VIGITRON

barox

VI series – IP & PoE Extenders

Features and Applications

VI-UTP-23xy series for twisted pair cables, Cat5, Cat6 or Cat7

The VI series VI-UTP-23xy devices transmit 10/100Mbps Ethernet and PoE/PoE+ via twisted-pair cables such as Cat5, 6, 7 up to a distance of 500 m.
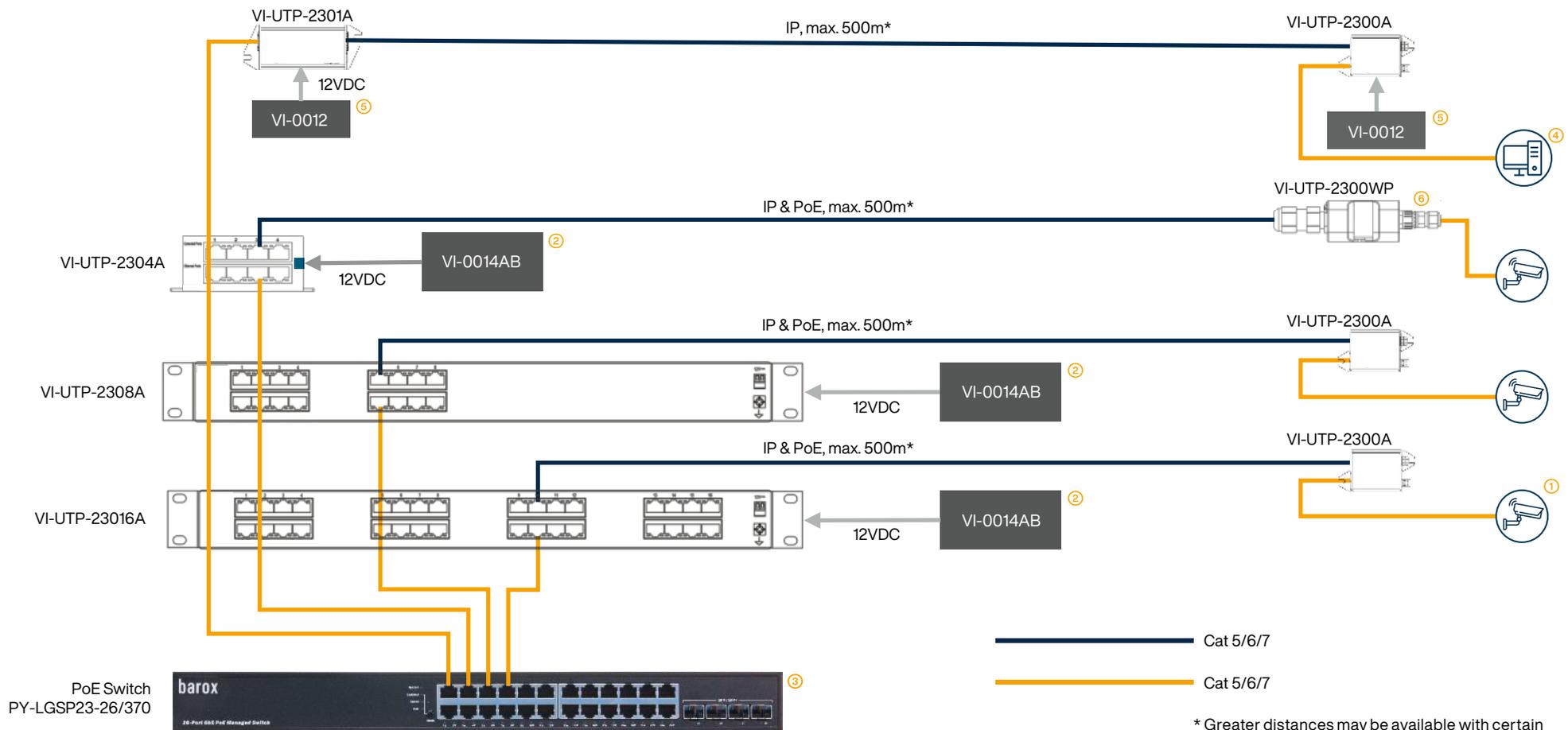
The devices are often used in cases where existing analogue video cameras are to be replaced by new IP cameras. When the existing cable connection is longer than 100 metres, or the cables used are not suitable for transmitting IP signals, the VI series devices provide a high-quality solution for continuing to use the existing cables.

The devices do not require any software configuration. Diagnostic LEDs provide an overview of the operating status. The VI series modules can be installed as desktop models, on top-hat rails and in 19" cabinets. The following explanations show some possible applications and provide information for planning and designing individual transmission lines and entire systems.

