Anybus ComBricks PROFIBUS PA link/coupler module

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The Anybus ComBricks is the first PROFIBUS based automation system that unites repeaters and permanent monitoring in a web browser. With an evolving industry using more mixed architecture networks, users are able to integrate ComBricks into their PROFINET network via Osiris, allowing to monitor everything from one single cross-platform.

The Anybus PROFIBUS PA link/coupler module enables seamless high speed integration to PROFIBUS PA. It powers the attached PA devices and fully emulates them as DP devices on the backplane. Adjusted busparameters are not required and therefore suitable for all DCS and PLC systems, even running on 12 Mbps.

The combined internal ProfiTrace and oscilloscope make this product extremely useful for remote maintenance over Ethernet. Jitter, noise, DC current, DC voltage, bar graph and oscilloscope, it is all there and easy to access. The free CommDTM allows access for asset management tools over Ethernet.

ComBricks is able to carry 9 PA links and a RS 485 or Fiber Optic module. It can also be a customized mix of PA modules with other communication modules. The PA link provides 500 mA current on a customizable bus voltage. The integrated PA termination is automatically activated when the module works as a power coupler. It is switched off in the monitoring mode.

It does not require configuration and operates the same way as regular ComBricks repeaters. In the web server the behavior on the PA side can be set, like retries (default 5) and the watchdog (default 3 seconds). This product can directly replace 3rd party Non-Ex PA couplers/links and can be used as a monitor behind existing 3rd party Non-Ex PA couplers.

Distinctive features

PROFIBUS DP (on the backplane)

- 9.6 .. 12 Mbps
- Fully transparent
- No adjustments required in Link mode
- Transmission speed detection: 9.6 kbps .. 12 Mbps (including 45.45 kbps)

PROFIBUS PA

- 10 .. 27 VDC customizable PA trunk voltage (Non-Ex)
- 500 mA trunk current
- 10 mA current consumption (in all modes)
- 32 (PROFIBUS PA specifications)
- 31.25 kbps PA signal
- 1900 m cable length (depends on trunk current)
- PA termination automatic (ON in coupler mode)

Web Server

- Oscilloscope images of connected devices
- Last, Min, Max bus signals

- Bar graph of connected devices
- DC current of the trunk and signal jitter
- Email on telegram errors and low bus signals
- Retry and Watchdog settings

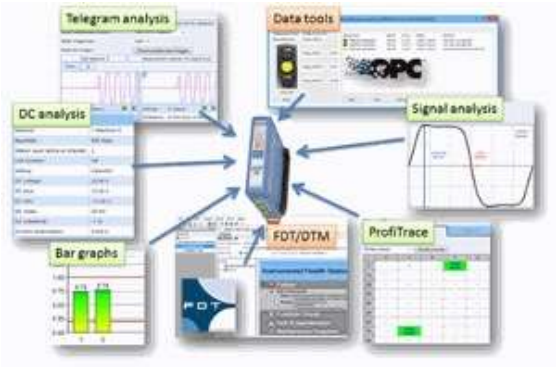

Figure 1

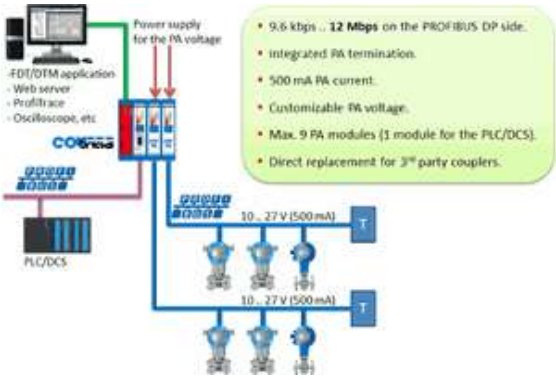

Figure 2

Dimensions and weight

L x W x H:	133 x 25 x 105 mm (including backplane, per module)
Weight:	133 g (excluding plug-able connectors, backplane and packing material)
Mounting DIN-rail type	35mm × 7.5mm (EN 50022, BS 5584, DIN 46277-3)

