

Electronics accessories



Read-out systems

M-Bus

- Reading can be taken at front door
- Remote read-out via modem
- Any number of units
- Any distances
- Conforms to metering bus standard

ZR-Bus passive

- Reading can be taken at front door
- Very low system costs
- No operating costs
- Up to 10 units
- Maximum cable length 300 m

ZR-Bus active

- Reading can be taken at front door
- Low system costs
- Remote read-out via modem
- Up to 32 units
- Maximum cable length 1000 m
- Cascading possible
- RS-485 industrial standard

RS-232

- Intelligent measuring unit at PC
- Laboratory operation
- Reading can be taken at front door
- Remote read-out via modem
- Maximum cable length 15 m

Reading head

- Fast
- Cost-effective
- Large volume of data can be read in a short time
- Read-out via optical head



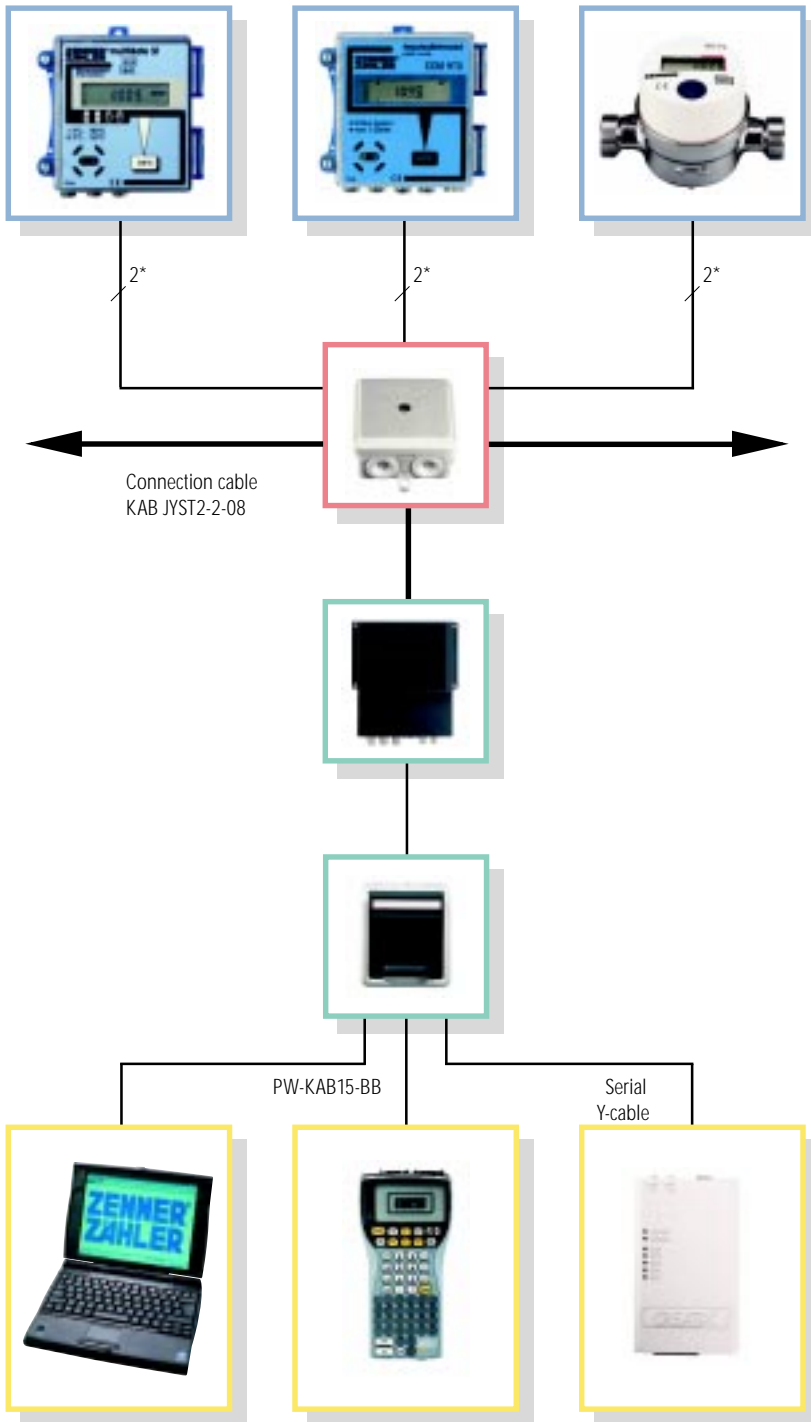
M-Bus remote meter reading

The M-Bus system allows you to efficiently and safely record a wide range of consumption data from all meters located in the network. **Centralised reading** makes it possible to avoid time-consuming and repeated visits to end customers. All consumption data and parameters which are necessary for accounting can be read on site, e.g. in the cellar at a central station. All that is required for this is the handheld terminal PSION workabout® or an IBM-compatible PC. The customers' apartments no longer need to be entered. Readings can be taken even more efficiently via a modem which is linked to the central station. With the aid of special software, direct connection with each central station is possible. This data can then be downloaded into a central computer and further processed in the billing system. This provides complete freedom from the need to manually read meters on specific dates. It is easier to carry out intermediate billing, monthly billing or even functionality checks.

