

EURAX DME 424/442

Programmable multi-transducers



for the measurement of electrical variables in heavy-current power systems



Application

The EURAX DME 4 series of multi-transducers (Fig. 1) **simultaneously** measure several variables of an electric power system and process them to produce 2 resp. 4 analogue output signals.

2 or 4 digital outputs are available for signalling limits or energy metering. For two of the limit outputs up to three measurands can be logically combined.

The multi-transducers are also equipped with an **RS 232** serial interface to which a PC with the corresponding software can be connected for programming or accessing and executing useful ancillary functions.

The usual modes of connection, the types of measured variables, their ratings, the transfer characteristic for each output etc. are the main parameters that have to be programmed.

Ancillary functions include a power system check, provision for displaying the measured variable on a PC monitor, the simulation of the outputs for test purposes and a facility for printing nameplates.

The transducer fulfils all the essential requirements and regulations concerning electromagnetic compatibility (**EMC**) and **Safety** (IEC 1010 resp. EN 61 010). It was developed and is manufactured and tested in strict accordance with the **quality assurance standard** ISO 9001.

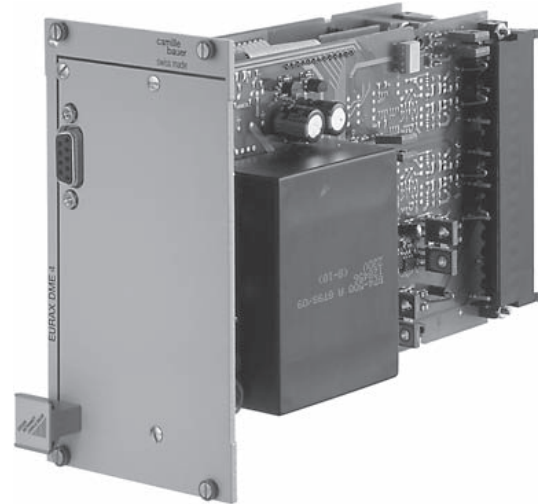


Fig. 1. EURAX DME 424 as plug-in module for 19" rack-mounted case, front plate width 14 TE.

Features / Benefits

- Simultaneous measurement of several variables of a heavy-current power system / Full supervision of an asymmetrically loaded four-wire power system, rated current 1 to 6 A, rated voltage 57 to 400 V (phase-to-neutral) or 100 to 693 V (phase-to-phase)

Measured variables	Output	Types
Current, voltage (rms), active/reactive/apparent power $\cos\varphi$, $\sin\varphi$, power factor RMS value of the current with wire setting range (bimetal measuring function)	2 analogue outputs and 4 digital outputs or 4 analogue outputs and 2 digital outputs	DME 424
		DME 442
Slave pointer function for the measurement of the RMS value IB Frequency Average value of the currents with sign of the active power (power system only)	4 analogue outputs and bus interface RS 485 (MODBUS) see data sheet DME 440-2 Le	DME 440

- For all heavy-current power system variables
- Up to 6 outputs (2A + 4D or 4A + 2D)
- Input voltage up to 693 V (phase-to-phase)
- Universal analogue outputs (programmable)
- High accuracy: U/I 0.2% and P 0.25% (under reference conditions)
- Universal digital outputs (meter transmitter, limits)
- Up to 2 or 4 integrated energy meters, storage every each 203 s, storage for: 20 years

- Windows software with password protection for programming, data analysis, power system status simulation, acquisition of meter data and making settings
- AC/DC power supply / Universal
- Plug-in module (front plate width 14 TE) for 19" rack-mounted case / Ease of mounting in rack system

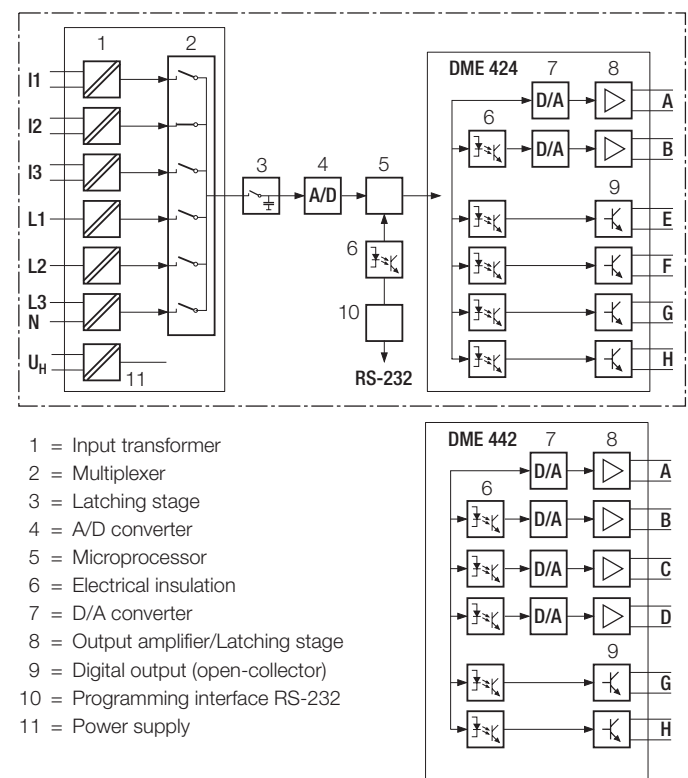


Fig. 2. Block diagram.
A, B, C, D = analogue outputs; E, F, G, H = digital outputs.

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Symbols

Symbols	Meaning	Symbols	Meaning
X	Measured variable	Q	Reactive power of the system $Q = Q1 + Q2 + Q3$
X0	Lower limit of the measured variable	Q1	Reactive power phase 1 (phase-to-neutral L1 – N)
X1	Break point of the measured variable	Q2	Reactive power phase 2 (phase-to-neutral L2 – N)
X2	Upper limit of the measured variable	Q3	Reactive power phase 3 (phase-to-neutral L3 – N)
Y	Output variable	S	Apparent power of the system $S = \sqrt{I_1^2 + I_2^2 + I_3^2} \cdot \sqrt{U_1^2 + U_2^2 + U_3^2}$
Y0	Lower limit of the output variable	S1	Apparent power phase 1 (phase-to-neutral L1 – N)
Y1	Break point of the output variable	S2	Apparent power phase 2 (phase-to-neutral L2 – N)
Y2	Upper limit of the output variable	S3	Apparent power phase 3 (phase-to-neutral L3 – N)
U	Input voltage	Sr	Rated value of the apparent power of the system
Ur	Rated value of the input voltage	PF	Active power factor $\cos\varphi = P/S$
U 12	Phase-to-phase voltage L1 – L2	PF1	Active power factor phase 1 P1/S1
U 23	Phase-to-phase voltage L2 – L3	PF2	Active power factor phase 2 P2/S2
U 31	Phase-to-phase voltage L3 – L1	PF3	Active power factor phase 3 P3/S3
U1N	Phase-to-neutral voltage L1 – N	QF	Reactive power factor $\sin\varphi = Q/S$
U2N	Phase-to-neutral voltage L2 – N	QF1	Reactive power factor phase 1 Q1/S1
U3N	Phase-to-neutral voltage L3 – N	QF2	Reactive power factor phase 2 Q2/S2
UM	Average value of the voltages $(U1N + U2N + U3N) / 3$	QF3	Reactive power factor phase 3 Q3/S3
I	Input current	LF	Power factor of the system $LF = \text{sgn}Q \cdot (1 - PF)$
I1	AC current L1	LF1	Power factor phase 1 $\text{sgn}Q1 \cdot (1 - PF1)$
I2	AC current L2	LF2	Power factor phase 2 $\text{sgn}Q2 \cdot (1 - PF2)$
I3	AC current L3	LF3	Power factor phase 3 $\text{sgn}Q3 \cdot (1 - PF3)$
Ir	Rated value of the input current	c	Factor for the intrinsic error
IM	Average value of the currents $(I1 + I2 + I3) / 3$	R	Output load
IMS	Average value of the currents and sign of the active power (P)	Rn	Rated burden
IB	RMS value of the current with wire setting range (bimetal measuring function)	H	Power supply
IBT	Response time for IB	Hn	Rated value of the power supply
BS	Slave pointer function for the measurement of the RMS value IB	CT	c.t. ratio
BST	Response time for BS	VT	v.t. ratio
φ	Phase-shift between current and voltage		
F	Frequency of the input variable		
Fn	Rated frequency		
P	Active power of the system $P = P1 + P2 + P3$		
P1	Active power phase 1 (phase-to-neutral L1 – N)		
P2	Active power phase 2 (phase-to-neutral L2 – N)		
P3	Active power phase 3 (phase-to-neutral L3 – N)		

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Applicable standards and regulations

