

PRODUCT GUIDE

Transducers

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alternating current

Tema U

alternating voltage

Tema fP

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 $\cos\phi$, phase angle, frequency

Tema Hz

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Active power

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with RS485 output

XTEMCJM

voltage, current, $\cos\phi$, frequency,
apparent-active-reactive power,
3-phase 4 wire active and reactive energy

Insulated transducers



Model	Tema I		Tema I4		Tema I4e	
Code	TM2I...		TM3I...		TM4I...	
Ordering codes see page	73		75		75	
Measuring	single-phase alternating current		single-phase alternating current		single-phase alternating current	
Measuring type, wave form	average value, calibration according to R.M.S. value sinusoidal form factor 1,11		average value, calibration according to R.M.S. value sinusoidal form factor 1,11		true R.M.S. distorted sinusoidal	
A.C. auxiliary supply	self-supplied		115V or 230...240V		115V or 230...240V	
D.C. auxiliary supply			20...150V or 150...250V		20...150V or 150...250V	
Current analogue output	0-5mA or 0-10mA or 0-20mA		0-5/0-10/0-20/4-20mA selectable		0-5/0-10/0-20/4-20mA selectable	
Voltage analogue output	0-5V or 0-10V		0-5/0-10/2-10V selectable		0-5/0-10/2-10V selectable	
Response time	≤300ms		≤300ms		≤100ms or ≤50ms (option)	
Accuracy	0,5 (20...120%In)		0,5 (0...120%In)		0,5 (0...120%In)	
Current input	1A or 1,2A	5A or 6A	1A or 1,2A	5A or 6A	1A or 1,2A	5A or 6A
Frequency	47...63Hz		47...63Hz		47...63Hz	
Dimensions	2 module DIN		2 module DIN		2 module DIN	
Technical Note	NT546		NT554		NT628	
Price						
Extra price d.c. auxiliary supply			•	•	•	•
Extra price response time ~ 50msec					•	•



Model	Tema U		Tema U4		Tema U4e	
Codes	TM2U...		TM3U...		TM4U...	
Ordering codes see page	74		75		76	
Measuring	single-phase alternating voltage		single-phase alternating voltage		single-phase alternating voltage	
Measuring type,wave form	average value, calibration according to r.m.s. value sinusoidal form factor 1,11		average value, calibration according to r.m.s. value, sinusoidal form factor 1,11		true r.m.s. distorted r.m.s.	
A.C. auxiliary supply	self-supplied		115V or 230...240V		115V or 230...240V	
D.C. auxiliary supply			20...150V or 150...250V		20...150V or 150...250V	
Current analogue output	0-5mA or 0-10mA or 0-20mA		0-5/0-10/0-20/4-20mA selectable		0-5/0-10/0-20/4-20mA selectable	
Voltage analogue output	0-5V or 0-10V		0-5/0-10/2-10V selectable		0-5/0-10/2-10V selectable	
Response time	≤300ms		≤300ms		≤100ms or ≤50ms (option)	
Accuracy	0,5 (20...120%Un)		0,5 (0...120%Un)		0,5 (0...120%Un)	
Voltage input	100V or 110V or 120V or 250V or 400V or 440V	other value on request of 50...440V	100V or 110V or 120V or 250V or 400V or 440V or 500V	other value on request of 50...500V	100V or 110V or 120V or 250V or 400V or 440V or 500V	other value on request of 50...500V
Frequency	47...63Hz		47...63Hz		47...63Hz	
Dimensions	2 module DIN		2 module DIN		2 module DIN	
Technical note	NT547		NT555		NT629	
Price						
Extra price d.c. auxiliary supply			•	•	•	•
Extra price response time ≤50msec					•	•



Model	Tema fP	
Codes	TM8P...	
Ordering codes see page	76	
Measuring	programmable apparent-reactive-active power, power factor, phase angle, average power, frequency	
Line type	programmable balanced/unbalanced load, 3/4 wire single - three phase	
Measuring type, wave form	true R.M.S., distorted sinusoidal	
A.C. auxiliary supply	115V or 230...240V	
D.C. auxiliary supply	20...150V or 150...250V	
Current analogue output	0-5/5-0-5/0-10/10-0-10/0-20/20-0-20/4-20mA programmable	
Voltage analogue output	0-10/10-0-10/1-5V programmable	
Output range setting	1 fully programmable measuring coupled with analogue output	
Display	all measuring made on LCD display in different pages at manual scrolling	
Response time	≤ 300ms	
Accuracy	0,5 (power) - 1 (cosφ) - ±0,2Hz (frequency)	
Current input	1A direct or from C.T. programmable ratio	5A direct or from C.T. programmable ratio
Voltage input	80...500V (phase-phase) - 50...300V (single-phase) direct or from V.T. programmable ratio	
Frequency	45...65Hz	
Dimensions	8 module DIN	
Technical note	NT514	
Price		
Extra price d.c. auxiliary supply	•	•



Model	Tema Hz	
Codes	TM1F...	
Ordering codes see page	72	
Measuring	network frequency	
Wave form	sinusoidal	
A.C. auxiliary supply	self-supplied	115/230V or 240V
D.C. auxiliary supply		20...150V or 150...250V
Current analogue output	0-20mA or 4-20mA	0-5mA or 0-10mA or 0-20mA or 4-20mA
Voltage analogue output		0-10V
Measuring range	45-55Hz or 55-65Hz or 45-65Hz	
Line voltage	115/230V or 230/400V	50...200V or 200...450V
Response time	≤ 300ms	
Accuracy	0,5	
Dimensions	6 module DIN	
Technical note	NT347	
Price		
Extra price d.c. auxiliary supply		•



