SOLVIMUS
METERING SOLUTIONS

EFFICIENT COMBINATION OF READING BILLING DATA AND INSTANTANEOUS VALUES

Our data concentrators of the MUC family are mainly used to record load profiles or meter readings and to generate daily or monthly reports for billing.

Increasingly, our customers are also using the available Modbus TCP option to record instantaneous values permanently and at high frequency. This allows not only billing in retrospect, but also monitoring and controlling the current operation of the facility or property. The meters only have to be read out often enough.

Readout and database

Our data concentrators are designed to collect all read out values and log them for further processing at a later stage. The readout interval of the meters therefore defines which and how much data is included in the reports.

Although this can also be modified, for example, that only the last value of a report period is included, the data still ends up in the database first. This leads to high memory usage and of course small delays when reports have to be created. It is a fact that the data concentrator has to process all data.

For the retrieval of the instantaneous values via Modbus TCP itself, however, the data in the database is not needed. These are retrieved continuously anyway. In addition, other values are usually of interest here, e.g. instantaneous voltages and currents versus the continuous energy counter register.

The convenient trick: meter entry twins

To combine both efficiently, we have two options with our devices.

There is a parameter MUC_LOGCYLCE_DIVIDER=xxx, which can be entered manually in the app/chip.ini file. Therefore, only every xxxth read value ends up in the database. In simple cases this serves the purpose, e.g. xxx=15 with minutely readout writes only the 15 min values into the database.

The more flexible and comfortable way is to create a meter twice in the meter list. One meter is configured for meter reading (reading billing data) like normal. Its relevant values (e.g. active energy import and active energy export) are activated accordingly.

A copy of this meter is then configured for Modbus, so a different, shorter readout interval is specifically set and at least the relevant, instantaneous values (e.g. active power, voltage and current) are given a Modbus register address. However, this meter is deactivated for the report.

Connected meters

Interface	S	Serial	MAN	Medium	Version	Link	Value	Scale	Unit	OBIS-ID	Encryption key	Cycle	User label	Description	Idx	Register	Active
M-Bus		01013362	ZRI	Water	136	36	[01.02.21, 17:45]					0		[More values available]	0	0	☑
M-Bus		02013362	ZRI	Warm water	136	2	[01.02.21, 17:45]					0		[More values available]	1	0	☑
M-Bus		03013362	ZRI	Other	136	3	[01.02.21, 17:45]					0		[More values available]	2	0	☑
M-Bus		33013362	ZRI	Heat (outlet)	136	4	[01.02.21, 17:51]					0		[More values available]	3	0	☑
—							33 013 362	1E+0	None					Fabrication # 0C 78	0	0	☐
—							0	1E+3	Wh					Energy # 04 06	1	0	☑
—							0	1E+3	Wh					Energy [8] # 84 04 06	2	0	☐
—							0	1E+3	Wh					Energy [9] # C4 84 00 06	3	0	☐
—							0	1E+3	Wh					Energy [20] # 84 8A 00 06	4	0	☐
—							40	1E-3	m^3					Volume # 04 13	5	0	☑
—							2 072	1E-2	Degree C					Flow temperature # 02 59	6	0	☐
—							2 044	1E-2	Degree C					Return temperature # 02 5D	7	0	☐
—							28	1E-2	K					Temperature difference # 02 61	8	0	☐
—							0	1E+2	W					Power # 04 2D	9	0	☐
—							0	1E-3	m^3/h					Volume flow # 04 3B	10	0	☑
M-Bus		33013362	ZRI	Heat (outlet)	136	4	[01.02.21, 17:57]					60		[More values available]	4	10	☐
—							33 013 362	1E+0	None					Fabrication # 0C 78	0	20	☐
—							0	1E+3	Wh					Energy # 04 06	1	30	☐
—							0	1E+3	Wh					Energy [8] # 84 04 06	2	40	☐
—							0	1E+3	Wh					Energy [9] # C4 84 00 06	3	50	☐
—							0	1E+3	Wh					Energy [20] # 84 8A 00 06	4	60	☐
—							40	1E-3	m^3					Volume # 04 13	5	70	☐
—							2 077	1E-2	Degree C					Flow temperature # 02 59	6	80	☐
—							2 056	1E-2	Degree C					Return temperature # 02 5D	7	90	☐
—							21	1E-2	K					Temperature difference # 02 61	8	100	☐
—							0	1E+2	W					Power # 04 2D	9	110	☐
—							0	1E-3	m^3/h					Volume flow # 04 3B	10	120	☐

Configured in this way, the meter is regularly read out at longer intervals in order to record its data in the database, and then at shorter intervals in the meantime to make the data available via Modbus with high temporal resolution.

This covers both applications in a resource-efficient way: high-resolution instantaneous values and aggregated history data for the meter reading history.