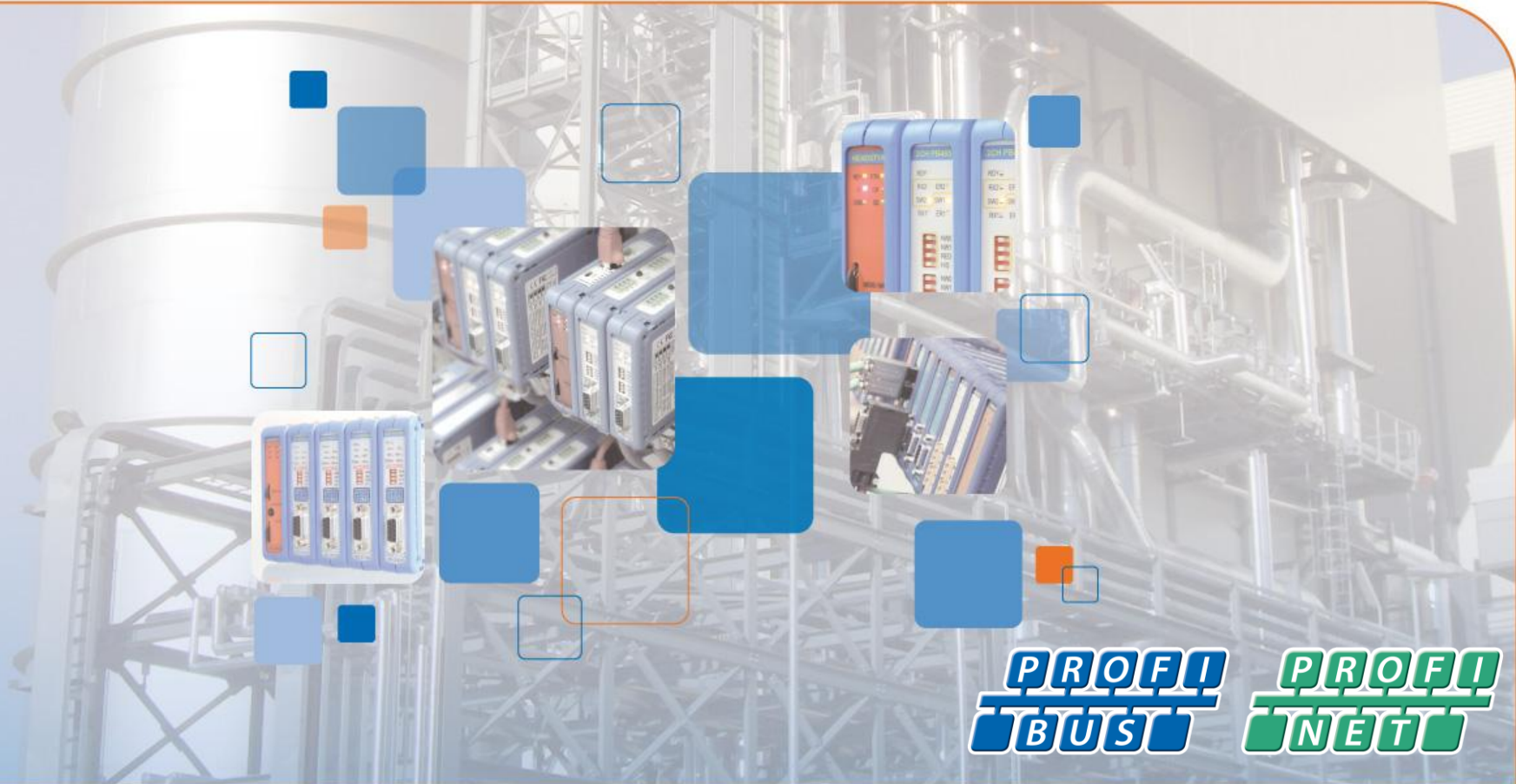


# PROCENTEC

The PROFIBUS and PROFINET Company



COMbricks – Technical Presentation



PROFIBUS PA Link

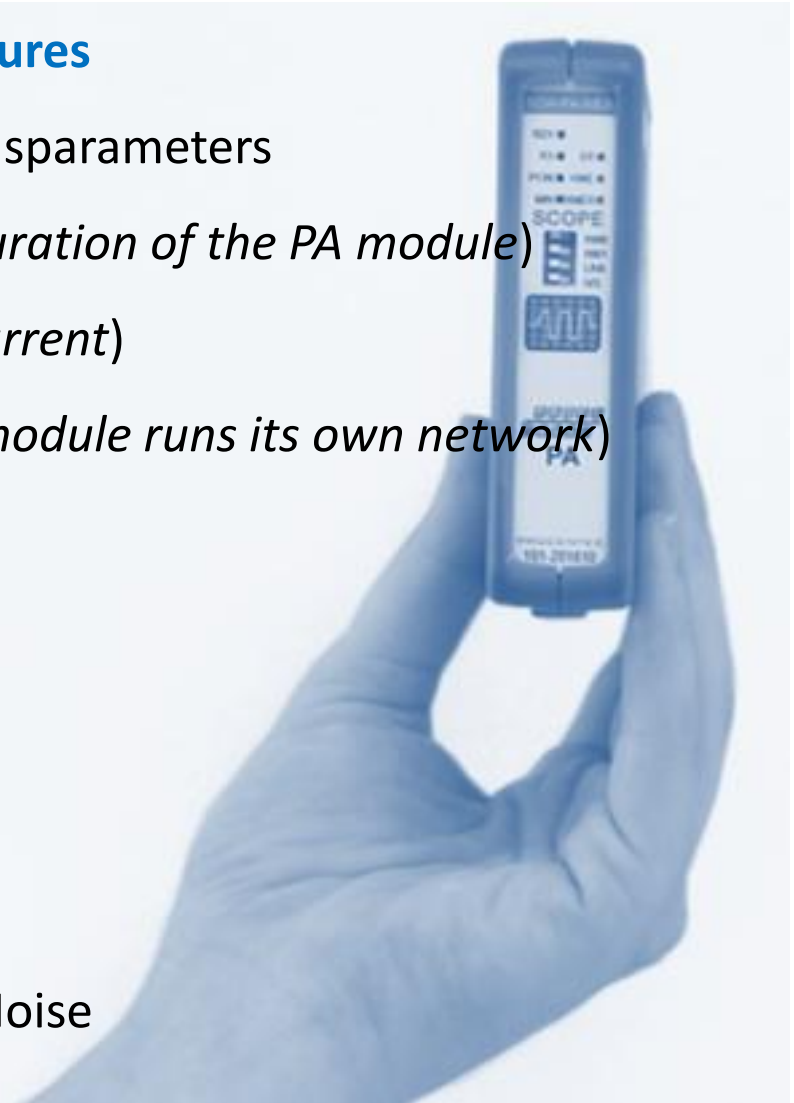


## Smallest dimensions with most high-tech features

- Runs on **ALL baudrates** without adjusting busparameters
- Transparent for device data *(No configuration of the PA module)*
- User sets the PA voltage *(500 mA current)*
- Optimal bus cycle time *(Every PA module runs its own network)*
- CommDTM over Ethernet
- Web server

## Web server

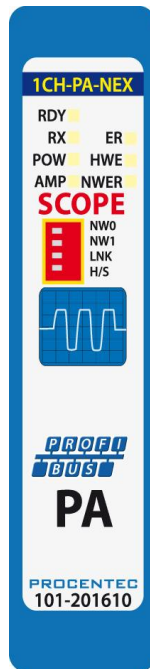
- Watchdog, Retries, Device lost behaviour
- ProfiTrace, Oscilloscope, DC current, Jitter, Noise



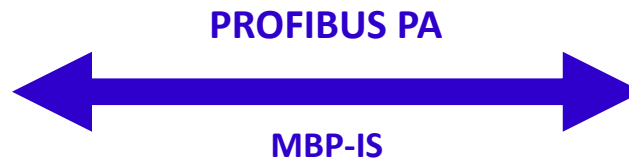
# PROFIBUS PA link functionality



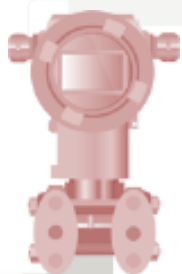
- Variable baudrates (up to 12 Mbps)
- Transparent
- Direct path to other modules (RS 485, Fiber Optic, ...)



