

# PAC3200 Intermediate Power Meter

## Technical Overview

2018

# PAC3200 Power Meter Overview

The **PAC3200** meter is an affordable, compact, intermediate level power energy meter designed for OEM's and customers requiring more than just kWh.

The **PAC3200** meter continues the PAC meter family with standard metering plus added power quality, optional expansion slot and additional communication options..

Multiple models available:

- 95-240VAC
- 110-340VDC
- 22-65VDC

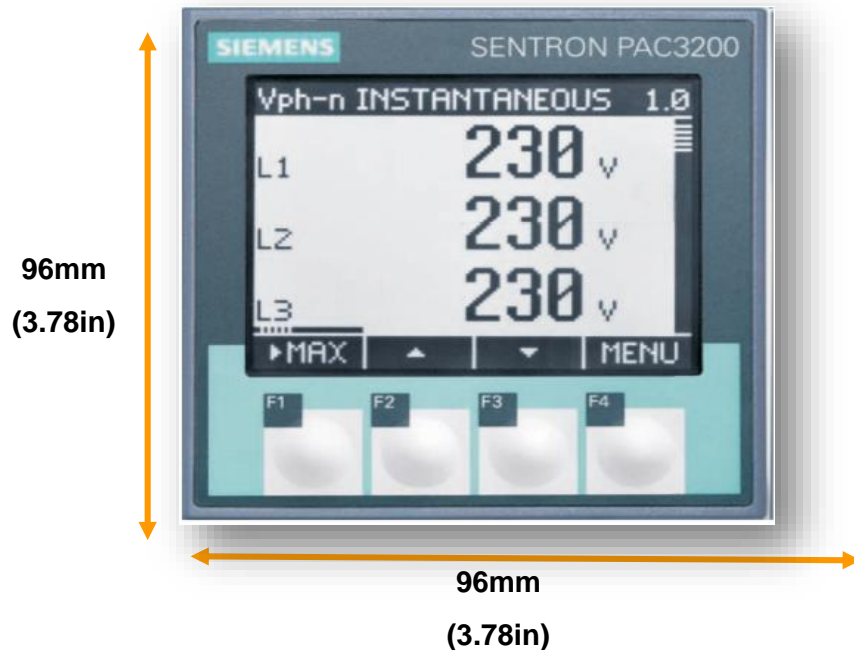
The optional DIN Rail adapter provides more flexibility for OEM's and customer installations.





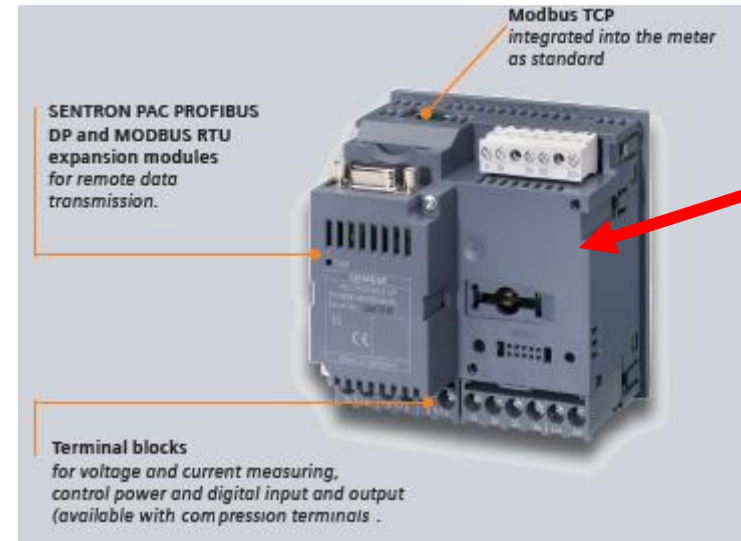
# PAC3200 Power Meter Overview

## Meter Design Features



### Full Graphic LCD Display Indicates:

- ✓ Display Title or designation of display measurements
- ✓ Phase
- ✓ Measured Value
- ✓ Units
- ✓ Labeling of function key



PAC3200 Supports  
One optional Module



Two-tier DIN Rail Adapter

DIN Rail Adapter



“display up”

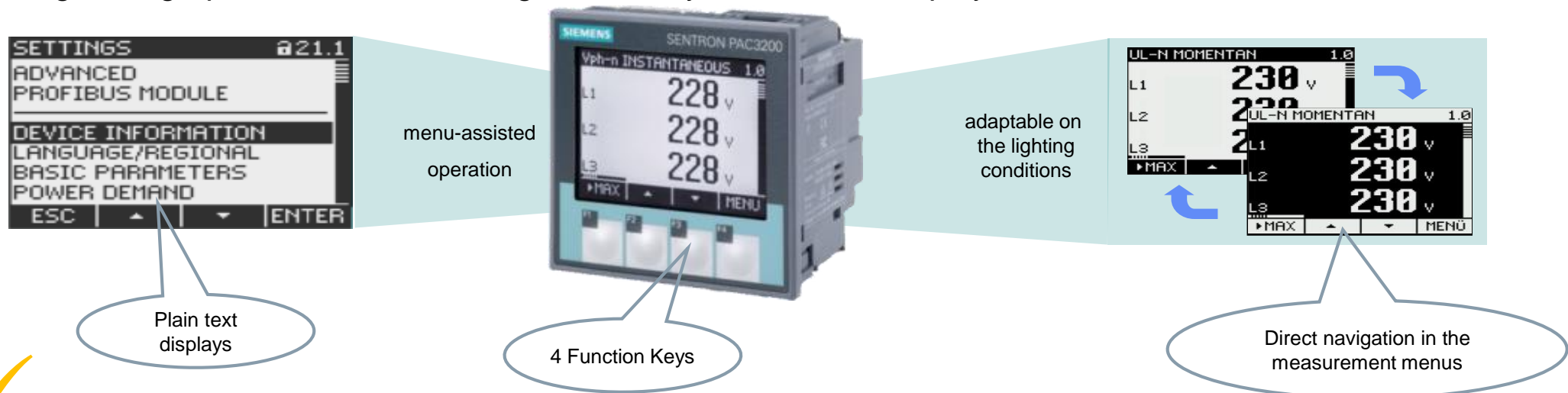
# PAC3200 Power Meter Overview

## Meter Design Features

### Displays written in easy to understand text



Large, full graphics LCD with backlight and easy-to-read text displays



LCD screen contrast and brightness can be adjusted for ambient conditions



Display colors can be inverted



Programmable dimming or "screen off" time to reduce energy and to increase backlight life.