All bus-capable units are linked to each other by a reverse polarity protected two-wire circuit. This means relatively **low installation costs**. The core of all M-Bus systems are the supply units, or also the repeaters. Communication between all units connected to the network is carried out through these. Compared to the reading and supply units, repeaters have the advantage of being cascadable, i.e. a network consisting of the maximum number of 150 devices is **expandable** by a further 150 devices with an additional repeater. Where greater distances are involved, it can also be used as an intermediate amplifier in order to compensate for line drops. The devices themselves can be divided into 2 different types. The first type is the standard pulse counter module. This unit can take the outputs from up to 3 different pulse output meters. Gas, oil, water or electricity meters can be directly connected to this unit. The other type is the heat computer multidata S1. This unit also has 3 pulse input channels. The first is used for the volumetric measuring unit for heat meters. The other 2 channels can also be used on any type of pulse output meter.

A detailed data bus system description (order no. 98L 001) is available on request.

M-Bus Connection example



Read-out system

M-Bus

Heat meters multidata S1 type BM and pulse counter module IZM 972 or other M-Bus-capable units

Connection cable
KAB JYST2-2-06

Wall-mounted boxes
APDOSE 9/4 or APDOSE 11/5

Connection cable
KAB JYST2-2-08

M-Bus read-out and supply units
ZDR 003 or ZDR 004 / ZCOM 330

Bus terminal box
Ed9PS

Connecting cable PW-KAB15-BB
or serial serial Y-cable for modem

Handheld computer PSION workabout®
PSIONWA

Modem MBMOD
specially configured, incl. transformer and serial Y-cable

Possibilities:

- Reading can be taken at front door
- Remote read-out with modem
- any number of devices
- any distance

Since the M-Bus supply units and repeaters partly provide different interface plugs for read-outs, it is always recommended that you install our Bus terminal box ED9PS. This guarantees that the same plug is to be found on each system. It is always possible to perform a read-out with standard extensions or, in the case of a modem, with the supplied serial Y-cable, at any time and without any problem.

