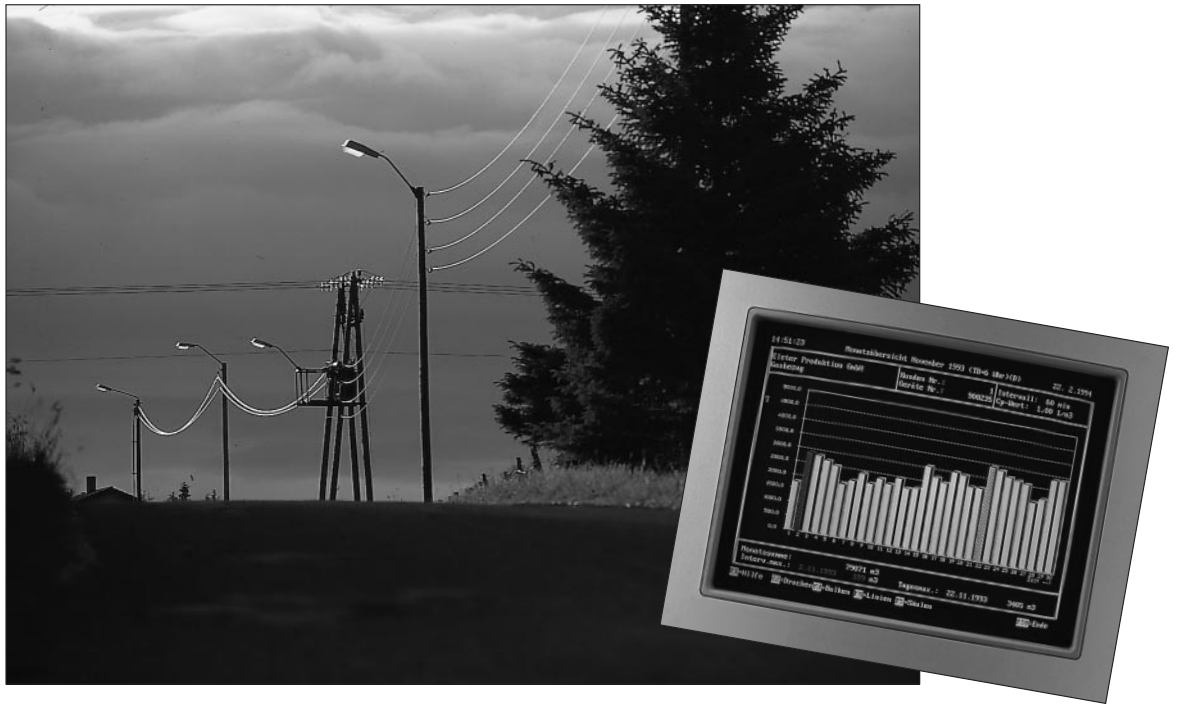


This product is discontinued!

LIS-100

data collecting system



- **Data collection for systems analysis and billing purposes**
- **Suitable for all fields of supply: gas, water, district heating and electricity**
- **Value-for-money system components**
- **Quick availability of data and high data security**
- **Possibility of integration in remote data transfer systems**

The Elster data collecting system, LIS-100, represents a safe and value-for-money possibility of collecting consumption data in the fields of gas, water, district heating and electricity. It is suitable for systems analysis and for billing purposes.

As a result of the fully electronic data collection, whereby there is no manual contact with the data chain, errors during the read-out and when data is transferred can be avoided. Furthermore, the data can be processed much more quickly.

The complete set of components making up the data collecting system offers ideal solutions to the varying requirements of data collection devices used on site and methods of data transfer as well as data processing and analysis.

System description

The Elster data collecting system comprises three functional components:

- data collection and storage
- data transfer
- analysis

Data collection and storage

For the purposes of collecting data, the DS-100 data memories and the system volume correctors EK-87, EK-88 und EK-90 are available.

The DS-100 data memories are counting the volume pulses from gas, water, or electricity meters and store them according to a specific period of time. In a recording period of one hour, data can be stored for up to 6 or 24 months.

Besides the interval values, the meter readings at the end of the month and at the time of readout are also stored and prepared for transfer.