EN 60 688	Electrical measuring transducer for converting AC electrical variables into analogue and digital signals
IEC 1010 or EN 61 010	Safety regulations for electrical measuring, control and laboratory equipment
EN 60529	Protection types by case (code IP)
IEC 255-4 Part E5	High-frequency disturbance test (static relays only)
IEC 1000-4-2, 3, 4, 6	Electromagnetic compatibility for industrial-process measurement and control equipment
VDI/VDE 3540, page 2	Reliability of measuring and control equipment (classification of climates)
DIN 40 110	AC quantities
DIN 43 807	Terminal markings
IEC 68 /2-6	Basic environmental testing procedures, vibration, sinusoidal
EN 55011	Electromagnetic compatibility of data processing and telecommunication equipment Limits and measuring principles for radio interference and information equipment
IEC 1036	Alternating current static watt-hour meters for active energy (classes 1 and 2)
DIN 43864	Current interface for the transmission of impulses between impulse encoder counter and tariff meter
UL 94	Tests for flammability of plastic materials for parts in devices and appliances

Continuous thermal ratings of inputs

Current circuit	10 A 400 V single-phase AC system 693 V three-phase system
Voltage circuit	480 V single-phase AC system 831 V three-phase system

Short-time thermal rating of inputs

Input variable	Number of inputs	Duration of overload	Interval between two overloads
Current circuit	400 V single-phase AC system 693 V three-phase system		
100 A	5	3 s	5 min.
250 A	1	1 s	1 hour
Voltage circuit	1 A, 2 A, 5 A		
Single-phase AC system 600 V $H_{\text{intern}}: 1.5 U_r$	10	10 s	10 s
Three-phase system 1040 V $H_{\text{intern}}: 1.5 U_r$	10	10 s	10 s

Technical data

Inputs

Input variables:	see Table 2, 3 and 4
Measuring ranges:	see Table 2, 3 and 4
Waveform:	Sinusoidal
Rated frequency:	50...60 Hz; 16 2/3 Hz
Consumption:	Voltage circuit: $\leq U^2 / 400 \text{ k}\Omega$ Condition: external power supply Current circuit: $0.3 \text{ VA} \cdot I/5 \text{ A}$

Analogue outputs

For the outputs A, B, C and D:

Output variable Y	Impressed DC current	Impressed DC voltage
Full scale Y2	see "Ordering information"	see "Ordering information"
Limits of output signal for input overload and/or $R = 0$	$1.25 \cdot Y2$	40 mA
$R \rightarrow \infty$	30 V	$1.25 Y2$
Rated useful range of output load	$0 \leq \frac{7.5 \text{ V}}{Y2} \leq \frac{15 \text{ V}}{Y2}$	$\frac{Y2}{2 \text{ mA}} \leq \frac{Y2}{1 \text{ mA}} \leq \infty$
AC component of output signal (peak-to-peak)	$\leq 0.005 Y2$	$\leq 0.005 Y2$

The outputs A, B, C and D may be either short or open-circuited. They are electrically insulated from each other and from all other circuits (floating).

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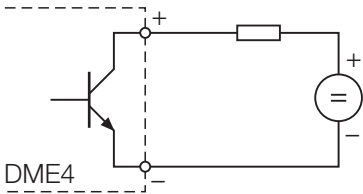
All the full-scale output values can be reduced subsequently using the programming software, but a supplementary error results.

The hardware full-scale settings for the analogue outputs may also be changed subsequently. Conversion of a current to a voltage output or vice versa is also possible. This necessitates changing resistors on the output board. The full-scale values of the current and voltage outputs are set by varying the effective value of two parallel resistors (better resolution). The values of the resistors are selected to achieve the minimum absolute error. Calibration with the programming software is always necessary following conversion of the outputs. Refer to the Operating Instructions. **Caution: The warranty is void if the device is tampered with!**

Digital outputs, pulse outputs, limit outputs \rightarrow

The digital outputs conform to DIN 43 864. The pulse width can be neither programmed nor is there a hardware setting.

Type of contact:	Open collector
Number of pulses:	see "Ordering information"
Pulse duration:	≥ 100 ms
Interval:	≥ 100 ms
Power supply:	8 ... 40 V
Output current:	ON 10 ... 27 mA OFF ≤ 2 mA



Reference conditions

Ambient temperature:	15 ... 30 °C
Pre-conditioning:	30 min. acc. to EN 60 688 Section 4.3, Table 2
Input variable:	Rated useful range
Power supply:	$H = H_n \pm 1\%$
Active/reactive factor:	$\cos\varphi = 1$ resp. $\sin\varphi = 1$
Frequency:	50 ... 60 Hz, 16 2/3 Hz
Waveform:	Sinusoidal, form factor 1.1107
Output load:	DC current output: $R_n = \frac{7.5 V}{Y_2} \pm 1\%$ DC voltage output: $R_n = \frac{Y_2}{1 \text{ mA}} \pm 1\%$
Miscellaneous:	EN 60 688

System response

Accuracy class: (The reference value is the full-scale value Y2)

Measured variable	Condition	Accuracy class*
System: Active, reactive and apparent power	$0.5 \leq X_2/S_r \leq 1.5$ $0.3 \leq X_2/S_r < 0.5$	0.25 c 0.5 c
Phase: Active, reactive and apparent power	$0.167 \leq X_2/S_r \leq 0.5$ $0.1 \leq X_2/S_r < 0.167$	0.25 c 0.5 c
Power factor, active power factor and reactive power factor	$0.5 S_r \leq S \leq 1.5 S_r$, $(X_2 - X_0) = 2$	0.25 c
	$0.5 S_r \leq S \leq 1.5 S_r$, $1 \leq (X_2 - X_0) < 2$	0.5 c
	$0.5 S_r \leq S \leq 1.5 S_r$, $0.5 \leq (X_2 - X_0) < 1$	1.0 c
	$0.1 S_r \leq S < 0.5 S_r$, $(X_2 - X_0) = 2$	0.5 c
	$0.1 S_r \leq S < 0.5 S_r$, $1 \leq (X_2 - X_0) < 2$	1.0 c
	$0.1 S_r \leq S < 0.5 S_r$, $0.5 \leq (X_2 - X_0) < 1$	2.0 c
AC voltage	$0.1 U_r \leq U \leq 1.2 U_r$	0.2 c
AC current/ current averages	$0.1 I_r \leq I \leq 1.5 I_r$	0.2 c
System frequency	$0.1 U_r \leq U \leq 1.2 U_r$ resp. $0.1 I_r \leq I \leq 1.5 I_r$	$0.15 + 0.03 c$ ($f_N = 50 \dots 60$ Hz) $0.15 + 0.1 c$ ($f_N = 16 \frac{2}{3}$ Hz)
Pulse Energy meter	acc. to IEC 1036 $0.1 I_r \leq I \leq 1.5 I_r$	1.0

* Basic accuracy 0.5 c for applications with phase-shift

Duration of the measurement cycle: Approx. 0.25 to 0.5 s at 50 Hz, depending on measured variable and programming

Response time: 1 ... 2 times the measurement cycle

Factor c (the highest value applies):

Linear characteristic:	$c = \frac{1 - \frac{Y_0}{Y_2}}{1 - \frac{X_0}{X_2}}$ or $c = 1$
Bent characteristic: $X_0 \leq X \leq X_1$	$c = \frac{Y_1 - Y_0}{X_1 - X_0} \cdot \frac{X_2}{Y_2}$ or $c = 1$
$X_1 < X \leq X_2$	$c = \frac{1 - \frac{Y_1}{Y_2}}{1 - \frac{X_1}{X_2}}$ or $c = 1$

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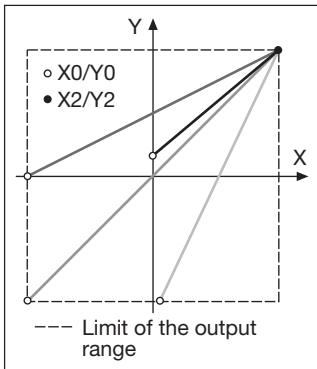


Fig. 3. Examples of settings with linear characteristic.

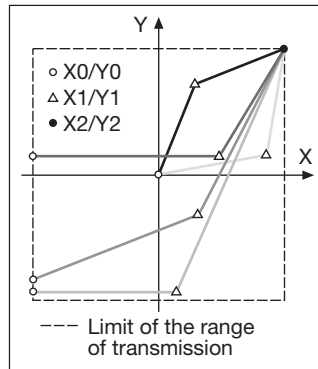


Fig. 4. Examples of settings with bent characteristic.