* Number of wires

Read-out system

ZR-Bus passive

Heat meters multidata S1 type BZ and pulse counter modules IZM 972

Connection cable KAB JYST2-2-06

Wall-mounted boxes APDOSE 9/4 or APDOSE 11/5

Connection cable KAB JYST2-2-08

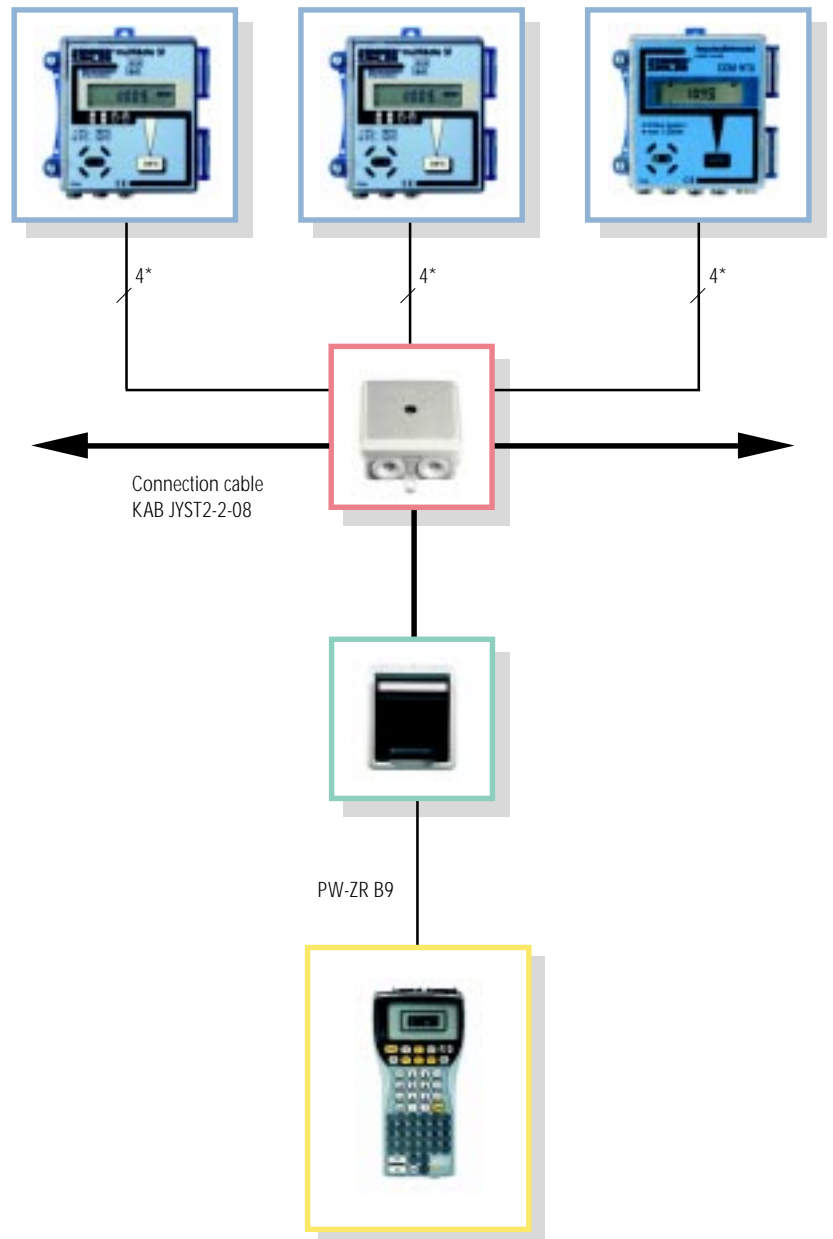
Bus terminal box Ed9PB

ZR-Bus read-out cable PW-ZR B9

Handheld computer PSION workabout® PSIONWA

ZR-Bus passive

Connection example



Possibilities:

- Reading can be taken at front door
- minimal system costs
- no operating costs
- up to 10 devices
- maximum cable length 300 m

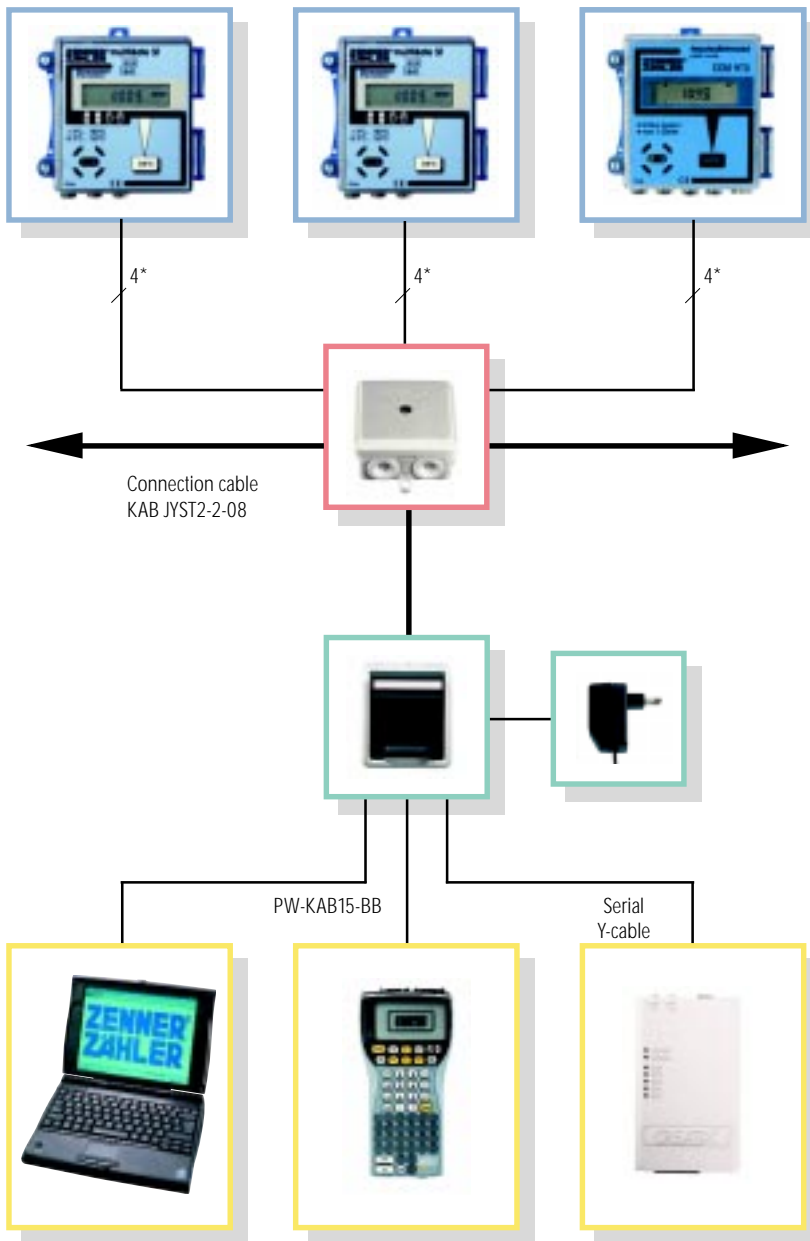
Simple and low-cost solution with PSION workabout® - not suitable for PC/modem!