To allow for various applications, several different versions of data memory are available:

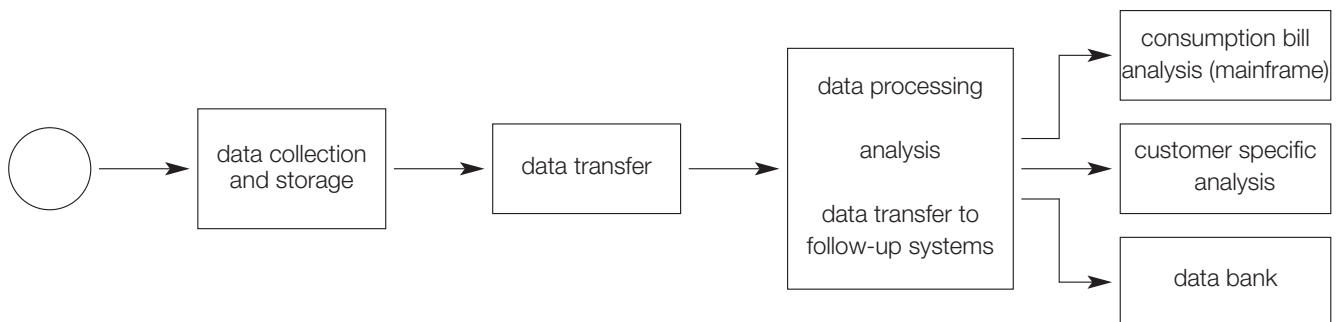
- DS-100/B: one channel, battery-operated
- DS-100/V2: four channels, 24 VDC
- DS-100/A: four channels, battery-operated
- DS-100/M: four channels, equipped with analogue inputs, 230 VAC

All of the data memories come with a housing for wall mounting and are suitable for use in zone 2 hazardous areas.

In order to display the most important data "on site", there is a display as well as selection keys.

The Elster system volume correctors are equipped with a data storage function which corresponds to that of the four-channel DS-100 devices. In addition to the uncorrected volume, corrected volume, pressure and temperature, these devices also record and store the original meter readings, i.e. the meter readings used in the final bill.

Data chain for collecting, transferring and processing measured data



meter:
 - gas meter
 - volume corrector
 - water meter
 - electricity meter

data collection devices:
 - DS-100 data memory
 - EK-87/88/90 system volume corrector
 - TC-90/T temperature volume corrector

mobile data collection:
 - AS-200 readout device
 - DAS-100 readout software for PC
 remote data transfer:
 - EM-100 modem
 - DKM-100 data concentrator
 - LSM-100 control centre software

data processing, analysis and transfer:
 - AWS-100 analysis software

Data transfer

There are two methods of transferring data stored on site to a central station for analysis: mobile data collection using electronic readout devices and remote data transfer.

The AS-200 readout device is used for the purposes of mobile data collection. This is a robust hand-held terminal which enables over 100 data memory channels to be read out monthly.

No manual input is necessary during the readout procedure as the data is identified by the customer's ID number and the serial numbers of both the device and the meter.

For control purposes, a meter reading can be manually entered into every memory channel which is read out.

As an alternative to the AS-200, a portable computer with the DAS-100 direct readout software can also be used to collect the data.

Remote data transfer

Remote data transfer is a further method of transferring data. In addition to the safety aspect, the advantages of this system lie in fact that the data is made available very quickly and there is no need for a large number of personnel. This is particularly useful if there are long distances between the measuring stations and the control centre or if up-to-date information is required on a daily or hourly basis.

