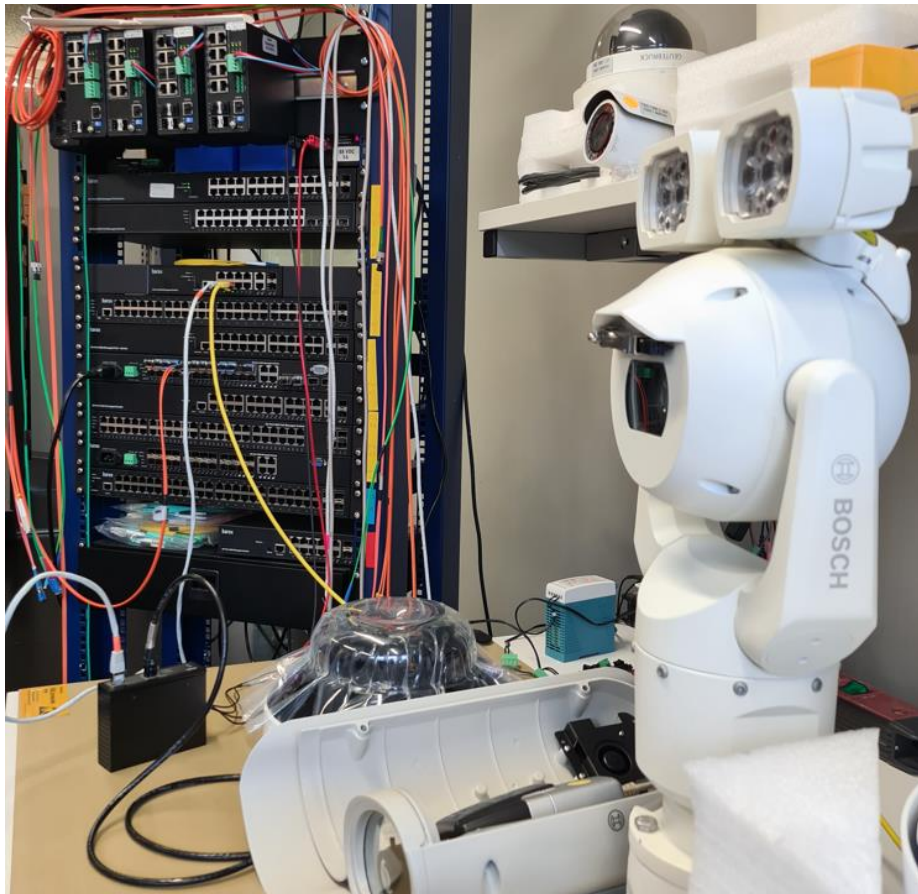


# Technical Report

## PoE-Compatibility Test Bosch Cameras

- ❖ FLEXIDOME multi 7000i IR
- ❖ FLEXIDOME outdoor 5100i
- ❖ DINION IP starlight 6,000 HD + UHO-POE-10
- ❖ AUTODOME IP starlight 5100i IR
- ❖ MIC IP starlight 7000i



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## 1 Starting Point

Adding an infrared emitter or heater to a PoE camera increases the amount of power required. The purpose of the test, therefore, was to check the functionality of the cameras using barox PoE switches and media converters and to record the resulting configuration settings.

## 2 Test Setup

Each camera was tested separately in combination with the individual switches and media converters. During these tests, any existing IR emitters or heaters were switched on and off to simulate the changing power requirements during operation.

The hat rail switches were supplied with 55 VDC in line with PoE++ specifications.

Example: Test setup using an RY-LGSPTR23-26 switch with a FLEXIDOME multi 7000i IR camera



## 3 How the Tests were Carried Out

As the cameras are pre-set to DHCP when they leave the factory, they do not have a static IP address so the DHCP server first needed to be configured for each individual switch. In our tests, the DHCP address range was set to between 192.168.1.50 and 192.168.1.59.

All the other settings were left as they were when they left the factory. This also applied to the PoE settings.

Procedure:

1. Connect the camera to port 1 of the switch
2. Check the PoE setting of port 1.

**Power Over Ethernet Configuration**

PoE Power Supply Configuration

PoE Firmware Version: 208-352

Primary Power Supply [W]: 820

PoE Port Configuration

Port	PoE Mode	PoE Schedule	Priority	LLDP	Legacy
1	8023bt	Disabled	Low	Enabled	Disabled
2	8023bt	Disabled	Low	Enabled	Disabled

3. Check the PoE status
  - a. With which class does the camera sign in?
  - b. How much power (in watts) is the camera using?

**Power Over Ethernet Status**

Auto-refresh

Local Port	PD class	Power Requested	Power Allocated	Power Used	Current Used	Priority	Port Status
1	5	45 [W]	45 [W]	9.3 [W]	172 [mA]	Low	PoE turned ON
2	-	0 [W]	0 [W]	0 [W]	0 [mA]	Low	No PD detected
3	-	0 [W]	0 [W]	0 [W]	0 [mA]	Low	No PD detected

4. Is the camera recognised in the DMS system (RY switches)?
5. Has the ONVIF information been imported into the DMS system?