# PAC3200 Power Meter Overview

## Key Features

### Functions

- Acquisition of voltage, current, power, demand, energy Values, & THD w/ min/max/avg
- Low price with Ethernet communication
- Over 50 parameters available
- Includes standard I/O for monitoring and control
- No logging or time stamping

### Innovation

- Expansion module capability
- Supports Profibus / Profinet / Modbus TCP

### Unique selling proposition

- 1 digital input and 1 digital output combined with Modbus TCP communication interface
- Intuitive menu prompt via plain text displays in 9 languages and 4 function keys
- Meets the high requirements with Class 0.5s
- 64 samples/cycle



**Power Monitoring Device: PAC3200**  
**”for worldwide use”**

# PAC3200 Power Meter Overview

## Meter Design Features

### Communication

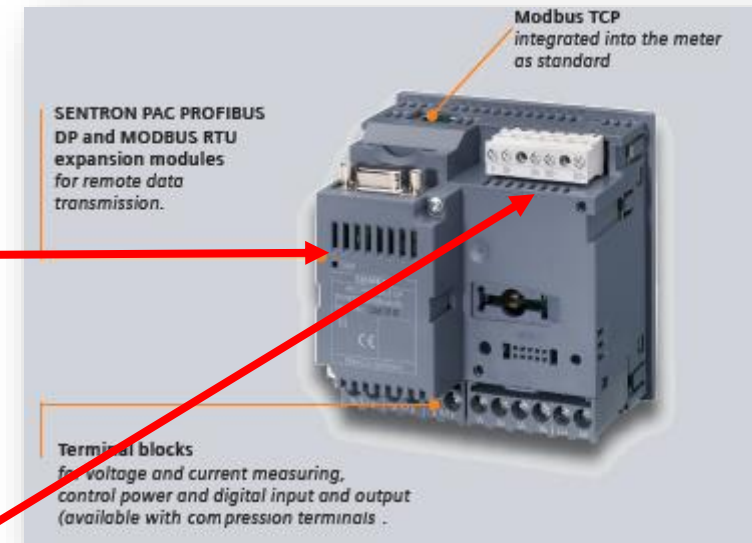
- Integrated 10BaseT interface using Modbus TCP
- Optional Modbus RTU (serial) module
- Optional IA Profibus DP or ProfiNet modules
- Two communications at one time, ex. TCP and Profibus.

### Digital Input (qty 1): – dry contact (requires a 24vdc source)

- Counting input for kWh, kvarh – impulses ( $S_0$ )
- Status monitoring (e.g., breaker or switching devices)
- On-peak/Off-peak tariff switching
- Synchronization of measuring periods

### Digital output (qty 1): – dry contact (requires a 24vdc source)

- Pulse output for kWh, kvarh – impulses ( $S_0$ )
- Alarm output for signaling limit violations
- Operating status display of the SENTRON PAC3200
- Display of direction of rotation
- Switching output to remote control via system software



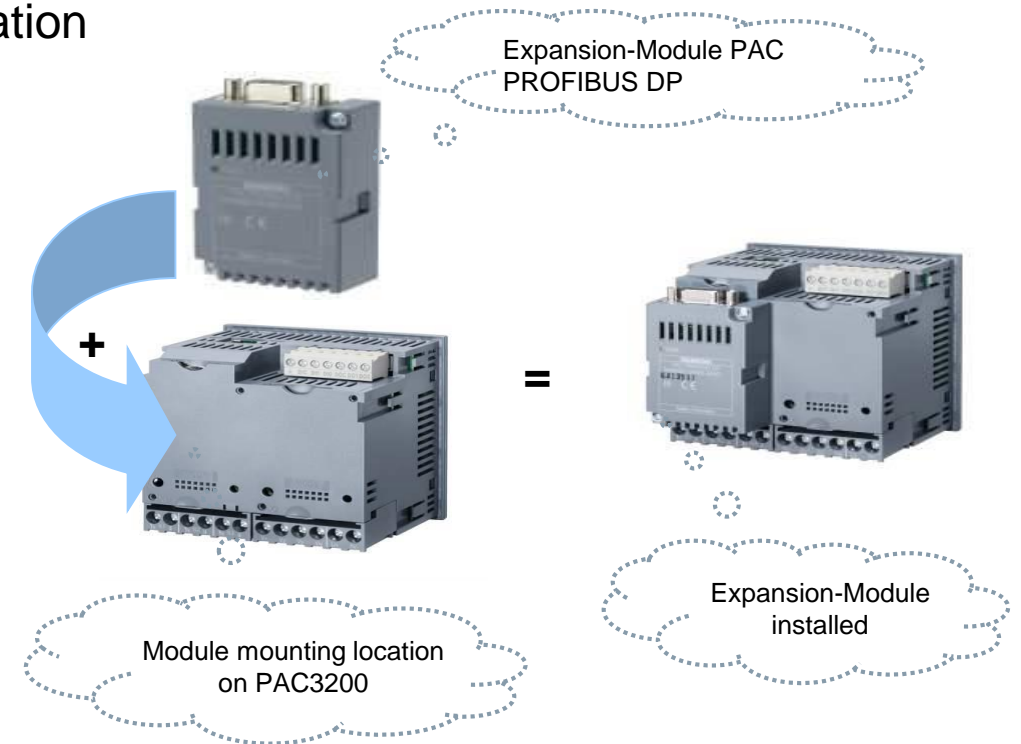
Voltage, Current and Control power  
Terminal location – bottom side

# PAC3200 Power Meter Overview

## Meter Design Features – Optional Module – PROFIBUS DP

### SENTRON PAC PROFIBUS DP extension module

- ✓ Can be parameterized from front of device or via configuration software SENTRON powerconfig
- ✓ Simple integration via GSD file
- ✓ Measurement parameters selectable via GSD file
- ✓ Baud rates of 9.6kBit/s up to 12 MBit/s
- ✓ 9-pole Sub-D plug connection in compliance with IEC 61158
- ✓ No external auxiliary power necessary
- ✓ Status display LED on module
- ✓ Protocol: PPROFIBUS DPV1  
Synchronous and Asynchronous data transmission including parameter setting.