This ZR-Bus system is especially suitable for the PSION workabout®. This can be connected to the bus terminal box using the PW-ZR B9 adapter cable. There is no need for a level conversion, as is necessary with the active ZR-Bus. However, subsequent conversion to our active system is also possible by simply exchanging the bus terminal boxes and installing a mains connector unit, without having to lay the whole network again.

* Number of wires

ZR-Bus active

Connection example



Read-out system

ZR-Bus active

Heat meters multidata S1 Typ BZ and pulse counter modules IZM 972

Connection cable
KAB JYST2-2-06

Wall-mounted boxes
APDOSE 9/4 or APDOSE 11/5

Connection cable
KAB JYST2-2-08

Active bus terminal box AEd9PS and mains connector unit STNET

Connection cable PW-KAB15-BB or serial Y-cable (supplied) for modem

Handheld computer PSION workabout® PSIONWA

Modem MBMOD specially configured, incl. transformer and serial Y-cable

Possibilities:

- Reading can be taken at front door
- Low system costs
- Remote read-out via modem
- Up to 32 devices, cable length up to 1000 m
- Cascading possible

The active ZR-Bus should be selected if readings are **also** to be taken via PC or modem.

To convert the ZR-Bus into a current standard for PC or modem read-out (RS-232), a level converter is integrated into the bus terminal box. Thus all read-out systems which are in common use can be easily read out via the 9-pole plug of the box using standard cables (or, in the case of a modem, via the serial Y-cable supplied).

* Number of wires

Read-out system

RS-232

Heat meters multidata S1 Typ BR
and pulse counter modules IZM 972

Connection cable
SV-9PBO or SV-25PSO

Heat computers multidata S1 type BR
and pulse counter modules IZM 972

Bus terminal box
Ed9PS

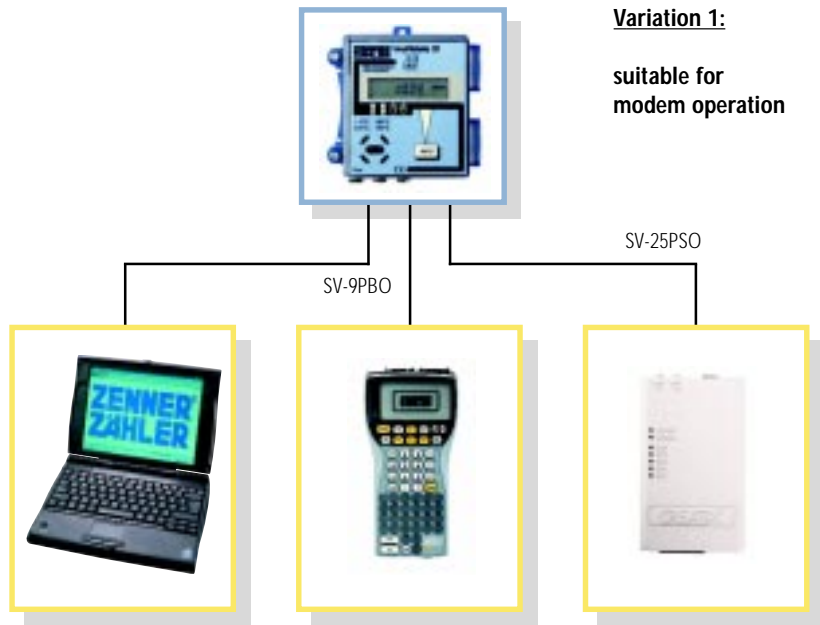
Connection cable KAB JYSTY-2-06
and PW-KAB15-BB or serial Y-cable

RS-232

Connection examples

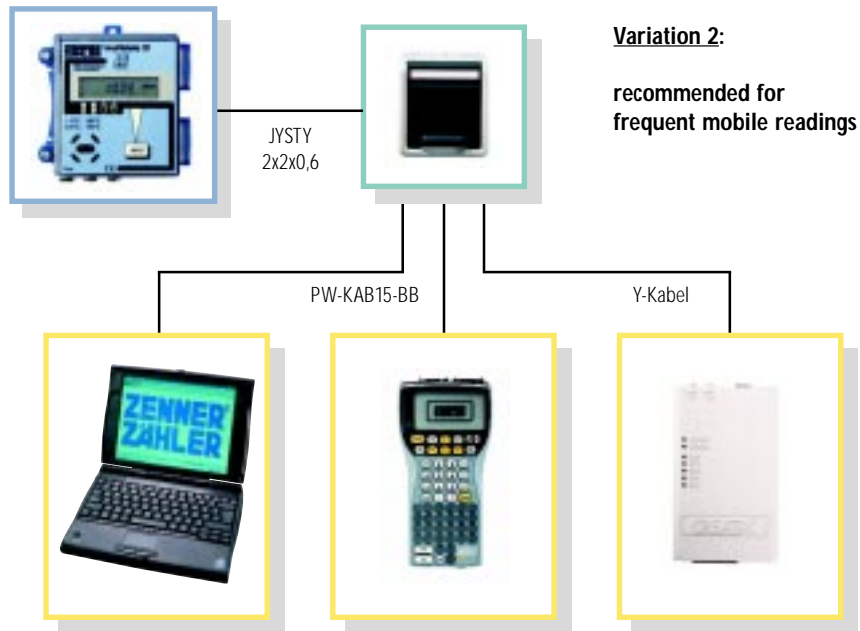
Variation 1:

suitable for
modem operation



Variation 2:

recommended for
frequent mobile readings



Possibilities:

- Intelligent measuring unit at PC
- Laboratory operation
- Reading can be taken at front door
- Remote reading via modem
- Maximum cable length 15 m

The **RS-232** version is only suitable for **point-to-point connections**, i.e. only one single heat meter can ever be read out with one read-out device (PSION workabout®, PC or laptop). Since the heat meter does not have its own plug, but only the connection terminals, the variation with our Ed9PS terminal box is recommended where readings are taken frequently. Here, the terminals of the terminal box are wired permanently with those of the heat meter. A DB9 connector is located on the box for the purpose of taking readings, to which our standard cables (or, in the case of a modem connection, a serial Y-cable) can be connected.

Pulse counter module

IZM 972



CE

The IZM 972 pulse counter module can take the inputs of up to 3 pulse output meters and integrate them into a bus system.

As well as displaying consumption data on the local register, the IZM 972 also makes this data available on the bus when requested. Low-cost pulse output meters can be used to establish an M-Bus network without the high cost normally associated with M-Bus compatible meters. In addition to the bus version, an RS-232 version is also available.

Reed sensors as well as the outputs of most meters, e.g. water meters, electronic meters and gas meters, can be connected directly to the inputs.

The IZM 972 pulse counter module can work together **with all sizes of meter**.

Operating failures and faults are detected automatically and can be shown on the local display with the date, duration and type of fault.

A non-volatile memory **captures and saves at regular intervals** all essential data. All devices

also have an optical interface for mobile data logging along with programming of the specific parameters.

Due to the integrated clock and calendar, **specific date data** are also no problem for our IZM 972 pulse counter module. The volumes of the meters are written into the memory on a date specified by the user year after year and can be read or transmitted remotely.

The pulse counter module is splash-proof. The cable inputs are watertight. The body is designed to be safe against flooding and the installation can be inspected by us as an option.

A detailed performance specification is available on request in German (order no.: 98W 002) or in English (order no.: 98W 004).

Display sequences

Pulse counter module IZM 972

a concept that meets every need

Main menu
Level 1

Error display (only if present)

Err 00 100

Main volume meter

2200.007 m³

Additional volume 1

1- 320.8 m³

Additional volume 2

2- 8325.86 m³

Segment test (flashing)

* Ⓢ △ ▢ ← → MGJm³/
kMWh I/Imp/l

Flow rate

40.367 m³/
h

Operating hours

783 h

S.R.D. menu
(Specified Reading Date)
Level 2

S.R.D.

Ⓢ 5-3 1.0.7 - -

S.R.D. volume

Ⓢ 98 1.32 m³

Additional S.R.D. volume 1

Ⓢ 1- 4.083 m³

Additional S.R.D. volume 2

Ⓢ 2- 1003 m³

Date of last remote read-out

Ⓢ r-24.12.93

Current date

Ⓢ 22.08.98

Current time

Ⓢ 09:38

Serial number

Ⓢ 00009824

Customer number

Ⓢ C-000338

Display sequences

Pulse counter module IZM 972



Easy to operate:

Next menu option: **INFO** press briefly

Next level: **INFO** press for 5 seconds

Configuration

Level 3

Pulse value

Ⓢ ←→ 10.0 I/Imp

Pulse value 1

Ⓢ ←→ 1-82.113 Imp/l

Pulse value 2

Ⓢ ←→ 2- 1.50

Type/model designation

Ⓢ ←→ 3.3.5.7.0.0.0.0

Baud rate of bus

Ⓢ ←→ baud2400

Address of bus

Ⓢ ←→ 000

Service life of battery

Ⓢ ←→ -.10.99

Test menu

Level 4

Small volume resolution

Ⓢ ←→ 0030.5638

Software version

Ⓢ ←→ C53 0000

Input diagnosis

Ⓢ ←→ 0 1000000

Pulse counter module

Models

Please state type designation when ordering

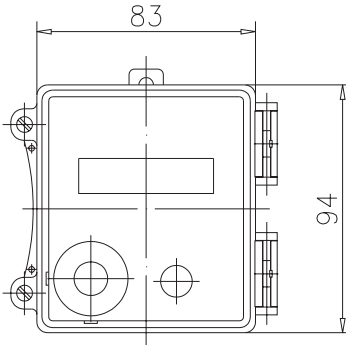
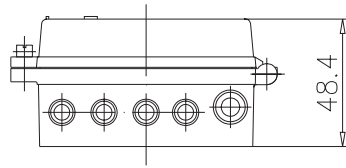
Type	Battery	M-Bus	RS-232	ZR-Bus
IZM 972-S	●			
IZM 972-M	●	●		
IZM 972-R	●		●	
IZM 972-Z	●			●