Influencing quantities and permissible variations

Acc. to EN 60 688

Safety

Protection class:	II								
Installation category:	III								
Insulation test (against earth):	<table border="0"> <tr> <td>Input voltage:</td> <td>AC 400 V</td> </tr> <tr> <td>Input current:</td> <td>AC 400 V</td> </tr> <tr> <td>Output:</td> <td>DC 40 V</td> </tr> <tr> <td>Power supply:</td> <td>AC 400 V DC 230 V</td> </tr> </table>	Input voltage:	AC 400 V	Input current:	AC 400 V	Output:	DC 40 V	Power supply:	AC 400 V DC 230 V
Input voltage:	AC 400 V								
Input current:	AC 400 V								
Output:	DC 40 V								
Power supply:	AC 400 V DC 230 V								
Surge test:	5 kV; 1.2/50 μ s; 0.5 Ws								
Test voltage:	50 Hz, 1 min. according to EN 61 010-1								
	5550 V, inputs versus all other circuits as well as outer surface								
	3250 V, input circuits versus each other								
	3700 V, power supply versus outputs and SCI as well as outer surface								
	490 V, outputs and SCI versus each other and versus outer surface								

Power supply \rightarrow

AC voltage: 100, 110, 230, 400, 500 or 693 V, $\pm 10\%$, 45 to 65 Hz
Power consumption approx. 10 VA

AC/DC power pack (DC and 50 ... 60 Hz)

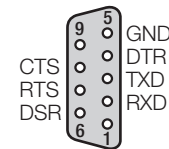
Table 1: Rated voltages and tolerances

Rated voltage U_N	Tolerance
24 ... 60 V DC/AC	DC - 15 ... + 33%
85 ... 230 V DC/AC	AC $\pm 10\%$

Consumption: ≤ 9 W resp. ≤ 10 VA

Programming connector on transducer

Interface: RS 232 C
DSUB socket: 9-pin



The interface is electrically insulated from all other circuits.

Installation data

Mechanical design:	Plug-in module for 19" rack-mounted case, Euro format 100 x 160 mm
Space requirements:	14 TE (70.82 mm) (see section "Dimensional drawing")
Front plate colour:	Grey RAL 7032
Designation:	EURAX DME 4
Mounting position:	Any
Electrical connections:	Two 32-pole plugs acc. to DIN 41 612, pattern F and 6-pole plug (contact fitting see section "Electrical connections")
Coding:	By coding pins, removed / not removed, see section "Electrical connections"
Weight:	With power transformer approx. 1.1 kg With AC/DC power pack approx. 0,7 kg

Vibration withstand

(tested according to DIN EN 60 068-2-6)	
Acceleration:	± 2 g
Frequency range:	10 ... 150 ... 10 Hz, rate of frequency sweep: 1 octave/minute
Number of cycles:	10 in each of the three axes
Result:	No faults occurred, no loss of accuracy

Ambient conditions

Variations due to ambient temperature:	$\pm 0.2\%$ / 10 K
Nominal range of use for temperature:	0 ... <u>15</u> ... <u>30</u> ... 45 °C (usage group II)
Operating temperature:	- 10 to + 55 °C
Storage temperature:	- 40 to + 85 °C
Annual mean relative humidity:	$\leq 75\%$
Altitude:	2000 m max.
Indoor use statement!	

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Table 2: Ordering information for EURAX DME 424 with 2 analogue and 4 digital outputs

DESCRIPTION	MARKING
1. Mechanical design Plug-in module for 19" rack-mounted case	424 - 2
2. Nominal frequency 1) 50 Hz (60 Hz possible without additional error; 16 2/3 Hz, additional error 1.25 · c) 2) 60 Hz (50 Hz possible without additional error; 16 2/3 Hz, additional error 1.25 · c) 3) 16 2/3 Hz (not re-programming by user, 50/60 Hz possible, but with additional error 1.25 · c)	1 2 3
3. Power supply Nominal range	
1) AC 90 ... 110 V $H_n = 100$ V	1
2) AC 99 ... 121 V $H_n = 110$ V	2
3) AC 207 ... 253 V $H_n = 230$ V	3
4) AC 360 ... 440 V $H_n = 400$ V	4
5) AC 450 ... 550 V $H_n = 500$ V	5
6) AC 623 ... 762 V $H_n = 693$ V	6
7) DC/AC 24 ... 60 V	7
8) DC/AC 85 ... 230 V	8
4. Power supply connection 1) External (standard)	1
5. Full-scale output signal, output A 1) Output A, Y2 = 20 mA (standard) 9) Output A, Y2 [mA] Z) Output A, Y2 [V] Line 9: Full-scale current Y2 [mA] 1 to 20 Line Z: Full-scale voltage Y2 [V] 1 to 10	1 9 Z
6. Full-scale output signal, output B 1) Output B, Y2 = 20 mA (standard) 9) Output B, Y2 [mA] Z) Output B, Y2 [V]	1 9 Z
7. Test certificate 0) None supplied 1) Supplied	0 1
8. Programming 0) Basic 9) According to specification Line 9: All the programming data must be entered on Form W 2400e (see appendix 1) and the form must be included with the order	0 9

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Table 3: Ordering Information for EURAX DME 442 with 4 analogue and 2 digital outputs

DESCRIPTION	MARKING
1. Mechanical design Plug-in module for 19" rack-mounted case	442 - 2
2. Rated frequency 1) 50 Hz (60 Hz possible without additional error; 16 2/3 Hz, additional error 1.25 · c) 2) 60 Hz (50 Hz possible without additional error; 16 2/3 Hz, additional error 1.25 · c) 3) 16 2/3 Hz (not re-programming by user, 50/60 Hz possible, but with additional error 1.25 · c)	1 2 3
3. Power supply Nominal range	
1) AC 90 ... 110 V $H_n = 100$ V	1
2) AC 99 ... 121 V $H_n = 110$ V	2
3) AC 207 ... 253 V $H_n = 230$ V	3
4) AC 360 ... 440 V $H_n = 400$ V	4
5) AC 450 ... 550 V $H_n = 500$ V	5
6) AC 623 ... 762 V $H_n = 693$ V	6
7) DC/AC 24 ... 60 V	7
8) DC/AC 85 ... 230 V	8
4. Power supply connection 1) External (standard) 1	
5. Full-scale output signal, output A 1) Output A, Y2 = 20 mA (standard) 9) Output A, Y2 [mA] Z) Output A, Y2 [V] Line 9: Full-scale current Y2 [mA] 1 to 20 Line Z: Full-scale voltage Y2 [V] 1 to 10	1 9 Z
6. Full-scale output signal, output B 1) Output B, Y2 = 20 mA (standard) 9) Output B, Y2 [mA] Z) Output B, Y2 [V]	1 9 Z
7. Full-scale output signal, output C 1) Output C, Y2 = 20 mA (standard) 9) Output C, Y2 [mA] Z) Output C, Y2 [V]	1 9 Z
8. Full-scale output signal, output D 1) Output D, Y2 = 20 mA (standard) 9) Output D, Y2 [mA] Z) Output D, Y2 [V]	1 9 Z
9. Test certificate 0) None supplied 1) Supplied	0 1
10. Programming 0) Basic 9) According to specification Line 9: All the programming data must be entered on Form W 2401e (see appendix 2) and the form must be included with the order.	0 9

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Table 4: Programming for types DME 424 and 442

DESCRIPTION	A11 ... A16	Application A34	A24 / A44
1. Application (system)			
Single-phase AC	A11	—	—
3-wire, 3-phase symmetric load, phase-shift U: L1-L2, I: L1 *	A12	—	—
3-wire, 3-phase symmetric load	A13	—	—
4-wire, 3-phase symmetric load	A14	—	—
3-wire, 3-phase symmetric load, phase-shift U: L3-L1, I: L1 *	A15	—	—
3-wire, 3-phase symmetric load, phase-shift U: L2-L3, I: L1 *	A16	—	—
3-wire, 3-phase asymmetric load	—	A34	—
4-wire, 3-phase asymmetric load	—	—	A44
4-wire, 3-phase asymmetric load, open Y	—	—	A24
2. Input voltage			
Rated value $U_r = 57.7$ V	U01	—	—
Rated value $U_r = 63.5$ V	U02	—	—
Rated value $U_r = 100$ V	U03	—	—
Rated value $U_r = 110$ V	U04	—	—
Rated value $U_r = 120$ V	U05	—	—
Rated value $U_r = 230$ V	U06	—	—
Rated value U_r [V]	U91	—	—
Rated value $U_r = 100$ V	U21	U21	U21
Rated value $U_r = 110$ V	U22	U22	U22
Rated value $U_r = 115$ V	U23	U23	U23
Rated value $U_r = 120$ V	U24	U24	U24
Rated value $U_r = 400$ V	U25	U25	U25
Rated value $U_r = 500$ V	U26	U26	U26
Rated value U_r [V]	U93	U93	U93
Lines U01 to U06: Only for single phase AC current or 4-wire, 3-phase symmetric load			
Line U91: U_r [V] 57 to 400			
Line U93: U_r [V] > 100 to 693			
3. Input current			
Rated value $I_r = 1$ A V1	V1	V1	
Rated value $I_r = 2$ A V2	V2	V2	
Rated value $I_r = 5$ A V3	V3	V3	
Rated value $I_r > 1$ to 6 [A]	V9	V9	V9
4. Primary rating (primary transformer)			
Without specification of primary rating	W0	W0	W0
CT = [] A / [] A VT = [] kV / [] V	W9	W9	W9
Line W9: Specify transformer ratio prim./sec., e.g. 1000/5 A; 33 kV/110 V			

* Basic accuracy 0.5 c

Table 4 continued on next page!