Model	Tema DC			
Codes	TM1A...		TM1V...	
Ordering codes see page	72		73	
Measuring	direct current		direct voltage	
Measuring type, wave form	average value, direct or pulsating with frequency $\geq 10\text{Hz}$		average value, direct or pulsating with frequency $\geq 10\text{Hz}$	
A.C. auxiliary supply	115/230V or 240V		115/230V or 240V	
D.C. auxiliary supply	20...30V or 40...60V or 90...140V or 180...250V		20...30V or 40...60V or 90...140V or 180...250V	
Current analogue output	0-20mA or 4-20mA	20-0-20mA or 4-20mA	0-20mA or 4-20mA	20-0-20mA or 4-20mA
Voltage analogue output	0-10V	10-0-10V	0-10V	10-0-10V
Response time	$\leq 300\text{ms}$		$\leq 300\text{ms}$	
Accuracy	0,5		0,5	
Current input	4-20mA or other values on request from 400 μA ...1,5A (unidirectional)	or other values on request from 250 μA ...750mA (bidirectional)		
Voltage input			1-5V or 2-10V or other value on request from 10mV...600V (unidirectional)	values on request from 5mV...300V (bidirectional)
Dimensions	6 module DIN		6 module DIN	
Technical note	NT239		NT238	
Price				
Extra price d.c. auxiliary supply	•		•	



Model	Tema SG		
Codes	TM1G...	TM2G...	TM3G...
Ordering codes see page	72	73	74
Measuring	direct current signal separator	direct current or voltage signal separator	direct current signal separator
Measuring type, wave form	average value, direct with $\leq 10\%$ alternating component	average value, direct with $\leq 10\%$ alternating component	average value, direct with $\leq 10\%$ alternating component
A.C. auxiliary supply	self-supplied	115/230V or 240V	115/230V or 240V
D.C. auxiliary supply		20...30V or 40...60V or 90...140V or 180...250V	20...30V or 40...60V or 90...140V or 180...250V
Current analogue output	0-5/0-10/0-20/4-20mA	0-5mA or 0-20mA or 4-20mA	0-5mA or 0-20mA or 4-20mA
Voltage analogue output			0-10V
Response time	$\leq 100\text{ms}$	$\leq 150\text{ms}$	$\leq 150\text{ms}$
Accuracy	0,5	0,5	0,5
Current input	0-5/0-10/0-20/4-20mA	4-20mA or other values on request 1...500mA (unidirectional)	4-20mA
Voltage input		0-60mV or other values on request 50mV...400V (unidirectional)	
Dimensions	4 module DIN	4 module DIN	4 module DIN
Technical note	NT227	NT229	NT228
Price			
Extra price d.c. auxiliary supply		•	•

Tema DC

Direct current transducer

Ordering code	Description	Stock	Data to be shown in addition to ordering code
TM1A114	μAdc A115/230V 0-μA/0-20mA		unidirectional input (400...800μA) corresponding to output
TM1A115	μAdc A115/230V 0-μA/4-20mA		unidirectional input (400...800μA) corresponding to output
TM1A118	μAdc A115/230V 0-μA/0-10V		unidirectional input (400...800μA) corresponding to output
TM1A124	mAdc A115/230V 0-mA/0-20mA		unidirectional input (1...800mA) corresponding to output
TM1A125	mAdc A115/230V 0-mA/4-20mA		unidirectional input (1...800mA) corresponding to output
TM1A128	mAdc A115/230V 0-mA/0-10V		unidirectional input (1...800mA) corresponding to output
TM1A134	Adc A115/230V 0-A/0-20mA		unidirectional input (1...1,5A) corresponding to output
TM1A135	Adc A115/230V 0-A/4-20mA		unidirectional input (1...1,5A) corresponding to output
TM1A138	Adc A115/230V 0-A/0-10V		unidirectional input (1...1,5A) corresponding to output
TM1A144	mAdc A115/230V 4-20mA/0-20mA		
TM1A145	mAdc A115/230V 4-20mA/4-20mA		
TM1A148	mAdc A115/230V 4-20mA/0-10V		
TM1A155	μAdc A115/230V +-μA/4-20mA		bidirectional input (250...800μA) corresponding to output
TM1A15E	μAdc A115/230V +-μA/+20mA		bidirectional input (250...800μA) corresponding to output
TM1A15H	μAdc A115/230V +-μA/+10V		bidirectional input (250...800μA) corresponding to output
TM1A165	mAdc A115/230V +-mA/4-20mA		bidirectional input (1...750mA) corresponding to output
TM1A16E	mAdc A115/230V +-mA/+20mA		bidirectional input (1...750mA) corresponding to output
TM1A16H	mAdc A115/230V +-mA/+10V		bidirectional input (1...750mA) corresponding to output



Other executions

TM1A	auxiliary supply
4	240Vac
C	20...30Vdc
D	40...60Vdc
E	90...140Vdc
F	180...250Vdc

Tema Hz

Network frequency transducers

Ordering code	Description	Stock
TM1F1132	A115/230V 45-55Hz 50-200V 0-5mA	
TM1F1133	A115/230V 45-55Hz 50-200V 0-10mA	
TM1F1134	A115/230V 45-55Hz 50-200V 0-20mA	
TM1F1135	A115/230V 45-55Hz 50-200V 4-20mA	
TM1F1138	A115/230V 45-55Hz 50-200V 0-10V	
TM1F1142	A115/230V 45-55Hz 200-450V 0-5mA	
TM1F1143	A115/230V 45-55Hz 200-450V 0-10mA	
TM1F1144	A115/230V 45-55Hz 200-450V 0-20mA	
TM1F1145	A115/230V 45-55Hz 200-450V 4-20mA	
TM1F1148	A115/230V 45-55Hz 200-450V 0-10V	
TM1FA114	SELFSUPPLIED 45-55Hz 115/230V 0-20mA	•
TM1FA115	SELFSUPPLIED 45-55Hz 115/230V 4-20mA	
TM1FA124	SELFSUPPLIED 45-55Hz 230/400V 0-20mA	
TM1FA125	SELFSUPPLIED 45-55Hz 230/400V 4-20mA	



Other executions

TM1F	measuring range	auxiliary supply*
2	55-65Hz	
3	45-65Hz	
4		240Vac
H		20...150Vdc
L		150...250Vdc

* variables, not valid for selfsupplied frequency transducers (codes starting with TM1FA...)

