

A stylized world map in shades of blue is centered in the background. A large, 3D-style orange lightning bolt with a white outline and a drop shadow is positioned vertically on the right side of the map.

# THE POE POWER BEHIND PDK

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DESIGN



INSTALL



VERIFY

PDK offers a several access door controller that are powered by PoE (Power over Ethernet). PoE has many advantages simplifying installation by providing for both power and data over a single cable. PoE power can be provided from remote locations eliminating the need to provide local power.

## What is PoE? Power over Ethernet

However, the use of PoE involves several considerations which are not required when direct power is use. The ability to operate using PoE/IP connections is governed by standards set by IEEE ( Institute of Electrical and Electronics Engineers). The standards not only set specific PoE source and connected device power levels known as Class, but also define the operational standards over 328 feet of Cat cable. These definitions also are part of the safety built into the standard to provide damage to connected devices.

Over years IEEE has updated these standards to meet the needs of IP/PoE for increased power.

Class	Usage	Clasfication current (mA)	Power range at PD (W)	Max power from PSE (W)	Class description
0	Default	0-5	0.44-12.94	15.4	Classification unimplemented
1	Optional	8-13	0.44-3.84	4.00	Very Low power
2	Optional	16-21	3.84-6.49	7.00	Low power
3	Optional	25-31	6.49-12.95	15.4	Mid power
4	Valid for Type 2 (802.3at) devices, not allowed for 802.3af devices	35-45	12.95-25.50	30	High power
5	Valid for Type 3 (802.3bt) devices	36-44 & 1-4	40 (4-pair)	45	
6		36-44 & 9-12	51 (4-pair)	60	
7	Valid for Type 4 (802.3bt) devices	36-44 & 17-20	62 (4-pair)	75	
8		36-44 & 26-30	71.3 (4-pair)	99	

PoE Classes define power ranges while the types define how power is delivered based on the number of wire pairs required. There are 8 PoE power classes and 4 different types.

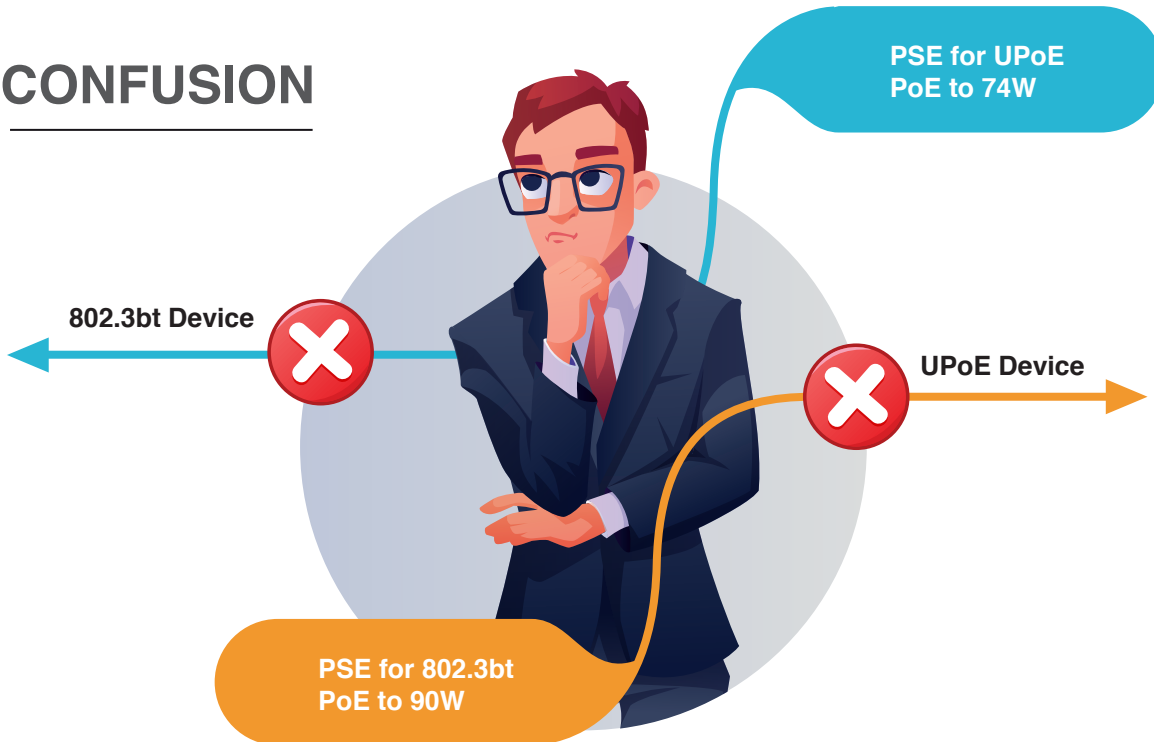
### PoE Application:

PoE application can be confusing. Throughout its history the need for increased power occurred quicker than the ability of IEEE to respond. The result was product manufacturers taking maters into their own hands. This occurred twice. First when PoE source power needs increased from 802.3af at 15.4W source to 802.3at with a 30W source.

The second occurred when product manufacturers required more than a 30W source. This was a more complex process due to the power handling limitations of Cat wiring which is the transmission method for the standard. While waiting manufacturers started using a PoE source which became to be known as UPoE.

The standard developed by IEEE is known as 802.3bt. The problem is the method it uses to transmit PoE from a source and be received by a connected device is very different and INCOMPATIBLE with UPoE. The result is PoE sources that require UPoE sources are not compatible with those that require 802.3bt. This leads to confusion.

## CONFUSION



IP/PoE Products



Red 1  
Single Channel



Red 2  
Dual Channel







Red 4  
Four Channel



Red 8  
Eight Channel

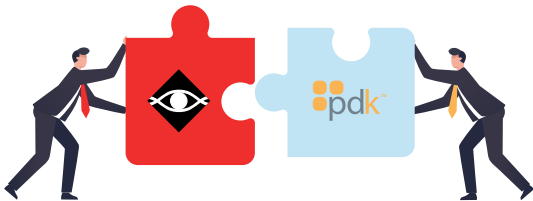
Each one of these requires an 802.3bt source along with different source power requirements

ProData Model	802.af 11W@0.8amps	802.3at 24W@1.7amps	802.3bt 27W@2 amps Requires 802.3bt Source	49W@3.5amps Requires 802.3bt Source
	3.6-15.5W	15.5-30W	15.5-30W	
 Red 1	✓	✓	✓	✓
 Red 2	✓	✓	✓	✓
 Red 4	✓	✓	✓	✓
 R8 Red 4 + Red 4	✓	✓	✓	✓

Most important the source must be 802.3bt compatible

PDK products have additional built in safety features.

When first powering up the PDK controller will request the amount of power based the power detected by the source. This amount of power cannot be exceeded and will only operate to the limit of the provided. This gives the ability of PDK RED controller to operate over a wide range of installations without potential damage to the controller or connected devices.