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Continuation "Table 4: Programming for types DME 424 and 442"

DESCRIPTION				Application		
				A11 ... A16	A34	A24 / A44
5. Measured variable, output A						
Not used				AA000	AA000	AA000
		Initial value X0	final value X2			
U	System	X0 = 0	X2 = Ur	AA001	—	—
U12	L1-L2	X0 = 0	X2 = Ur	—	AA001	AA001
U	System	$0 \leq X0 \leq 0.9 \cdot X2$	$0.8 \cdot Ur \leq X2 \leq 1.2 \cdot Ur$	AA901	—	—
U1N	L1-N	$0 \leq X0 \leq 0.9 \cdot X2$	$0.8 \cdot Ur/\sqrt{3} \leq X2 \leq 1.2 \cdot Ur/\sqrt{3}$	—	—	AA902
U2N	L2-N	$0 \leq X0 \leq 0.9 \cdot X2$	$0.8 \cdot Ur/\sqrt{3} \leq X2 \leq 1.2 \cdot Ur/\sqrt{3}$	—	—	AA903
U3N	L3-N	$0 \leq X0 \leq 0.9 \cdot X2$	$0.8 \cdot Ur/\sqrt{3} \leq X2 \leq 1.2 \cdot Ur/\sqrt{3}$	—	—	AA904
U12	L1-L2	$0 \leq X0 \leq 0.9 \cdot X2$	$0.8 \cdot Ur \leq X2 \leq 1.2 \cdot Ur$	—	AA905	AA905
U23	L2-L3	$0 \leq X0 \leq 0.9 \cdot X2$	$0.8 \cdot Ur \leq X2 \leq 1.2 \cdot Ur$	—	AA906	AA906
U31	L3-L1	$0 \leq X0 \leq 0.9 \cdot X2$	$0.8 \cdot Ur \leq X2 \leq 1.2 \cdot Ur$	—	AA907	AA907
I	System	$0 \leq X0 \leq 0.8 \cdot X2$	$0.5 \cdot Ir \leq X2 \leq 1.5 \cdot Ir$	AA908	—	—
I1	L1	$0 \leq X0 \leq 0.8 \cdot X2$	$0.5 \cdot Ir \leq X2 \leq 1.5 \cdot Ir$	—	AA909	AA909
I2	L2	$0 \leq X0 \leq 0.8 \cdot X2$	$0.5 \cdot Ir \leq X2 \leq 1.5 \cdot Ir$	—	AA910	AA910
I3	L3	$0 \leq X0 \leq 0.8 \cdot X2$	$0.5 \cdot Ir \leq X2 \leq 1.5 \cdot Ir$	—	AA911	AA911
P	System	$-X2 \leq X0 \leq 0.8 \cdot X2$	$0.3 \leq X2 / Sr \leq 1.5$	AA912	AA912	AA912
P1	L1	$-X2 \leq X0 \leq 0.8 \cdot X2$	$0.1 \leq X2 / Sr \leq 0.5$	—	—	AA913
P2	L2	$-X2 \leq X0 \leq 0.8 \cdot X2$	$0.1 \leq X2 / Sr \leq 0.5$	—	—	AA914
P3	L3	$-X2 \leq X0 \leq 0.8 \cdot X2$	$0.1 \leq X2 / Sr \leq 0.5$	—	—	AA915
Q	System	$-X2 \leq X0 \leq 0.8 \cdot X2$	$0.3 \leq X2 / Sr \leq 1.5$	AA916	AA916	AA916
Q1	L1	$-X2 \leq X0 \leq 0.8 \cdot X2$	$0.1 \leq X2 / Sr \leq 0.5$	—	—	AA917
Q2	L2	$-X2 \leq X0 \leq 0.8 \cdot X2$	$0.1 \leq X2 / Sr \leq 0.5$	—	—	AA918
Q3	L3	$-X2 \leq X0 \leq 0.8 \cdot X2$	$0.1 \leq X2 / Sr \leq 0.5$	—	—	AA919
PF	System	$-1 \leq X0 \leq (X2 - 0.5)$	$0 \leq X2 \leq 1$	AA920	AA920	AA920
PF1	L1	$-1 \leq X0 \leq (X2 - 0.5)$	$0 \leq X2 \leq 1$	—	—	AA921
PF2	L2	$-1 \leq X0 \leq (X2 - 0.5)$	$0 \leq X2 \leq 1$	—	—	AA922
PF3	L3	$-1 \leq X0 \leq (X2 - 0.5)$	$0 \leq X2 \leq 1$	—	—	AA923
QF	System	$-1 \leq X0 \leq (X2 - 0.5)$	$0 \leq X2 \leq 1$	AA924	AA924	AA924
QF1	L1	$-1 \leq X0 \leq (X2 - 0.5)$	$0 \leq X2 \leq 1$	—	—	AA925
QF2	L2	$-1 \leq X0 \leq (X2 - 0.5)$	$0 \leq X2 \leq 1$	—	—	AA926
QF3	L3	$-1 \leq X0 \leq (X2 - 0.5)$	$0 \leq X2 \leq 1$	—	—	AA927
F		$15.3 \text{ Hz} \leq X0 \leq X2 - 1 \text{ Hz}$	$X0 + 1 \text{ Hz} \leq X2 \leq 65 \text{ Hz}$	AA928	AA928	AA928
S	System	$0 \leq X0 \leq 0.8 \cdot X2$	$0.3 \leq X2 / Sr \leq 1.5$	AA929	AA929	AA929
S1	L1	$0 \leq X0 \leq 0.8 \cdot X2$	$0.1 \leq X2 / Sr \leq 0.5$	—	—	AA930
S2	L2	$0 \leq X0 \leq 0.8 \cdot X2$	$0.1 \leq X2 / Sr \leq 0.5$	—	—	AA931
S3	L3	$0 \leq X0 \leq 0.8 \cdot X2$	$0.1 \leq X2 / Sr \leq 0.5$	—	—	AA932
IM	System	$0 \leq X0 \leq 0.8 \cdot X2$	$0.5 \cdot Ir \leq X2 \leq 1.5 \cdot Ir$	—	AA933	AA933
IMS	System	$-X2 \leq X0 \leq 0.8 \cdot X2$	$0.5 \cdot Ir \leq X2 \leq 1.5 \cdot Ir$	—	AA934	AA934
LF	System	$-1 \leq X0 \leq (X2 - 0.5)$	$0 \leq X2 \leq 1$	AA935	AA935	AA935
LF1	L1	$-1 \leq X0 \leq (X2 - 0.5)$	$0 \leq X2 \leq 1$	—	—	AA936
LF2	L2	$-1 \leq X0 \leq (X2 - 0.5)$	$0 \leq X2 \leq 1$	—	—	AA937
LF3	L3	$-1 \leq X0 \leq (X2 - 0.5)$	$0 \leq X2 \leq 1$	—	—	AA938
IB	System	X0 = 0	$1 \leq IBT \leq 30 \text{ min}$	AA939	—	—
IB1	L1	X0 = 0	$1 \leq IBT \leq 30 \text{ min}$	—	AA940	AA940
IB2	L2	X0 = 0	$1 \leq IBT \leq 30 \text{ min}$	—	AA941	AA941
IB3	L3	X0 = 0	$1 \leq IBT \leq 30 \text{ min}$	—	AA942	AA942
BS	System	X0 = 0	$1 \leq BST \leq 30 \text{ min}$	AA943	—	—
BS1	L1	X0 = 0	$1 \leq BST \leq 30 \text{ min}$	—	AA944	AA944
BS2	L2	X0 = 0	$1 \leq BST \leq 30 \text{ min}$	—	AA945	AA945
BS3	L3	X0 = 0	$1 \leq BST \leq 30 \text{ min}$	—	AA946	AA946
UM	System	$0 \leq X0 \leq 0.8 \cdot X2$	$0.8 \cdot Ur \leq X2 \leq 1.2 \cdot Ur$	—	—	AA947

Table 4 continued on next page!