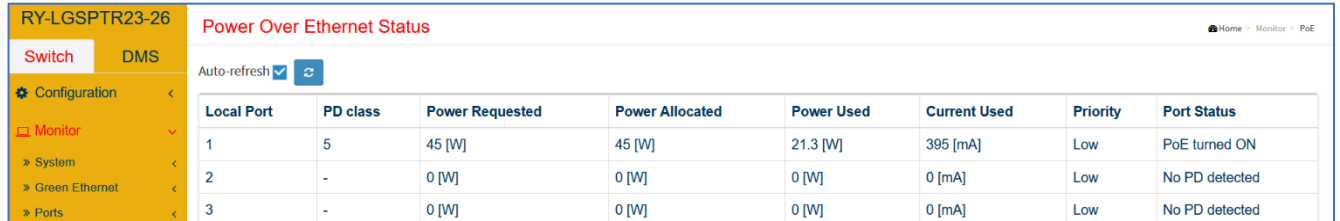
**Topology View**

RY-LGSPTR23-26 (192.168.1.1)

- FLEXIDOME multi 7000i IR (192.168.1.50)  
Bosch FLEXIDOME multi 7000i IR  
192.168.1.50  
Port: 1 (0.066Mb)
- DINION IP starlight 6000 HD (192.168.1.51)  
Bosch DINION IP starlight 6000 HD  
192.168.1.51  
Port: 2 (0.029Mb)
- FLEXIDOME outdoor 5100i (192.168.1.52)  
Bosch FLEXIDOME outdoor 5100i  
192.168.1.52  
Port: 3 (0.021Mb)
- LAB-NB-01  
General PC  
192.168.1.222  
Port: 25 (0.013Mb)

6. Can the camera be pinged?
7. Can the video stream be viewed using a web browser?
8. Switch on each additional function separately, e.g. LED, IR and heater.
9. Check the PoE status
  - a. How much power (in watts) is the camera using?
  - b. Was the power input automatically adjusted?

Example: LED and IR light switched on



Local Port	PD class	Power Requested	Power Allocated	Power Used	Current Used	Priority	Port Status
1	5	45 [W]	45 [W]	21.3 [W]	395 [mA]	Low	PoE turned ON
2	-	0 [W]	0 [W]	0 [W]	0 [mA]	Low	No PD detected
3	-	0 [W]	0 [W]	0 [W]	0 [mA]	Low	No PD detected

10. Reboot the switch (warm start).
  - a. Did the camera boot?
  - b. Check the PoE status
  - c. Can the camera be pinged?
  - d. Is the video stream available?
11. Completely reboot the switch from scratch (cold start)
  - a. Did the camera boot?
  - b. Check the PoE status
  - c. Can the camera be pinged?
  - d. Is the video stream available?

If the connection between the switch and the camera is still working after each step has been carried out, the camera is declared as being compatible. If there is no connection, the PoE configuration on the switch is adjusted and the individual steps are rechecked.

If no connection can be established between the switch and the camera, the camera is considered to be incompatible with the switch in question.

Tests carried out with unmanaged switches or switches without media converters and injectors are somewhat easier to perform. During these tests, the PoE detection functionality, the detection of the camera itself and the release of power are checked. During these tests, the PTZ, IR, white light and heating features are also switched on and off during operation in order to dynamically test PoE performance.

If no connection can be established with the camera, the camera is considered to be incompatible.

## 4 Summary and Findings

The new generation of cameras that support IEEE Standard 802.3bt work perfectly with barox products. Thanks to the lower power input required, they can also be used in combination with PoE+ – although certain restrictions apply.

## 5 Compatibility Table

PoE Standard	Device	FLEXIDOME multi 7000i IR MDM-7703-AL	DINION IP starlight 6000 HD NBN-63023-B	Outdoor Housing UHO-POE-10	FLEXIDOME outdoor 5100i NDE-5702-A	AUTODOME IP starlight 5100i IR NDP-5523-Z30L	MIC IP starlight 7000i MIC-7502-Z30w
IEEE 802.3bt	Switch						
	RY-LGSPTR23-26	✓	✓	a	✓	✓	✓
	RY-LPITE-804GBTME	✓		✓	✓	✓	c
	RY-LPITE-802GBTME	✓	✓	a	✓	✓	✓
	LT-LPITE-402GBTME	✓		✓	✓	✓	c
	<b>Media Converter</b>						
	PC-BTPMC-101-GE	✓		✓	✓	✓	✓
	PC-BTPMC-101-10GE	✓		b	b	b	b
	PD-BTPMC-102M-GE	✓		✓	✓	✓	x1
	<b>Injector</b>						
	PC-Inj-95-BT	✓		✓	✓	✓	✓
PC-Inj-95-B	✓	✓		x2	✓	✓	
60W HPoE	Switch						
	PC-PITE502-GBTE	x1	✓	x2	✓	x1	c
	VI-30005	(✓)	✓		✓	d	c
	VI-3105	(✓)		✓	✓	d	c
	VI-3003	(✓)		✓	✓	e	c
	<b>Media Converter</b>						
	PC-HPMC101-GE	(✓)		✓	✓	d	c
	<b>Injector</b>						
PC-Inj-60W-B (24VDC/40W)	(✓)		✓	✓	d	x1	
IEEE 802.3af IEEE 802.3at	<b>Switch</b>						
	RY-GSP22-26/370	(✓)		✓	✓	d	x1
	RY-LGSP23-10G	(✓)		✓	✓	d	c
	RY-LGSP28-28	(✓)		✓	✓	d	x1
	RY-LPIGE602-GBTME	(✓)		✓	✓	d	x1
	LT-LPIGE804-GBTME	(✓)		✓	✓	d	x1
	<b>Media Converter</b>						
	PC-PMC102-E-SC	x1		✓	✓	d	x1
	<b>Injector</b>						
	PC-Inj-30W	(✓)		✓	✓	d	x1
	PC-Inj-30W-B (24VDC/40W)	(✓)	✓		x2	✓	d
<b>Ethernet Extender</b>							
VI-UTP-230xA	(✓)		✓	✓	d	x1	
VI-COAX-240xA	(✓)		✓	✓	d	x1	