Tema SG

Selfsupplied direct current signal separator/transducer

Ordering code	Description	Stock
TM1GA00	1/1 0-5/0-10/0-20/4-20mA	•

Tema DC

Direct voltage transducer

Ordering code	Description	Stock	Data to be shown in addition to ordering code
TM1V114	mVdc A115/230V 0-mV/0-20mA		unidirectional input (10...600mV) corresponding to output
TM1V115	mVdc A115/230V 0-mV/4-20mA		unidirectional input (10...600mV) corresponding to output
TM1V118	mVdc A115/230V 0-mV/0-10V		unidirectional input (10...600mV) corresponding to output
TM1V124	Vdc A115/230V 0-V/0-20mA		unidirectional input (1...600V) corresponding to output
TM1V125	Vdc A115/230V 0-V/4-20mA		unidirectional input (1...600V) corresponding to output
TM1V128	Vdc A115/230V 0-V/0-10V		unidirectional input (1...600V) corresponding to output
TM1V134	Vdc A115/230V 1-5V/0-20mA		
TM1V135	Vdc A115/230V 1-5V/4-20mA		
TM1V138	Vdc A115/230V 1-5V/0-10V		
TM1V144	Vdc A115/230V 2-10V/0-20mA		
TM1V145	Vdc A115/230V 2-10V/4-20mA		
TM1V148	Vdc A115/230V 2-10V/0-10V		
TM1V155	mVdc A115/230V $\pm$ mV/4-20mA		bidirectional input (5...600mV) corresponding to output
TM1V15E	mVdc A115/230V $\pm$ mV/ $\pm$ 20mA		bidirectional input (5...600mV) corresponding to output
TM1V15H	mVdc A115/230V $\pm$ mV/ $\pm$ 10V		bidirectional input (5...600mV) corresponding to output
TM1V165	Vdc A115/230V $\pm$ V/4-20mA		bidirectional input (1...300V) corresponding to output
TM1V16E	Vdc A115/230V $\pm$ V/ $\pm$ 20mA		bidirectional input (1...300V) corresponding to output
TM1V16H	Vdc A115/230V $\pm$ V/ $\pm$ 10V		bidirectional input (1...300V) corresponding to output

Other executions

TM1V	auxiliary supply
4	240Vac
C	20...30Vdc
D	40...60Vdc
E	90...140Vdc
F	180...250Vdc

Tema SG

Direct current/voltage signal separator/transducers

Ordering code	Description	Stock	Data to be shown in addition to ordering code
TM2G142	A115/230V 4-20mA/0-5mA		
TM2G144	A115/230V 4-20mA/0-20mA		
TM2G145	A115/230V 4-20mA/4-20mA		
TM2G152	A115/230V 0-60mV/0-5mA		
TM2G154	A115/230V 0-60mV/0-20mA		
TM2G155	A115/230V 0-60mV/4-20mA		
TM2G1P2	A115/230V INPUT/0-5mA		unidirectional input (1...500mA or 50mV...400V) corresponding to output
TM2G1P4	A115/230V INPUT/0-20mA		unidirectional input (1...500mA or 50mV...400V) corresponding to output
TM2G1P5	A115/230V INPUT/4-20mA		unidirectional input (1...500mA or 50mV...400V) corresponding to output

Other executions

TM2G	auxiliary supply
4	240Vac
C	20...30Vdc
D	40...60Vdc
E	90...140Vdc
F	180...250Vdc

Tema I

Selfsupplied single-phase alternating current transducer

Ordering code	Description	Stock		
TM2IA12	1A 0-5mA			
TM2IA13	1A 0-10mA			
TM2IA14	1A 0-20mA	•		
TM2IA16	1A 0-5V			
TM2IA18	1A 0-10V			
TM2IA22	1,2A 0-5mA			
TM2IA23	1,2A 0-10mA			
TM2IA24	1,2A 0-20mA			
TM2IA26	1,2A 0-5V			
TM2IA28	1,2A 0-10V			
TM2IA32	5A 0-5mA	•		
TM2IA33	5A 0-10mA			
TM2IA34	5A 0-20mA	•		
TM2IA36	5A 0-5V			
TM2IA38	5A 0-10V	•		
TM2IA42	6A 0-5mA			

table follow ►

Ordering code	Description	Stock		
TM2 I A 4 3	6A 0-10mA			
TM2 I A 4 4	6A 0-20mA			
TM2 I A 4 6	6A 0-5V			
TM2 I A 4 8	A 0-10V			

Tema U

Selfsupplied single-phase alternating voltage transducer

Ordering code	Description	Stock		Data to be shown in addition to ordering code
TM2 UA 1 2	100V 0-5mA	•		
TM2 UA 1 3	100V 0-10mA			
TM2 UA 1 4	100V 0-20mA	•		
TM2 UA 1 6	100V 0-5V			
TM2 UA 1 8	100V 0-10V			
TM2 UA 2 2	110V 0-5mA			
TM2 UA 2 3	110V 0-10mA			
TM2 UA 2 4	110V 0-20mA			
TM2 UA 2 6	110V 0-5V			
TM2 UA 2 8	110V 0-10V			
TM2 UA 3 2	120V 0-5mA			
TM2 UA 3 3	120V 0-10mA			
TM2 UA 3 4	120V 0-20mA			
TM2 UA 3 6	120V 0-5V			
TM2 UA 3 8	120V 0-10V			
TM2 UA 7 2	250V 0-5mA			
TM2 UA 7 3	250V 0-10mA			
TM2 UA 7 4	250V 0-20mA	•		
TM2 UA 7 6	250V 0-5V			
TM2 UA 7 8	250V 0-10V			
TM2 UA 9 2	400V 0-5mA			
TM2 UA 9 3	400V 0-10mA			
TM2 UA 9 4	400V 0-20mA	•		
TM2 UA 9 6	400V 0-5V			
TM2 UA 9 8	400V 0-10V			
TM2 UAA 2	440V 0-5mA			
TM2 UAA 3	440V 0-10mA			
TM2 UAA 4	440V 0-20mA			
TM2 UAA 6	440V 0-5V			
TM2 UAA 8	440V 0-10V			
TM2 UAP 2	0-5mA			input (50...440V) corresponding to output
TM2 UAP 3	0-10mA			input (50...440V) corresponding to output
TM2 UAP 4	0-20mA			input (50...440V) corresponding to output
TM2 UAP 6	0-5V			input (50...440V) corresponding to output
TM2 UAP 8	0-10V			input (50...440V) corresponding to output