EURAX DME 424/442

Programmable multi-transducers

Continuation: "Table 4: Programming for types DME 424 and 442"

DESCRIPTION	A11 ... A16	Application	
		A34	A24 / A44
6. Output signal, output A			
initial value Y0	final value Y2		
DC current	Y0 = 0 –Y2 ≤ Y0 ≤ 0.2 · Y2	Y2 = 20 mA 1 mA ≤ Y2 ≤ 20 mA	AB01 AB91
DC voltage	–Y2 ≤ Y0 ≤ 0.2 · Y2	1 V ≤ Y2 ≤ 10 V	AB92
7. Characteristic, output A			
Linear			AC01
Bent	(X0 + 0.015 · X2) ≤ X1 ≤ 0.985 · X2	Y0 ≤ Y1 ≤ Y2	AC91
8. Limits, output A			
Standard	Ymin = Y0 – 0.25 Y2 (Y0 – 0.25 Y2) ≤ Ymin ≤ Y0	Ymax = 1.25 Y2 Y2 ≤ Ymax ≤ 1.25 Y2	AD01 AD91
9. Measured variable, output B			
Same as output A, but markings start with a capital B			BA ...
10. Output signal, output B			
Same as output A, but markings start with a capital B			BB ..
11. Characteristic, output B			
Same as output A, but markings start with a capital B			BC ..
12. Limits, output B			
Same as output A, but markings start with a capital B			BD ..
Only for type DME 442			
13. Measured variable, output C			
Same as output A, but markings start with a capital C			CA ...
14. Output signal, output C			
Same as output A, but markings start with a capital C			CB ..
15. Characteristic, output C			
Same as output A, but markings start with a capital C			CC ..
16. Limits, output C			
Same as output A, but markings start with a capital C			CD ..

Table 4 continued on next page!

EURAX DME 424/442

Programmable multi-transducers

Continuation: "Table 4: Programming for types DME 424 and 442"

DESCRIPTION	Application		
	A11 ... A16	A34	A24 / A44
Only for type DME 442			
17. Measured variable, output D Same as output A, but markings start with a capital D	DA ..	DA ..	DA ..
18. Output signal, output D Same as output A, but markings start with a capital D	DB ..	DB ..	DB ..
19. Characteristic, output D Same as output A, but markings start with a capital D	DC ..	DC ..	DC ..
20. Limits, output D Same as output A, but markings start with a capital D	DD ..	DD ..	DD ..
Only for type DME 424			
21. Measured variable, output E Not used	EA000	EA000	EA000
Pulse X0 = 0 Y0 = 0			
I System $0.1 \leq X_i \leq (4800 \cdot 1 \text{ A} / I_r)$ [Imp/Ah]	EA950	—	—
I1 L1 $0.1 \leq X_i \leq (4800 \cdot 1 \text{ A} / I_r)$ [Imp/Ah]	—	EA951	EA951
I2 L2 $0.1 \leq X_i \leq (4800 \cdot 1 \text{ A} / I_r)$ [Imp/Ah]	—	EA952	EA952
I3 L3 $0.1 \leq X_i \leq (4800 \cdot 1 \text{ A} / I_r)$ [Imp/Ah]	—	EA953	EA953
S System $0.1 \leq X_i \leq (4000 \cdot 1 \text{ kVA} / S_r)$ [Imp/kVAh]	EA954	EA954	EA954
S1 L1 $0.3 \leq X_i \leq (12000 \cdot 1 \text{ kVA} / S_r)$ [Imp/kVAh]	—	—	EA955
S2 L2 $0.3 \leq X_i \leq (12000 \cdot 1 \text{ kVA} / S_r)$ [Imp/kVAh]	—	—	EA956
S3 L3 $0.3 \leq X_i \leq (12000 \cdot 1 \text{ kVA} / S_r)$ [Imp/kVAh]	—	—	EA957
P System (incoming) $0.1 \leq X_i \leq (4000 \cdot 1 \text{ kVA} / S_r)$ [Imp/kWh]	EA958	EA958	EA958
P1 L1 (incoming) $0.3 \leq X_i \leq (12000 \cdot 1 \text{ kVA} / S_r)$ [Imp/kWh]	—	—	EA959
P2 L2 (incoming) $0.3 \leq X_i \leq (12000 \cdot 1 \text{ kVA} / S_r)$ [Imp/kWh]	—	—	EA960
P3 L3 (incoming) $0.3 \leq X_i \leq (12000 \cdot 1 \text{ kVA} / S_r)$ [Imp/kWh]	—	—	EA961
Q System (inductive) $0.1 \leq X_i \leq (4000 \cdot 1 \text{ kVA} / S_r)$ [Imp/kvarh]	EA962	EA962	EA962
Q1 L1 (inductive) $0.3 \leq X_i \leq (12000 \cdot 1 \text{ kVA} / S_r)$ [Imp/kvarh]	—	—	EA963
Q2 L2 (inductive) $0.3 \leq X_i \leq (12000 \cdot 1 \text{ kVA} / S_r)$ [Imp/kvarh]	—	—	EA964
Q3 L3 (inductive) $0.3 \leq X_i \leq (12000 \cdot 1 \text{ kVA} / S_r)$ [Imp/kvarh]	—	—	EA965
P System (outgoing) $0.1 \leq X_i \leq (4000 \cdot 1 \text{ kVA} / S_r)$ [Imp/kWh]	EA966	EA966	EA966
P1 L1 (outgoing) $0.3 \leq X_i \leq (12000 \cdot 1 \text{ kVA} / S_r)$ [Imp/kWh]	—	—	EA967
P2 L2 (outgoing) $0.3 \leq X_i \leq (12000 \cdot 1 \text{ kVA} / S_r)$ [Imp/kWh]	—	—	EA968
P3 L3 (outgoing) $0.3 \leq X_i \leq (12000 \cdot 1 \text{ kVA} / S_r)$ [Imp/kWh]	—	—	EA969
Q System (capacitive) $0.1 \leq X_i \leq (4000 \cdot 1 \text{ kVA} / S_r)$ [Imp/kvarh]	EA970	EA970	EA970
Q1 L1 (capacitive) $0.3 \leq X_i \leq (12000 \cdot 1 \text{ kVA} / S_r)$ [Imp/kvarh]	—	—	EA971
Q2 L2 (capacitive) $0.3 \leq X_i \leq (12000 \cdot 1 \text{ kVA} / S_r)$ [Imp/kvarh]	—	—	EA972
Q3 L3 (capacitive) $0.3 \leq X_i \leq (12000 \cdot 1 \text{ kVA} / S_r)$ [Imp/kvarh]	—	—	EA973

Table 4 continued on next page!

EURAX DME 424/442

Programmable multi-transducers

Continuation "Table 4: Programming for types DME 424 and 442"