Technical data

Microprocessor energy indicator

Ambient temperature	5°C ... 50°C
Register	8-character, sliding
Measuring units	m ³ / l
Power supply	built-in 6-year battery (3V or 3.6V) or transformer
IP rating	IP 65, in accordance with DIN 40050

Dimensions



The pulse converter converts impulses coming from the IR-sensor of the water meter into a direct current (F/I converter).

The pulse converter is suitable for infrared device types IG-ZR, IG-IR and IG-IN.



Pulse converter

Operating voltage	220V / 50Hz or 24V= +15%	
Power consumption	9VA	
Pulse frequency input	1 - 1000Hz	
Ambient temperature	max. 50°C	
Current output	switchable 0/4 - 20mA	
Load resistance	max. 1kOhm; at 24V= 400 Ohm	
Wire resistance between pulse converter and IR-sensor	max. 100 Ohm per wire	
Body dimensions (HxWxD) in mm	for wall mounting	193/134/150
	for fitting in control panel	144/72/200
	Snap-open body	75/100/110

Technical data

The electronic pulse counter can be connected directly to a water meter with a dry contact pulse output.

No external power supply is necessary. The built-in lithium battery operates an LSI circuit. This circuit guarantees optimum suppression of interference.

Its compact construction (DIN dimensions 48 x 24 mm) allows it to be fitted even in confined spaces.

The pulse counter has proven itself particularly reliable in the case of highly inaccessible water meters, e.g. manhole installation.



Electronic pulse counter

Type of mounting	built-in	
Counting direction	upward	
Register	digital LCD	
Battery service life	over 6 years in continuous use	
Resetting	external resetting	manual resetting
Number of characters	7 characters	6 characters
Counting input	dry contact input	dry contact input
Max. counting speed	1000 Hz	30 Hz
Connections	wire-wrap	screw
Type	H7EC	H7EC-BLM

Technical data

Remote counter display

FZA-STO-81

Dimensions (H x W x D) in mm:
 for 10 users 184/220/120
 for 20 users 220/260/150
 for 30 users 320/370/150
 more users on request



The remote counter display of series 81 can process, display and permanently store 10, 20 or 30 meter units (pulse output water meters with reed switch). A number is allocated to each counter input (user). The units to be counted (m³ or MWh) can be programmed.

There are two types of operation:

Display:

The meter readings can be called up in sequence.

Programming:

only for service staff (operation of key switch)

Remote counter device
 FZ + RFZ

Dimensions (H x W x D) in mm:
 160/80/80



contains the 230 VAC / 24 VDC transformer and the pulse input unit on a single printed circuit board.

The counter is built in to the front plate. All water meters with a reed switch can be used as a control. The STO-RFZ version is fitted with a resettable meter, enabling it to be used in water economy, commerce and industry as a control unit.

IP rating: IP 45
 Counter: 5-digit
 Pulse input.: 4 VA
 Power supply: 230 VAC

The STO-FZ and STO-RFZ remote counter devices form a ready-to-connect unit for all remote counter tasks. The robust wall-mounted box

Battery-operated remote counter device
 STO-BFZ

Dimensions (H x W x D) in mm:
 160/80/55

Protection: IP 65
 Counter: LCD counter, 8-digit, digit height 8mm, with manual resetting
 Type: see above

Pulse input.: Reed switch
 Battery: 1.75 Ah, 3.6 V (Service life approx. 7 years)
 Versions: 1 LCD counter
 2 LCD counter

Dosage control unit



The dosage control unit is designed for installation in control panels and wall mounting. Switching-off is single-level. An external start key with an additional change-over contact are optionally available. The device has an electronic LED preselect counter.

Technical data

Power supply	230V	
IP rating	for wall-mounting: IP 65 for fitting in control panel: IP 65	
Input frequency and type	max. 1000Hz, Reed and Namur	
Body dimensions (HxWxD) in mm	for wall mounting	144/144/200
	for fitting in control panel	193/215/150

Mobile data read-out with the powerful handheld computer **PSION workabout®**

- mobile, ergonomic, robust
- PC-compatible file system
- low cost
- spread sheet, calculator, data base
- graphical interface
- programmable
- versatile expansion possibilities

The device is suitable for commissioning and reading out both complete data networks and individual heat meters and electronic heat cost allocators. ZENNER® also provides an extensive range of accessories for the practical handheld computer.



PSION workabout®

The software program for all billing and accounting purposes

In today's world of reading and billing, modern computer technology is being put to increasing use and is already indispensable in a great number of areas.