**PA Module**



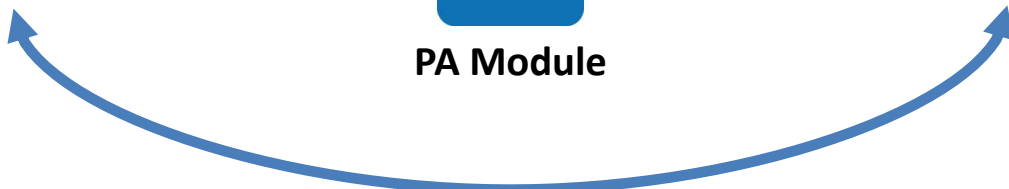
- Fixed baudrate = 31.25 kbps
- 500 mA bus current
- 12..27 VDC



**Shadow device**

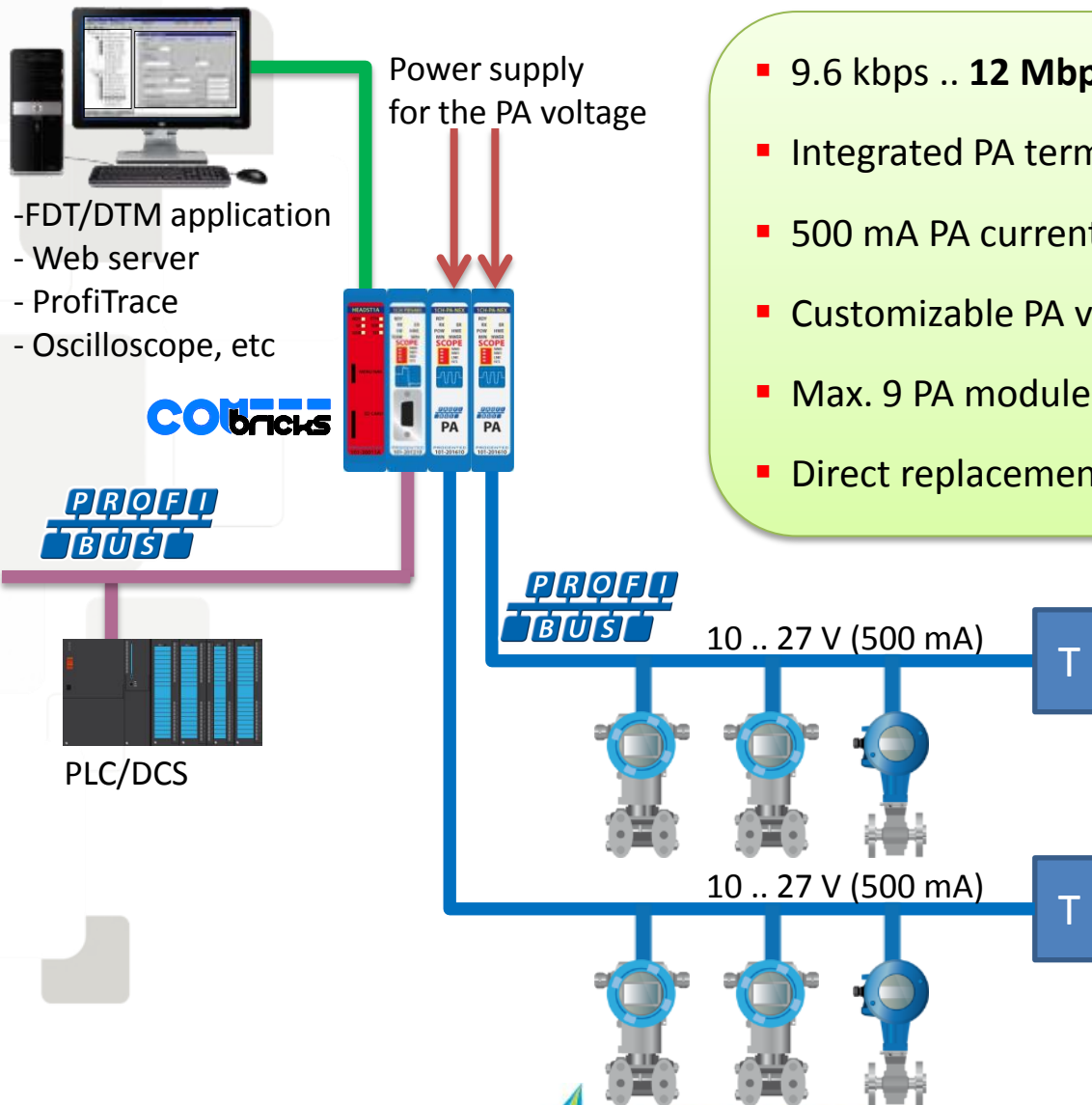