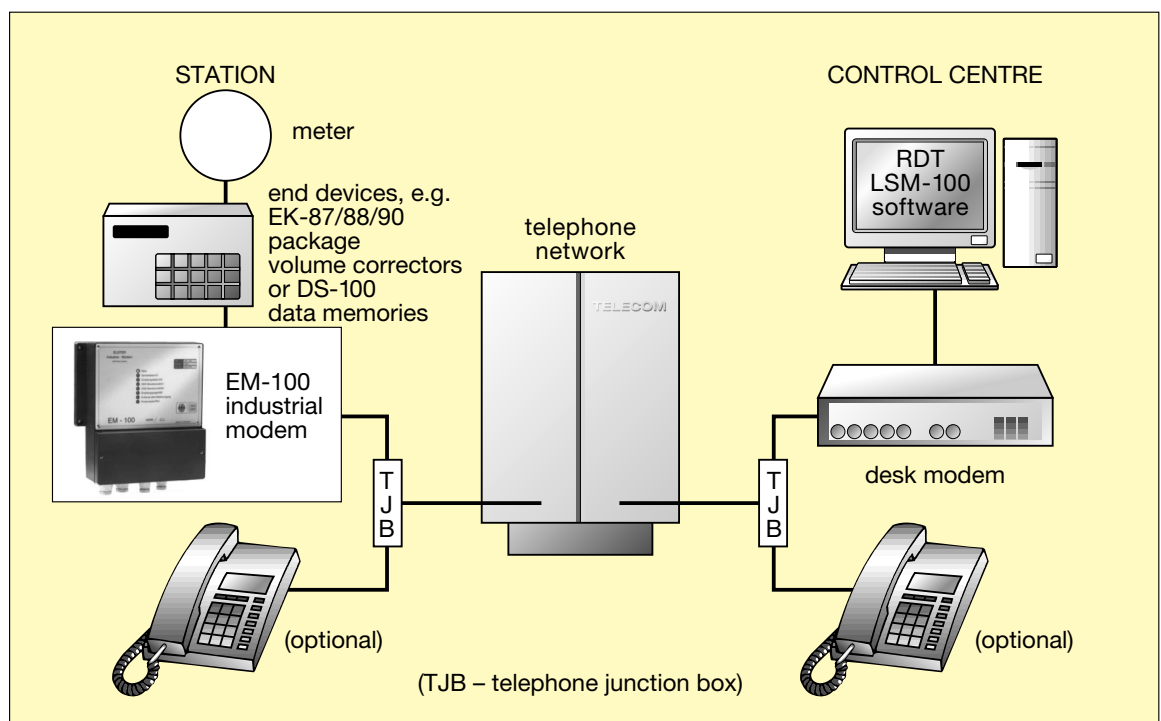
Elster offers the data concentrator DKM-100, the industrial modem EM-100 and LSM-100/I and LSM-100/II control centre software packages for use with telephone networks to enable automatic data transfer. They can be used in both public and private networks.

Control centre software

The LSM-100/I control centre software is used for calling up data via modem and includes the following functions:

- administration of station ID numbers, telephone codes and access codes

Remote data transmission with EM-100 industrial modem



- menu-driven communication with end devices: DS-100 data memories, EK-87/88/90 volume correctors
- call-up of up-to-date information, with system volume correctors process data can also be called up, the stored data can be read out and parameters set
- storage of data for further processing in the long-term pulse collecting system AWS-100