ZENNER® can offer you tailor-made programs using the most advanced technology. The software is developed by us in house and is designed for optimum interaction between hardware and software.

You always remain up-to-date with regard to further developments in the technical field.

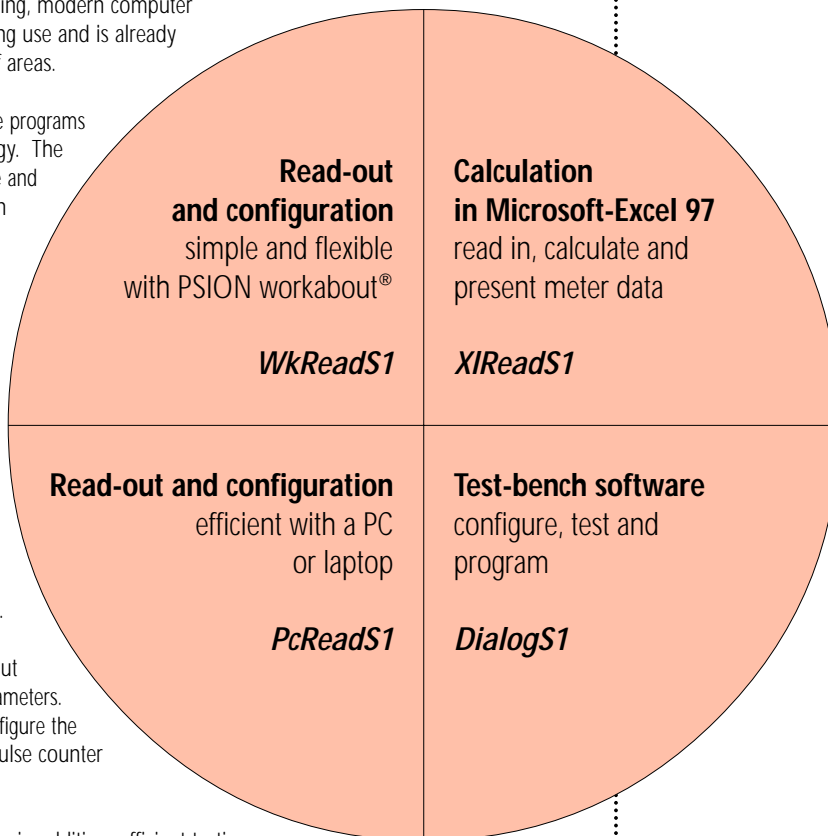
With ZENNER® software you can read in your meter data in a variety of ways and process it further using powerful modules. In this way, modules which have been prepared for billing are integrated for use with the spreadsheet program MS-Excel.

Not only can you access the data but also the hardware configuration parameters. With this system it is possible to configure the bus, the heat computers and the pulse counter modules.

For authorised test benches there is, in addition, efficient testing and configuration software.

On the ZENNER® demo CD (order no. 99L 004) and on the Internet (<http://www.zennerzaehler.de>) you can find all the programs (except for the test-bench version) as a demo version with extensive documentation on software and bus systems. To put the programs to full use, a PSION workabout® or a PC with an optical reading head and a multidata S1 heat computer are required.

Software



Software

WkReadS1

Data read-out and bus configuration - simple and flexible with a handheld computer



- automatic read-out and manual input option
- specific individual read-out and complete bus read-out
- installation and configuration of buses
- generate and document bus information
- data transfer to PC

System requirements: PSION workabout®

PcReadS1

Meter read-out and bus configuration with PC or laptop

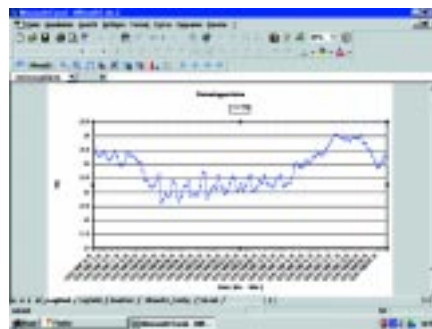


- flexible read-out options: optical head, modem, bus, RS-232
- individual and complete read-out
- installation and configuration of buses
- powerful data filters and converters
- data acquisition using a handheld PSION workabout® with WkReadS1
- data transfer also to other programs

System requirements: PC/laptop with Windows 95

XlReadS1

Reading in, processing and displaying meter data in EXCEL 97



- easy to use
- read-out of all data incl. data logger via direct link or modem
- automatic read-out of a list of devices and buses
- direct data acquisition from PcReadS1
- direct reading-in to Excel tables
- analysis and display of data as a graph

System requirements: PC or laptop with Windows 95 and MS-Excel 97

DialogS1

Configuration and test-bench software - software for authorised test benches



- Display and setting of all parameters of the multidata S1 heat computer
- programming of all consumption data
- display of error statistics
- read-out and configuration of the data logger function
- test support for the heat computers
- recalibration of the heat computers

System requirements: PC with Windows 3.1 or Windows 95

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Microsoft, MS, Windows and Excel are registered trademarks of Microsoft Corporation.

