CAMILLE BAUER

EURAX DME 424/442
Programmable Multi-Transducers

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

CE

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 analog 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 variably on a PC monitor, the simulation of the outputs for test purposes and a facility for printing name-plates.

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**.*

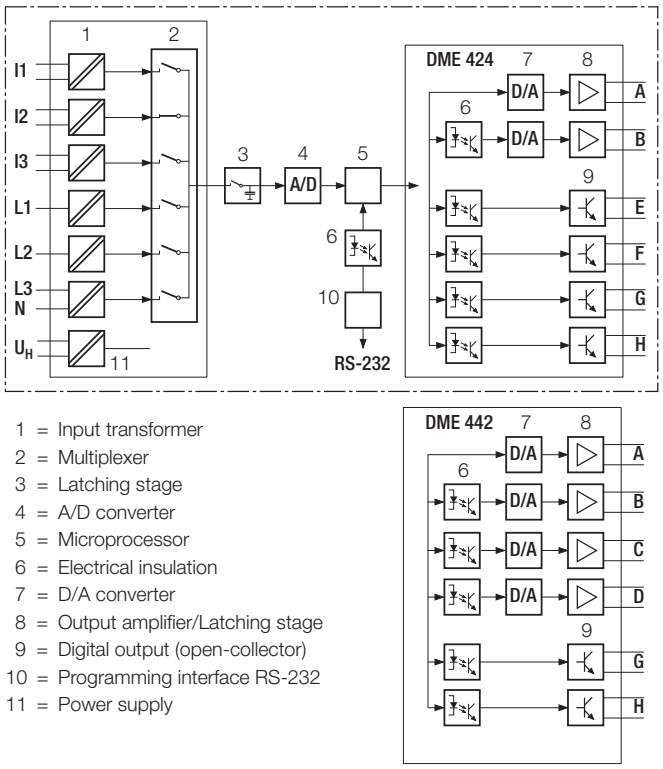
Features / Benefits

- **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 cosφ, sinφ, power factor RMS value of the current with wire setting range (bimetal measuring function) 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)	**2 analog outputs and 4 digital outputs**	**DME 424**
	or	
	4 analog outputs and 2 digital outputs	**DME 442**
	4 analog 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 analog outputs (programmable)**
- **High accuracy: U/I 0.2%, 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**

EURAX DME 424/442
Programmable Multi-Transducers



1 = Input transformer
2 = Multiplexer
3 = Latching stage
4 = A/D converter
5 = Microprocessor
6 = Electrical insulation
7 = D/A converter
8 = Output amplifier/Latching stage
9 = Digital output (open-collector)
10 = Programming interface RS-232
11 = Power supply

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

Symbols

Symbols	Meaning
X	Measured variable
X0	Lower limit of the measured variable
X1	Break point of the measured variable
X2	Upper limit of the measured variable
Y	Output variable
Y0	Lower limit of the output variable
Y1	Break point of the output variable
Y2	Upper limit of the output variable
U	Input voltage
Ur	Rated value of the input voltage
U 12	Phase-to-phase voltage L1 – L2
U 23	Phase-to-phase voltage L2 – L3
U 31	Phase-to-phase voltage L3 – L1
U1N	Phase-to-neutral voltage L1 – N
U2N	Phase-to-neutral voltage L2 – N
U3N	Phase-to-neutral voltage L3 – N
UM	Average value of the voltages (U1N + U2N + U3N) / 3

Symbols	Meaning
I	Input current
I1	AC current L1
I2	AC current L2
I3	AC current L3
Ir	Rated value of the input current
IM	Average value of the currents (I1 + I2 + I3) / 3
IMS	Average value of the currents and sign of the active power (P)
IB	RMS value of the current with wire setting range (bimetal measuring function)
IBT	Response time for IB
BS	Slave pointer function for the measurement of the RMS value IB
BST	Response time for BS
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)
Q	Reactive power of the system Q = Q1 + Q2 + Q3
Q1	Reactive power phase 1 (phase-to-neutral L1 – N)
Q2	Reactive power phase 2 (phase-to-neutral L2 – N)
Q3	Reactive power phase 3 (phase-to-neutral L3 – N)
S	Apparent power of the system $S = \sqrt{I_1^2 + I_2^2 + I_3^2} \cdot \sqrt{U_1^2 + U_2^2 + U_3^2}$
S1	Apparent power phase 1 (phase-to-neutral L1 – N)
S2	Apparent power phase 2 (phase-to-neutral L2 – N)
S3	Apparent power phase 3 (phase-to-neutral L3 – N)
Sr	Rated value of the apparent power of the system
PF	Active power factor $\cos\varphi = P/S$
PF1	Active power factor phase 1 P1/S1
PF2	Active power factor phase 2 P2/S2
PF3	Active power factor phase 3 P3/S3
QF	Reactive power factor $\sin\varphi = Q/S$
QF1	Reactive power factor phase 1 Q1/S1
QF2	Reactive power factor phase 2 Q2/S2
QF3	Reactive power factor phase 3 Q3/S3

Symbols	Meaning
LF	Power factor of the system LF = sgnQ · (1 – |PF|)
LF1	Power factor phase 1 sgnQ1 · (1 – |PF1|)
LF2	Power factor phase 2 sgnQ2 · (1 – |PF2|)
LF3	Power factor phase 3 sgnQ3 · (1 – |PF3|)
c	Factor for the intrinsic error
R	Output load
Rn	Rated burden
H	Power supply
Hn	Rated value of the power supply
CT	c.t. ratio
VT	v.t. ratio

Applicable standards and regulations

EN 60 688	Electrical measuring transducer for converting AC electrical variables into analog 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 industrialprocess 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 equippment 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 tarif meter
UL 94	Tests for flammability of plastic materials for parts in devices and appliances

Technical data

Inputs

Input variables:	see Table 2, 3 and 4
Messbereiche:	see Table 2, 3 and 4
Waveform:	Sinusoidal
Rated frequency:	50…60 Hz; 16 2/3 Hz
Consumption:	Voltage circuit: ≤ U^2 / 400 kΩ Condition: external power supply Current circuit: 0.3 VA · I/5 A

Continuous thermal ratings of inputs

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

Short-time thermal rating of inputs

Input variable	Number of inputs	Duration of overload	Interval between two overloads
Current circuits	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_{intern}: 1.5 Ur	10	10 s	10 s
Three-phase system 1040 V H_{intern}: 1.5 Ur	10	10 s	10 s

Continuation of “Technical data" see on next page!

EURAX DME 424/442
Programmable Multi-Transducers

Analog 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 · Y2	40 mA
	R → ∞	30 V	1.25 Y2
Rated useful range of output load		$0 \le \frac{7.5\ V}{Y2} \le \frac{15\ V}{Y2}$	$\frac{Y2}{2\ mA} \le \frac{Y2}{1\ mA} \le \infty$
AC component of output signal (peak-to-peak)		≤ 0.005 Y2	≤ 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).

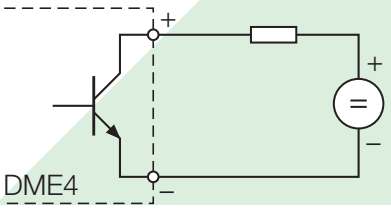
All the full-scale output values can be reduced subsequently using the programming software, but a supplementary error results.