## Explanations

<b>a</b>	PoE overload when heater is activated.
<b>b</b>	Ethernet port of the switch does not support 100 Mbps.
<b>c</b>	Camera is recognised as class 4. IR and white light cannot be used.
<b>d</b>	Camera is recognised as class 4. Switching to night-time mode, PTZ, IR and white light work, but the heater does not.
<b>e</b>	Camera reports "Not enough power". Video stream and night-time mode work. PTZ, white light and the heater do not work.
<b>x1</b>	PoE device is not recognised, respectively, PoE detection does not work.
<b>x2</b>	PoE detection does not detect the outdoor housing. However, the camera works without the outdoor housing.

## Comments

### FLEXIDOME multi 7000i IR

The heater could not be tested because it cannot be switched on manually. According to the data sheet, the maximum power input, incl. heater, is 37.6 W. Therefore, this should not pose a problem for either the bt or the HPoE units.

When used in combination with a VI-30005 or VI-3105, a VI-0015 combi cable is required to enable an input of up to 60 W via 2 ports. However, this does not guarantee that the heater will work.

### Outdoor housing UHO-POE-10

In cold conditions, the heater turns itself on without any problems. If PoE fails, for example, due to a reboot of the switch or media converter, the outdoor housing will not restart until the temperature is such that the heater is no longer required. This is not due to a lack of power from the PoE source. It is simply that the outdoor housing does not react in such cases.

### MIC IP starlight 7000i

bt switches: As the camera does not support the PoE standard, PoE mode must be set to "4pair90w" and LLDP set to "disabled".

VI products: VI-30005 and VI-3105 must be supplied with power from a VI-1120 power supply.

## 6 List of Devices

### Cameras:

**FLEXIDOME multi 7000i IR**  
NDM-7703-AL  
FW: 8.30.082  
S/N: 40473252752037796  
MAC: 00:07:5F:C6:8F:DF  
PoE+ Class 5 (PoE++ IEEE 802.3bt Type 3)

**DINION IP starlight 6000 HD**  
NBN-63023-B  
FW: 7.85.0016  
S/N: 044448975714193065  
MAC: 00:07:5F:99:FD:19  
PoE+ Class 3 (IEEE 802.3af)

**Outdoor Housing**  
UHO-POE-10  
S/N: 404023113900040362  
PoE+ IEEE 802.3at

**FLEXIDOME outdoor 5100i**  
NDE-5702-A  
FW: 8.50.0138  
S/N: 404756227409050002  
MAC: 00:07:5F:D3:20:53  
PoE+ Class 3 (IEEE 802.3af)

**AUTODOME IP starlight 5100i IR**  
NDP-5523-Z30L  
FW: 7.85.0016  
S/N: 4046116173317015519  
MAC: 00:07:5F:B4:AF:98  
PoE+ IEEE802.3bt, Type 3 standard

**MIC IP starlight 7000i**  
MIC-7502-Z30x  
FW: 7.85.0016  
S/N: 044483375811104001  
MAC: 00:07:5F:96:81:E5  
PoE+ HighPoE+ 40 W/70 W with spotlight



## Managed Switches

### IEEE-802.3bt

Model	FW Version	PoE Version
RY-LGSPTR23-26	VB6.54.3664	208-352
RY-LPITE-804GBTME	V7.10.2788	104-001
RY-LPITE-802GBTME	VB7.10.2888	200-352
LT-LPITE-402GBTME	v6.0b	

### IEEE-802.3af/at

Model	FW Version	PoE Version
RY-GSP22-26/370	V1.03.1582	200-188
RY-LGSP23-10G	V6.54.3664	208-211
RY-LGSP28-28	V8.40.2275	200-211
RY-LPIGE602-GBTME	V7.10.2788	104-001
RY-LPIGE804-GBTME	V7.10.2788	104-001