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# TRIAX TEOC GigaKit

## Triax Ethernet over Coax GigaKit Presentation



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# Agenda

- **Introduction to the TEOC GigaKit  
(Triax Ethernet over Coax Gigabit Kit)**
- **Overview of G.hn EoC technology**
- **Installing the TEOC GigaKit**
- **Use cases**
- **Installation Tips**
- **Summary**



# What is the TEoC GigaKit for?

- You have a Building with no or poor Wi-Fi coverage and re-cabling is not an option or cost prohibitive



Ethernet Infrastructure

- None
- Limited

Wireless Network

- None
- Poor

... but the Building or Home has an existing TV Coax infrastructure!



TEoC GigaKit

- Use a TEoC GigaKit to create a Gigabit Network over the existing TV Coax Cables that are already installed



Creates an Ethernet Infrastructure

- By re-using existing Coax for TV & Data

Improve the Wireless Network

- By adding an AP for Reliable In-Room Wi-Fi



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# How does TEoC GigaKit work?

- 'Triax Ethernet over Coax' **GigaKit** delivers high speed internet over an *existing* Coax installation
- **TEoC** uses G.hn Technology in the **2-200MHz** frequency range
- Works with TV Signal – sends **TV & Data** through the same existing Coax cable
- **TEoC GigaKit** consists of: 1 x Controller, 1 x Receiver, 1 x 2 Way TV/Data Combiner & 1 x 48V PSU
- **PoC (Power over Coax)** – the **TEoC Controller** provides **remote power** to the **TEoC Receiver**
- Up to **7 x TEoC Receivers\*** can be linked to 1 x **TEoC Controller** (\*to follow - requires local power)



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# Why use a TEOC GigaKit?

## • Customer Benefits

- Save costs by re-using existing cables
- Clean installation - no drilling or mess
- No unsightly new cable runs
- Hardwired Ethernet connection
- Robust and reliable connectivity
- Low latency for gaming
- Better Wi-Fi coverage - by simply adding an Access Point for In-Room Wi-Fi
- Maintains existing TV Services
- Environmentally friendly
- Minimal downtime for Installation

## • Installer Benefits

- Competitive pricing for installation
- Time saving – get more work done
- Simple to Install – one button press to Pair
- Simple, more familiar, F type Terminations
- Plug & Play Installation – no set up required
- Robust and reliable IP Network option
- Further reach than CAT6
- Easy to extend Wi-Fi coverage – just add an AP
- Compact design – easy to secrete behind TV's
- Quality looking product – adds value