The hardware full-scale settings for the analog 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

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 = Hn ± 1%
Active/reactive factor:	cosφ = 1 resp. sinφ = 1
Frequency:	50 … 60 Hz, 16 2/3 Hz
Waveform:	Sinusoidal, form factor 1.1107
Output load:	DC current output: $R_n = \frac{7.5\ V}{Y2} \pm 1\%$ DC voltage output: $R_n = \frac{Y2}{1\ mA} \pm 1\%$
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 ≤ X2/Sr ≤ 1.5 0.3 ≤ X2/Sr < 0.5	0.25 c 0.5 c
Phase: Active, reactive and apparent power	0.167 ≤ X2/Sr ≤ 0.5 0.1 ≤ X2/Sr < 0.167	0.25 c 0.5 c
Power factor, active power factor and reactive power factor	0.5Sr ≤ S ≤ 1.5 Sr, (X2 - X0) = 2	0.25 c
	0.5Sr ≤ S ≤ 1.5 Sr, 1 ≤ (X2 - X0) < 2	0.5 c
	0.5Sr ≤ S ≤ 1.5 Sr, 0.5 ≤ (X2 - X0) < 1	1.0 c
	0.1Sr ≤ S < 0.5 Sr, (X2 - X0) = 2	0.5 c
	0.1Sr ≤ S < 0.5 Sr, 1 ≤ (X2 - X0) < 2	1.0 c
	0.1Sr ≤ S < 0.5 Sr, 0.5 ≤ (X2 - X0) < 1	2.0 c
AC voltage	0.1 Ur ≤ U ≤ 1.2 Ur	0.2 c
AC current / current averages	0.1 Ir ≤ I ≤ 1.5 Ir	0.2 c
System frequency	0.1 Ur ≤ U ≤ 1.2 Ur resp. 0.1 Ir ≤ I ≤ 1.5 Ir	0.15 + 0.03 c (f_N = 50...60 Hz) 0.15 + 0.1 c (f_N = 16 2/3 Hz)
Pulse Energy meter	acc. to IEC 1036 0.1 Ir ≤ I ≤ 1.5 Ir	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: $c = \frac{1 - \frac{Y0}{Y2}}{1 - \frac{X0}{X2}}$ or $c = 1$

Bent characteristic:

$X0 \le X \le X1$ $\quad c = \frac{Y1 - Y0}{X1 - X0} \cdot \frac{X2}{Y2}$ or $c = 1$

$X1 < X \le X2$ $\quad c = \frac{1 - \frac{Y1}{Y2}}{1 - \frac{X1}{X2}}$ or $c = 1$

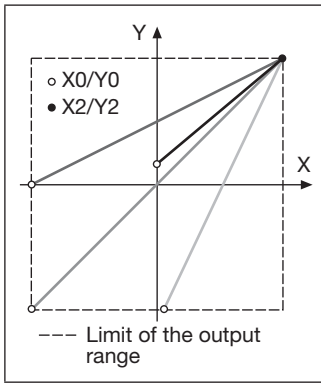


Fig. 3. Examples of settings with linear characteristic.

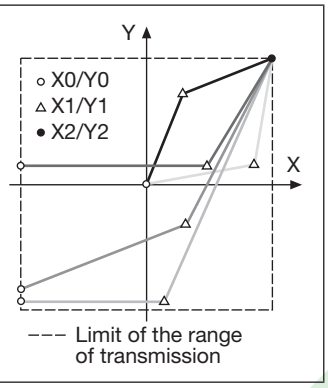


Fig. 4. Examples of settings with bent characteristic.

Influencing quantities and permissible variations

Acc. to EN 60 688

Safety

Protection class: II

Installation category: III

Insulation test (against earth):

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 µs; 0.5 Ws

Test voltage: 50 Hz, 1 min. acc. 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 →○

AC voltage: 100, 110, 230, 400, 500 or 693 V, ± 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

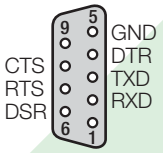
Rated voltage U_N	Tolerance
24 … 60 V DC/AC	DC – 15 … + 33%
85 … 230 V DC/AC	AC ± 10%

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 ×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 according 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:	± 0.2% / 10 K
Nominal range of use for temperature:	0…15…30…45 °C (usage group II)
Operating temperature:	– 10 to + 55 °C
Storage temperature:	– 40 to + 85 °C
Annual mean relative humidity:	≤ 75%
Altitude:	2000 m max.
Indoor use statement!	

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

DESCRIPTION			MARKING
1. Mechanical design			
Plug-in module for 19″ rack-mounted case			424 – 2
2. Nominal frequency			
50 Hz (60 Hz possible without additional error; 16 2/3 Hz, additional error 1.25 · c)			1
60 Hz (50 Hz possible without additional error; 16 2/3 Hz, additional error 1.25 · c)			2
16 2/3 Hz (not re-programming by user, 50/60 Hz possible, but with additional error 1.25 · c)			3
3. Power supply			
Nominal range			
AC	90 … 110 V	H_n = 100 V	1
AC	99 … 121 V	H_n = 110 V	2
AC	207 … 253 V	H_n = 230 V	3
AC	360 … 440 V	H_n = 400 V	4
AC	450 … 550 V	H_n = 500 V	5
AC	623 … 762 V	H_n = 693 V	6
DC/AC	24 … 60 V		7
DC/AC	85 … 230 V		8
4. Power supply connection			
External (standard)			1
5. Full-scale output signal, output A			
Output A, Y2 = 20 mA (standard)			1
Output A, Y2 (full-scale current Y2 [mA] 1 to 20)		[mA]	9
Output A, Y2 (full-scale voltage Y2 [V] 1 to 10)		[V]	Z
6. Full-scale output signal, output B			
Output B, Y2 = 20 mA (standard)			1
Output B, Y2 (full-scale current Y2 [mA] 1 to 20)		[mA]	9
Output B, Y2 (full-scale voltage Y2 [V] 1 to 10)		[V]	Z
7. Test certificate			
None supplied			0
Supplied			1

DESCRIPTION	MARKING
8. Programming	
Basic	0
According to specification	9
All the programming data must be entered on Form W 2400 e (see appendix 1) and the form must be included with the order!	