Remarks

- If a PoE powered device such as a PoE IP camera ① is connected, the two extenders at both ends of the line are also supplied with PoE by the host switch/power source
- Multi-channel devices must always be powered locally ②. However, this power supply does not serve as a PoE power source.
- A PoE switch, PoE midspan or similar must always be connected as the PoE source (PSE) at the start of the line ③.
- If a device without PoE requirements, such as a computer, is connected at the end of the line ④, the PSE will not switch on the PoE. In this case, the two extenders must be powered locally ⑤. See also accessories note below.
- The VI-COAX-2400WP ⑥ is IP67 protected and can be used outdoors without further protection.

Fig. 1, Application of the VI-UTP-23xy series

VI-UTP-2301A IP, max. 500m* VI-UTP-2300A

12VDC

VI-0012 ⑤   VI-0012 ⑤   ④

VI-UTP-2300WP ⑥

IP & PoE, max. 500m*

VI-UTP-2304A   VI-0014AB ②

12VDC

IP & PoE, max. 500m* VI-UTP-2300A

VI-UTP-2308A   VI-0014AB ②

12VDC

IP & PoE, max. 500m* VI-UTP-2300A

VI-UTP-23016A   VI-0014AB ②

12VDC   ①

PoE Switch
PY-LGSP23-26/370   barox   ③
26-Port GbE Managed Switch

Cat 5/6/7

Cat 5/6/7

* Greater distances may be available with certain
cable types and in certain technical scenarios.
Loan units are available for network testing.
Please ask your barox contact for more details.

Note on the use of telephony cables

The VI-UTP-23xy series devices can also be connected with Cat3 cables (telephony
cables) or similar cables. Please note the following point.

- A minimum of two wire pairs are required for the transmission of data and PoE. The
  wire pairs must be assigned to the following pins of the RJ plug:
  Pair of pins 1 and 2: Data transmission
  Pair of pins 3 and 6: PoE transmission
- If only two wire pairs are used, the maximum transmitted PoE power is 15W.

System note

Connecting several pairs of devices via the same cable can lead to transmission
problems due to crosstalk between the different signals in the cable. Ideally, each device
connection should therefore be realised via separate cables.

Accessories

Depending on the application, sophisticated solutions can be delivered with the follow-
ing accessory products

PoE Simulator VI-UTP-0024

In Fig. 2, an end device without PoE requirements ① is connected to a control centre via an extender link. As described above, the two extenders must be powered locally. The VI-UTP-0024 ② simulates a PoE load and requests the PoE source ③ to switch on PoE. The PoE power allows the two extenders to be operated without a local power supply. The VI-UTP-0024 does not pass on the PoE power to the connected end device.

VI-UTP-2301A

IP & PoE, max. 500m*

VI-UTP-2300A

VI-UTP-0024 ②

IP ①

PoE Switch
RY-LGSP23-26/370

barox

③

Cat 3/5/6/7

Cat 5/6/7

* Greater distances may be available with certain cable types and in certain technical scenarios. Loan units are available for network testing. Please ask your barox contact for more details.

Fig. 2, Application of the VI-UTP-0024

PoE Class Changer

If the extender line is very long or the core cross-sections of the extender cable are too small, the power that arrives at the end device may not be sufficient to operate it. If the end device requires a low PoE class, the class changer can be a solution. The VI-00023 always changes the PoE class requirement to class 4 and thus increases the power provided by the PoE source.

Product overview VI-UTP-23xy and accessories

	Product designation	Remarks
	VI-UTP-2300A	Single-channel extender in mini format Preferably used on the camera side due to its small dimensions. Power must be supplied locally with VI-0012 if no PoE source is available.
	VI-UTP-2301A	Single-channel extender Preferably used on the Control centre side. Must be supplied locally with VI-0012 if no PoE source is available.
	VI-UTP-2300WP	Single-channel extender in IP67 weatherproof housing. Can be used at the Control centre or camera side. Must be supplied locally with VI-0012 if no PoE source is available.
	VI-UTP-2304AB	Four-channel extender Power must always be supplied with VI-0014AB. A PoE source must be available
	VI-UTP-2308AB	Eight-channel extender Power must always be supplied with VI-0014AB. A PoE source must be available.
	VI-UTP-2316AB	Sixteen-channel extender Power must always be supplied with VI-0014AB. A PoE source must be available .
	VI-0014AB	DC supply with 12VDC and 3A. Can be used for all multi-channel extenders.
	VI-0012	DC supply with 12VDC and 1A
	VI-UTP-0024	PoE simulator, requests PoE from the PSE.
	VI-00023	PoE Class Changer. Increases the power required by the PSE to class 4.