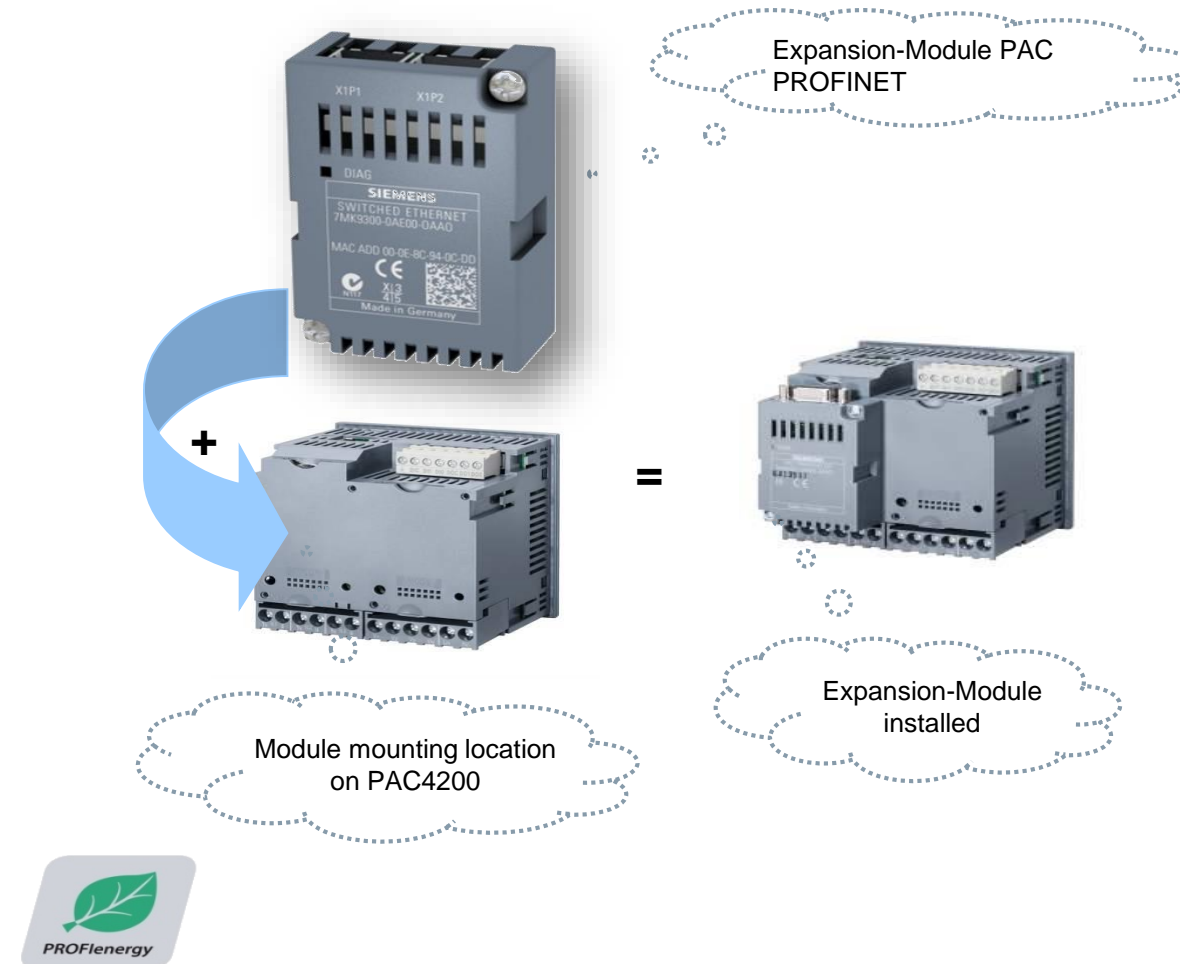


# PAC3200 Power Meter Overview

## Meter Design Features – Optional Module – PROFINET

### SENTRON PAC PROFINET extension module

- ✓ Direct connection to industrial automation Ethernet networks using the ProfiNet communications.
- ✓ The module allows Dual ProfiNet and Modbus TCP at the same time!
- ✓ Modbus TCP port allows multiple masters.
- ✓ Same easy to screw on optional module.
- ✓ No external auxiliary power necessary
- ✓ Status display LED on module