Ordering data

Model	Qty. per package	Size	Type	Order no.
Pulse converter with display devices for fitting in control panel	1		FIU-39-S	65L 019
Pulse converter with display devices for wall mounting	1		FIU-39-W	65L 020
Pulse converter microprocessor-controlled	1		MU-520.10	65L 021
Electronic pulse counter for fitting in control panel with battery LCD, 7-character	1		HZ-EC	65L 022
Electronic pulse counter for fitting in control panel with battery LCD with resetting, 6-character	1		H7-EC-BLM	65L 023
Remote display up to 10 units	1		FZA-STO-81-10	65L 024
Remote display up to 20 units	1		FZA-STO-81-20	65L 025
Remote display up to 30 units	1		FZA-STO-81-30	65L 026
Remote display, battery-powered version with 1 counter	1		STO-BFZ-1	65L 027
Remote display, battery-powered version with 2 counters	1		STO-BFZ-2	65L 028
Remote counter display Transformer 230 VAC 5-character with resetting	1		STO-RZA-02	65L 029
Remote counter display Transformer 230 VAC 5-character without resetting	1		STO-FZ-02	65L 030
Dosage control unit for fitting in control panel	1		DG-ST-44	65L 031
Dosage control unit for wall mounting	1		DG-ST-45	65L 032



Ordering data



Model	Qty. per package	Size	Type	Order no.
Pulse counter module without interface	1		IzM 972-	50W 001
Pulse counter module, M-Bus	1		IzM 972-BM	50W 002
Pulse counter module, ZR-Bus	1		IzM 972-BZ	50W 003
Pulse counter module, RS-232	1		IzM 972-BR	50W 004
Memory card for multidata S1 and pulse counter module IZM 972 for functions of large data logger	1	2 KB	SPKA2	50W 005
	1	8 KB	SPKA8	50W 006
	1	24 KB	SPKA24	50W 007
PSION workabout® 1MB	1		PSION-WA-1M	65L 001
Power pack for PSION workabout®	1		PW-AKKU	65L 002
Wall bracket for PSION workabout® incl. transformer	1		PW-WHALT	65L 003
Vehicle bracket for PSION workabout® with cigarette lighter connection	1		PW-PHALT	65L 004
Transfer and loading station for PSION workabout® for connection via RS-232 with PC, modem or printer and recharging of accumulator	1		PW-CRAD	65L 005
M-Bus digital repeater (250) *	1		ZDR 007	65L 006
M-Bus converter (120) *	1		ZDR 004	65L 007
M-Bus converter (250) *	1		ZDR 003	65L 008
M-Bus converter (32) *	1		ZCOM 330	65L 009
ZR-Bus converter (32)	1		AEd9PS	50L 001
ZR-Bus connection box	1		ED9PB	50L 002
RS-232 connection box	1		Ed9PS	50L 003
M-Bus connection box	1		Ed9KI6.3	65L 033
Wall-mounted box	1		APDOSE A11/5	65L 010
	1		APOSE A9/4	65L 011
ZR-Bus converter AEd9PS	1		STNET	65L 034
Installation cable	1	2x2x0.6	KAB JYSTY2-2-06	65L 012
	1	2x2x0.8	KAB JYSTY2-2-08	65L 013
RS-232 cable socket/socket, (zero modem) approx. 1.5 m	1		PW-KAB15-BB	65L 014
RS-232 cable socket/socket, (extension) approx. 1.5 m	1		PW-KAB15-BS	65L 015
RS-232 direct connection cable	1		SV-9PBO	50L 004
ZR-Bus read-out cable	1		PW-ZR B9	50L 005
RS-232 modem cable	1		SV-25PSO	50L 006
Optical read-write head for PSION workabout®	1		OKPW	65L 016
Optical read-write head for PC	1		OKPC	65L 017
Modem, specially configured	1		MBMOD	65L 018
WkReadS1 software	1		WkReadS1	99L 001
XlReadS1 software	1		XlReadS1	99L 002
PcReadS1 software	1		PcReadS1	99L 003
DialogS1 software, basic version	1		DialogS1_G	99W 001
DialogS1 software, test-bench version	1		DialogS1_P	99W 002
ZENNER® demo CD with all programs and documentation (without test-bench version)	1		ZR_Demo_CD	99L 004
multidata S1 performance specification, German	1		FB-S1	98W 001
multidata S1 performance specification, English	1		FBE-S1	98W 003
M-Bus data bus performance specification, German	1		DBS-S1	98L 001
IZM 972 pulse counter module performance spec, German	1		FB-IZM	98W 002
IZM 972 pulse counter module performance spec, English	1		FBE-IZM	98W 004

* Number of end devices with standard load 1,5 mA (for multidata S1 and IZM 972, 2 standard loads respectively must observed)