The VI series is a line of products developed by Vigitron

VI-COAX-24xy series for coaxial cable, 75Ω

The VI series VI-COAX-24xy devices transmit 10 / 100Mbps Ethernet and PoE/PoE+ via coaxial cables such as RG59 up to a distance of 500 m.

The devices are often used in cases where existing analogue video cameras are to be replaced by new IP cameras. When the existing cable connection is longer than 100 metres or the cables used are not suitable for transmitting IP signals, the VI series devices provide a high-quality solution for continuing to use the existing cables.
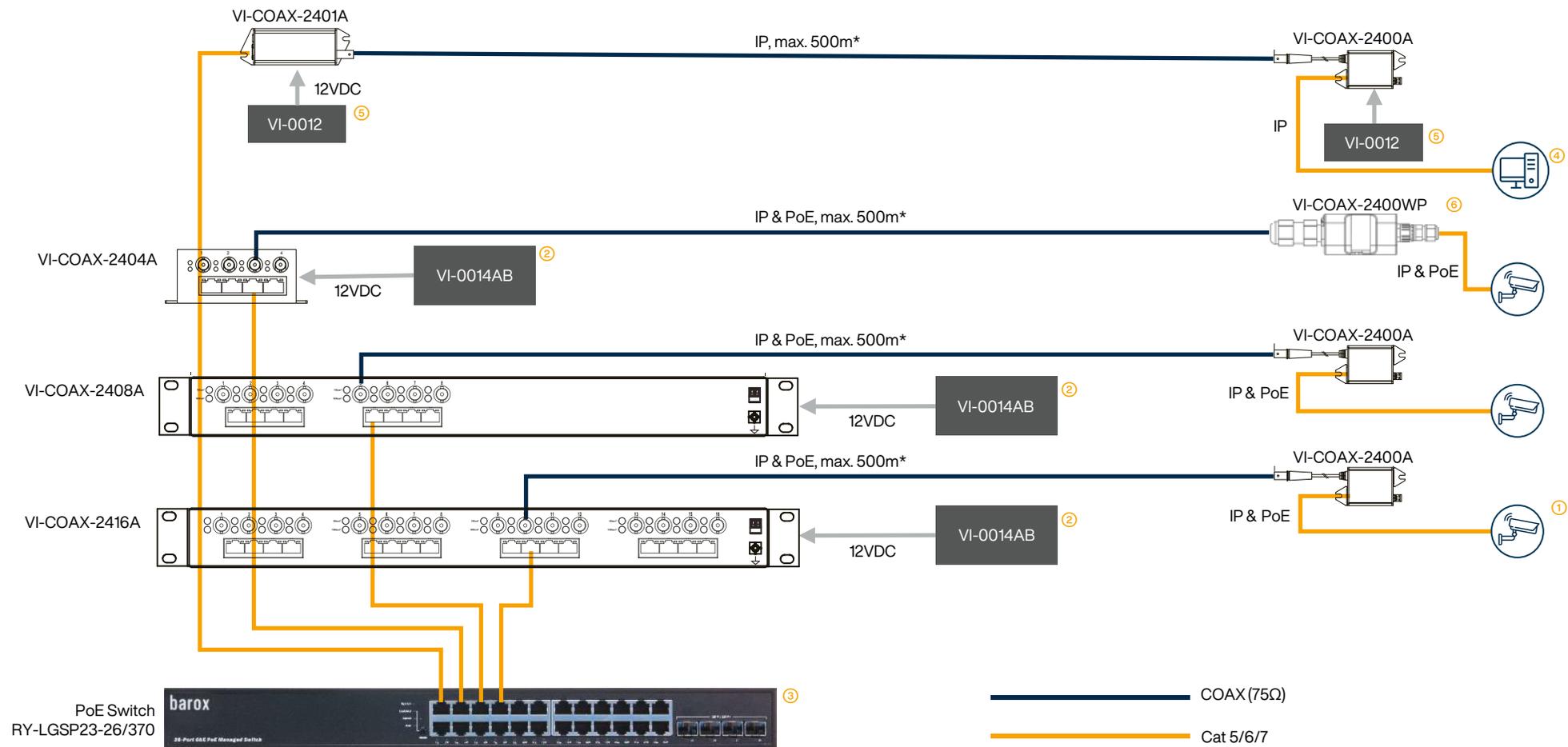
The devices do not require any software configuration. Diagnostic LEDs provide an overview of the operating status. The VI series modules can be mounted as desktop models, on top-hat rails and in 19" cabinets. The following explanations show some possible applications and provide information for planning and designing individual transmission lines and entire systems.