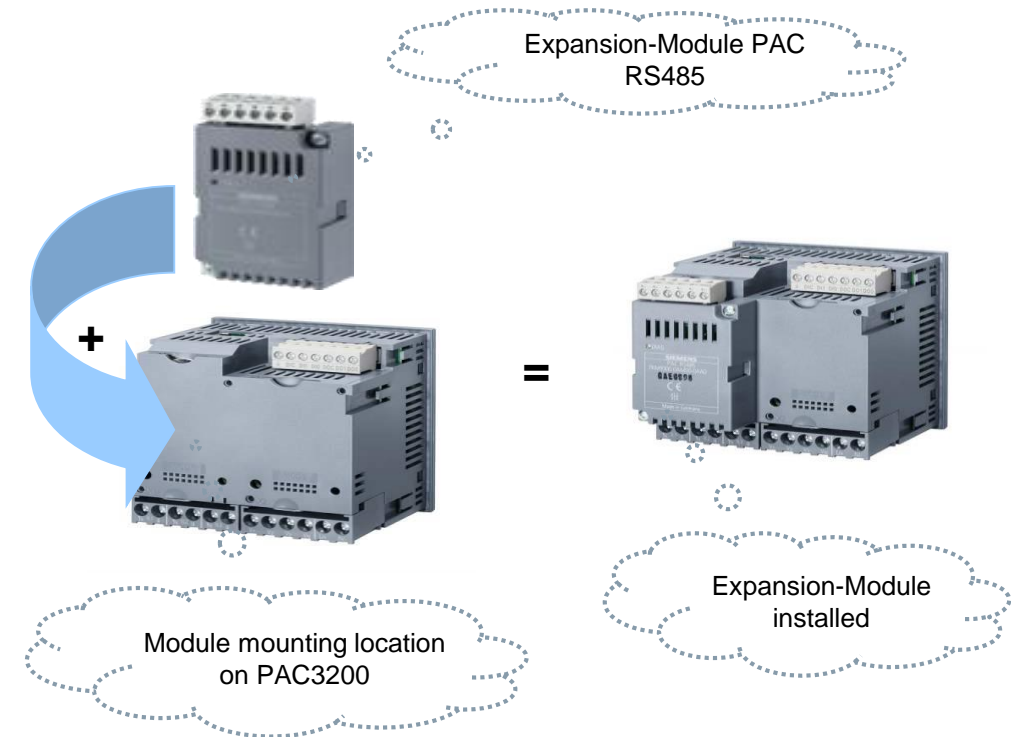


# PAC3200 Power Meter Overview

## Meter Design Features – Optional Module – Modbus RTU

### SENTRON PAC RS-485 Modbus extension module

- ✓ Can be parameterized from front of device or via configuration software SENTRON powerconfig
- ✓ Supports Modbus RTU and SEAbus protocol (protocols swichable)
- ✓ Plug and Play
- ✓ Baud rates of 4,8 / 9,6 / 19,2 and 38,4 kBd
- ✓ 6-pole connection via screw terminal
- ✓ No external auxiliary power necessary
- ✓ Status display LED on module
- ✓ All data is register based information

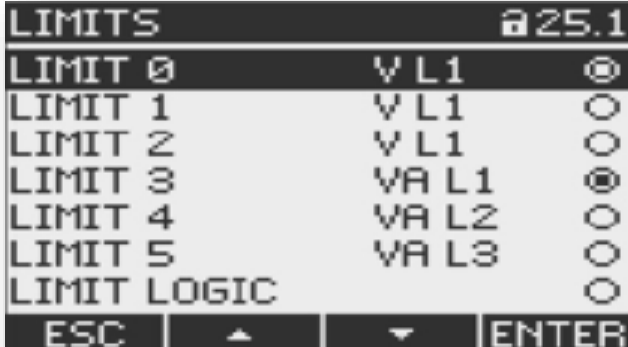


# PAC3200 Power Meter Overview

## Meter Design Features

### Monitoring and service

- ✓ Limit monitoring:
- ✓ **Up to 6 limits for over-range and under set point**
  - Voltages, currents, power, power factors, THD, frequency or unbalance Volt/Current
- ✓ Delay time and hysteresis limits can be set
- ✓ **Logical AND/OR operations for alarming**
- ✓ Alarm limits can be used to trigger a wide variety of actions:
  - Switching of digital output,
  - Communication via interfaces,
  - And a Universal meter for summing all events
- ✓ Phase monitoring of voltage and current for load balance
- ✓ Timer log which records the running time of connected devices such as motors, pumps, machines, etc.



LIMITS		25.1
LIMIT 0	VL1	●
LIMIT 1	VL1	○
LIMIT 2	VL1	○
LIMIT 3	VAL1	●
LIMIT 4	VAL2	○
LIMIT 5	VAL3	○
LIMIT LOGIC		○
ESC	▲	▼ ENTER

# PAC3200 Power Meter Overview

## Meter Measurement Features

**Certificate of Compliance**

Certificate Number 040907 - E314880  
Report Reference E314880, August 30th, 2007  
Issue Date 2007 September 4

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**UL Underwriters Laboratories Inc.**

**Issued to:** SIEMENS AG  
A&D CD CC TS2 WERNER-VON-SIEMENS-STRASSE 48  
92220 AMBERG GERMANY

**This is to certify that representative samples of** Multifunctional Measuring Device  
Model SENTRON PAC3200, type 7KM2112-0BA00-3AA0. Accessories, SENTRON PAC PROFIBUS DP Expansion Module, type 7KM9300-0AB00-0AA0.

**Have been investigated by Underwriters Laboratories Inc. (UL) or any authorized licensee of UL in accordance with the Standard(s) indicated on this Certificate.**

**Standard(s) for Safety:** UL 61010-1, Safety of Electrical Equipment for Measurement, Control, and Laboratory Use; Part 1: General Requirements, second Edition  
CAN/CSA C22.2 No. 61010-1, Safety of Electrical Equipment for Measurement, Control, and Laboratory Use, second Edition.

**Additional Information:** Not Applicable

Only those products bearing the UL Listing Mark for the US and Canada should be considered as being covered by UL's Listing and Follow-Up Service meeting the appropriate requirements for US and Canada.  
The UL Listing Mark for the US and Canada generally includes: the UL in a circle symbol with "C" and "US" identifiers; the word "LISTED"; a control number (may be alphanumeric) assigned by UL; and the product category name (product identifier) as indicated in the appropriate UL Directory.

Look for the UL Listing Mark on the product

Issued by: *Kiya Ghamari*  
Kiya Ghamari, Associate Project Engineer  
UL International Germany GmbH  
Any information and documentation involving UL Mark services are provided on behalf of Underwriters Laboratories Inc. (UL) or any authorized licensee of UL.  
For questions in Germany, you may call +49 2102 3490.

Reviewed by: *Manfred Mueller*  
Manfred Mueller, Senior Project Engineer  
UL International Germany GmbH

- ✓ NEMA 12 , IP65
- ✓ Device class PICQ
- ✓ File number: E314880
- ✓ Over voltage category III
- ✓ UL certified for voltages up to 600V
- ✓ Safety of Electrical equipment for Measurement, Control and Laboratory Use Part 1: General Requirements
- ✓ CAN/CSA-C22.2 No. 61010-1-04, 2<sup>ND</sup> Ed Safety of Electrical Equipment for Measurement, Control and Laboratory Use



# PAC3200 Power Meter Overview

## Quick Installation Feature

### Quick no-tool installation

Uses a simple combined latching holder

- ⇒ Degree of protection NEMA12 / IP65
- ⇒ Integral seal provided as standard.

