440 665 1462">13</div> <div data-bbox="445 1536 852 1563">(To be given by the manufacturer)</div>	<div data-bbox="994 1352 1442 1404">Name and the registered address of the manufacturer, or identifying mark</div> <div data-bbox="1002 1440 1436 1489">Last two digits of the year in which the marking was first affixed</div> <div data-bbox="1050 1525 1386 1552">Reference number of the DoP</div>
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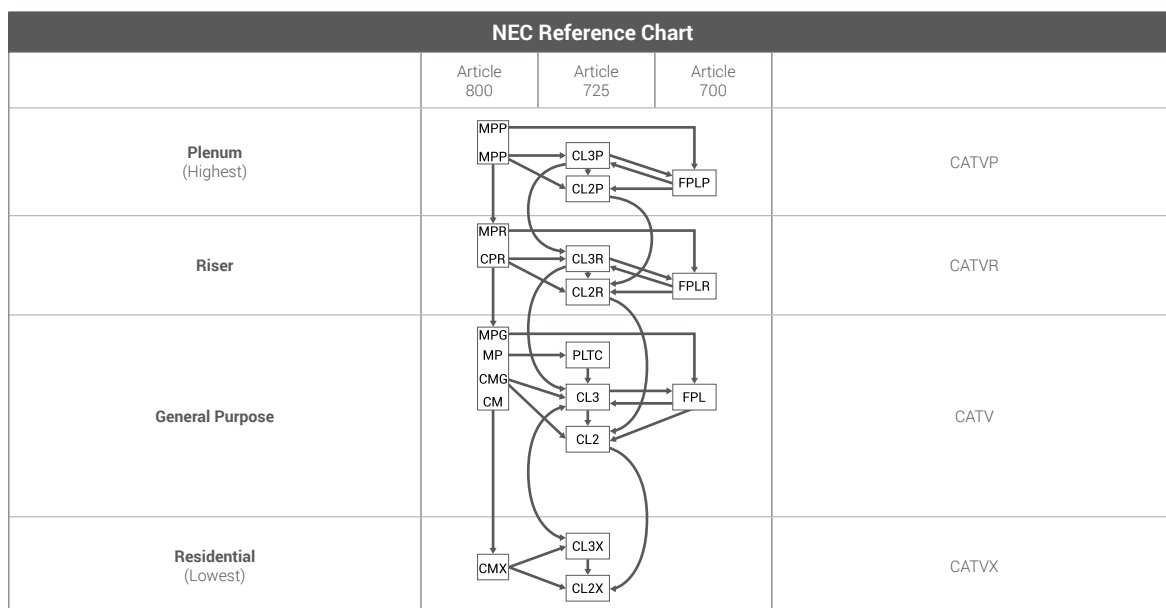
STANDARDS AND PERFORMANCE

Here's what you need to know about ICE's safety compliance and High End performance quality.

RoHS Compliant Cable



Customers want more sustainable products. ICE satisfies this by offering only environmentally friendly cable that is fully RoHS compliant. RoHS is the European standard for the restriction of hazardous substances, such as Lead, Cadmium, Mercury, Hexavalent, Chromium, Polybrominated Biphenyls and Polybrominated Diphenyl ethers. This assures that the products ICE sell are manufactured responsibly and with the environment in mind.



HDMI Performance			
Length	Bandwidth	1080p @60Hz	4K Limit
0.5m	High Speed (10Gbps)	Yes	60Hz
1m	High Speed (10Gbps)	Yes	60Hz
2m	High Speed (10Gbps)	Yes	60Hz
3m	High Speed (10Gbps)	Yes	60Hz
5m	High Speed (10Gbps)	Yes	30Hz
7.5m	High Speed (10Gbps)	Yes	60Hz
10m	High Speed (10Gbps)	Yes	60Hz
15m	High Speed (10Gbps)	Yes	60Hz
20m	High Speed (10Gbps)	Yes	60Hz

CATEGORY CABLE DATA AND APPLICATIONS

Here’s what you need to know about ICE’s large variety of Category/Data cables and how best to apply them during your installations.

ICE Cable Category Cable Comparison						
Cable Type	Bandwidth	Gauge	Ethernet Speed	Uses	Shielding	Termination
Cat 6	550mHz	23awg	10 Gbps	Advanced Network Infrastructure, 100m HDBaseT Runs, Short 4K Runs, Switch Linking	Separator	RJ45
Cat 6a	550mHz	23awg	10 Gbps	Advanced Network Infrastructure, 100m HDBaseT Runs, Short 4K Runs, Switch Linking	Separator	RJ45
Cat 7	600mHz	23awg	10 Gbps	Advanced Network Infrastructure, 100m HDBaseT Runs, Short 4K Runs, Switch Linking	Separator/S/FTP	RJ45

ICE Cable Category Cable Comparison			
Service	Application/Use	Bandwidth Requirements	Advised Cable
HDBaseT	1080p60Hz @12bit Colour	6.68 - 10.2 Gbps	Cat 6/6a
4K 30Hz Video	4K Video @ 30Hz and 4:2:2 Colour	8.9 - 10.2 Gbps	Cat 6a/7
4K 60Hz Video	4K Video @ 60Hz and 4:4:4 Colour and HDR	18 Gbps	Fibre

NOTES

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