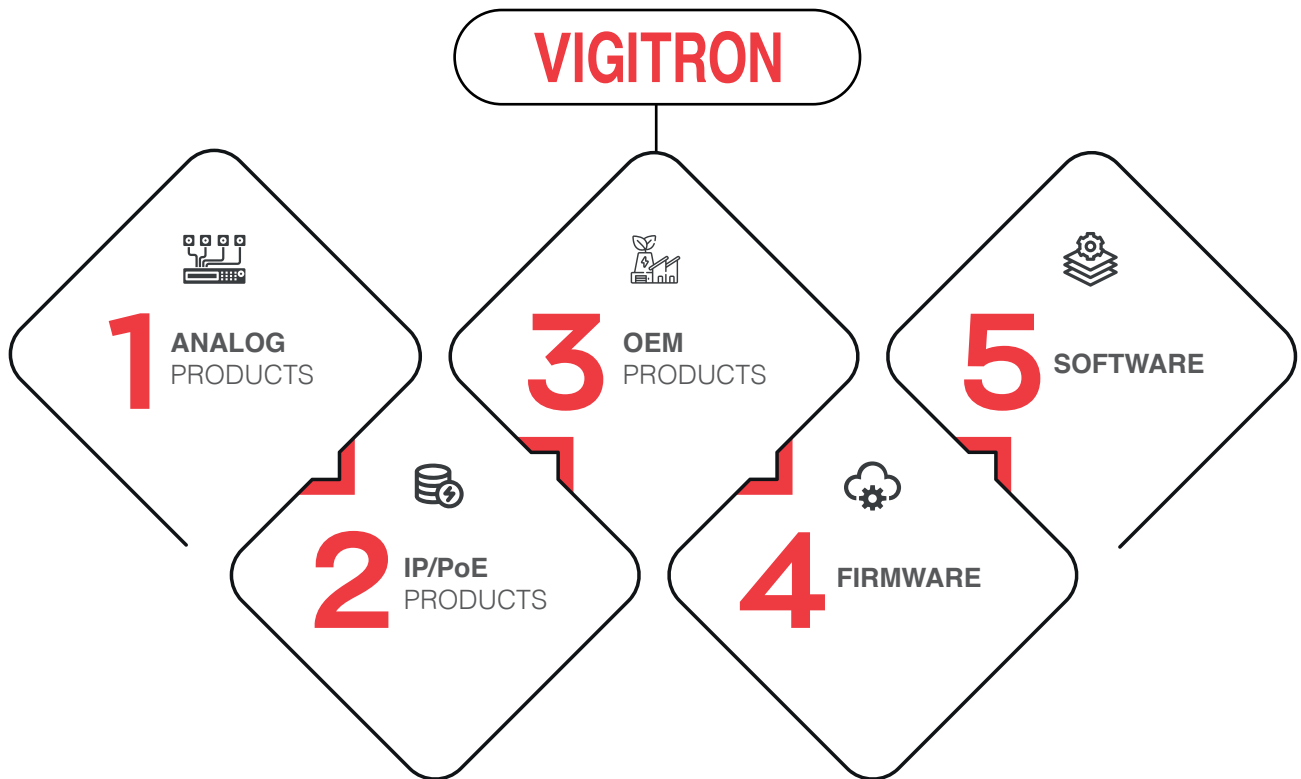


### Who is Vigitron and Why is PDK Partnering with them?



Vigitron is 27 year old San Diego, California based company. Headquartered in its own 12,000 sq foot building

Prior to the introduction of its IP/PoE Division, Vigitron led in the development of long distance Video, Data and Power over Twisted Pairs cable. Its IP/PoE group started 12 years ago.



Today Vigitron has 5 operating engineering divisions. OEM products are provided as modules used in many of the leading security manufacturer products

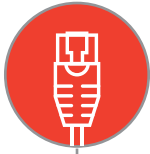
PDK's relationship with Vigitron came during the development of their RED product line. The companies worked together resulting in the most reliable cost effective solutions cover a wide range of applications.

### Vigitron – Overcoming Limitations

IEEE PoE was developed limited to a single type of cable, CAT cable which today can apply to Cat 5e, Cat 5, Cat 6a. It was developed to only operate over a specific distance, 328 feet, (100m).

Vigitron solutions provide 801.3bt solutions for the various types of cabling found in security applications. They are CAT or UTP, Coax and Fiber

## UTP Solutions



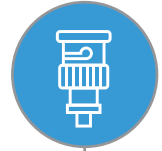
Vi22001U



Vi22001U



## Coax Solutions



Vi30202



## Fiber Solutions



Vi5000U



In addition to PoE power sources they can be found in Network switches and Midspans

Vigatron also provides a complete line of extenders eliminating the distance limitations.

Most important Vigatron maintains a Design Center staff of engineers who work with PDK in provide reliable and cost effective bills of materials reducing the potential for costly field service calls

The service is provided free without obligation  
Contact Vigatron Technical Services at  
[Support@Vigatron.com](mailto:Support@Vigatron.com)



For more information on Vigatron 802.3bt solutions click the following button

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