### Installation with screws

(integrated in combined latching holder)

- ⇒ Increased contact pressure
- ⇒ Increase degree of protection to NEMA 12 / IP65 (front side)

### Minimal Space Requirement for latches

- Low installation depth of just 2.0" (51 mm) or 2.875" (73 mm) with extension module.





# PAC3200 Power Meter Overview

## Retrofit Installation Feature – for all PAC series meters

Siemens panel mount adapter plate

Part #: 93-47ADAPTER

This plate will work for old Siemens 4700 and 4720. The plate fills the cutout left by the old meter with cutouts for PAC meter.



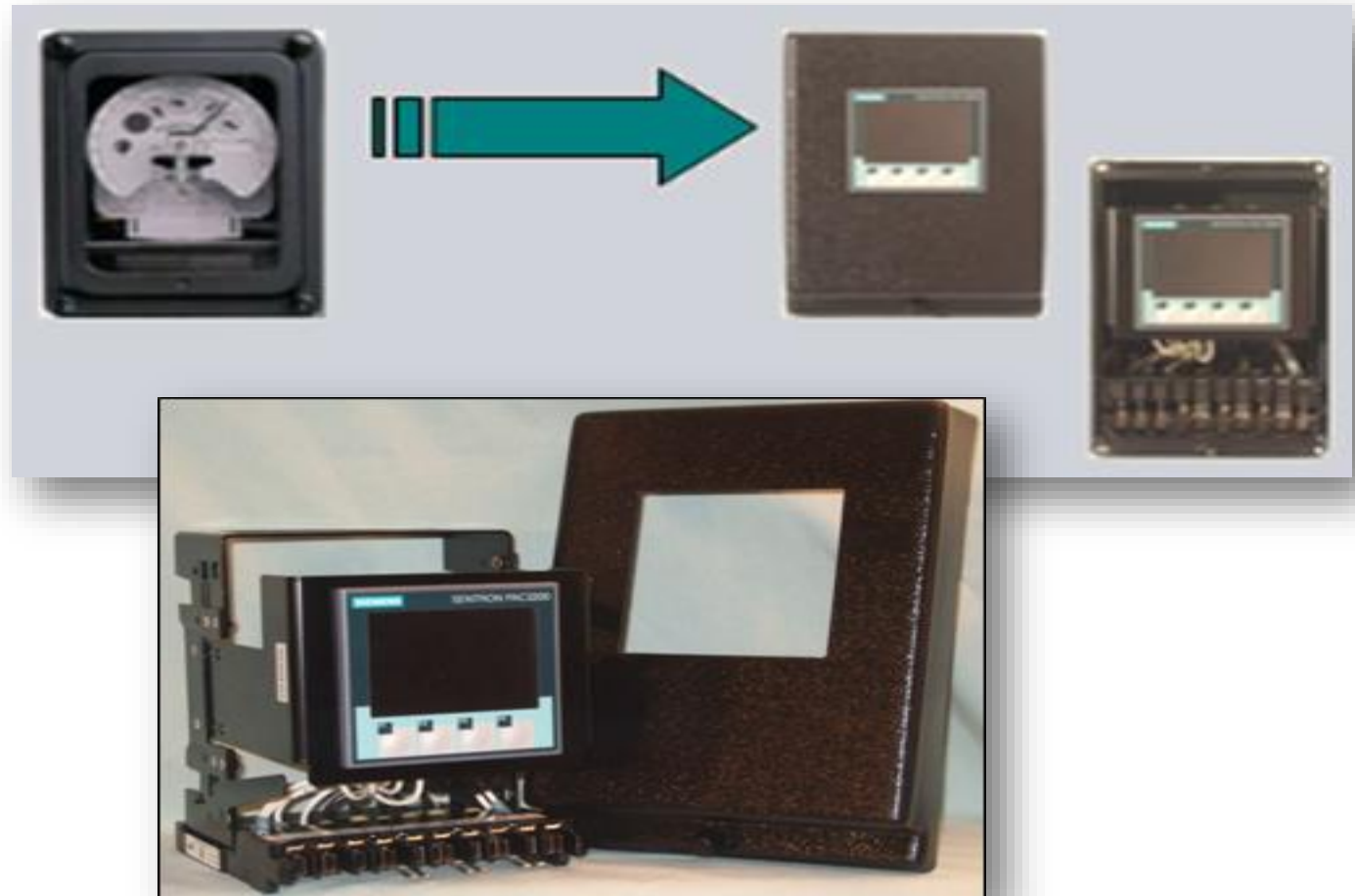
# PAC3200 Power Meter Overview

## Retrofit Installation Feature – for all PAC series meters

Drawout kWh Meter  
Replacement kits for many  
old meter designs.



Quoted as a special through  
the local Siemens Sales  
person.



# PAC3200 Power Meter Overview

## Multi-meter Installation Feature – for all PAC series meters

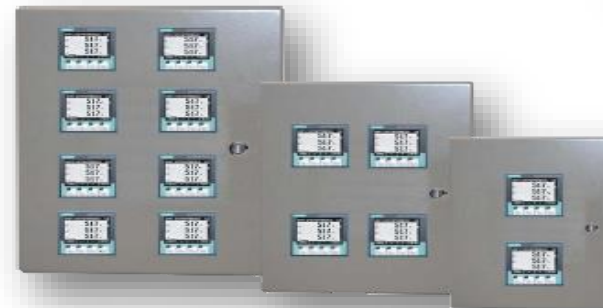
Siemens Single Unit PAC Meter Enclosure



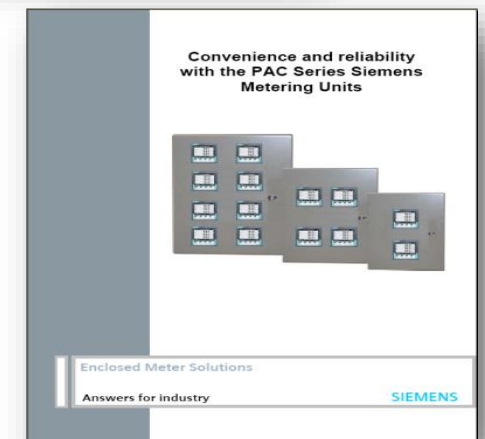
Siemens Metering Units (SMU's) for sizes ranging from 2 to 14 meters and NEMA 1 or 12.