**Real device**



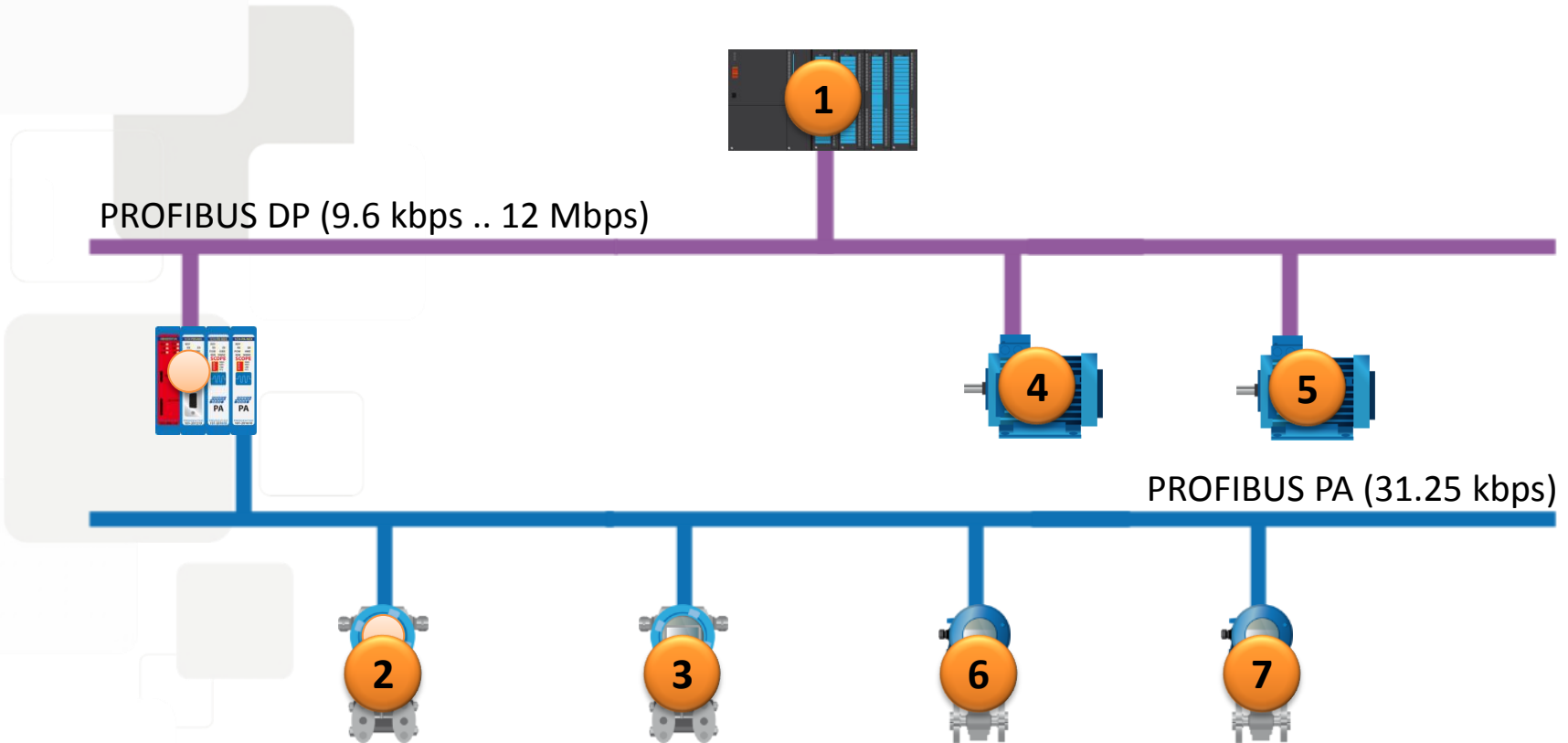
Transparent telegram transfer

# Basic PA configuration



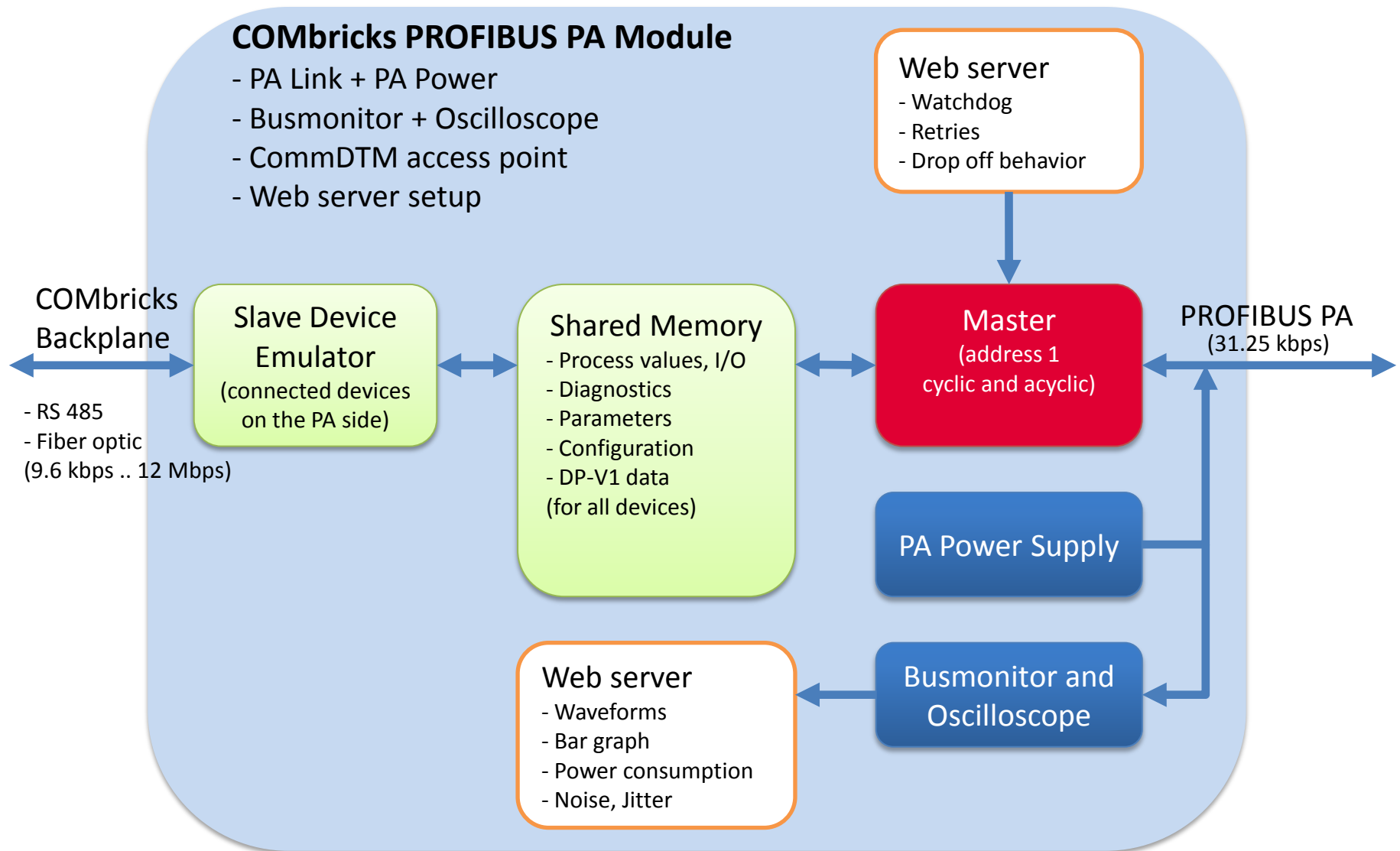
- 9.6 kbps .. **12 Mbps** on the PROFIBUS DP side.
- Integrated PA termination.
- 500 mA PA current.
- Customizable PA voltage.
- Max. 9 PA modules (1 module for the PLC/DCS).
- Direct replacement for 3<sup>rd</sup> party couplers.