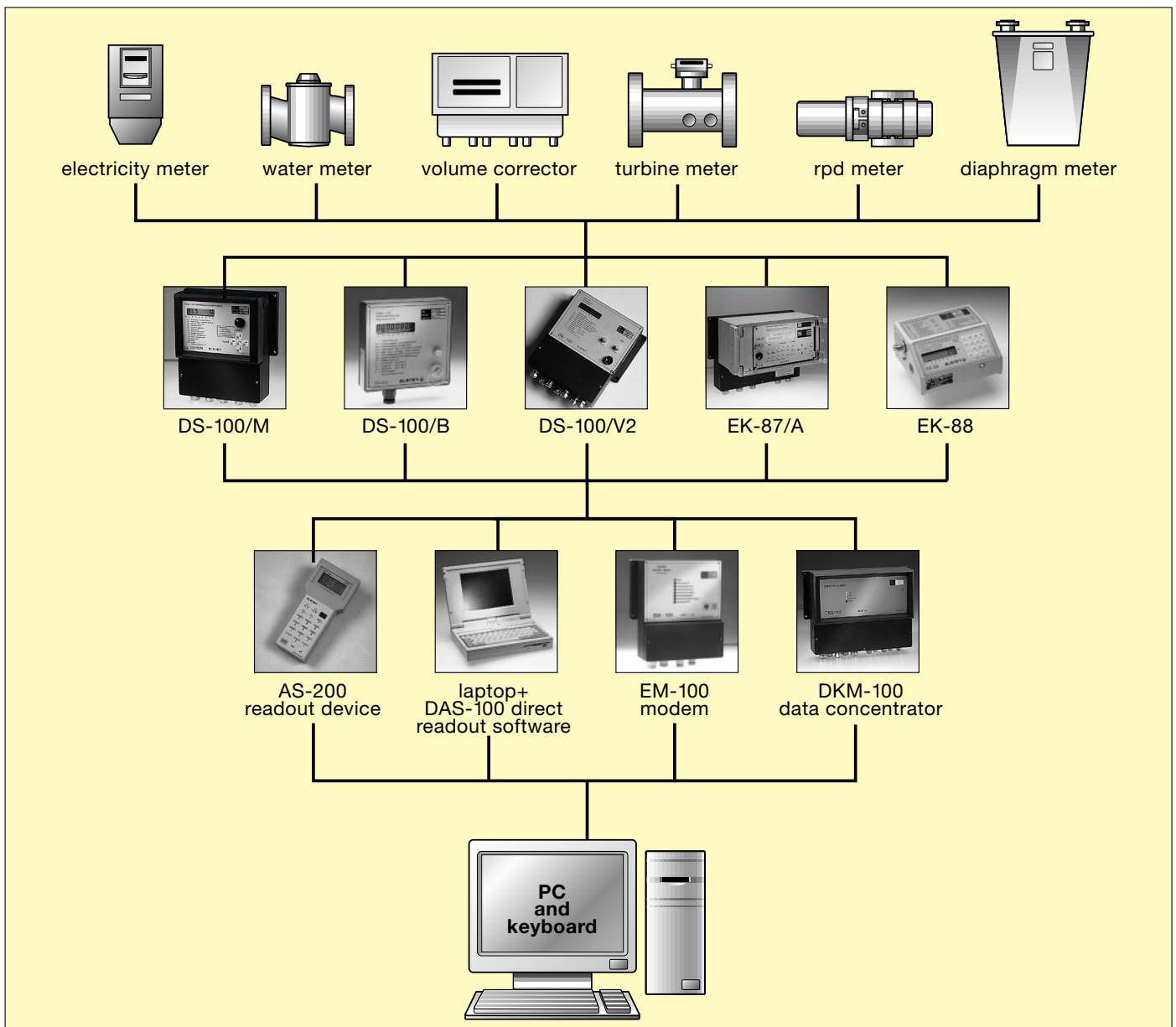
Extending system to other end devices and transfer systems as well as processing spontaneous messages is also possible.

The LSM-100/II is an extension of the LSM-100/I software package and is suitable for

automatic operation. It offers the following additional functions:

- automatic operation with programmable starting and finishing times or call-up cycles and the setting of priorities in case of faults
- pre programmable instructions for certain commands, e.g. for calling up meter readings or consumption data
- administration of call-up sequences and commands for carrying out various automatic data call-ups
- recording of complete data communication

The integration of various intermediate processing programmes is also possible.



AWS-100 analysis software

The AWS-100 analysis software is designed to analyse the data from both a technical and a commercial point of view.

It is available in two different versions: AWS-100/I and AWS-100/II. The AWS-100/I offers the following functions:

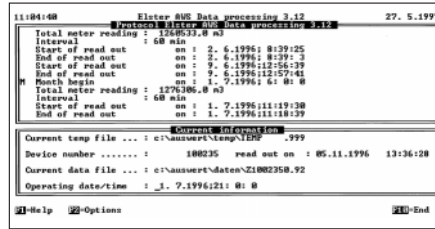
- administration of device and customer information
- data transfer with mobile readout devices AS-100/AS-200 from data memories (DS-100 / x) and volume correctors (EK-87 / 88 / 90)
- processing of meter readings, consumption data and analogue data
- an extended display of data on the screen (annual, monthly, daily or interval overviews)
- printing of data in lists with individual layouts
- data export for further processing in billing systems or spreadsheet processing programmes
- system maintenance and data backup programmes

Additional functions of AWS-100/II software:

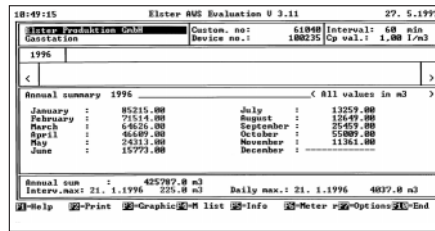
- conversion of data, e.g. from uncorrected to corrected volume or energy
- compilation of data from several measuring stations
- correction of stored values

On top of this, the AWS-100 data base also forms the interface for customer-specific arrangements which can be integrated into the system.