\*Other ratings can be supplied.

All enclosures come pre-wired with shorting blocks, fuse blocks, and CPT if required.



Multi-Meter Enclosures

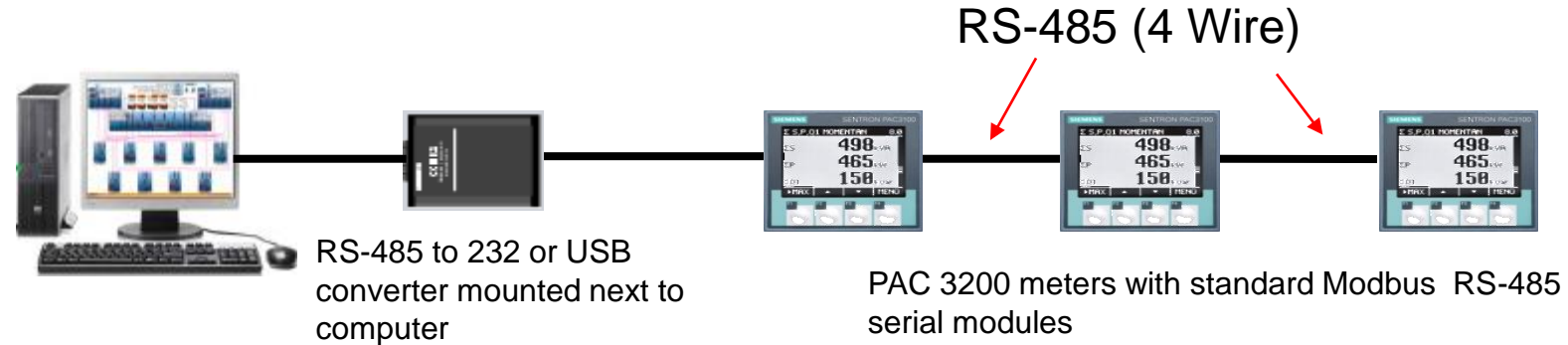


Data Sheets

# PAC3200 Power Meter Overview

## Communications Example – Direct Serial Connection

**WinPM.Net  
Powermanager  
System**

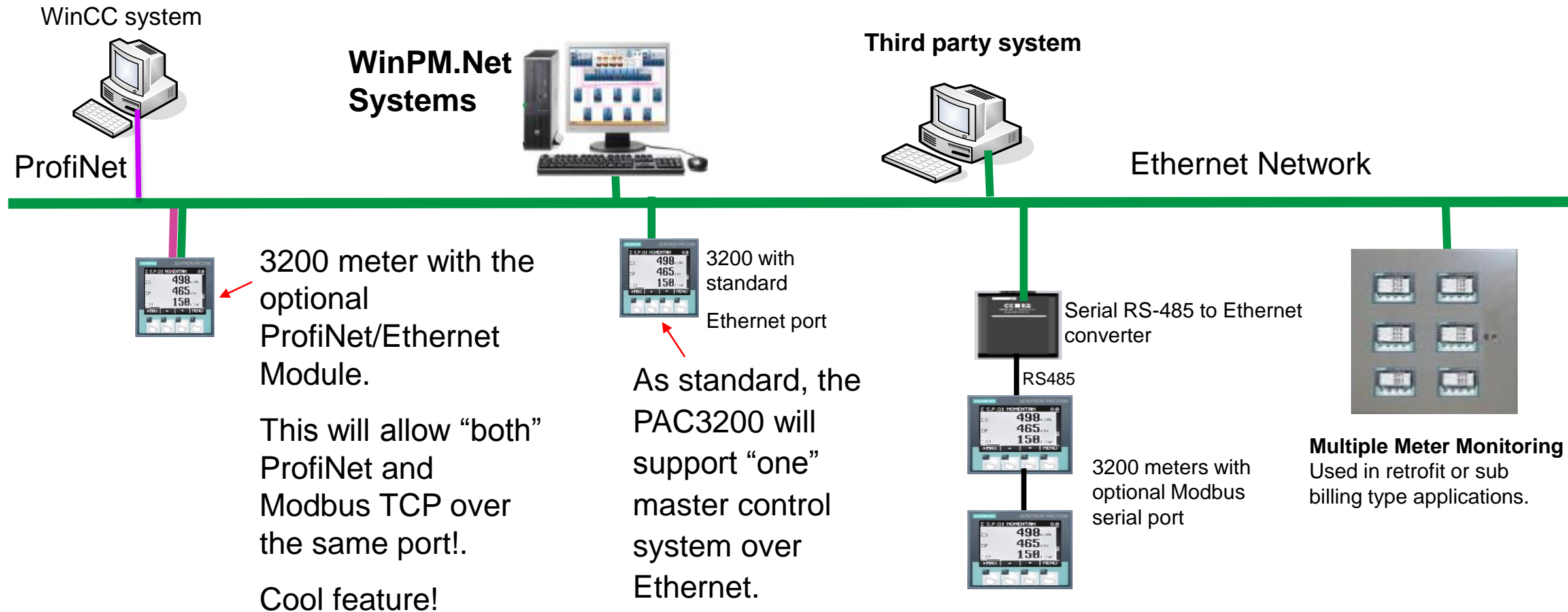


Direct connection to a computer via RS-485 serial wire (up to 4000 ft). One RS-485 string can support up to 32 meters.