The conductor cross-sections of coaxial cables are relatively small. As a result, the PoE power that can be transmitted with coaxial cable is relatively low.

Remarks

- If a PoE powered device such as a PoE IP camera ① is connected, the two extenders at both ends of the line are also supplied with PoE by the host switch/power source
- Multi-channel devices must always be powered locally ②. However, this power supply does not serve as a PoE power source.
- A PoE switch, PoE midspan or similar must always be connected as the PoE source (PSE) at the start of the line ③.
- If a device without PoE requirements, such as a computer, is connected at the end of the line ④, the PSE will not switch on the PoE. In this case, the two extenders must be powered locally ⑤. See also accessories note below.
- The VI-COAX-2400WP ⑥ is IP67 protected and can be used outdoors without further protection.
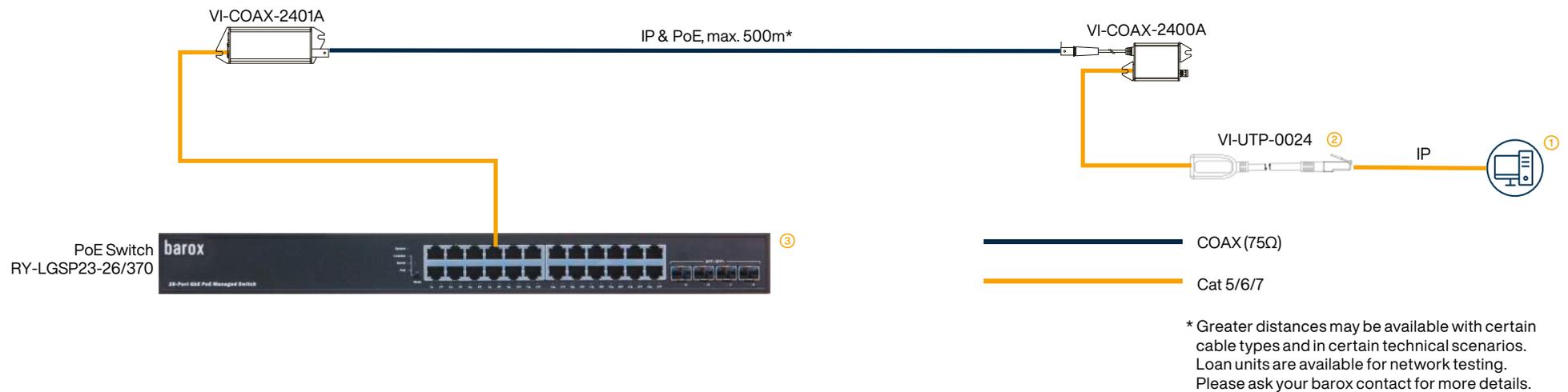
Fig. 3, Application of the VI-COAX-24xy series

VI-COAX-2401A

IP, max. 500m*

VI-COAX-2400A

12VDC

VI-0012 ⑤

IP

VI-0012 ⑤

④

IP & PoE, max. 500m*

VI-COAX-2400WP ⑥

VI-COAX-2404A

12VDC

VI-0014AB ②

IP & PoE

IP & PoE, max. 500m*

VI-COAX-2400A

VI-COAX-2408A

12VDC

VI-0014AB ②

IP & PoE

IP & PoE, max. 500m*

VI-COAX-2400A

VI-COAX-2416A

12VDC

VI-0014AB ②

IP & PoE

①

PoE Switch
RY-LGSP23-26/370

barox

③

COAX (75Ω)

Cat 5/6/7

* Greater distances may be available with certain
cable types and in certain technical scenarios.
Loan units are available for network testing.
Please ask your barox contact for more details.

System note

Connecting several pairs of devices via the same cable can lead to transmission prob-
lems due to crosstalk between the different signals in the cable. Ideally, each device con-
nection should therefore be realised via separate cables

Accessories

Depending on the application, elegant solutions can be delivered with the following ac-
cessory products

PoE Simulator VI-UTP-0024

VI-COAX-2401A

IP & PoE, max. 500m*

VI-COAX-2400A

VI-UTP-0024 ②

IP ①

PoE Switch
RY-LGSP23-26/370

③

COAX (75Ω)

Cat 5/6/7

* Greater distances may be available with certain
  cable types and in certain technical scenarios.
  Loan units are available for network testing.
  Please ask your barox contact for more details.