Table 3: Ordering information for EURAX DME 442 with 4 analog and 2 digital outputs

DESCRIPTION			MARKING
1. Mechanical design			
Plug-in module for 19˝ rack-mounted case			442 – 2
2. Rated frequency			
50 Hz (60 Hz possible without additional error; 16 2/3 Hz, additional error 1.25 · c)			1
60 Hz (50 Hz possible without additional error; 16 2/3 Hz, additional error 1.25 · c)			2
16 2/3 Hz (not re-programming by user, 50/60 Hz possible, but with additional error 1.25 · c)			3
3. Power supply			
Nominal range			
AC 90 … 110 V	H_n = 100 V		1
AC 99 … 121 V	H_n = 110 V		2
AC 207 … 253 V	H_n = 230 V		3
AC 360 … 440 V	H_n = 400 V		4
AC 450 … 550 V	H_n = 500 V		5
AC 623 … 762 V	H_n = 693 V		6
DC/AC 24 … 60 V			7
DC/AC 85 … 230 V			8
4. Power supply connection			
External (standard)			1
5. Full-scale output signal, output A			
Output A, Y2 = 20 mA (standard)			1
Output A, Y2 (full-scale current Y2 [mA] 1 to 20)	[mA]		9
Output A, Y2 (full-scale voltage Y2 [V] 1 to 10)	[V]		Z
6. Full-scale output signal, output B			
Output B, Y2 = 20 mA (standard)			1
Output B, Y2 (full-scale current Y2 [mA] 1 to 20)	[mA]		9
Output B, Y2 (full-scale voltage Y2 [V] 1 to 10)	[V]		Z
7. Full-scale output signal, output C			
Output C, Y2 = 20 mA (standard)			1
Output C, Y2 (full-scale current Y2 [mA] 1 to 20)	[mA]		9
Output C, Y2 (full-scale voltage Y2 [V] 1 to 10)	[V]		Z
8. Full-scale output signal, output D			
Output D, Y2 = 20 mA (standard)			1
Output D, Y2 (full-scale current Y2 [mA] 1 to 20)	[mA]		9
Output D, Y2 (full-scale voltage Y2 [V] 1 to 10)	[V]		Z
9. Test certificate			
None supplied			0
Supplied			1

EURAX DME 424/442
Programmable Multi-Transducers

DESCRIPTION	MARKING
10. Programming	
Basic	0
According to specification	9
All the programming data must be entered on Form W 2401 e (see appendix 2) and the form must be included with the order!	

Table 4: Programming for types DME 424 and 442

DESCRIPTION	Application		
	A11… A16	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 Ur = 57.7 V	U01	—	—
Rated value Ur = 63,5 V	U02	—	—
Rated value Ur = 100 V	U03	—	—
Rated value Ur = 110 V	U04	—	—
Rated value Ur = 120 V	U05	—	—
Rated value Ur = 230 V	U06	—	—
Rated value Ur (Ur [V] 57 to 400) [V]	U91	—	—
Rated value Ur = 100 V	U21	U21	U21
Rated value Ur = 110 V	U22	U22	U22
Rated value Ur = 115 V	U23	U23	U23
Rated value Ur = 120 V	U24	U24	U24
Rated value Ur = 400 V	U25	U25	U25
Rated value Ur = 500 V	U26	U26	U26
Rated value Ur (Ur [V] > 100 to 693) [V]	U93	U93	U93
Lines U01 to U06: Only for single phase AC current or 4-wire, 3-phase symmetric load			
3. Input current			
Rated value Ir = 1 A	V1	V1	V1
Rated value Ir = 2 A	V2	V2	V2
Rated value Ir = 5 A	V3	V3	V3
Rated value Ir (Ir [A] > 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 Specify transformer ratio prim./sec., e.g. 1000/5 A; 33 kV/110 V	W9	W9	W9

* Basic accuracy 0.5 c

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 ≤ X0 ≤ 0.9 · X2	0.8 · Ur ≤ X2 ≤ 1.2 · Ur	AA901	—	—
U1N	L1-N	0 ≤ X0 ≤ 0.9 · X2	0.8 · Ur / $\sqrt{3}$ ≤ X2 ≤ 1.2 · Ur / $\sqrt{3}$	—	—	AA902
U2N	L2-N	0 ≤ X0 ≤ 0.9 · X2	0.8 · Ur / $\sqrt{3}$ ≤ X2 ≤ 1.2 · Ur / $\sqrt{3}$	—	—	AA903
U3N	L3-N	0 ≤ X0 ≤ 0.9 · X2	0.8 · Ur / $\sqrt{3}$ ≤ X2 ≤ 1.2 · Ur / $\sqrt{3}$	—	—	AA904
U12	L1-L2	0 ≤ X0 ≤ 0.9 · X2	0.8 · Ur ≤ X2 ≤ 1.2 · Ur	—	AA905	AA905
U23	L2-L3	0 ≤ X0 ≤ 0.9 · X2	0.8 · Ur ≤ X2 ≤ 1.2 · Ur	—	AA906	AA906
U31	L3-L1	0 ≤ X0 ≤ 0.9 · X2	0.8 · Ur ≤ X2 ≤ 1.2 · Ur	—	AA907	AA907
I	System	0 ≤ X0 ≤ 0.8 · X2	0.5 · Ir ≤ X2 ≤ 1.5 · Ir	AA908	—	—
I1	L1	0 ≤ X0 ≤ 0.8 · X2	0.5 · Ir ≤ X2 ≤ 1.5 · Ir	—	AA909	AA909
I2	L2	0 ≤ X0 ≤ 0.8 · X2	0.5 · Ir ≤ X2 ≤ 1.5 · Ir	—	AA910	AA910
I3	L3	0 ≤ X0 ≤ 0.8 · X2	0.5 · Ir ≤ X2 ≤ 1.5 · Ir	—	AA911	AA911
P	System	– X2 ≤ X0 ≤ 0.8 · X2	0.3 · X2 / Sr ≤ 1.5	AA912	AA912	AA912
P1	L1	– X2 ≤ X0 ≤ 0.8 · X2	0.1 · X2 / Sr ≤ 0.5	—	—	AA913
P2	L2	– X2 ≤ X0 ≤ 0.8 · X2	0.1 · X2 / Sr ≤ 0.5	—	—	AA914
P3	L3	– X2 ≤ X0 ≤ 0.8 · X2	0.1 · X2 / Sr ≤ 0.5	—	—	AA915
Q	System	– X2 ≤ X0 ≤ 0.8 · X2	0.3 · X2 / Sr ≤ 1.5	AA916	AA916	AA916
Q1	L1	– X2 ≤ X0 ≤ 0.8 · X2	0.1 · X2 / Sr ≤ 0.5	—	—	AA917
Q1	L2	– X2 ≤ X0 ≤ 0.8 · X2	0.1 · X2 / Sr ≤ 0.5	—	—	AA918
Q3	L3	– X2 ≤ X0 ≤ 0.8 · X2	0.1 · X2 / Sr ≤ 0.5	—	—	AA919
PF	System	– 1 ≤ X0 ≤ (X2 – 0.5)	0 ≤ X2 ≤ 1	AA920	AA920	AA920
PF1	L1	– 1 ≤ X0 ≤ (X2 – 0.5)	0 ≤ X2 ≤ 1	—	—	AA921
PF2	L2	– 1 ≤ X0 ≤ (X2 – 0.5)	0 ≤ X2 ≤ 1	—	—	AA922
PF3	L3	– 1 ≤ X0 ≤ (X2 – 0.5)	0 ≤ X2 ≤ 1	—	—	AA923
QF	System	– 1 ≤ X0 ≤ (X2 – 0.5)	0 ≤ X2 ≤ 1	AA924	AA924	AA924
QF1	L1	– 1 ≤ X0 ≤ (X2 – 0.5)	0 ≤ X2 ≤ 1	—	—	AA925
QF2	L2	– 1 ≤ X0 ≤ (X2 – 0.5)	0 ≤ X2 ≤ 1	—	—	AA926
QF3	L3	– 1 ≤ X0 ≤ (X2 – 0.5)	0 ≤ X2 ≤ 1	—	—	AA927
F		15.3 Hz ≤ X0 ≤ X2 – 1 Hz	X0 + 1 Hz ≤ X2 ≤ 65 Hz	AA928	AA928	AA928
S	System	0 ≤ X0 ≤ 0.8 · X2	0.3 ≤ X2 / Sr ≤ 1.5	AA929	AA929	AA929
S1	L1	0 ≤ X0 ≤ 0.8 · X2	0.1 ≤ X2 / Sr ≤ 0.5	—	—	AA930
S2	L2	0 ≤ X0 ≤ 0.8 · X2	0.1 ≤ X2 / Sr ≤ 0.5	—	—	AA931
S3	L3	0 ≤ X0 ≤ 0.8 · X2	0.1 ≤ X2 / Sr ≤ 0.5	—	—	AA932
IM	System	0 ≤ X0 ≤ 0.8 · X2	0.5 · Ir ≤ X2 ≤ 1.5 · Ir	—	AA933	AA933
IMS	System	– X2 ≤ X0 ≤ 0.8 · X2	0.5 · Ir ≤ X2 ≤ 1.5 · Ir	—	AA934	AA934
LF	System	– 1 ≤ X0 ≤ (X2 – 0.5)	0 ≤ X2 ≤ 1	AA935	AA935	AA935
LF1	L1	– 1 ≤ X0 ≤ (X2 – 0.5)	0 ≤ X2 ≤ 1	—	—	AA936
LF2	L2	– 1 ≤ X0 ≤ (X2 – 0.5)	0 ≤ X2 ≤ 1	—	—	AA937
LF3	L3	– 1 ≤ X0 ≤ (X2 – 0.5)	0 ≤ X2 ≤ 1	—	—	AA938
IB	System	X0 = 0 1 ≤ IBT ≤ 30 min	0.5 · Ir ≤ X2 ≤ 1.5 · Ir	AA939	—	—
IB1	L1	X0 = 0 1 ≤ IBT ≤ 30 min	0.5 · Ir ≤ X2 ≤ 1.5 · Ir	—	AA940	AA940
IB2	L2	X0 = 0 1 ≤ IBT ≤ 30 min	0.5 · Ir ≤ X2 ≤ 1.5 · Ir	—	AA941	AA941
IB3	L3	X0 = 0 1 ≤ IBT ≤ 30 min	0.5 · Ir ≤ X2 ≤ 1.5 · Ir	—	AA942	AA942