# PAC3200 Power Meter Overview

## Communications Example – Ethernet Connection

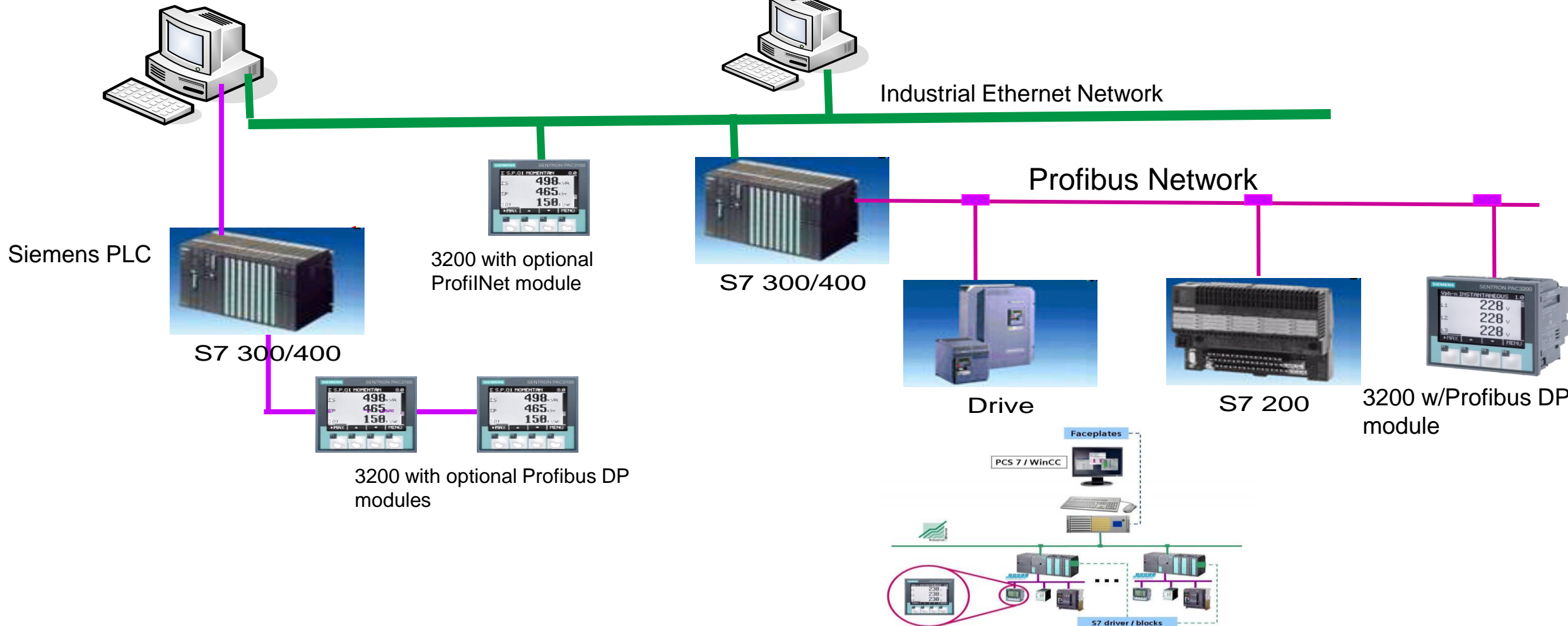


# PAC3200 Power Meter Overview

## Communications Example – Siemens IA (Profibus DP or ProfiNet) Connection

### SCADA WinCC / PCS7

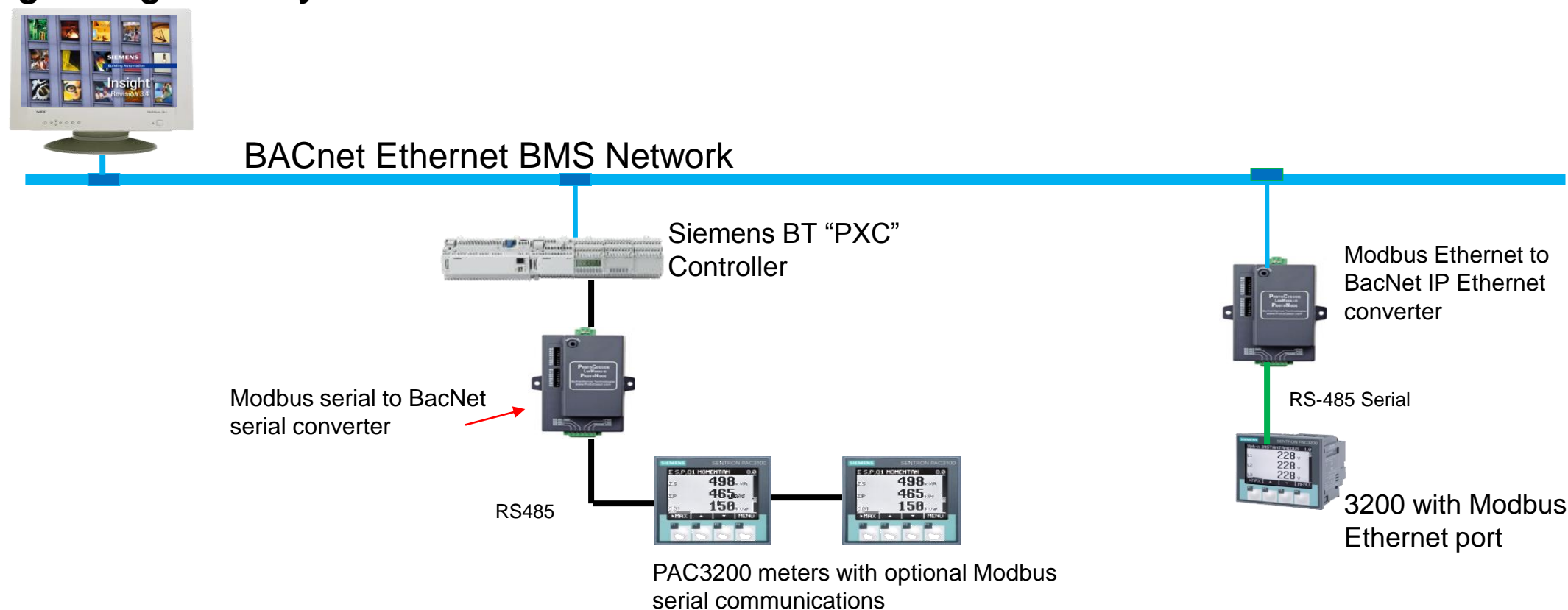
### SCADA Web Clients



# PAC3200 Power Meter Overview

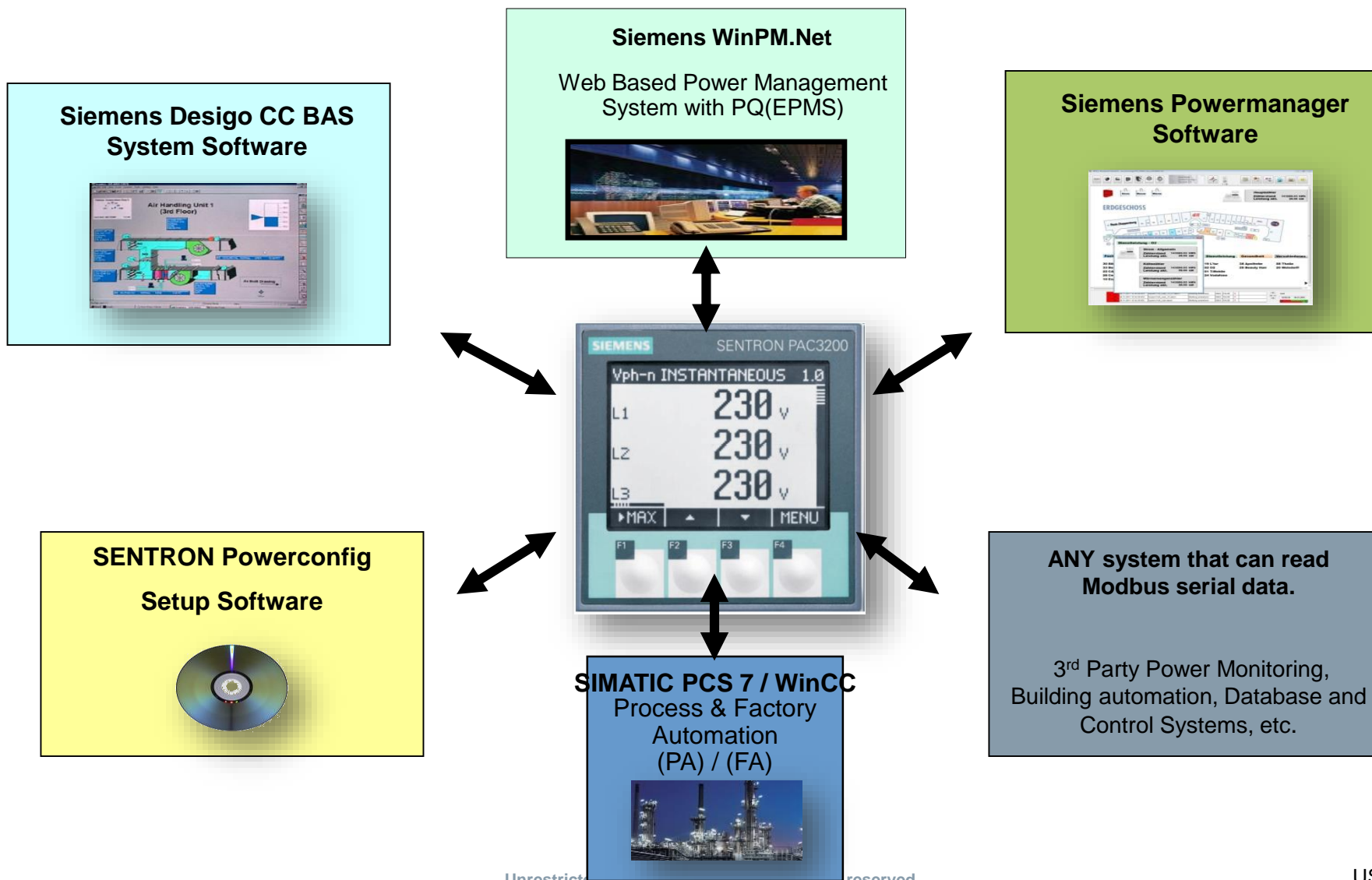
## Communications Example – Siemens BT (DesigoCC) BACnet Connection

### Siemens DesigoCC Building Management System



# PAC3200 Power Management Solutions

## Supporting software solutions for PAC Meters





# PAC3200 Power Meter Overview

## Part numbers



**7KM21120BA003AA0**



**7KM21111BA003AA0**



**7KM99000YA000AA0**

- Class 0.5 meter, AC/DC, Ethernet 10BaseT Modbus, panel mount with Integrated display, Time stamping, 1 x DI and 1 x DO, 1 expansion slot over 50 measurements.
- 110/340VAC / 95-240VAC, 45-65Hz
- Class 0.5 meter, DC ONLY, Ethernet 10BaseT Modbus, panel mount with Integrated display, Time stamping, 1 x DI and 1 x DO, 1 expansion slot over 50 measurements.