Fig. 4, Application of the VI-UTP-0024

In Fig. 4, an end device without PoE requirements ① is connected to a control centre via
an extender link. As described above, the two extenders must be powered locally. The
VI-UTP-0024 ② simulates a PoE load and requests the PoE source ③ to switch on PoE.
The PoE power allows the two extenders to be operated without a local power supply.
The VI-UTP-0024 does not pass on the PoE power to the connected end device.

2-wire transmission with the coax extenders and baluns

In practice, there are cases where only one wire pair is available. As the VI-UTP-24xy devices require at least two wire pairs, the following solution can be used:
A pair of VI-COAX-24xy series extenders is operated in combination with two VI-0030 baluns, see Fig. 5. The balun (balanced – unbalanced) equalises the difference in line impedance between the twisted pair cable (120Ω) and the extenders (75Ω).
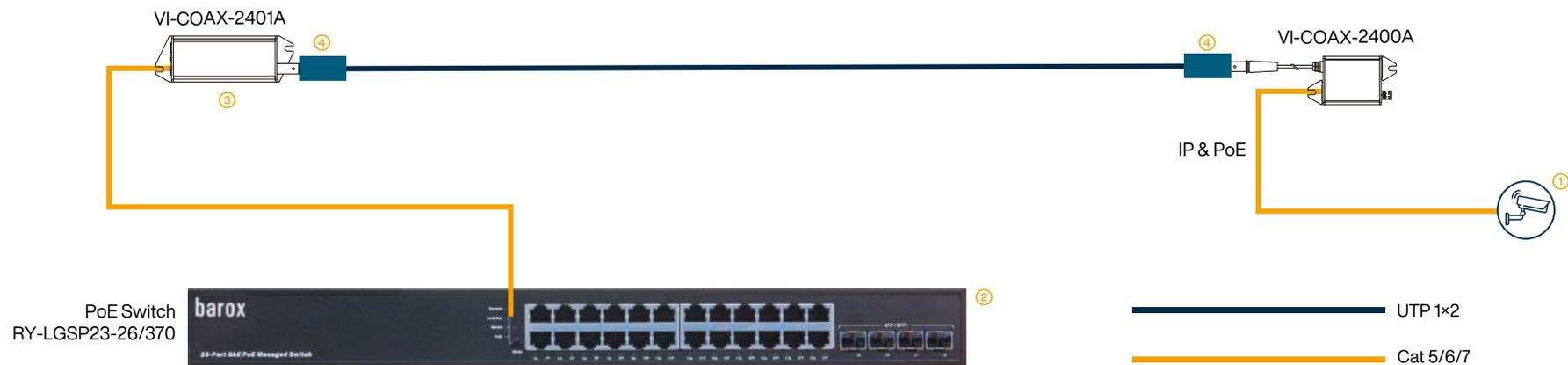

Fig. 5, Use of VI-COAX-24xy extenders in combination with baluns

An IP camera ① is to be connected to a PoE switch ②. A UTP cable ⑤ with only one wire pair is available for the connection. The extender link is set up with two extenders from the VI-COAX-24xy series ③. One VI-0030 balun ④ must be connected to the extender connection of each extender.

Product overview VI-COAX-24xy and accessories

Product designation	Remarks
VI-COAX-2400A	Single-channel extender in mini format Preferably used on the camera side due to its small dimensions. Must be powered locally with VI-0012 if no PoE source is available.
VI-COAX-2401A	Single-channel extender Preferably used on the Control centre side. Must be powered locally with VI-0012 if no PoE source is available.
VI-COAX-2400WP	Single-channel extender in IP67 weatherproof housing. Can be used on the Control centre or camera side. Must be supplied locally with VI-0012 if no PoE source is available.
VI-COAX-2404AB	Four-channel extender Must always be supplied with VI-0014AB. A PoE source must be available
VI-COAX-2408AB	Eight-channel extender Must always be supplied with VI-0014AB. A PoE source must be available.
VI-COAX-2416AB	Sixteen-channel extender Must always be supplied with VI-0014AB. A PoE source must be available.

The VI series is a line of products developed by Vigitron

	Product designation	Remarks
	VI-0014AB	DC supply with 12VDC and 3A. Can be used for all multi-channel extenders.
	VI-0012	DC supply with 12VDC and 1A
	VI-UTP-0024	PoE simulator, requests PoE from the PSE.
	VI-00030	Impedance balun. Allows the use of COAX extenders with twisted pair cables.

The VI series is a line of products developed by Vigitron