Ambient conditions

Operating temperature range	-20° … +60° Celsius (for mounting position see manual) -4° … 158° Fahrenheit
Isolation class	IP 20 (IEC/EN 60529, DIN 40050)

Backplane

PROFIBUS networks	4 (set by dipswitches or web server)
Module position	First 10 slots
Modules	Link mode: max. 9 PA modules and 1 DP repeater module

	Coupler mode: max. 9 PA modules and 1 DP repeater module Monitoring mode: max. 4 PA modules (4 backplane networks)
Power supply	Provided through the backplane
Typical backplane current	350 mA (at 5.72 VDC)
Max. backplane current	550 mA (at 5.72 VDC) At this current consumption the module is switched OFF from backplane. Occurs when module is faulty, e.g. internal short circuit.
Compatible backplane units	101-200011, 101-200022, 101-200023, 101-200024, 101-200027

PROFIBUS PA power specifications

Trunk voltage	10 to 27 VDC customizable PA trunk voltage (Non-Ex)
Trunk current	500 mA
Current consumption	10 mA (in all modes)

PROFIBUS PA cable specifications

Cable lengths	Max. 1900 m cable length (PROFIBUS PA specifications)
Wire diameter (for the screw terminals)	< 2.5 mm^2
Wire type	Stranded or solid core
Termination	ON when power supplied on PA power connector

PROFIBUS DP protocol specifications

Supported Protocols	DP-V0, DP- V1, DP-V2, FDL, MPI, FMS, PROFIsafe, PROFIdrive and any other FDL based protocol
Address	No bus address required
Transmission speed	9.6 kbps to 12 Mbps (including 45.45 kbps)
Transmission speed detection	Auto detect (< 10 s detection and 50 s baudrate switchover time)
PROFIBUS busparameters	No adjustments required in Link mode

PROFIBUS PA protocol specifications

Address	Coupler mode: no address required Link mode: master on PA bus address 1 (fixed)
Number of devices	32 (PROFIBUS PA specifications)
Baudrate PA bus	31.25 kbps

Oscilloscope specifications

AC PA voltage	4 MS/s, resolution 7.5 mV, range -0.95 to 0.95 V
DC PA voltage	1 kS/s, resolution 75 mV, range -38 to +38 V

DC PA current	1 kS/s, resolution 1 mA, range 0 to 1024 mA

Connector lay-out

2x PROFIBUS PA	Plug-able screw connector, connectors 1 to 1, pitch 5.08 mm Pin PA- : 0 V Pin PA+ : 10 to 27 VDC Pin SH : Shield Pin I : Indirect Shield
PA Power	Plug-able screw connector, pitch 5,08 mm Pin - : 0 V Pin + : 10 to 27 VDC Pin SH: Shield Pin SH is connected internally to the DIN-rail with spring-loaded contact. Pin I is connected internally with 10nF/1MOhm to shield.

Dipswitches

NW0 NW1 LEFT LEFT RIGHT LEFT LEFT RIGHT RIGHT RIGHT	PROFIBUS Network 1 2 3 4
LNK LEFT / RIGHT	Link mode OFF / ON
H/S LEFT / RIGHT	Settings Hardware / Software

LEDs

RDY: Ready	Module is ready for operation (ON)
RX: Receiving data	Receiving PA telegrams (blinking)
HWE: Hardware error	Internal hardware error (contact HMS Technical Support)
AMP: Amplitude error	No or bad telegrams on PA detected
POW: Power error	PA signal too low or too high
SNWER: Network error	Over current, noise, unbalance, DC-polarity Jitter, asymmetry, field device polarity Alarm values can be changed through the web server.

Others

Head Station firmware	At least version 1.279
MTBF	1165020 hours, at 30^{o} Celsius, IEC TR 62380

File	Version	Size	Read online

Ordering Information

Order Codes	101-201610
Included Components	Anybus ComBricks, backplane socket
Warranty	1 year