Tema SG

Direct current signal separator/transducer

Ordering code	Description	Stock		
TM3 G 1 1 2	A115/230V 0-5mA/0-5mA			
TM3 G 1 1 4	A115/230V 0-5mA/0-20mA			
TM3 G 1 1 5	A115/230V 0-5mA/4-20mA			
TM3 G 1 1 8	A115/230V 0-5mA/0-10V			
TM3 G 1 3 2	A115/230V 0-20mA/0-5mA			
TM3 G 1 3 4	A115/230V 0-20mA/0-20mA			
TM3 G 1 3 5	A115/230V 0-20mA/4-20mA			
TM3 G 1 3 8	A115/230V 0-20mA/0-10V			
TM3 G 1 4 2	A115/230V 4-20mA/0-5mA			
TM3 G 1 4 4	A115/230V 4-20mA/0-20mA			
TM3 G 1 4 5	A115/230V 4-20mA/4-20mA			
TM3 G 1 4 8	A115/230V 4-20mA/0-10V			



Other executions

TM3 G		auxiliary supply
4	←	240Vac
C	←	20...30Vdc
D	←	40...60Vdc
E	←	90...140Vdc
F	←	180...250Vdc

Tema I4

Single-phase alternating current transducer

Ordering code	Description	Stock		
TM3 I 2 1 0	A115V 1A	•		
TM3 I 2 2 0	A115V 1,2A			
TM3 I 2 3 0	A115V 5A	•		
TM3 I 2 4 0	A115V 6A			
TM3 I 3 1 0	A230-240V 1A	•		
TM3 I 3 2 0	A230-240V 1,2A			
TM3 I 3 3 0	A230-240V 5A	•		
TM3 I 3 4 0	A230-240V 6A			
TM3 I H 1 0	A20-150Vdc 1A	•		
TM3 I H 2 0	A20-150Vdc 1,2A			
TM3 I H 3 0	A20-150Vdc 5A	•		
TM3 I H 4 0	A20-150Vdc 6A			
TM3 I L 1 0	A150-250Vdc 1A			
TM3 I L 2 0	A150-250Vdc 1,2A			
TM3 I L 3 0	A150-250Vdc 5A			
TM3 I L 4 0	A150-250Vdc 6A			

Tema U4

Single-phase alternating voltage transducer

Ordering code	Description	Stock		Data to be shown in addition to ordering code
TM3 U 2 1 0	A115V 100V	•		
TM3 U 2 2 0	A115V 110V	•		
TM3 U 2 3 0	A115V 120V			
TM3 U 2 7 0	A115V 250V	•		
TM3 U 2 9 0	A115V 400V	•		
TM3 U 2 A 0	A115V 440V			
TM3 U 2 C 0	A115V 500V	•		
TM3 U 2 P 0	A115V			input (50...500V) corresponding to output
TM3 U 3 1 0	A230-240V 100V	•		
TM3 U 3 2 0	A230-240V 110V	•		
TM3 U 3 3 0	A230-240V 120V			
TM3 U 3 7 0	A230-240V 250V	•		
TM3 U 3 9 0	A230-240V 400V	•		
TM3 U 3 A 0	A230-240V 440V			
TM3 U 3 C 0	A230-240V 500V	•		
TM3 U 3 P 0	A230-240V			input (50...500V) corresponding to output
TM3 U H 1 0	A20-150Vdc 100V	•		
TM3 U H 2 0	A20-150Vdc 110V	•		
TM3 U H 3 0	A20-150Vdc 120V			
TM3 U H 7 0	A20-150Vdc 250V			
TM3 U H 9 0	A20-150Vdc 400V	•		
TM3 U H A 0	A20-150Vdc 440V			
TM3 U H C 0	A20-150Vdc 500V			
TM3 U H P 0	A20-150Vdc			input (50...500V) corresponding to output
TM3 U L 1 0	A150-250Vdc 100V			
TM3 U L 2 0	A150-250Vdc 110V			
TM3 U L 3 0	A150-250Vdc 120V			
TM3 U L 7 0	A150-250Vdc 250V			
TM3 U L 9 0	A150-250Vdc 400V			
TM3 U L A 0	A150-250Vdc 440V			
TM3 U L C 0	A150-250Vdc 500V			
TM3 U L P 0	A150-250Vdc			input (50...500V) corresponding to output

Tema I4e

RMS single-phase alternating current transducer

Ordering code	Description	Stock		
TM4 I 2 1 0	A115V 1A 100ms			
TM4 I 2 2 0	A115V 1,2A 100ms			
TM4 I 2 3 0	A115V 5A 100ms			
TM4 I 2 4 0	A115V 6A 100ms			
TM4 I 3 1 0	A230-240V 1A 100ms			
TM4 I 3 2 0	A230-240V 1,2A 100ms			
TM4 I 3 3 0	A230-240V 5A 100ms			
TM4 I 3 4 0	A230-240V 6A 100ms			
TM4 I H 1 0	A20-150Vcc 1A 100ms			
TM4 I H 2 0	A20-150Vcc 1,2A 100ms			

table follow ►

Ordering code	Description	Stock		
TM4IH30	A20-150Vdc 5A 100ms			
TM4IH40	A20-150Vdc 6A 100ms			
TM4IL10	A150-250Vdc 1A 100ms			
TM4IL20	A150-250Vdc 1,2A 100ms			
TM4IL30	A150-250Vdc 5A 100ms			
TM4IL40	A150-250Vdc 6A 100ms			