# Addressing COMbricks PA link

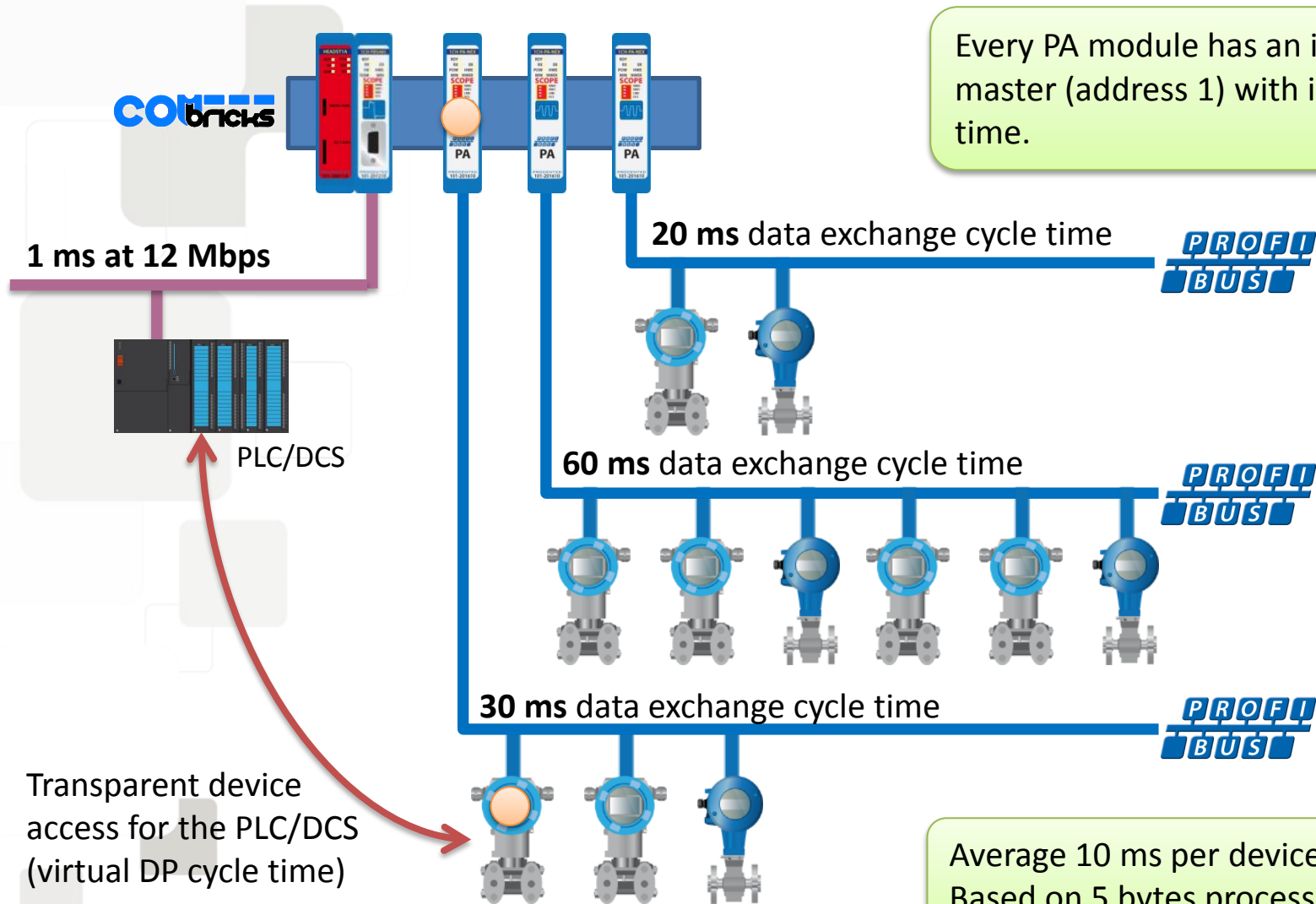


- The link looks like a repeater, but is on the PA side a “hidden” master.
- Every device in the network has a unique address.
- Because of the semi-transparency, address 1 for PA devices is NOT allowed.

