

Introduction

The Arcus-EDS Heat Meter is a „Dialog WZ-CD / -HY“ Heat Consumption Counter (calibration optional) from the company NZR, with an integrated KNX Bus Interface for remote reading and monitoring. The electronic counter is operated by a lithium battery with a 5-year lifespan and 1-year additional reserve. The KNX bus interface is built into the counter and is connected non-reactively with the external terminal block. The meter with the integrated bus interface is authorized by the Physikalisch Technischen Bundesanstalt (PTB) (Federal Institute of Physical Engineering).



Pic. 1 Heat Meter with KNX Connector



Pic. 2 Open KNX Connector Housing

KNX – Interface

The following items are available for remote reading with the KNX/EIB System:

Nr.		Data Point Type	Data Type
0	Current Output in kWh/h	DPT14.056 = Output	Measurement 4 Byte
1	Accumulated Volume in m ³	DPT14.076 = Volume	Integrator 4 Byte
2	Flow Temperature in °C	DPT9.001 = Degrees Celsius	Measurement 2 Byte
3	Return Temperature in °C	DPT9.001 = Degrees Celsius	Measurement 2 Byte
4	Current Flow m ³ /h	DPT14.077 = Volume Flow	Measurement 4 Byte
5	Current Consumption	DPT14.056 = Output	Measurement 4 Byte
6	Saved Value for Due Date	DPT14.056 = Output	Integrator 4 Byte
7	Serial Number	DPT16.000 = String	Identification 14 Byte
8	Error Message	DPT7.001=2 Unsigned Byte	System Status 2 Byte

Current Output	in kWh/h, the current output in the system.
Accumulated Volume	in m ³ , the total amount of flow through water.
Flow Temperature	in °C, the temperature of the water in the system.
Return Temperature	in °C, the temperature of the water returning to the system.
Current Flow	m ³ /h, the current amount of flow through water.
Current Consumption	in kWh, the accumulated warmth output.
Saved Value for Due Date	in kWh, the accumulated warmth output for a particular date (internal value in the meter).
Serial Number	String, for positive identification of the meter.
Error Message	Error Report with Error Code from the manufacturer.

None of the items can be altered from the bus.

Parameter:

The following settings are available to set the parameters with ETS:

Sending condition	
Thermal energy (kWh)	Send at variation v
Accumulated volume (m3)	Send at variation v
Flow temperature (°C)	Send at variation v
Return temperature (°C)	Send at variation v
Flow rate	Send at variation v
current consumption value	Send at variation v
Value at last due date	Do not send v

The following is available for all items except Serial Number and Error Number:

Periodic Transmission (2min)	The current measurement is transmitted every 2 minutes to the bus.
Transmission - Change	The current measurement is transmitted to the bus only when a change occurs (minimum interval 2 min).
No Transmission	The current measurement is not transmitted automatically (Measurements are read manually).

Installation

The heat meter must only be installed and put into operation by an authorized specialist. In addition, knowledge of Engineering Tool Software (ETS) is required. Set-up is carried out with ETS Version 2 or higher. You will find the heat meter in ETS under manufacturer: Arcus-eds, Product Family: Meter, Product Type: heat meter.

The EIB programming button and programming LED are located on the attached housing. (see above).

Technical data for the heat meter can be found in the data sheet of the manufacturer NZR:

Technical Documentation Heat Meter Dialog WZ-HY **db-wz-cd.pdf** / **db-wz-hy.pdf** (see attached)

Wärmezähler WZ-CD

heat meter WZ-CD



Menüanzeigen / Menu displays

Menü Menu	Beschreibung Description	Dauer Time	Display Display
1	Aktueller Verbrauchswert (Anzeige in kWh/MWh möglich) Current consumption value (display in kWh/MWh possible)	10	389 1083
2	Seriennummer (6-stellig) Serial number (6-digit)	10	0004711
3	Vorjahresverbrauchswert (Verbrauch am Stichtag) Consumption value previous year (consumption on cut-off date)	10	1234567
4	Displaytest / Display test	4	8888888
5	Aktuelles Datum / Current date	5	02.05.99
6	12 Monatsendwerte 12 month end value	Je 6	36858
7	Vorlauftemperatur in °C Supply temperature in °C	125	12883
8	Rücklauftemperatur in °C Return temperature in °C	125	68.39
9	Akkumuliertes Volumen in m³ Accumulated volume in m³	10	1238
10	momentaner Durchfluss current flow rate	125	3.186
11	momentane Leistung current power	125	36.8
12	Fehleranzeige / Error display	5	Err.000
13	Geeicht bis Monat/Jahr / calibrated till month/year	5	--.1204
14	hohe Auflösung mit 3 Nachkommastellen high precision with 3 decimal places	5	1083.497
15	Impulswertigkeit Rechenwerk [Liter] impulse calculator [liter]	5	L 100
16	Impulswertigkeit Volumenteil [Liter] impulse volume part [liter]	5	PL 172.0