Other executions

TM4I.....	response time
2 ←	50ms

Tema U4e

RMS single-phase alternating voltage transducer

Ordering code	Description	Stock		Data to be shown in addition to ordering code
TM4U210	A115V 100V 100ms			
TM4U220	A115V 110V 100ms			
TM4U230	A115V 120V 100ms			
TM4U270	A115V 250V 100ms			
TM4U290	A115V 400V 100ms			
TM4U2A0	A115V 440V 100ms			
TM4U2C0	A115V 500V 100ms			
TM4U2P0	A115V 100ms			input (50...500V) corresponding to output
TM4U310	A230-240V 100V 100ms			
TM4U320	A230-240V 110V 100ms			
TM4U330	A230-240V 120V 100ms			
TM4U370	A230-240V 250V 100ms			
TM4U390	A230-240V 400V 100ms			
TM4U3A0	A230-240V 440V 100ms			
TM4U3C0	A230-240V 500V 100ms			
TM4U3P0	A230-240V 100ms			input (50...500V) corresponding to output
TM4UH10	A20-150Vdc 100V 100ms			
TM4UH20	A20-150Vdc 110V 100ms			
TM4UH30	A20-150Vdc 120V 100ms			
TM4UH70	A20-150Vdc 250V 100ms			
TM4UH90	A20-150Vdc 400V 100ms			
TM4UHA0	A20-150Vdc 440V 100ms			
TM4UHC0	A20-150Vdc 500V 100ms			
TM4UHP0	A20-150Vdc 100ms			input (50...500V) corresponding to output
TM4UL10	A150-250Vdc 100V 100ms			
TM4UL20	A150-250Vdc 110V 100ms			
TM4UL30	A150-250Vdc 120V 100ms			
TM4UL70	A150-250Vdc 250V 100ms			
TM4UL90	A150-250Vdc 400V 100ms			
TM4ULA0	A150-250Vdc 440V 100ms			
TM4ULC0	A150-250Vdc 500V 100ms			
TM4ULP0	A150-250Vdc 100ms			input (50...500V) corresponding to output



Other executions

TM4U.....	response time
2 ←	50ms

Tema fP

Active - reactive - apparent power, power factor, phase angle, average power, frequency

Ordering code	Description	Stock		
TM8P02110	A115V 1A 500V			
TM8P02120	A115V 5A 500V	•		
TM8P03110	A230-240V 1A 500V			
TM8P03120	A230-240V 5A 500V	•		
TM8P0H110	A20-150Vdc 1A 500V	•		
TM8P0H120	A20-150Vdc 5A 500V	•		
TM8P0L110	A150-250Vdc 1A 500V			
TM8P0L120	A150-250Vdc 5A 500V			

Non-insulated Transducers



Model	Tesi P				
Codes	TN1P1...	TN1P2...	TN1P3...	TN1P4...	TN1P5...
Ordering codes see page:	79	79	80	80	80
Measuring	active power				
Line type	single-phase	3-phase, 3 wire balanced load	3-phase, 4 wire balanced load	3-phase, 3 wire unbalanced load	3-phase, 4 wire unbalanced load
Measuring type, wave form	true R.M.S. distorted sinusoidal				
Analog output	1-0-1mA				
Measuring range	Pn...0...Pn or other value on request in the range 0,5...1,2Pn				
Response time	≤300ms				
Accuracy	0,5				
Current input	1A or 5A				
Voltage input	100V or 110V or 230V or 240V	100V or 110V or 400V or 415V or 440V			
Frequency	50-60Hz				
Dimensions	8 module DIN				
Technical	NT468	NT469	NT470	NT471	NT472
Price					
Extra price 1A current input	•	•	•	•	•

Non-insulated Transducers



Model	Tesi Q			Tesi PF	
Codes	TN1Q2...	TN1Q4...	TN1Q5...	TN1C1...	TN1C2...
Ordering codes see page	80	80	81	79	79
Measuring	reactive power			cosφ	
Line type	3-phase, 3/4 wire balanced load	3-phase, 3 wire unbalanced load	3-phase, 4 wire unbalanced load	single or 3-phase, 4 wire, balanced load	3-phase, 3 wire balanced load
Measuring type, wave form	True R.M.S., distorted sinusoidal			True R.M.S., distorted sinusoidal	
Analog output	1-0-1mA			1-0-1mA	
Measuring range	Qn...0...Qn or other value on request in the range 0,5...1,2Qn			ind0,5-1-0,5cap or ind0-1-0cap	
Response time	≤300ms			≤300ms	
Accuracy	0,5			0,5	
Current input	1A o 5A			1A o 5A	
Voltage input	100V or 110V or 400V or 415V or 440V			100V or 110V or 230V or 240V	100V or 110V or 400V or 415V
Frequency	50-60Hz			50-60Hz	
Dimensions	8 module DIN			6 module DIN	
Technical note	NT473	NT661	NT474	NT506	NT507
Price					
Extra price 1A current input	•	•	•	•	•

Tesi PF**Single-phase or three-phase 4 wire balanced non-insulated cosφ Transducer**

Ordering code	Description	Stock		
TN1C11A11A	SELSUPPLIED 100V 1A 0,5-1-0,5/±1mA			
TN1C11A12A	SELSUPPLIED 100V 5A 0,5-1-0,5/±1mA			
TN1C11A21A	SELSUPPLIED 110V 1A 0,5-1-0,5/±1mA			
TN1C11A22A	SELSUPPLIED 110V 5A 0,5-1-0,5/±1mA			
TN1C11A31A	SELSUPPLIED 230V 1A 0,5-1-0,5/±1mA			
TN1C11A32A	SELSUPPLIED 230V 5A 0,5-1-0,5/±1mA			
TN1C11A41A	SELSUPPLIED 240V 1A 0,5-1-0,5/±1mA			
TN1C11A42A	SELSUPPLIED 240V 5A 0,5-1-0,5/±1mA			
TN1C12A11A	SELSUPPLIED 100V 1A 0-1-0/±1mA			
TN1C12A12A	SELSUPPLIED 100V 5A 0-1-0/±1mA			
TN1C12A21A	SELSUPPLIED 110V 1A 0-1-0/±1mA			
TN1C12A22A	SELSUPPLIED 110V 5A 0-1-0/±1mA			
TN1C12A31A	SELSUPPLIED 230V 1A 0-1-0/±1mA			
TN1C12A32A	SELSUPPLIED 230V 5A 0-1-0/±1mA			
TN1C12A41A	SELSUPPLIED 240V 1A 0-1-0/±1mA			
TN1C12A42A	SELSUPPLIED 240V 5A 0-1-0/±1mA			