DESCRIPTION			A11 ... A16	Application A34	A24 / A44
21. Measured variable, output E (continuation)					
Limit contact I					
Limit value XI					
U	System	$0 \leq XI \leq 1.2 \cdot Ur$	EA901	—	—
U1N	L1-N	$0 \leq XI \leq 1.2 \cdot Ur/\sqrt{3}$	—	—	EA902
U2N	L2-N	$0 \leq XI \leq 1.2 \cdot Ur/\sqrt{3}$	—	—	EA903
U3N	L3-N	$0 \leq XI \leq 1.2 \cdot Ur/\sqrt{3}$	—	—	EA904
U12	L1-L2	$0 \leq XI \leq 1.2 \cdot Ur$	—	EA905	EA905
U23	L2-L3	$0 \leq XI \leq 1.2 \cdot Ur$	—	EA906	EA906
U31	L3-L1	$0 \leq XI \leq 1.2 \cdot Ur$	—	EA907	EA907
I	System	$0 \leq XI \leq 1.5 \cdot Ir$	EA908	—	—
I1	L1	$0 \leq XI \leq 1.5 \cdot Ir$	—	EA909	EA909
I2	L2	$0 \leq XI \leq 1.5 \cdot Ir$	—	EA910	EA910
I3	L3	$0 \leq XI \leq 1.5 \cdot Ir$	—	EA911	EA911
P	System	$-1.5 \leq XI / Sr \leq 1.5$	EA912	EA912	EA912
P1	L1	$-0.5 \leq XI / Sr \leq 0.5$	—	—	EA913
P2	L2	$-0.5 \leq XI / Sr \leq 0.5$	—	—	EA914
P3	L3	$-0.5 \leq XI / Sr \leq 0.5$	—	—	EA915
Q	System	$-1.5 \leq XI / Sr \leq 1.5$	EA916	EA916	EA916
Q1	L1	$-0.5 \leq XI / Sr \leq 0.5$	—	—	EA917
Q2	L2	$-0.5 \leq XI / Sr \leq 0.5$	—	—	EA918
Q3	L3	$-0.5 \leq XI / Sr \leq 0.5$	—	—	EA919
PF	System	$-1 \leq XI \leq 1$	EA920	EA920	EA920
PF1	L1	$-1 \leq XI \leq 1$	—	—	EA921
PF2	L2	$-1 \leq XI \leq 1$	—	—	EA922
PF3	L3	$-1 \leq XI \leq 1$	—	—	EA923
QF	System	$-1 \leq XI \leq 1$	EA924	EA924	EA924
QF1	L1	$-1 \leq XI \leq 1$	—	—	EA925
QF2	L2	$-1 \leq XI \leq 1$	—	—	EA926
QF3	L3	$-1 \leq XI \leq 1$	—	—	EA927
F		$15.3 \text{ Hz} \leq XI \leq 65 \text{ Hz}$	EA928	EA928	EA928
S	System	$0 \leq XI / Sr \leq 1.5$	EA929	EA929	EA929
S1	L1	$0 \leq XI / Sr \leq 0.5$	—	—	EA930
S2	L2	$0 \leq XI / Sr \leq 0.5$	—	—	EA931
S3	L3	$0 \leq XI / Sr \leq 0.5$	—	—	EA932
IM	System	$0 \leq XI / Ir \leq 1.5$	—	EA933	EA933
IMS	System	$-1.5 \leq XI / Ir \leq 1.5$	—	EA934	EA934
LF	System	$-1 \leq XI \leq 1$	EA935	EA935	EA935
LF1	L1	$-1 \leq XI \leq 1$	—	—	EA936
LF2	L2	$-1 \leq XI \leq 1$	—	—	EA937
LF3	L3	$-1 \leq XI \leq 1$	—	—	EA938
IB	System	$1 \leq IBT \leq 30 \text{ min}$	$0 \leq XI / Ir \leq 1.5$	EA939	—
IB1	L1	$1 \leq IBT \leq 30 \text{ min}$	$0 \leq XI / Ir \leq 1.5$	—	EA940
IB2	L2	$1 \leq IBT \leq 30 \text{ min}$	$0 \leq XI / Ir \leq 1.5$	—	EA941
IB3	L3	$1 \leq IBT \leq 30 \text{ min}$	$0 \leq XI / Ir \leq 1.5$	—	EA942
BS	System	$1 \leq BST \leq 30 \text{ min}$	$0 \leq XI / Ir \leq 1.5$	EA943	—
BS1	L1	$1 \leq BST \leq 30 \text{ min}$	$0 \leq XI / Ir \leq 1.5$	—	EA944
BS2	L2	$1 \leq BST \leq 30 \text{ min}$	$0 \leq XI / Ir \leq 1.5$	—	EA945
BS3	L3	$1 \leq BST \leq 30 \text{ min}$	$0 \leq XI / Ir \leq 1.5$	—	EA946
UM	System	$0 \leq XI \leq 1.2 \cdot Ur$	—	—	EA947

Table 4 continued on next page!

EURAX DME 424/442

Programmable multi-transducers

Continuation "Table 4: Programming for types DME 424 and 442»

DESCRIPTION	A11 ... A16	Application A34	A24 / A44
22. Output signal, output E (only for EA901 ... EA947) ON if X1 > X1 OFF if X1 < X1 X1 < X1 X1 > X1	EB01 EB02	EB01 EB02	EB01 EB02
23. Pick-up delay, output E (only for EA901 ... EA947) Minimum $1 \leq Y \text{ Del} \leq 30 \text{ s}$	EC01 EC91	EC01 EC91	EC01 EC91
Only for type DME 424 24. Measured variable, output F Same as output E, but markings start with a capital F	FA ..	FA ..	FA ..
25. Output signal, output F Same as output E, but markings start with a capital F	FB ..	FB ..	FB ..
26. Pick-up delay, output F Same as output E, but markings start with a capital F	FC ..	FC ..	FC ..
For types DME 424 and 442 27. Measured variable, output G Same as output E, but markings start with a capital G	GA ..	GA ..	GA ..
28. Output signal, output G Same as output E, but markings start with a capital G	GB ..	GB ..	GB ..
29. Pick-up delay, output G Same as output E, but markings start with a capital G	GC ..	GC ..	GC ..
For types DME 424 and 442 30. Measured variable, output H Same as output E, but markings start with a capital H	HA ..	HA ..	HA ..
31. Output signal, output H Same as output E, but markings start with a capital H	HB ..	HB ..	HB ..
32. Pick-up delay, output H Same as output E, but markings start with a capital H	HC ..	HC ..	HC ..

Note: Up to three limits can be assigned to digital outputs G and H using the programming software.

EURAX DME 424/442

Programmable multi-transducers

Electrical connections

Function		Connection	
Meas. input \ominus			
AC current	IL1	1 / 2	
	IL2	3 / 4	
	IL3	5 / 6	
AC voltage	UL1	6d	
	UL2	10d	
	UL3	14d	
	N	2z	
Outputs \ominus			
Analogue	Digital		
\ominus A	+	22d	
	-	22z	
\ominus B	+	18d	
	-	18z	
\ominus C	\ominus E	+	14d
	-	14z	
\ominus D	\ominus F	+	10d
	-	10z	
	\ominus G	+	6d
	-	6z	
	\ominus H	+	2d
	-	2z	
Power supply \rightarrow			
AC	\sim	32d	
	\sim	28z	
DC	+	32d	
	-	28z	

DME 424 Back

Pinout diagram for DME 424 Back. The left side shows terminals 1-32 with connections for AC current (IL1, IL2, IL3) and AC voltage (UL1, UL2, UL3). The right side shows terminals 1-32 with connections for power supply (AC ~, DC +, DC -) and digital outputs (A, B, C, D, E, F, G, H). A legend indicates that white boxes represent coding pins and black boxes represent broken-out coding pins. Circles with a dot indicate a fitted contact, while circles with an open circle indicate no contact.

DME 442 Back

Pinout diagram for DME 442 Back. The left side shows terminals 1-32 with connections for AC current (IL1, IL2, IL3) and AC voltage (UL1, UL2, UL3). The right side shows terminals 1-32 with connections for power supply (AC ~, DC +, DC -) and digital outputs (A, B, C, D, E, F, G, H). A legend indicates that white boxes represent coding pins and black boxes represent broken-out coding pins. Circles with a dot indicate a fitted contact, while circles with an open circle indicate no contact.

Measuring inputs

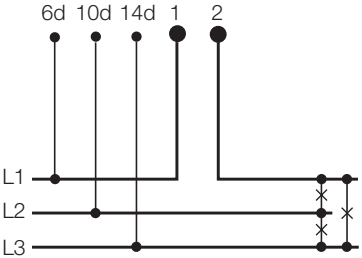
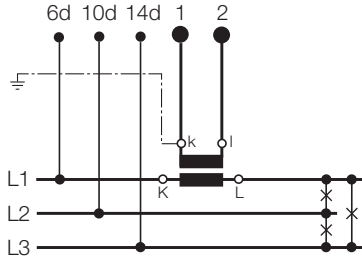
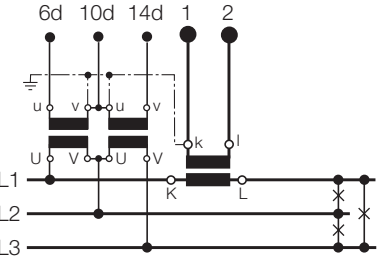
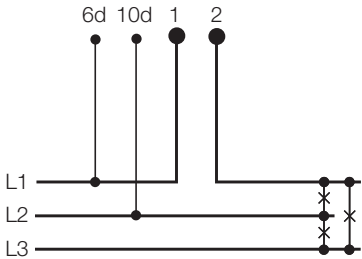
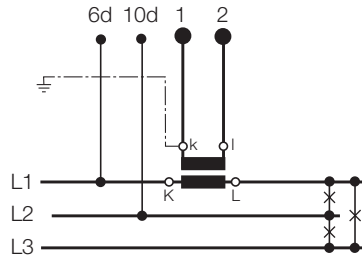
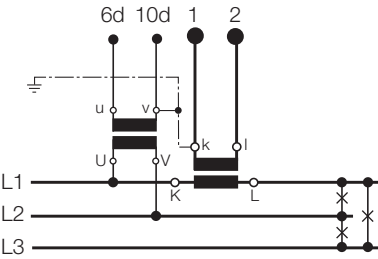
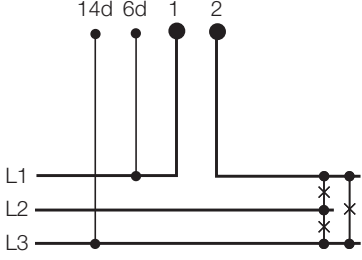
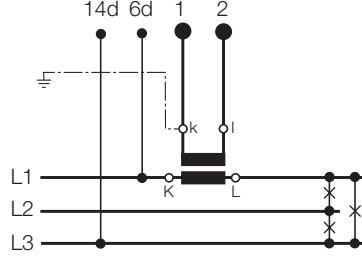
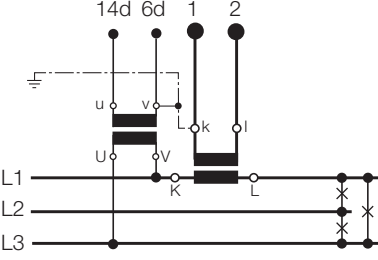
Plug wiring

Single-phase AC system

Three diagrams showing plug wiring for single-phase AC systems. The first diagram shows a simple connection where L1 is connected to terminal 1 and N to terminal 2. The second diagram shows a connection where L1 is connected to terminal 1, N to terminal 2, and terminal 6d is connected to terminal 2z. The third diagram shows a connection where L1 is connected to terminal 1, N to terminal 2, terminal 6d is connected to terminal 2z, and terminal 1 is connected to terminal 2.