# Schematic overview PA link

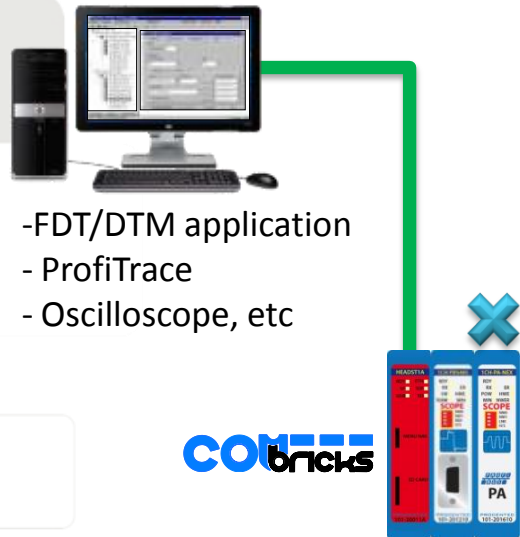


# Optimized Cycle Time

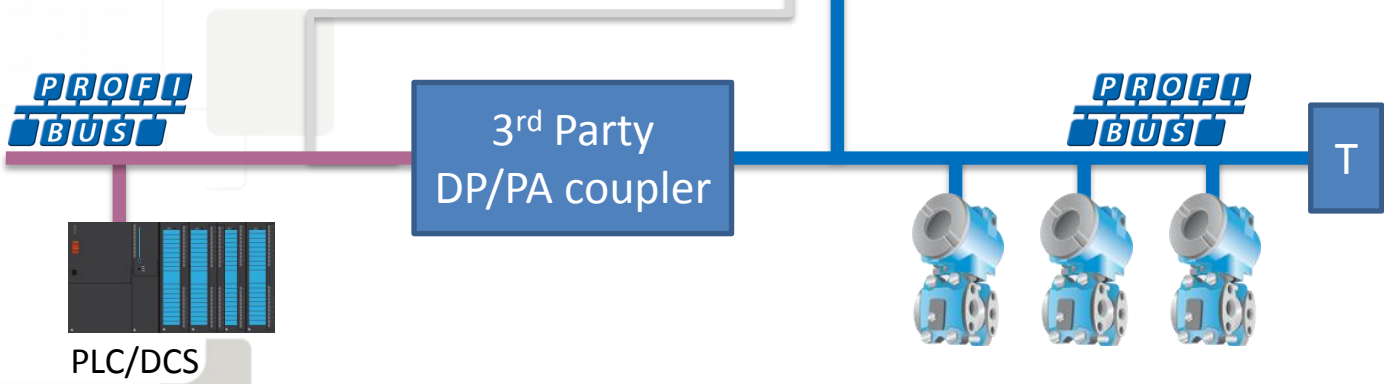




# Monitoring mode



- When the PA power supply is not connected the PA module is in monitoring mode
- PA termination is OFF in monitoring mode
- Max. 4 PA modules for monitoring mode
- When the 3<sup>rd</sup> party coupler/link is Siemens, the PA module can directly forward FDT/DTM communication from Ethernet to the PA side. Otherwise via the DP side first.



# Efficiency with integrated tools



## Telegram analysis

Select oscilloscope module: Slot2 (PA Coupler)

Select image type: Last

Reset the images: Reset oscilloscope images

Total stations: 3 Measurement method: PA Signal level

Pages: 1

(slave) Address: 71 (slave) Timestamp: 13-Nov-2012 14:58:00

## Data tools

Measurement started: 22-May-13 16:16:41

Measurement time: 0 Days, 0:04:15

Class C1AB

0 Days, 0:00:13 5.3%

0 Days, 0:00:09 3.6%

0 Days, 0:03:53 91.1%

Device name Serial # Sw rev. Uptime URL\_Port

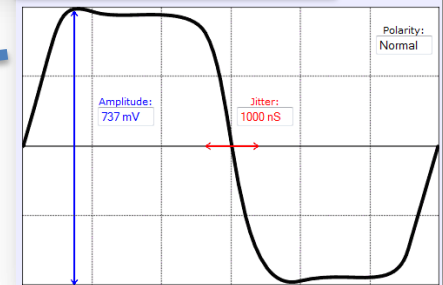
- COMbricks Headstation 001228 V1.275... 0 days, 1:40:40 192.168.1.215 (port 80)
- COMbricks Headstation 001142 V1.275... 0 days, 8:05:29 192.168.1.251 (port 80)
- COMbricks Headstation 000746 V1.275 5 days, 1:57:24 combricks.procentec.com (port 80)

OPC™

## DC analysis

Network:	1 (Machine 1)
Baudrate:	500 Kbps
Station count active on channel:	2
Link function:	Off
Setting:	Dipswitch
DC voltage:	23.59 V
DC plus:	12.16 V
DC min:	-11.43 V
DC noise:	23 mV
DC unbalance:	-7 %
Current consumption:	0.029 A