Tesi PF**Three-phase 3 wire balanced non-insulated cosφ Transducer**

Ordering code	Description	Stock		
TN1C21A11A	SELSUPPLIED 100V 1A 0,5-1-0,5/±1mA			
TN1C21A12A	SELSUPPLIED 100V 5A 0,5-1-0,5/±1mA			
TN1C21A21A	SELSUPPLIED 110V 1A 0,5-1-0,5/±1mA			
TN1C21A22A	SELSUPPLIED 110V 5A 0,5-1-0,5/±1mA			
TN1C21A51A	SELSUPPLIED 400V 1A 0,5-1-0,5/±1mA			
TN1C21A52A	SELSUPPLIED 400V 5A 0,5-1-0,5/±1mA			
TN1C21A61A	SELSUPPLIED 415V 1A 0,5-1-0,5/±1mA			
TN1C21A62A	SELSUPPLIED 415V 5A 0,5-1-0,5/±1mA			
TN1C22A11A	SELSUPPLIED 100V 1A 0-1-0/±1mA			
TN1C22A12A	SELSUPPLIED 100V 5A 0-1-0/±1mA			
TN1C22A21A	SELSUPPLIED 110V 1A 0-1-0/±1mA			
TN1C22A22A	SELSUPPLIED 110V 5A 0-1-0/±1mA			
TN1C22A51A	SELSUPPLIED 400V 1A 0-1-0/±1mA			
TN1C22A52A	SELSUPPLIED 400V 5A 0-1-0/±1mA			
TN1C22A61A	SELSUPPLIED 415V 1A 0-1-0/±1mA			
TN1C22A62A	SELSUPPLIED 415V 5A 0-1-0/±1mA			

Tesi P**Single-phase non-insulated active power Transducer**

Ordering code	Description	Stock		Data to be shown in addition to ordering code
TN1P1PA11A	SELSUPPLIED 100V 1A ±1mA			V.T. and C.T. ratio and the power value corresponding to output
TN1P1PA12A	SELSUPPLIED 100V 5A ±1mA			V.T. and C.T. ratio and the power value corresponding to output
TN1P1PA21A	SELSUPPLIED 110V 1A ±1mA			V.T. and C.T. ratio and the power value corresponding to output
TN1P1PA22A	SELSUPPLIED 110V 5A ±1mA			V.T. and C.T. ratio and the power value corresponding to output
TN1P1PA31A	SELSUPPLIED 230V 1A ±1mA			C.T. ratio and the power value corresponding to output
TN1P1PA32A	SELSUPPLIED 230V 5A ±1mA			C.T. ratio and the power value corresponding to output
TN1P1PA41A	SELSUPPLIED 240V 1A ±1mA			C.T. ratio and the power value corresponding to output
TN1P1PA42A	SELSUPPLIED 240V 5A ±1mA			C.T. ratio and the power value corresponding to output

Tesi P**Three-phase 3 wire balanced load non-insulated active power Transducer**

Ordering code	Description	Stock		Data to be shown in addition to ordering code
TN1P2PA11A	SELSUPPLIED 100V 1A ±1mA			V.T. and C.T. ratio and the power value corresponding to output
TN1P2PA12A	SELSUPPLIED 100V 5A ±1mA			V.T. and C.T. ratio and the power value corresponding to output
TN1P2PA21A	SELSUPPLIED 110V 1A ±1mA			V.T. and C.T. ratio and the power value corresponding to output
TN1P2PA22A	SELSUPPLIED 110V 5A ±1mA			V.T. and C.T. ratio and the power value corresponding to output
TN1P2PA51A	SELSUPPLIED 400V 1A ±1mA			C.T. ratio and the power value corresponding to output
TN1P2PA52A	SELSUPPLIED 400V 5A ±1mA			C.T. ratio and the power value corresponding to output
TN1P2PA61A	SELSUPPLIED 415V 1A ±1mA			C.T. ratio and the power value corresponding to output
TN1P2PA62A	SELSUPPLIED 415V 5A ±1mA			C.T. ratio and the power value corresponding to output
TN1P2PA71A	SELSUPPLIED 440V 1A ±1mA			C.T. ratio and the power value corresponding to output
TN1P2PA72A	SELSUPPLIED 440V 5A ±1mA			C.T. ratio and the power value corresponding to output

Tesi Q

Three-phase 4 wire unbalanced load non-insulated reactive power Transducer

Ordering code	Description	Stock	Data to be shown in addition to ordering code
T N 1 Q 5 P A 1 1 A	SELSUPPLIED 100V 1A ±1mA		V.T. and C.T. ratio and the power value corresponding to output
T N 1 Q 5 P A 1 2 A	SELSUPPLIED 100V 5A ±1mA		V.T. and C.T. ratio and the power value corresponding to output
T N 1 Q 5 P A 2 1 A	SELSUPPLIED 110V 1A ±1mA		V.T. and C.T. ratio and the power value corresponding to output
T N 1 Q 5 P A 2 2 A	SELSUPPLIED 110V 5A ±1mA		V.T. and C.T. ratio and the power value corresponding to output
T N 1 Q 5 P A 5 1 A	SELSUPPLIED 400V 1A ±1mA		C.T. ratio and the power value corresponding to output
T N 1 Q 5 P A 5 2 A	SELSUPPLIED 400V 5A ±1mA		C.T. ratio and the power value corresponding to output
T N 1 Q 5 P A 6 1 A	SELSUPPLIED 415V 1A ±1mA		C.T. ratio and the power value corresponding to output
T N 1 Q 5 P A 6 2 A	SELSUPPLIED 415V 5A ±1mA		C.T. ratio and the power value corresponding to output
T N 1 Q 5 P A 7 1 A	SELSUPPLIED 440V 1A ±1mA		C.T. ratio and the power value corresponding to output
T N 1 Q 5 P A 7 2 A	SELSUPPLIED 440V 5A ±1mA		C.T. ratio and the power value corresponding to output

Note:

For transducers Tesi P - Tesi Q the power value corresponding to output should be between 50% and 120% of rated power.