EURAX DME 424/442
Programmable Multi-Transducers

DESCRIPTION					Application		
					A11… A16	A34	A24/A44
5. Measured variable, output A (continuation)							
		Initial value X0		Final value X2			
BS	System	X0 = 0	1 ≤ BST ≤ 30 min	0.5 · Ir ≤ X2 ≤ 1.5 · Ir	AA943	—	—
BS1	L1	X0 = 0	1 ≤ BST ≤ 30 min	0.5 · Ir ≤ X2 ≤ 1.5 · Ir	—	AA944	AA944
BS2	L2	X0 = 0	1 ≤ BST ≤ 30 min	0.5 · Ir ≤ X2 ≤ 1.5 · Ir	—	AA945	AA945
BS3	L3	X0 = 0	1 ≤ BST ≤ 30 min	0.5 · Ir ≤ X2 ≤ 1.5 · Ir	—	AA946	AA946
UM	System	0 ≤ X0 ≤ 0.8 · X2		0.8 · Ur / $\sqrt{3}$ ≤ X2 ≤ 1.2 · Ur / $\sqrt{3}$	—	—	AA947
6. Output signal, output A							
		Initial value Y0		Final value Y2			
DC current		Y0 = 0		Y2 = 20 mA	AB01	AB01	AB01
		– Y2 ≤ Y0 ≤ 0.2 · Y2		1 mA ≤ Y2 ≤ 20 mA	AB91	AB91	AB91
DC voltage		– Y2 ≤ Y0 ≤ 0.2 · Y2		1 V ≤ Y2 ≤ 10 V	AB92	AB92	AB92
7. Characteristic, output A							
Linear					AC01	AC01	AC01
Bent		(X0 + 0.015 · X2)	≤ X1 ≤ 0.985 · X2	Y0 ≤ Y1 ≤ Y2	AC91	AC91	AC91
8. Limits, output A							
Standard		Ymin = Y0 – 0.25 Y2		Ymax = 1.25 Y2	AD01	AD01	AD01
		(Y0 – 0.25 Y2) ≤ Ymin ≤ Y0		Y2 ≤ Ymax ≤ 1.25 Y2	AD91	AD91	AD91
9. Measured variable, output B							
Same as output A, but markings start with a capital B					BA ...	BA ...	BA ...
10. Output signal, output B							
Same as output A, but markings start with a capital B					BB ..	BB ..	BB ..
11. Characteristic, output B							
Same as output A, but markings start with a capital B					BC ..	BC ..	BC ..
12. Limits, output B							
Same as output A, but markings start with a capital B					BD ..	BD ..	BD ..
Only for type DME 442							
13. Measured variable, output C							
Same as output A, but markings start with a capital C					CA ...	CA ...	CA ...
14. Output signal, output C							
Same as output A, but markings start with a capital C					CB ..	CB ..	CB ..
15. Characteristic, output C							
Same as output A, but markings start with a capital C					CC ..	CC ..	CC ..
16. Limits, output C							
Same as output A, but markings start with a capital C					CD ..	CD ..	CD ..
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 ..