## Signal analysis



## FDT/DTM

Project: PROCENTEC DP-V1 Master

Product designation: ITEMPT00184

Device TAG: EH\_TMT04\_E5018704

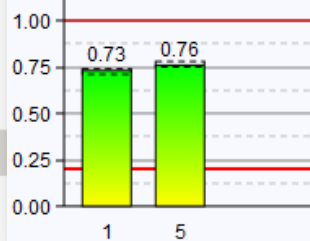
Status signal: Failure

Process temperature 2: IEEE NOT A NUMBER °C

**Instrumental Health Status**

- Failure
  - #041: Sensor 1 break
    - Cause: 1. Electr. interruption of sensor 1 or sensor wiring
    - 2. Incompatible configuration of connection type
    - Remedy: 1. Check electrical connection
    - 2. Replace sensor
    - 3. Check configuration of the connection type
- Function Check
- Out of Specification
- Maintenance Required

## Bar graphs



## ProfiTrace

Tank 2

Model_Name	0	1	2	3	4
0	0	1	2	ITEMP-TMT04	4
10	10	11	12	13	14
20	20	21	22	23	24
30	30	31	32	33	34
40	40	41	42	43	44
50	50	51	52	53	54
60	60	61	62	63	64
70	70	ITEMP-TMT04	72	73	74
80	80	81	82	83	84



FDT

Group



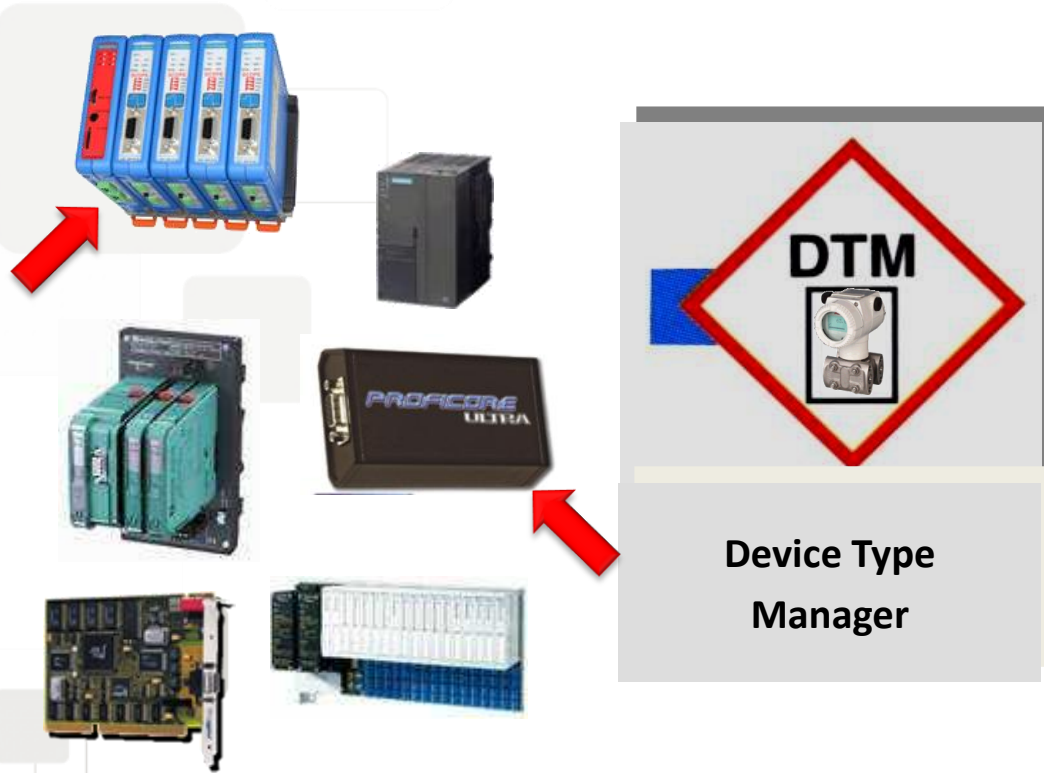
COMbricks CommDTM

# DTM types



## CommDTM

Device driver for communication devices like COMbricks or the ProfiCore



## Device DTM

Device driver for field devices like valves, sensors, actuators, transmitters, motors, pumps



# Principle of the CommDTM



- Class 2 masters in the Head Station
- Side by side with ProfiTrace OE
- Simultaneous access to 2 networks on 1 COMbricks
- The 2 network connections can be switched over to other networks during operation (saves gateways)
- Works on all Head Stations (1A/1B/1C)
- CommDTM is FREE