Single-phase line rated power $P_n = V \times I$.

Three-phase line rated power $P_n/Q_n = \sqrt{3} \times V \times I$.

V = voltage rated value or VT primary value, I = current rated value or CT primary value.

Multifunction Transducer

with RS485 output

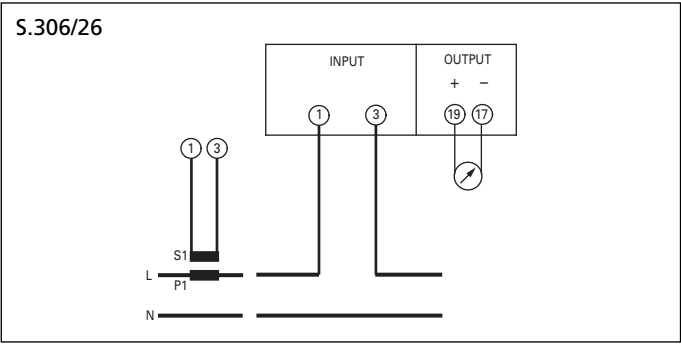


Model	XTEM CJM	
Codes	PF22...	
Ordering codes see page	83	
Measuring	phase and linked voltage, phase current, frequency, power factor, (active, reactive, apparent) power, active and reactive energy	
Line type	Three-phase 4 wire unbalanced load	
Measuring type, wave form	True R.M.S., sinusoidal distorted	
Accuracy	0,5 (voltage, current) - 1,5 (power) - 2 (power factor) $\pm 0,15\text{Hz}$ (frequency) - 2 active energy - 3 reactive energy	
Output	RS485 communication protocol JBUS/MODBUS	
Current input	1A or 5A direct or from CT programmable ratio	
Voltage input	50...450V (phase-phase) direct or from VT programmable ratio	
Frequency	47...63Hz	
A.C. auxiliary supply	115V or 230V or 240V	
D.C. auxiliary supply	20...150V or 150...250V	
Dimensions	8 module DIN	
Technical note	NT653	
Price		
Extra price d.c. auxiliary supply	•	
Extra price 1A auxiliary supply	•	

Ordering code										Description	Stock			
P	F	2	2	E	1	1	3			A115V 1A 450V				
P	F	2	2	E	1	1	6			A230V 1A 450V				
P	F	2	2	E	1	1	7			A240V 1A 450V				
P	F	2	2	E	1	1	H			A20-150Vdc 1A 450V				
P	F	2	2	E	1	1	L			A150-250Vdc 1A 450V				
P	F	2	2	E	1	5	3			A115V 5A 450V				
P	F	2	2	E	1	5	6			A230V 5A 450V				
P	F	2	2	E	1	5	7			A240V 5A 450V				
P	F	2	2	E	1	5	H			A20-150Vdc 5A 450V				
P	F	2	2	E	1	5	L			A150-250Vdc 5A 450V				

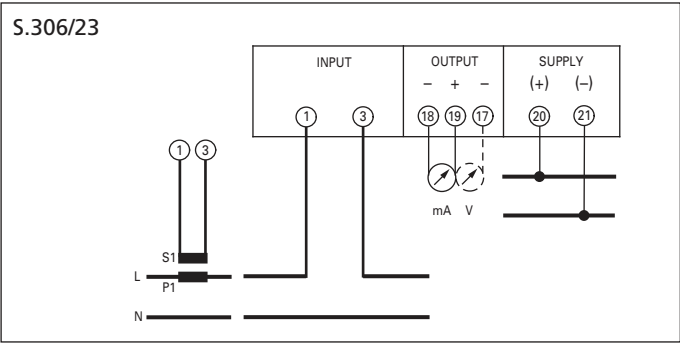
Tema I

TM2I...



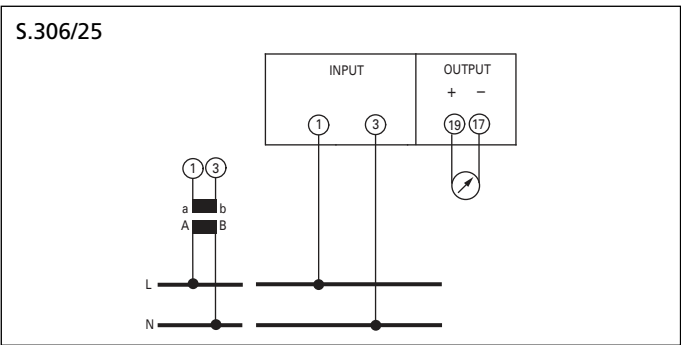
Tema I4 / Tema I4e

TM3I... / TM4I...



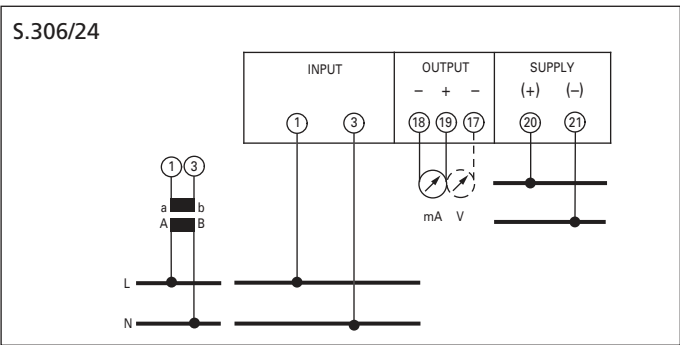
Tema U

TM2U...



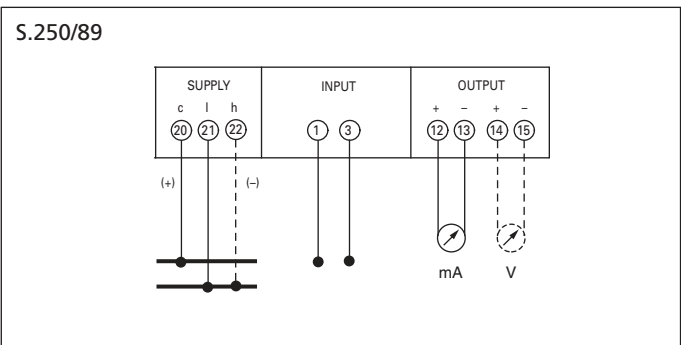
Tema U4 / Tema U4e

TM3U... / TM4U...