DESCRIPTION				Application A11… A16	A34	A24/A44
Only for type DME 424						
21. Measured variable, output E						
Not used				EA000	EA000	EA000
Pulse	X0 = 0	Y0 = 0				
I	System	0.1 ≤ Xi ≤ (4800 · 1 A / Ir)	[Imp/Ah]	EA950	—	—
I1	L1	0.1 ≤ Xi ≤ (4800 · 1 A / Ir)	[Imp/Ah]	—	EA951	EA951
I2	L2	0.1 ≤ Xi ≤ (4800 · 1 A / Ir)	[Imp/Ah]	—	EA952	EA952
I3	L3	0.1 ≤ Xi ≤ (4800 · 1 A / Ir)	[Imp/Ah]	—	EA953	EA953
S	System	0.1 ≤ Xi ≤ (4000 · 1 kVA / Sr)	[Imp/kVAh]	EA954	EA954	EA954
S1	L1	0.3 ≤ Xi ≤ (12000 · 1 kVA / Sr)	[Imp/kVAh]	—	—	EA955
S2	L2	0.3 ≤ Xi ≤ (12000 · 1 kVA / Sr)	[Imp/kVAh]	—	—	EA956
S3	L3	0.3 ≤ Xi ≤ (12000 · 1 kVA / Sr)	[Imp/kVAh]	—	—	EA957
P	System (incoming)	0.1 ≤ Xi ≤ (4000 · 1 kVA / Sr)	[Imp/kWh]	EA958	EA958	EA958
P1	L1 (incoming)	0.3 ≤ Xi ≤ (12000 · 1 kVA / Sr)	[Imp/kWh]	—	—	EA959
P2	L2 (incoming)	0.3 ≤ Xi ≤ (12000 · 1 kVA / Sr)	[Imp/kWh]	—	—	EA960
P3	L3 (incoming)	0.3 ≤ Xi ≤ (12000 · 1 kVA / Sr)	[Imp/kWh]	—	—	EA961
Q	System (inductive)	0.1 ≤ Xi ≤ (4000 · 1 kVA / Sr)	[Imp/kvarh]	EA962	EA962	EA962
Q1	L1 (inductive)	0.3 ≤ Xi ≤ (12000 · 1 kVA / Sr)	[Imp/kvarh]	—	—	EA963
Q2	L2 (inductive)	0.3 ≤ Xi ≤ (12000 · 1 kVA / Sr)	[Imp/kvarh]	—	—	EA964
Q3	L3 (inductive)	0.3 ≤ Xi ≤ (12000 · 1 kVA / Sr)	[Imp/kvarh]	—	—	EA965
P	System (outgoing)	0.1 ≤ Xi ≤ (4000 · 1 kVA / Sr)	[Imp/kWh]	EA966	EA966	EA966
P1	L1 (outgoing)	0.3 ≤ Xi ≤ (12000 · 1 kVA / Sr)	[Imp/kWh]	—	—	EA967
P2	L2 (outgoing)	0.3 ≤ Xi ≤ (12000 · 1 kVA / Sr)	[Imp/kWh]	—	—	EA968
P3	L3 (outgoing)	0.3 ≤ Xi ≤ (12000 · 1 kVA / Sr)	[Imp/kWh]	—	—	EA969
Q	System (capacitive)	0.1 ≤ Xi ≤ (4000 · 1 kVA / Sr)	[Imp/kvarh]	EA970	EA970	EA970
Q1	L1 (capacitive)	0.3 ≤ Xi ≤ (12000 · 1 kVA / Sr)	[Imp/kvarh]	—	—	EA971
Q2	L2 (capacitive)	0.3 ≤ Xi ≤ (12000 · 1 kVA / Sr)	[Imp/kvarh]	—	—	EA972
Q3	L3 (capacitive)	0.3 ≤ Xi ≤ (12000 · 1 kVA / Sr)	[Imp/kvarh]	—	—	EA973
Limit contact I						
Limit value XI						
U	System	0 ≤ XI ≤ 1.2 · Ur		EA901	—	—
U1N	L1-N	0 ≤ XI ≤ 1.2 · Ur / $\sqrt{3}$		—	—	EA902
U2N	L2-N	0 ≤ XI ≤ 1.2 · Ur / $\sqrt{3}$		—	—	EA903
U3N	L3-N	0 ≤ XI ≤ 1.2 · Ur / $\sqrt{3}$		—	—	EA904
U12	L1-L2	0 ≤ XI ≤ 1.2 · Ur		—	EA905	EA905
U23	L2-L3	0 ≤ XI ≤ 1.2 · Ur		—	EA906	EA906
U31	L3-L1	0 ≤ XI ≤ 1.2 · Ur		—	EA907	EA907
I	System	0 ≤ XI ≤ 1.5 · Ir		EA908	—	—
I1	L1	0 ≤ XI ≤ 1.5 · Ir		—	EA909	EA909
I2	L2	0 ≤ XI ≤ 1.5 · Ir		—	EA910	EA910
I3	L3	0 ≤ XI ≤ 1.5 · Ir		—	EA911	EA911
P	System	– 1.5 ≤ XI / SR ≤ 1.5		EA912	EA912	EA912
P1	L1	– 0.5 ≤ XI / SR ≤ 0.5		—	—	EA913
P2	L2	– 0.5 ≤ XI / SR ≤ 0.5		—	—	EA914
P3	L3	– 0.5 ≤ XI / SR ≤ 0.5		—	—	EA915
Q	System	– 1.5 ≤ XI / SR ≤ 1.5		EA916	EA916	EA916
Q1	L1	– 0.5 ≤ XI / SR ≤ 0.5		—	—	EA917
Q2	L2	– 0.5 ≤ XI / SR ≤ 0.5		—	—	EA918
Q3	L3	– 0.5 ≤ XI / SR ≤ 0.5		—	—	EA919

EURAX DME 424/442
Programmable Multi-Transducers

DESCRIPTION				Application		
				A11… A16	A34	A24/A44
Limit contact I (continuation)						
Limit value XI						
PF	System	– 1 ≤ XI ≤ 1		EA920	EA920	EA920
PF1	L1	– 1 ≤ XI ≤ 1		—	—	EA921
PF2	L2	– 1 ≤ XI ≤ 1		—	—	EA922
PF3	L3	– 1 ≤ XI ≤ 1		—	—	EA923
QF	System	– 1 ≤ XI ≤ 1		EA924	EA924	EA924
QF1	L1	– 1 ≤ XI ≤ 1		—	—	EA925
QF2	L2	– 1 ≤ XI ≤ 1		—	—	EA926
QF3	L3	– 1 ≤ XI ≤ 1		—	—	EA927
F		15.3 Hz ≤ XI ≤ 65 Hz		EA928	EA928	EA928
S	System	0 ≤ XI / Sr ≤ 1.5		EA929	EA929	EA929
S1	L1	0 ≤ XI / Sr ≤ 0.5		—	—	EA930
S2	L2	0 ≤ XI / Sr ≤ 0.5		—	—	EA931
S3	L2	0 ≤ XI / Sr ≤ 0.5		—	—	EA932
IM	System	0 ≤ XI / Ir ≤ 1.5		—	EA933	EA933
IMS	System	– 1.5 ≤ XI / Ir ≤ 1.5		—	EA934	EA934
LF	System	– 1 ≤ XI ≤ 1		EA935	EA935	EA935
LF1	L1	– 1 ≤ XI ≤ 1		—	—	EA936
LF2	L2	– 1 ≤ XI ≤ 1		—	—	EA937
LF3	L3	– 1 ≤ XI ≤ 1		—	—	EA938
IB	System	1 ≤ IBT ≤ 30 min	0 ≤ XI / Ir ≤ 1.5	EA939	—	—
IB1	L1	1 ≤ IBT ≤ 30 min	0 ≤ XI / Ir ≤ 1.5	—	EA940	EA940
IB2	L2	1 ≤ IBT ≤ 30 min	0 ≤ XI / Ir ≤ 1.5	—	EA941	EA941
IB3	L3	1 ≤ IBT ≤ 30 min	0 ≤ XI / Ir ≤ 1.5	—	EA942	EA942
BS	System	1 ≤ BST ≤ 30 min	0 ≤ XI / Ir ≤ 1.5	EA943	—	—
BS1	L1	1 ≤ BST ≤ 30 min	0 ≤ XI / Ir ≤ 1.5	—	EA944	EA944
BS2	L2	1 ≤ BST ≤ 30 min	0 ≤ XI / Ir ≤ 1.5	—	EA945	EA945
BS3	L3	1 ≤ BST ≤ 30 min	0 ≤ XI / Ir ≤ 1.5	—	EA946	EA946
UM	System	0 ≤ X1 ≤ 1.2 · Ur		—	—	EA947
22. Output signal, output E (only for EA901 … EA947)						
ON if X1 > X1			OFF if X1 < X1	EB01	EB01	EB01
X1 < X1			X1 > X1	EB02	EB02	EB02
23. Pick-up delay, output E (only for EA901 … EA947)						
Minimum				EC01	EC01	EC01
1 ≤ Y Del ≤ 30 s				EC91	EC91	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 ..