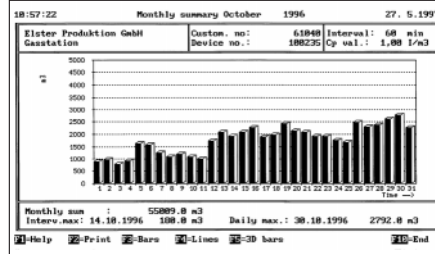
By means of further program modules, it is possible to import data from other, external systems or to compile sets of data for transfer to follow-up systems.



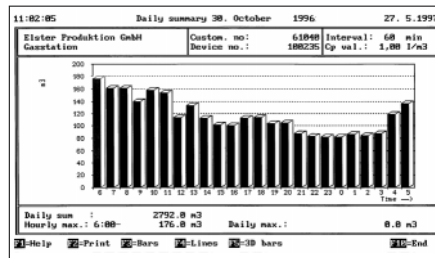
Processing report (extract)



Yearly overview in text form



Graphic display of monthly overview



Graphic display of daily overview

Stad.	Elster Produktion GmbH	Customer no.:	61848	Interval:	60 min													
Station	Device no.:	188235	Cp val.:	1.00 l/m3														
01	130	170	150	140	130	120	110	100	90	80	70	60	50	40	30	20	10	0
02	131	171	151	141	131	121	111	101	91	81	71	61	51	41	31	21	11	1
03	132	172	152	142	132	122	112	102	92	82	72	62	52	42	32	22	12	2
04	133	173	153	143	133	123	113	103	93	83	73	63	53	43	33	23	13	3
05	134	174	154	144	134	124	114	104	94	84	74	64	54	44	34	24	14	4
06	135	175	155	145	135	125	115	105	95	85	75	65	55	45	35	25	15	5
07	136	176	156	146	136	126	116	106	96	86	76	66	56	46	36	26	16	6
08	137	177	157	147	137	127	117	107	97	87	77	67	57	47	37	27	17	7
09	138	178	158	148	138	128	118	108	98	88	78	68	58	48	38	28	18	8
10	139	179	159	149	139	129	119	109	99	89	79	69	59	49	39	29	19	9
11	140	180	160	150	140	130	120	110	100	90	80	70	60	50	40	30	20	10
12	141	181	161	151	141	131	121	111	101	91	81	71	61	51	41	31	21	11
13	142	182	162	152	142	132	122	112	102	92	82	72	62	52	42	32	22	12
14	143	183	163	153	143	133	123	113	103	93	83	73	63	53	43	33	23	13
15	144	184	164	154	144	134	124	114	104	94	84	74	64	54	44	34	24	14
16	145	185	165	155	145	135	125	115	105	95	85	75	65	55	45	35	25	15
17	146	186	166	156	146	136	126	116	106	96	86	76	66	56	46	36	26	16
18	147	187	167	157	147	137	127	117	107	97	87	77	67	57	47	37	27	17
19	148	188	168	158	148	138	128	118	108	98	88	78	68	58	48	38	28	18
20	149	189	169	159	149	139	129	119	109	99	89	79	69	59	49	39	29	19
21	150	190	170	160	150	140	130	120	110	100	90	80	70	60	50	40	30	20
22	151	191	171	161	151	141	131	121	111	101	91	81	71	61	51	41	31	21
23	152	192	172	162	152	142	132	122	112	102	92	82	72	62	52	42	32	22
24	153	193	173	163	153	143	133	123	113	103	93	83	73	63	53	43	33	23
25	154	194	174	164	154	144	134	124	114	104	94	84	74	64	54	44	34	24
26	155	195	175	165	155	145	135	125	115	105	95	85	75	65	55	45	35	25
27	156	196	176	166	156	146	136	126	116	106	96	86	76	66	56	46	36	26
28	157	197	177	167	157	147	137	127	117	107	97	87	77	67	57	47	37	27
29	158	198	178	168	158	148	138	128	118	108	98	88	78	68	58	48	38	28
30	159	199	179	169	159	149	139	129	119	109	99	89	79	69	59	49	39	29
31	160	200	180	170	160	150	140	130	120	110	100	90	80	70	60	50	40	30

Printout of monthly list of consumption data

Ordering

Software for LIS-100 data collecting system

The following programs can be run on MS-DOS, starting from version 3.3.