EURAX DME 424/442

Programmable multi-transducers

Measuring inputs																			
System / application	Plug wiring																		
<p>3-wire 3-phase symmetric load I: L1</p>	<div style="display: flex; justify-content: space-around;">    </div> <p>Connect the voltage according to the following table for current measurement in L2 or L3:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Current transformer</th> <th colspan="2">Connections</th> <th>6d</th> <th>10d</th> <th>14d</th> </tr> </thead> <tbody> <tr> <td>L2</td> <td>1</td> <td>2</td> <td>L2</td> <td>L3</td> <td>L1</td> </tr> <tr> <td>L3</td> <td>1</td> <td>2</td> <td>L3</td> <td>L1</td> <td>L2</td> </tr> </tbody> </table>	Current transformer	Connections		6d	10d	14d	L2	1	2	L2	L3	L1	L3	1	2	L3	L1	L2
Current transformer	Connections		6d	10d	14d														
L2	1	2	L2	L3	L1														
L3	1	2	L3	L1	L2														
<p>3-wire 3-phase symmetric load phase-shift U: L1 – L2 I: L1</p>	<div style="display: flex; justify-content: space-around;">    </div> <p>Connect the voltage according to the following table for current measurement in L2 or L3:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Current transformer</th> <th colspan="2">Connections</th> <th>6d</th> <th>10d</th> </tr> </thead> <tbody> <tr> <td>L2</td> <td>1</td> <td>2</td> <td>L2</td> <td>L3</td> </tr> <tr> <td>L3</td> <td>1</td> <td>2</td> <td>L3</td> <td>L1</td> </tr> </tbody> </table>	Current transformer	Connections		6d	10d	L2	1	2	L2	L3	L3	1	2	L3	L1			
Current transformer	Connections		6d	10d															
L2	1	2	L2	L3															
L3	1	2	L3	L1															
<p>3-wire 3-phase symmetric load phase-shift U: L3 – L1 I: L1</p>	<div style="display: flex; justify-content: space-around;">    </div> <p>Connect the voltage according to the following table for current measurement in L2 or L3:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Current transformer</th> <th colspan="2">Connections</th> <th>14d</th> <th>6d</th> </tr> </thead> <tbody> <tr> <td>L2</td> <td>1</td> <td>2</td> <td>L1</td> <td>L2</td> </tr> <tr> <td>L3</td> <td>1</td> <td>2</td> <td>L2</td> <td>L3</td> </tr> </tbody> </table>	Current transformer	Connections		14d	6d	L2	1	2	L1	L2	L3	1	2	L2	L3			
Current transformer	Connections		14d	6d															
L2	1	2	L1	L2															
L3	1	2	L2	L3															

EURAX DME 424/442

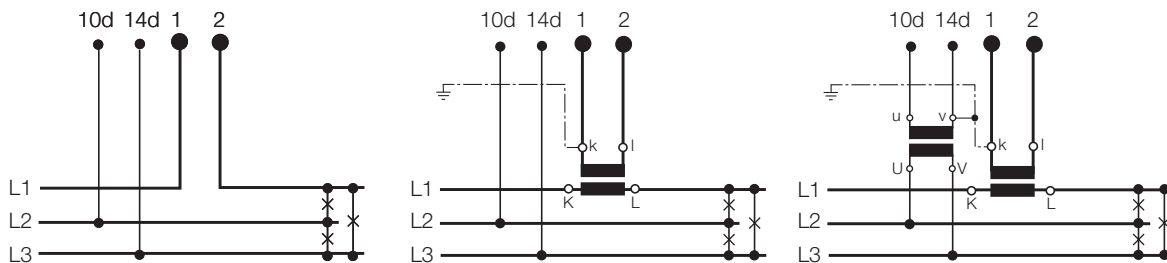
Programmable multi-transducers

Measuring inputs

System / application

Plug wiring

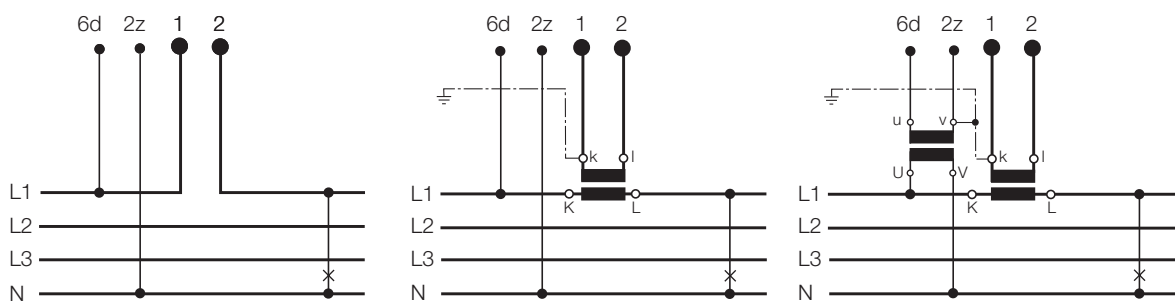
3-wire
3-phase
symmetric load
phase-shift
U: L2 – L3
I: L1



Connect the voltage according to the following table for current measurement in L2 or L3:

Current transformer	Connections		10d	14d
L2	1	2	L3	L1
L3	1	2	L1	L2

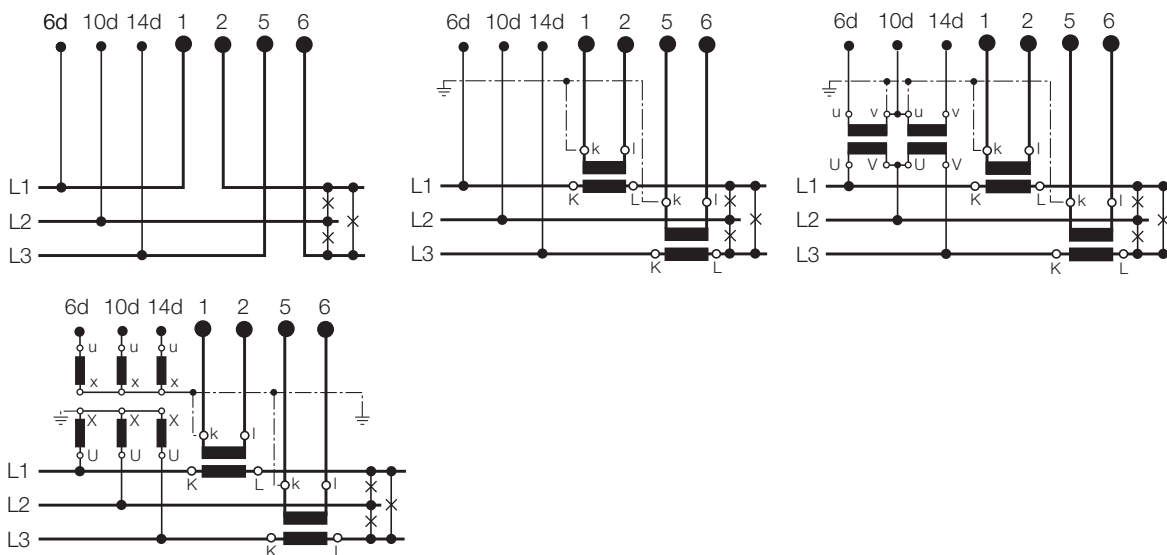
4-wire
3-phase
symmetric load
I: L1



Connect the voltage according to the following table for current measurement in L2 or L3:

Current transformer	Connections		6d	2z
L2	1	2	L2	N
L3	1	2	L3	N

3-wire
3-phase
asymmetric load



EURAX DME 424/442

Programmable multi-transducers

Measuring inputs	
System / application	Plug wiring
4-wire 3-phase asymmetric load	
	<p style="text-align: right;">3 single-pole insulated voltage transformers in high-voltage system</p>
4-wire 3-phase asymmetric load, Open-Y connection	<p style="text-align: left;">Low-voltage system</p>
	<p style="text-align: right;">2 single-pole insulated voltage transformers in high-voltage system</p>

Relationship between PF, QF and LF

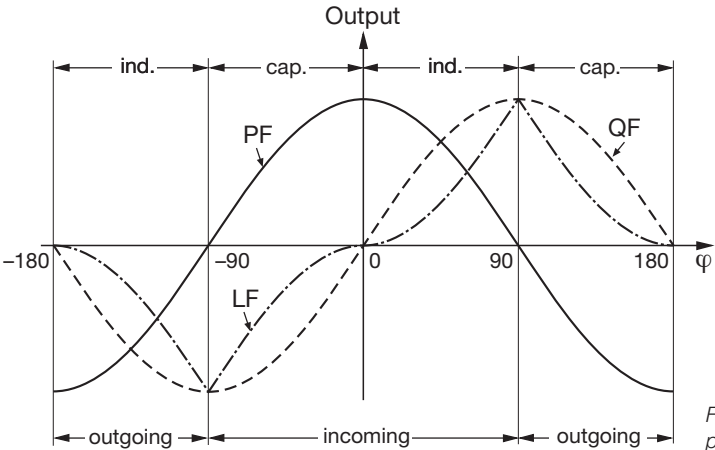


Fig. 5. Active power PF —, reactive power QF -----, power factor LF -.-.-.