- 22-65 VDC / 45-65Hz
- **Optional DIN rail adapter**

# PAC3200 Power Meter Overview

## Part numbers



**7KM93000AB000AA0**

- SENTRON PAC 3200 or 4200 **PROFIBUS DP** MODULE
- Plugs on the back of the meter, supports baud rates from 9,600 to 12 Mbit/sec



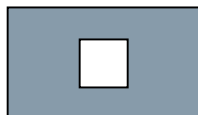
**7KM93000AE010AA0**

- SENTRON PAC 3200 or 4200 **PROFINET** MODULE
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**7KM93000AM000AA0**

- SENTRON PAC 3200 or 4200 **MODBUS RTU** MODULE
- Plugs on the back of the meter, supports baud rates of 4.8, 9.6, 19.2 and 38.4 kBit/sec



**93-47ADAPTER**

- **Adapter Plate for existing 4700 / 4720 meter with PAC meter cutout.**

# Thank You

**SIEMENS**  
*Ingenuity for life*



For additional information on Siemens Digital Solutions contact:

- ✓ Technical Support line at 1-800-333-7421 (M-F) 8-5pm Eastern US.
- ✓ Web Support:
  - ✓ [www.usa.Siemens.com/pds](http://www.usa.Siemens.com/pds)
- ✓ Request for Information / Proposal
  - ✓ [www.usa.Siemens.com/pds-request](http://www.usa.Siemens.com/pds-request)