# In the TEoC GigaKit



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## TEoC Controller



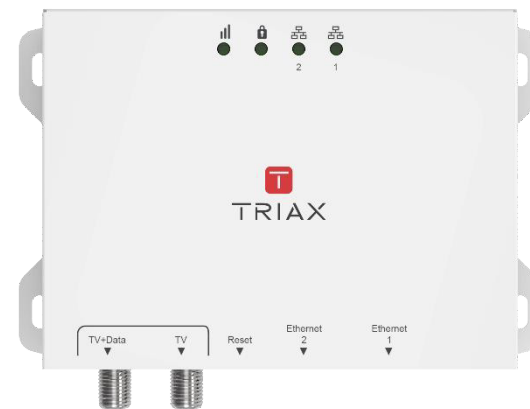
## TEoC TV/Data Combiner



## TEoC 48V PSU



## TEoC Receiver

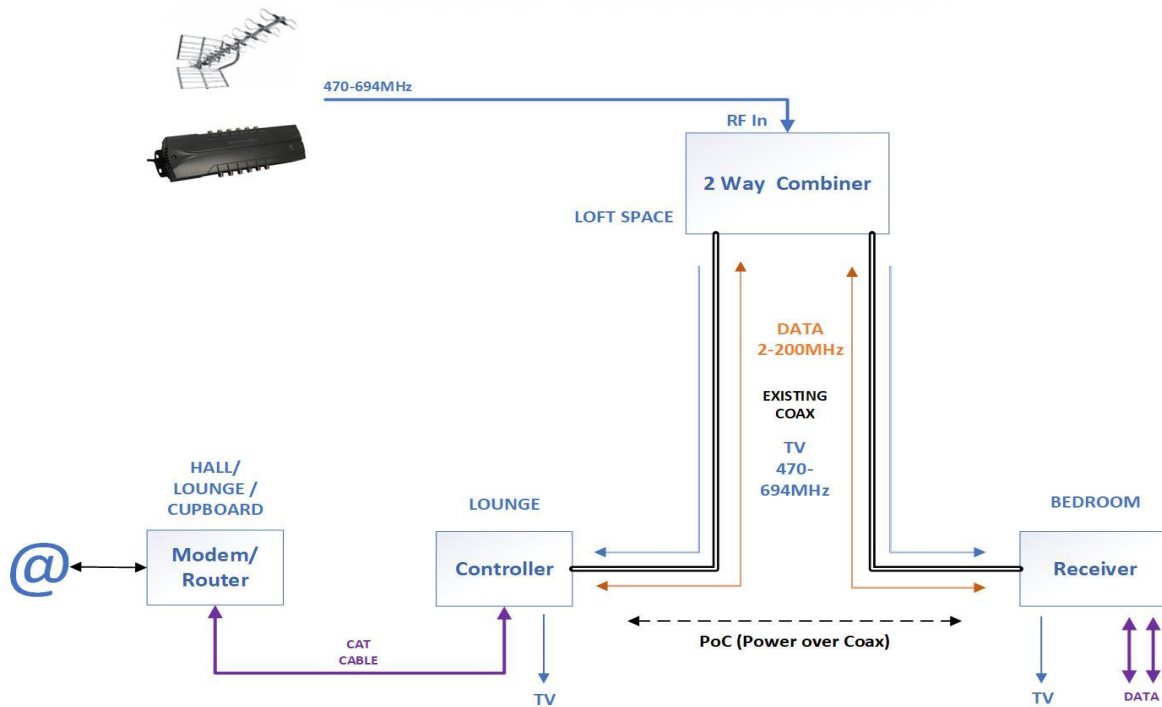


# The TEoC GigaKit Concept

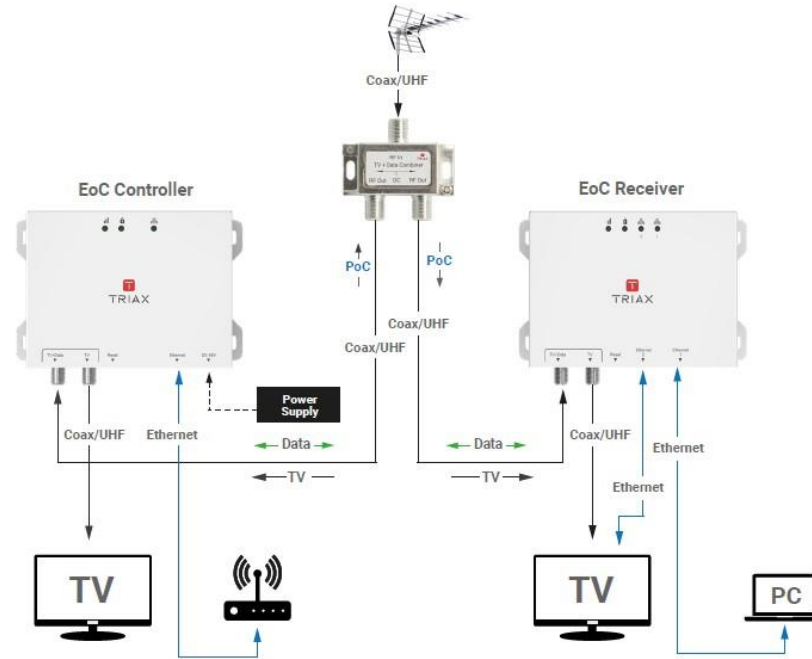


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## TEoC GigaKit Schematic



# Typical TEOC GigaKit Point-to-Point Set Up



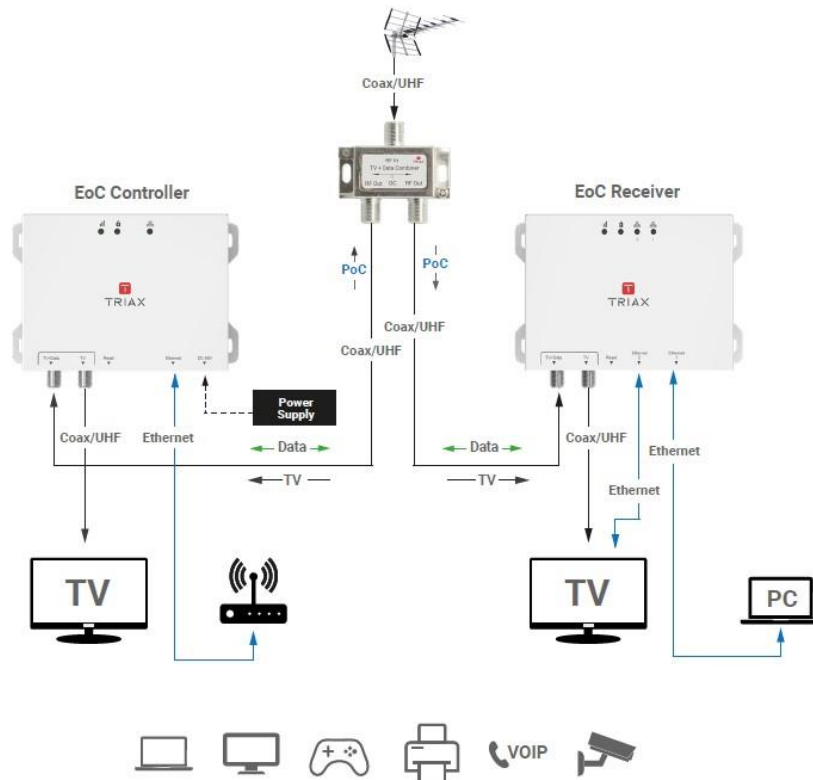
G.hn wave 2 technology ensures TV signals remain unaffected, so TV sets won't require retuning

Simply add an Access Point to one of the TEOC RJ45 Receiver Ports for full In-Room Wi-Fi Coverage