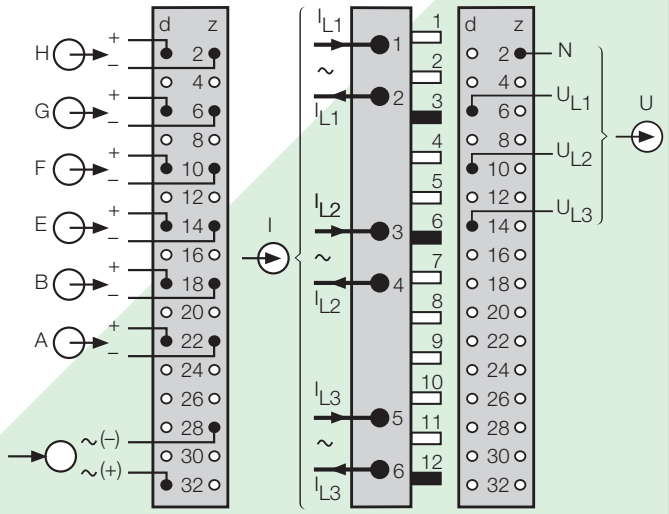
DESCRIPTION	Application		
	A11… A16	A34	A24/A44
29. Pick-up delay, output G Same as output E, but markings start with a capital G	GC ..	GC ..	GC ..
For types DME 424 and 442 **30. Measured variable, output H** Same as output E, but markings start with a capital H	HA ..	HA ..	HA ..
31. Output signal, 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.

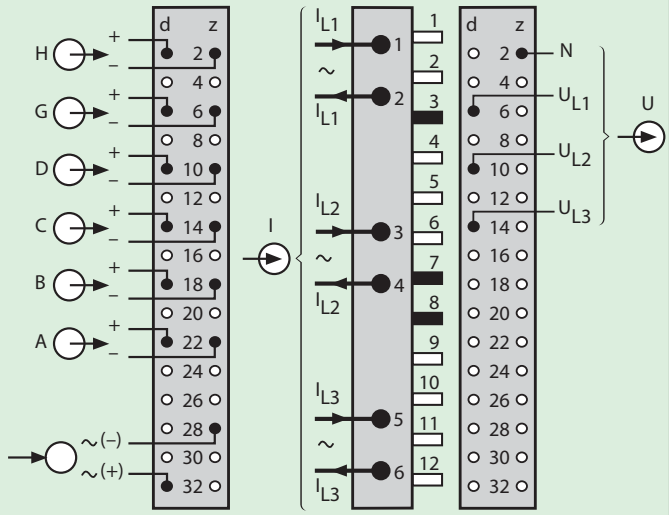
Electrical connections

Function			Connection
Measuring input ⊖►			
AC current		IL1	1 / 2
		IL2	3 / 4
		IL3	5 / 6
AC voltage		UL1	6d
		UL2	10d
		UL3	14d
		N	2z
Outputs ⊖►			
Analog	Digital		
⊖►A		+	22d
		–	22z
⊖► B		+	18d
		–	18z
⊖► C	⊖► E	+	14d
		–	14z
⊖► D	⊖► F	+	10d
		–	10z
	⊖► G	+	6d
		–	6z
	⊖► H	+	2d
		–	2z
Power supply →○			
	AC	~	32d
		~	28z
	DC	+	32d
		–	28z

DME 424 Back



DME 442 Back



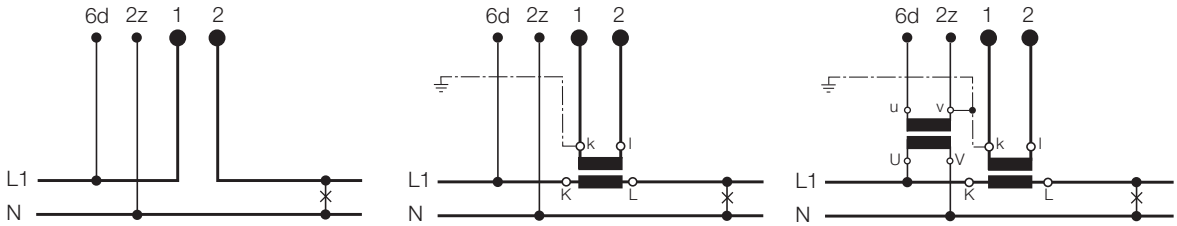
Coding pin
Coding pin broken out
Contact
No contact

EURAX DME 424/442
Programmable Multi-Transducers

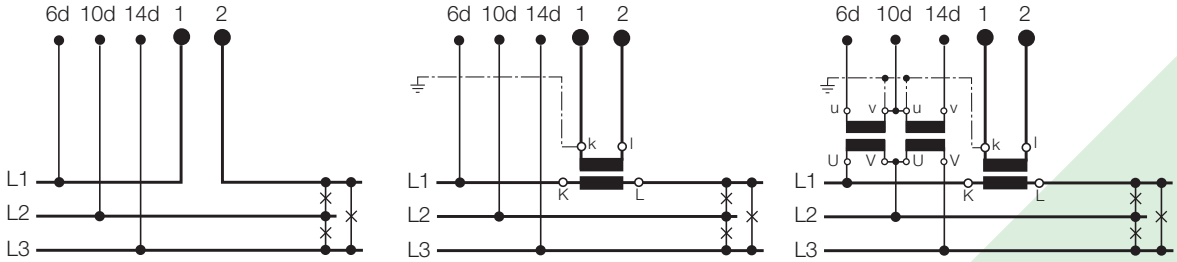
Measuring inputs

System / application	Plug wiring

Single-phase AC system



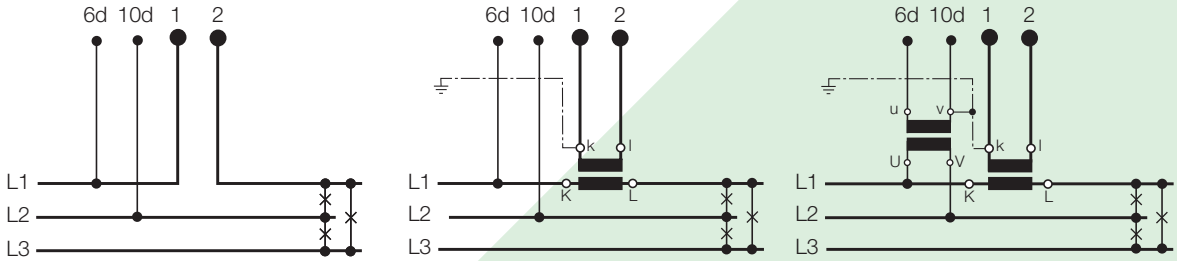
3-wire 3-phase **symmetric load** **I: L1**