AWS-100 analysis software

Program package for reading in data, administration and analysis of measured data from DS-100 data memories and Elster system volume correctors. Data transfer to follow-up systems. Including connecting cable to AS-100/AS-200.

3 1/2" diskettes; 1.44 MB

73 014 877 AWS-100/I base program
73 012 121 AWS-100/II extended program
73 014 878 Upgrade from AWS-100/I to II

DAS-100 data transfer software

For reading out data and setting parameters in the DS-100 data memories and Elster system volume correctors directly from a PC. Also for calling up current measurement data and status information from Elster system volume correctors.

3 1/2" diskettes 1.44 MB

73 012 389 DAS-100

Control centre software LSM-100

Control centre software for calling up data via Modem and storing the data for further processing. Automatic mode (LSM-100/II only).

3 1/2" diskettes; 1,44 MB

73 013 767 LSM-100/I base program
73 014 879 LSM-100/II extended program
73 013 771 Upgrade from LSM-100/I to II

Data memories and accessories

DS-100/B 83 480 011
DS-100/A 83 480 014
DS-100/V2 83 480 016
DS-100/M 83 480 007

mains device 24 VDC for DS-100/V2 for standard rail mounting, supply voltage 230 VAC 04 015 403

mains device 24 VDC with storage battery for DS-100/V2, housing for wall mounting, supply voltage 230 VAC *on request*

AS-200 readout device and accessories

Readout device AS-200 83 480 105
inclusive software, battery charger and cable for DS-100
Leather case for AS-200 *on request*

Modem

EM-100 industrial modem for universal use in telephone networks, BZT* approved, including connection cable voltage 230 VAC 83 480 400

DKM-100 data concentrator 83 480 405
four-channel modem for telephone networks, four digital inputs, four switch outputs, BZT* approved including connection cables voltage 230 VAC

*BZT:
Federal Office for Telecommunications

Electronic devices and systems



Volume correctors with integrated DS-100 data storage function

- EK-90 mountable onto a gas meter or on a wall, battery powered
- EK-88/K like EK-90, additional with calculation of compressibility factor in accordance with AGA-NX-19, battery powered
- EK-87 for wall mounting or integrating into a 19" cabinet (two EK-87/S per cabinet), calculation of compressibility in accordance with S-GERG-88 or AGA-NX-19, alternative power supply 230 VAC or 24 VDC

Electronic volume correctors which can be equipped with an optional data storage function in accordance with the DSfG specifications

- GAS-MAX 19" cabinet device, calculation of compressibility factor in accordance with S-GERG-88 or AGA-NX-19, alternative power supply 230 VAC or 24 VDC
- GAS-MAX/E 19" cabinet device, calculation of compressibility factor in accordance with S-GERG-88 or AGA-NX-19 by using actual gas characteristics measured by a gas chromatograph, alternative power supply 230 VAC or 24 VDC

Temperature corrector

- TC-90/T mountable directly onto a thermowell or on a wall, battery powered

Long-term pulse collecting system LIS-100

- DS-100 data storing devices in various versions
- AS-200 mobile readout device
- EM-100 industrial modem
- DKM-100 software-controlled switching device for up to four Elster electronic devices, with built-in modem

Software packages for LIS-100

- DAS-100 data readout software for direct reading of data
- AWS-100 evaluation software for displaying, printing and transferring data
- LSM-100 control center for remote data transfer via modem

Registration and control devices

- GAS-ASS/R registration device
- GAS-ASS automatic station control device

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Horsham, PA 19044-2234
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Fax +1 215-830-1894

A market-oriented product range

The Elster Group offers a market-oriented product range in the field of measurement and control as well as data communication.

The range of products for gas measurement covers diaphragm gas meters for industrial, commercial and domestic purposes, turbine gas meters, quantum meters and test gas meters.

Meter regulators, domestic regulators and other regulating devices for low, medium and high pressures make up the supply program in the field of gas pressure and control.

Elster can claim more than 500 years of know-how in the development and production of such devices and this provides the foundation for innovation, quality, competence and safety.

For further information, please do not hesitate to get in touch with us.