# Typical TEOC GigaKit Point-to-Point Set Up



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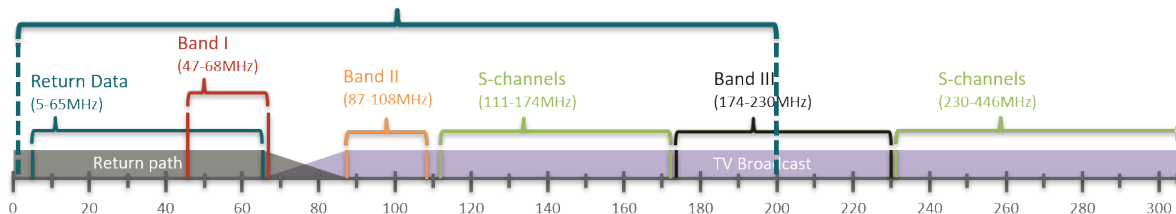




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# G.hn Technology

- G.hn (TEoC) Frequency range is **2-200MHz**
- G.hn output level is **~100dBμV** (Controller and Endpoint)
- Max total **G.hn** bandwidth is **1.4 Gbps** (DS/US as UDP Traffic)
- **1 Gigabit Ethernet** Input on the Controller
- **Low Latency, down to ~1ms**
- **VLAN Transparent**
- **Notch FM & DAB\*** if required
- **TV insertion loss ~4dB**



\* Notching reduces available bandwidth. ~8Mb per 1MHz of Notch eg: FM Notch = 21MHz = ~160Mb loss of Bandwidth