EURAX DME 424/442

Programmable multi-transducers

Dimensional drawing

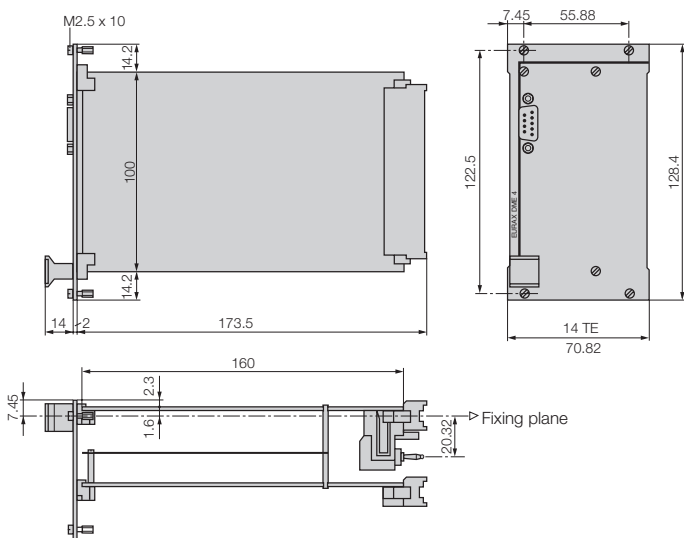


Fig. 6. EURAX DME 424/442, front plate width 14 TE.

Table 5: Accessories

Description	Order No.
Programming cable	980 179
Configuration Software DME 4 for SINEAX/EURAX DME 424, 440, 442, SINEAX DME 400, 401 and 406 Windows 3.1x, 95, 98, NT and 2000 on CD in German, English, French, Italian and Dutch (Download free of charge under http://www.gmc-instruments.com) In addition, the CD contains all configuration programmes presently available for Camille Bauer products.	146 557
Set for incorporation (incl. 1 coding strip, 3 coding pegs and 8 screws)	
LV edge connector plug and heavy current edge connector socket for mounting in 19" rack GTU 0509 resp. EURAX BT 901 LV edge connector plug with wire-wrap posts, heavy current edge connector plug with 0,5 m cable	138 885
LV edge connector plug with soldering posts, heavy current edge connector plug with 0,5 m cable	138 869
Operating Instructions DME 424/442-2 B d-f-e	127 185

Standard accessories

- 1 Operating Instructions for EURAX DME 424/442 in three languages: German, French, English
- 1 blank type label, for recording programmed settings

Version with GTU front plate to order acc. to NLB 876.

Appendix 1: PROGRAMMING FOR EURAX TYPE DME 424

with 2 analogue and 4 digital outputs

(see Data Sheet DME 424/442-2 Le, Table 4: "Programming for types DME 424 and 442")



Customer / Agent: _____	Date: _____
Order No. / Item: _____	Delivery data: _____
No of instruments: _____	
Type of instrument (marking): _____	

A	1. Application		
	System _____		
U	2. Input voltage, rated value		
	Ur = _____		
V	3. Input current, rated value		
	Ir = _____		
W	4. Primary transformer		
	CT = _____ A / _____ A	VT = _____ kV / _____ V	
Output A			
A A	5. Measured variable	Type: _____	X0 = _____ X2 = _____
A B	6. Output signal		Y0 = _____ Y2 = _____
A C	7. Characteristic linear / bent		X1 = _____ Y1 = _____
A D	8. Limits	Standard / Ymin = _____	Ymax = _____
Output B			
B A	9. Measured variable	Type: _____	X0 = _____ X2 = _____
B B	10. Output signal		Y0 = _____ Y2 = _____
B C	11. Characteristic linear / bent		X1 = _____ Y1 = _____
B D	12. Limits	Standard / Ymin = _____	Ymax = _____
Output E			
E A	21. Measured variable	Type: _____	Additional information: _____
E B	22. Output signal (limit contact only)		ON / OFF
E C	23. Pick-up delay		YDel = _____ s
Output F			
F A	24. Measured variable	Type: _____	Additional information: _____
F B	25. Output signal (limit contact only)		ON / OFF
F C	26. Pick-up delay		YDel = _____ s

Continued on next page!



Output G

G	A			
---	---	--	--	--

27. Measured variable Type: _____

Additional information: _____

G	B		
---	---	--	--

28. Output signal (limit contact only)

ON / OFF

G	C		
---	---	--	--

29. Pick-up delay

YDel = _____ s

Output H

H	A			
---	---	--	--	--

30. Measured variable Type: _____

Additional information: _____

H	B		
---	---	--	--

31. Output signal (limit contact only)

ON / OFF

H	C		
---	---	--	--

32. Pick-up delay

YDel = _____ s

Appendix 2: PROGRAMMING FOR EURAX TYPE DME 442

with 4 analogue and 2 digital outputs

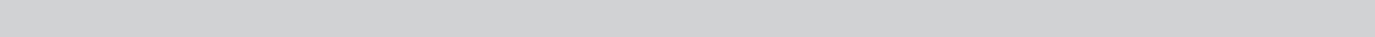
(see Data Sheet DME 424/442-2 Le, Table 4: "Programming for types DME 424 and 442")



Customer / Agent: _____	Date: _____
Order No. / Item: _____	Delivery data: _____
No of instruments: _____	
Type of instrument (marking): _____	

<input type="text" value="A"/>	1. Application	System _____
<input type="text" value="U"/>	2. Input voltage, rated value	Ur = _____
<input type="text" value="V"/>	3. Input current, rated value	Ir = _____
<input type="text" value="W"/>	4. Primary transformer	CT = _____ A / _____ A VT = _____ kV / _____ V
Output A		
<input type="text" value="A A"/>	5. Measured variable	Type: _____ X0 = _____ X2 = _____
<input type="text" value="A B"/>	6. Output signal	Y0 = _____ Y2 = _____
<input type="text" value="A C"/>	7. Characteristic linear / bent	X1 = _____ Y1 = _____
<input type="text" value="A D"/>	8. Limits	Standard / Ymin = _____ Ymax = _____
Output B		
<input type="text" value="B A"/>	9. Measured variable	Type: _____ X0 = _____ X2 = _____
<input type="text" value="B B"/>	10. Output signal	Y0 = _____ Y2 = _____
<input type="text" value="B C"/>	11. Characteristic linear / bent	X1 = _____ Y1 = _____
<input type="text" value="B D"/>	12. Limits	Standard / Ymin = _____ Ymax = _____
Output C		
<input type="text" value="C A"/>	13. Measured variable	Type: _____ X0 = _____ X2 = _____
<input type="text" value="C B"/>	14. Output signal	Y0 = _____ Y2 = _____
<input type="text" value="C C"/>	15. Characteristic linear / bent	X1 = _____ Y1 = _____
<input type="text" value="C D"/>	16. Limits	Standard / Ymin = _____ Ymax = _____
Output D		
<input type="text" value="D A"/>	17. Measured variable	Art: _____ X0 = _____ X2 = _____
<input type="text" value="D B"/>	18. Output signal	Y0 = _____ Y2 = _____
<input type="text" value="D C"/>	19. Characteristic linear / bent	X1 = _____ Y1 = _____
<input type="text" value="D D"/>	20. Limits	Standard / Ymin = _____ Ymax = _____

Continued on next page!



Output G

G	A		
---	---	--	--

21. Measured variable Type: _____

Additional information: _____

G	B		
---	---	--	--

22. Output signal (limit contact only)

ON / OFF

G	C		
---	---	--	--

23. Pick-up delay

YDel = _____ s

Output H

H	A		
---	---	--	--

24. Measured variable Type: _____

Additional information: _____

H	B		
---	---	--	--

25. Output signal (limit contact only)

ON / OFF

H	C		
---	---	--	--

26. Pick-up delay

YDel = _____ s