Funktionsanzeigen / Function displays

Volumen-impuls	Symbol "Stern" zeigt eingehenden Volumenimpuls an. Symbol "star" shows incoming volume impulse.	
Kommunikation	Symbol "Telefon" zeigt Aktualisierung der Netzwerkvariablen an. Symbol "phone" shows updating of network variables.	
Geräte-wechsel	Symbol "Batterie" zeigt erschöpfte Batteriekapazität an. Symbol "battery" shows low battery capacity..	

Beschreibung / Description

Rechenwerk / Counter

- Rechenwerk mit separater Zulassung bis 180°C / Counter with separate approval up to 180°C
- Temperaturdifferenz / Temperature difference: 2 ... 130 K
- Zulassung für asymmetrischen Einbau der Temperaturfühler / approval for asymmetric mountains of the temperature sensors
- 4-Bit Mikrocontroller / 4-bit micro-controller
- 7-stelliger Multifunktions-LCD / 7-digit multi function LCD
- Berührungslose Display-Umschaltung / Non-contact display switching
- Rechenwerkgehäuse 355° drehbar / Counter rotateable by 355°
- umweltfreundlicher 3 V Lithium-Batterie / ecofriendly 3V lithium battery
- Batterielebensdauer 5 Jahre plus 1 Jahr Gangreserve / battery service life 5 years plus 1 year power-reserve
- Selbstkalibrierender Temperaturmesskreis / Automatically calibrating temperature range

Kommunikation / Communication

- Fernauslesbar über / Readable from remote location via: EIB, M-Bus, D-Bus, S0

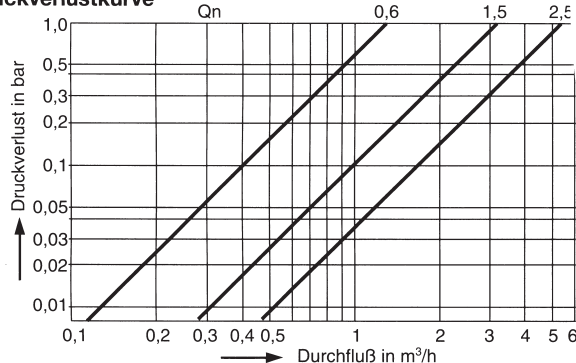
Volumenteil / Volume device

- Beliebige Einbaulagen / Any installation positions
- Überkopfeinbau / Overarm installation
- Volumenerfassung über elektronische Abtastung (magnetfrei) / Volume recording via electronical sensing (magnet-free)
- optimale 2-Punkt-Lagerung aus Saphir/Hartmetall / optimal 2-point suspension made of sapphire/carbide metal
- Temperaturbereich / Temperatur range: 15 - 90 °C
- Optional Temp.-Bereich / optional temp-range 15 - 120 °C

Temperaturfühler / Temperature sensor

- Typ / Type: Pt 500
- Durchmesser / Diameter: 5,2 mm
- Temperaturbereich / Temperature range: 3 ... 105 °C
- Temperaturdifferenz / Temperature difference: 2 ... 130 K
- Kabellänge / Cable length: 1.5 m

Druckverlustkurve



Wärmezähler WZ-CD

heat meter WZ-CD



Kommunikationsoptionen

Impulsausgang

- SO (open Kollektor) oder potentialfreier Kontakt
- Impulswertigkeit: - 1 kWh/Imp bei kWh-Anzeige
- 10 kWh/Imp bei MWh-Anzeige

D-Bus-Schnittstelle

- kostengünstiger Dialog-Bus (2-Drahttechnik)
- auslesbare Daten:
Seriennummer, Energiewert, Stichtagswert, Volumen,
Durchfluss, Wärmeleistung, Vor- und Rücklauftemperatur,
Temperaturdifferenz