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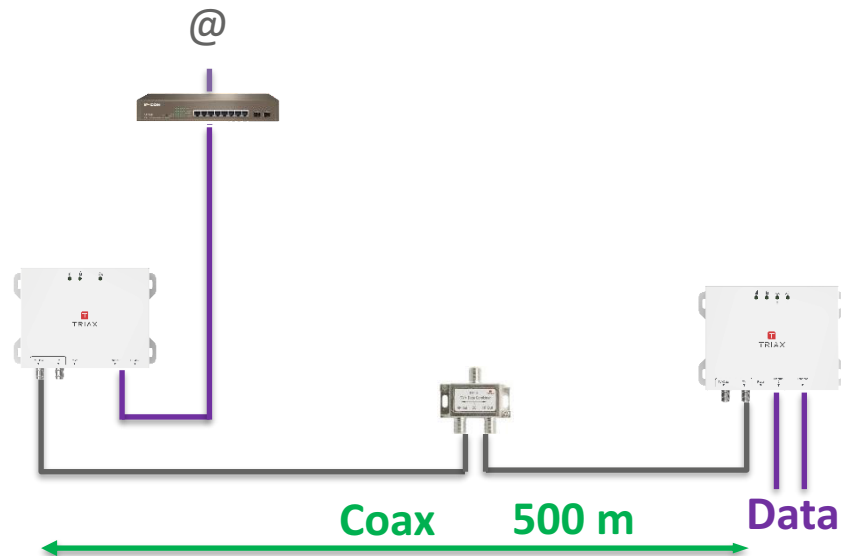
# Coax Network Reach – Point-to-Point

Tests have shown excellent link speeds on **500m** of Type 100 Coax for Data Only

## KOKA 110 A:

- Application: Indoor
- Inner conductor : 1.13mm Cu
- Shielding: Foil & Braid
- Attenuation (20°C / 100mtr):
  - @ 50MHz : 4.2dB
  - @ 200MHz : 8.2dB

Attenuation (dB)	0	20	40	60	70	80
Throughput (Mbps)	1429	1419	1367	638	315	51
Cable Length* (m)	N/A	250	500	750	850	1000
* Based on Triax Koka 110A @ ~ 200MHz						





# Coax Network requirements

- Outlet plates must **pass 2-200MHz** for full bandwidth capacity
- Outlet plates must **pass DC for PoC**
- Use straight-through outlets – **not Quad (Sat1) or Triplex filtered**
- **TEoC Coax Network/Link** must **pass 2-200MHz** for **Data** and **DC** for **PoC**
- Only use **TEoC TV/Data Combiner-Splitter** for **TEoC Receivers**
- Only use **TEoC TV/Data Combiner-Splitter** to **insert Terrestrial signal**



# Coax Network requirements - Outlets

- Outlet plates

## Filtered Outlets



Will pass some data but will restrict available bandwidth

## Straight Through Outlets



For maximum throughput and bandwidth



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# Use Cases

- To **Hardwire** to Sky, Apple TV, Games Consoles, Smart TV's etc
- To **expand** Wi-Fi Networks (Requires 3<sup>rd</sup> Party Access Point)
- To create **Point to Point** Ethernet Links over Coax **up to 1km\***
- To create **Point to Multi-Point** IP Networks
- To avoid Wi-Fi Router **spectrum congestion** in **MDU's**
- To create **long distance** Ethernet Links – Industrial, Commercial etc

\* 1km = ~ 50 Mbps – no Terrestrial at this distance



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# Installation Tips

- Pair Controller and Receiver local to each other prior to installing to final locations
- Check all Coax Network components and replace any non-compatible items
- Ensure good F connections at all Coax terminations
- Avoid “Twist-On” F Connectors – Crimp or Compression to ensure a robust connection
- Check Broadband Speed in to Controller and confirm Speeds at Receiver
- Ensure TV Signal is LTE Filtered before input to TV/Data Combiner (470-694MHz)
- Avoid using FM Radio on TEOC systems where possible

# In Summary



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## A Simple Choice



+



or



+





# In Summary

## Why Run Two?



When you can Just Run One!



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# In Summary

- **Plug & Play – no complex Set Up required**
- **Fibre Speeds with Coax Costs**
- **CAT6 Capability – Coax Distance**
- **1 Gigabit Network instantly on any Coax Network**
- **TV & Data on One Coax**
- **Expandable up to 7 x Receivers**



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**THANK YOU**

**Any Questions - your local experts**

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