

Date:
28th August 2020

**Thermoview Series®
TV46 TV43**

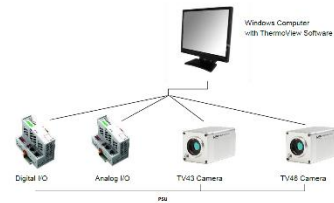
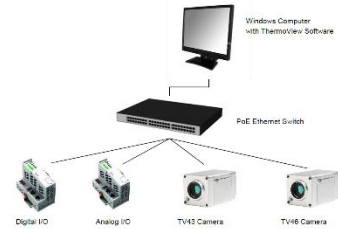


Network Architecture Testing Update and Recommendations

Situation

The manual states that standard networking architecture is possible in a multi camera system. User experience did not match this even when data rate and bandwidth was correctly planned for.

We modified our guidance and recommended the use of multi-port PCI network cards with a known history of stability with GigE Vision devices. We tested and recommend Intel 350 chipset based quad port cards. The disadvantage of this method is that the network architecture is restricted to “star” topology with the pc at the center instead of a network switch and that individual PoE injector are needed or local power supplies.



It is generally understood that 2 x TV46/60Hz cameras with Fusion enabled are very close to the limit of a 1Gbps uplink connection. However, using gigabit unmanaged switches communication problems were experienced with multiple TV43s or 9Hz cameras, or just 2 TV46's running at 60Hz. This is thought to be due to packet timings and collisions.

Updated Situation

Recent tests with a Cisco managed gigabit switch, yielded positive results with 2 x TV46/60Hz. Yet displayed erratic behavior with 3 cameras (more than 60% of the total available bandwidth used). Managed 1Gbps switches can be sufficient for multiple cameras with lower resolution or reduced frame rates but not for TV46/60Hz. We then tested (with excellent results) a managed switch with 8 gigabit ports combined and dual 10Gbps uplink ports for connection to the pc or wider network.

Results and Recommendations

We have tested and can recommend the following:

NETGEAR MS510TXPP 10-Port Multi-Gigabit/10G LAN PoE Managed Switch

4 x TV46/60Hz cameras were tested – providing full frame rates without communication losses

This switch offers 2 x 5Gbps ports, 2 x 2.5Gbps ports, 4 x 1Gbps ports and 2 x 10Gbps uplink ports (1 Copper and 1 SPF+ Fiber). Cat 7 cable was used for the uplink connection

MTU size set to 9000 (jumbo packets) in web management console and LAN adapter (in this case a 5Gbps USB adapter - further testing needed to verify if this is mandatory.

This means that adjustable MTU size should be (and generally is) a feature of any 10Gbps LAN card

Interaction with other devices on the network were not checked. No changes to QoS settings were applied.

Additional Information

Data rates without fusion enabled (visual data adds approximately 75Mbps per camera):

TV46/60Hz = 300Mbps

TV43/60Hz = 75Mbps

TV46/9Hz = 45Mbps

TV43/9Hz = 11.25Mbps