M-Bus-Schnittstelle

- integrierte M-Bus-Schnittstelle gem. EN 1434-3
- auslesbare Daten:
Seriennummer, Energiewert, Stichtagswert, Volumen,
Durchfluss, Wärmeleistung, Vor- und Rücklauftemperatur,
Temperaturdifferenz

EIB-Schnittstelle

- integrierte EIB-Schnittstelle gem. EIB/KNX
- auslesbare Daten:
Seriennummer, Energiewert, Stichtagswert, Volumen,
Durchfluss, Wärmeleistung, Vor- und Rücklauftemperatur,
Temperaturdifferenz

Communication options

Impulse output

- SO (open collector) or potential-free contact
- Impulse value: - 1 kWh/Imp with kWh display
- 10 kWh/Imp with MWh display

D-Bus interface

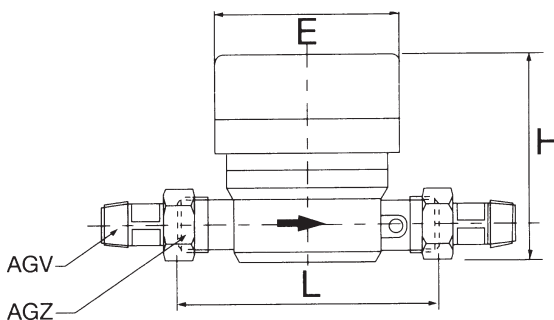
- economical dialogue bus (twin-wire technology)
- readable data:
Serial number, energy value, cut-off date value, volume, flow rate,
heating power, supply and return temperature, temperature difference

M-Bus interface

- integrated M-Bus interface in accordance with. EN 1434-3
- readable data:
Serial number, energy value, cut-off date value, volume, flow rate,
heating power, supply and return temperature, temperature difference

EIB interface

- integrated EIB interface in accordance with. EIB/KNX
- readable data:
Serial number, energy value, cut-off date value, volume, flow rate,
heating power, supply and return temperature, temperature difference



Volumenteil / Volume device

Nenndurchfluss / Flow rate	q_p	m ³ /h	0,6	1,0	1,5	2,5
Nennweite / Nominal diameter	DN	mm	15	15	15	20
Maximale Belastung / Maximum flow rate	q_s	m ³ /h	1,2	2	3	5
Dauerbelastung / Maximum working flow rate	q_p	m ³ /h	0,6	1,0	1,5	2,5
Trenngrenze / Transitional flow rate	q_t	l/h	48	80	120	280
Kleinsten Durchfluss / Minimum flow rate	q_{min}	l/h	12	20	30	70
Anlauf / Starting flow rate		l/h	8	11	13	18
Anschluss / Connection AG Zähler / Meter		"	3/4	3/4	3/4	1
AG Verschraubung / Screw connection		"	1/2	1/2	1/2	3/4
Baulänge / Length	L	mm	110	110	110	130
Bauhöhe / Height	H	mm	80			
Breite Rechenwerk / Width	E	mm	80			

Bestellinformationen / Order list

WZ für trockene Fühler / for dry sensors	VMT-CD 90°C	85523106	85523110	85523115	85523125
mit Impuls / with impulse	VMT-CD 90°C	85563106	85563110	85563115	85563125
mit D-Bus / with D-Bus	VMT-CD 90°C	85533106	85533110	85533115	85533125
mit M-Bus / with M-Bus	VMT-CD 90°C	85543106	85543110	85543115	85543125
mit EIB / with EIB	VMT-CD 90°C	85573106	85573110	85573115	85573125
WZ für nasse Fühler / for wet sensors	VMT-CD 90°C	85623106	85623110	85623115	85623125
mit Impuls / with impulse	VMT-CD 90°C	85663106	85663110	85663115	85663125
mit D-Bus / with D-Bus	VMT-CD 90°C	85633106	85633110	85633115	85633125
mit M-Bus / with M-Bus	VMT-CD 90°C	85643106	85643110	85643115	85643125
mit EIB / with EIB	VMT-CD 90°C	85673106	85673110	85673115	85673125
Option / Option	Langzeitbatterie / Longlife batterie	10 Jahre	492010		