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

Current transformer	Connections		6d	10d	14d
L2	1	2	L2	L3	L1
L3	1	2	L3	L1	L2

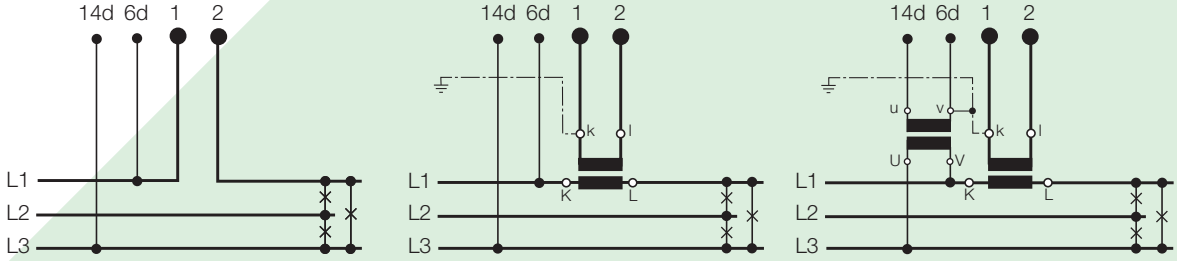
3-wire 3-phase **symmetric load** phase-shift U: L1 – L2 I: L1



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

Current transformer	Connections		6d	10d
L2	1	2	L2	L3
L3	1	2	L3	L1

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



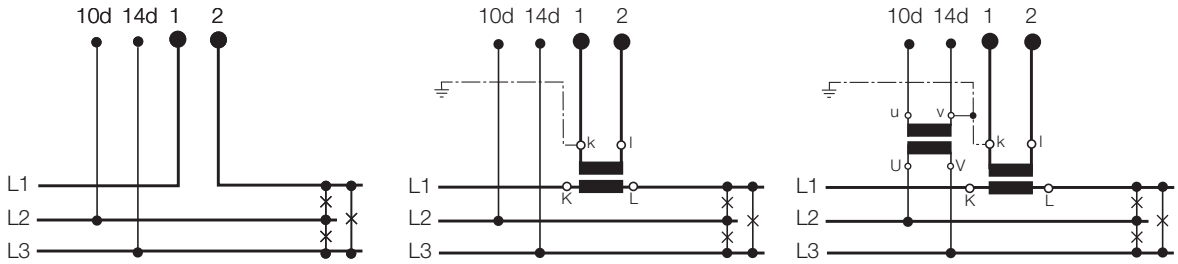
Connect the voltage according to the following table for current measurement in L2 or L3:

Current transformer	Connections		14d	6d
L2	1	2	L1	L2
L3	1	2	L2	L3

Measuring inputs

System / application	Plug wiring

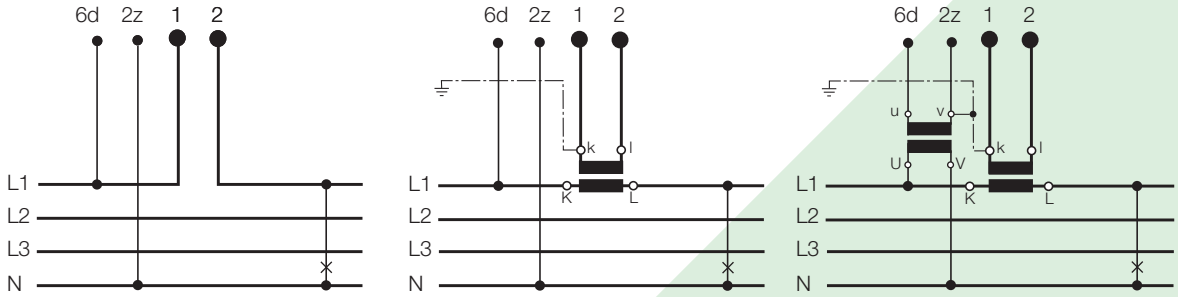
3-wire
3-phase
symmetric load
phase-shift
U: L2 – L3
I: L1



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

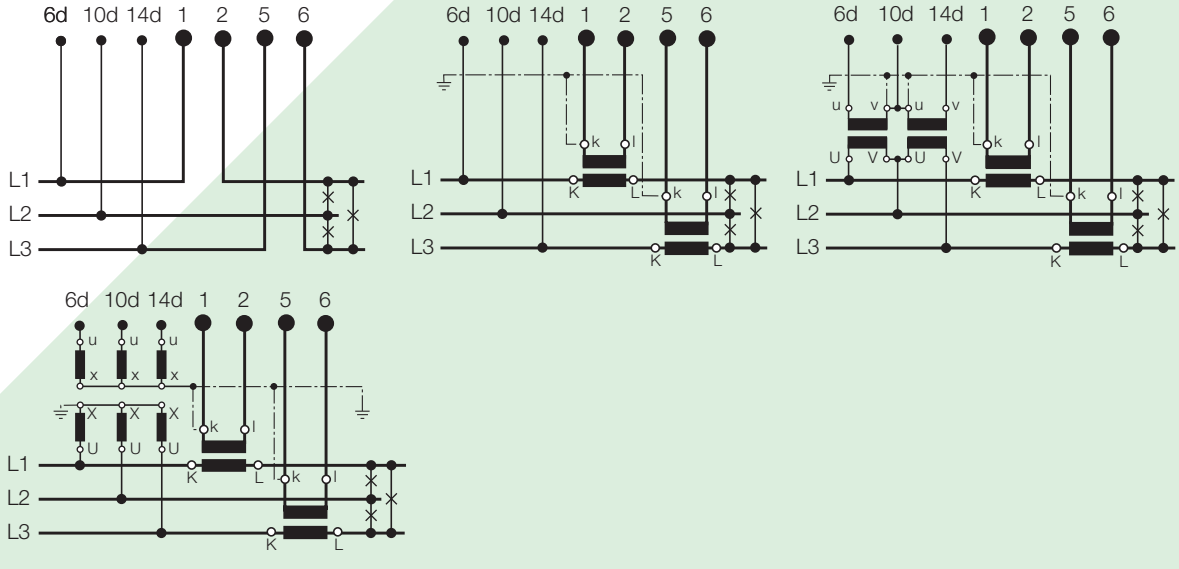
4-wire
3-phase
symmetric load
I: L1



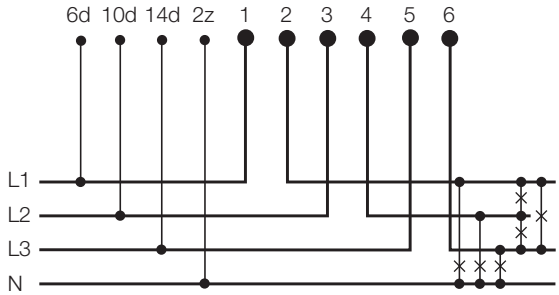
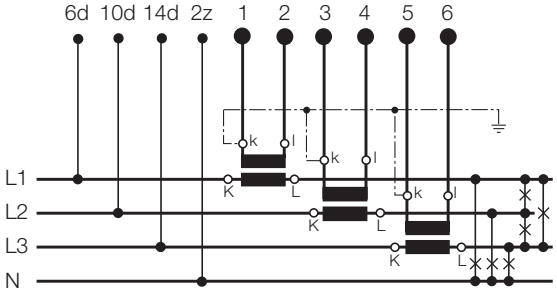
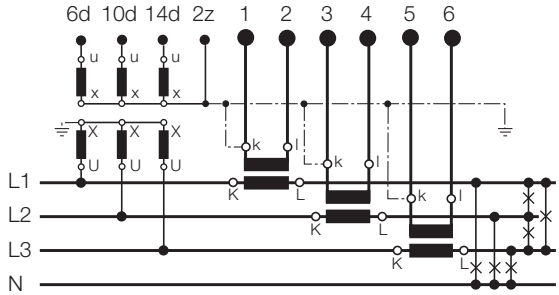
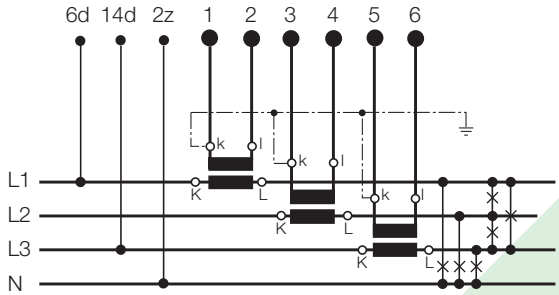
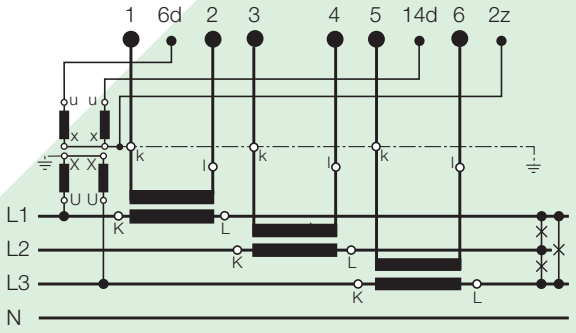
Connect the voltage according to the following table for current measurement in L2 or L3:

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**	   3 single-pole insulated voltage transformers in high-voltage system
4-wire 3-phase **asymmetric load,** Open-Y connection	 Low-voltage system  2 single-pole insulated voltage transformers in high-voltage system

Relationship between PF, QF and LF

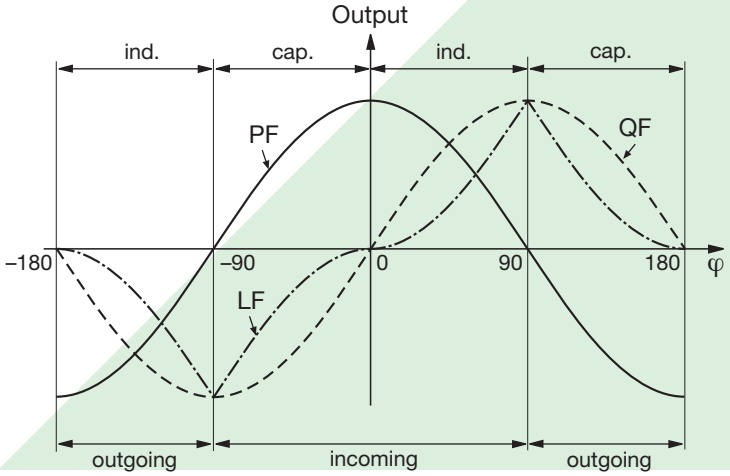


Fig. 5. Active power PF ——, reactive power QF ------, power factor LF – – – – –.

EURAX DME 424/442
Programmable Multi-Transducers

Dimensional drawing

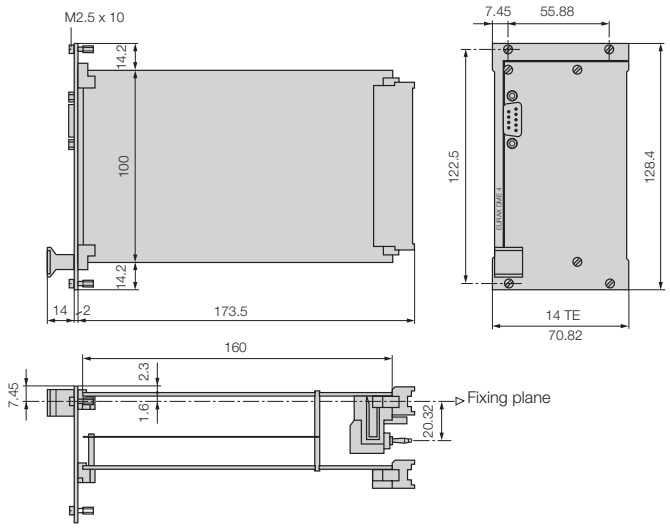


*Fig. 6. EURAX DME 424/442, front plate width **14 TE**.*

Standard accessories

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

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

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

CAMILLE BAUER

Rely on us.

Camille Bauer AG
Aargauerstrasse 7
CH-5610 Wohlen / Switzerland
Phone: +41 56 618 21 11
Fax: +41 56 618 35 35
e-Mail: info@camillebauer.com
www.camillebauer.com

Appendix 1: PROGRAMMING FOR EURAX TYPE DME 424

CAMILLE BAUER

with 2 analog 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): _____

_____

	1. Application	
A	System _____	
	2. Input voltage, rated value	
U	Ur = _____	
	3. Input current, rated value	
V	Ir = _____	
	4. Primary transformer	
W	CT = _____ A / _____ A	VT = _____ kV / _____ V
	Output A	
A A	5. Meas. 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. Meas. 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. Meas. 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. Meas. variable Type: _____	Additional information: _____
F B	25. Output signal (limit contact only)	ON / OFF
F C	26. Pick-up delay	YDel = _____ s
	Output G	
G A	27. Meas. 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. Meas. 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

CAMILLE BAUER

with 4 analog and 2 digital outputs
(see Data Sheet DME 424/442-2 Le, Table 4: "Programming for type DME 424 and 442")

Customer / Agent: _____ Date: _____

Order No. / Item: _____ Delivery data: _____

No of instruments: _____

Type of instrument (marking): _____

_____

	1. Application	
A	System _____	
	2. Input voltage, rated value	
U	Ur = _____	
	3. Input current, rated value	
V	Ir = _____	
	4. Primary transformer	
W	CT = _____ A / _____ A	VT = _____ kV / _____ V
	Output A	
A A	5. Meas. 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. Meas. 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 C	
C A	13. Meas. variable Type: _____	X0 = _____ X2 = _____
C B	14. Output signal	Y0 = _____ Y2 = _____
C C	15. Characteristic linear / bent	X1 = _____ Y1 = _____
C D	16. Limits	Standard / Ymin = _____ Ymax = _____

	Output D			
D A	17. Meas. variable	Type: _____	X0 = _____	X2 = _____
D B	18. Output signal		Y0 = _____	Y2 = _____
D C	19. Characteristic linear / bent		X1 = _____	Y1 = _____
D D	20. Limits		Standard / Ymin = _____	Ymax = _____
	Output G			
G A	21. Meas. 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. Meas. variable	Type: _____	Additional information: _____	
H B	25. Output signal (limit contact only)		ON / OFF	
H C	26. Pick-up delay		YDel = _____ s	