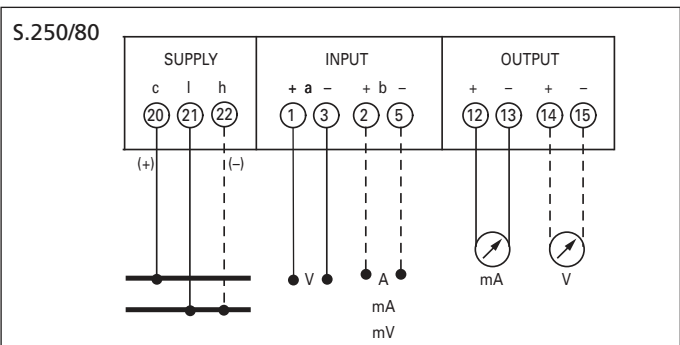
Tema Hz

TM1F...



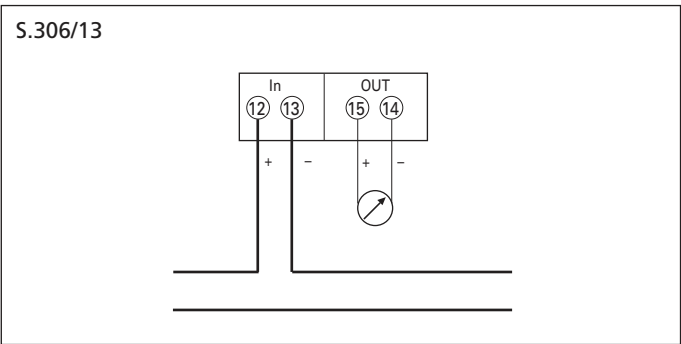
Tema DC

TM1A... / TM1V...

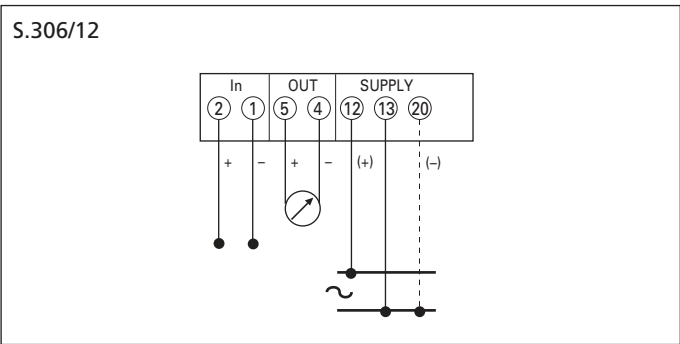


Tema SG

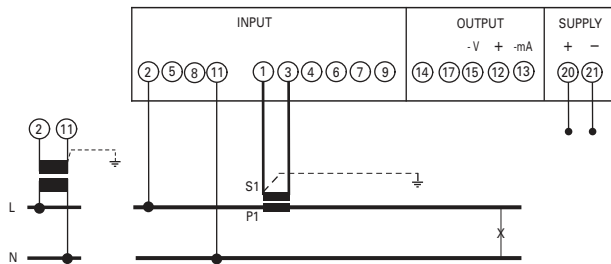
TM1G...



TM2G... / TM3G...

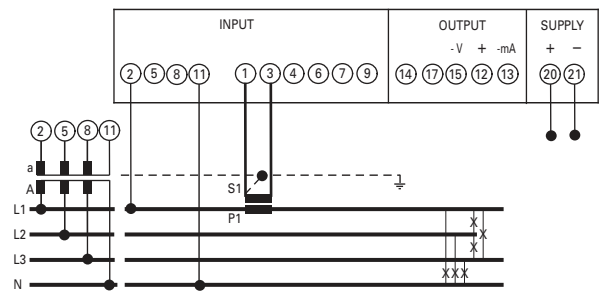


S.250/97



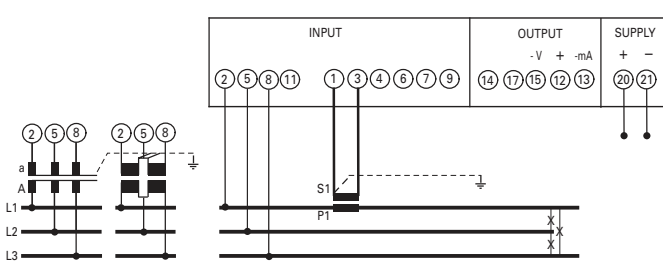
Single-phase line

S.250/95



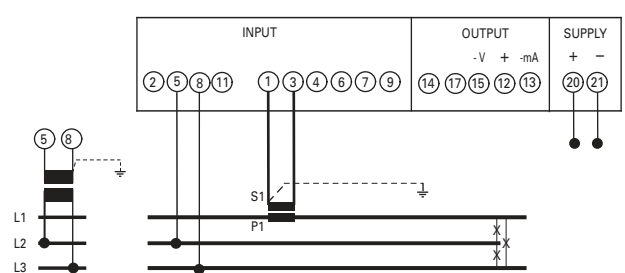
4-wire three-phase, balanced load

S.250/93



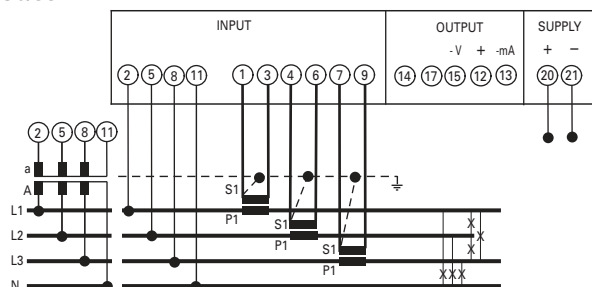
3-wire three-phase, balanced load

S.250/100



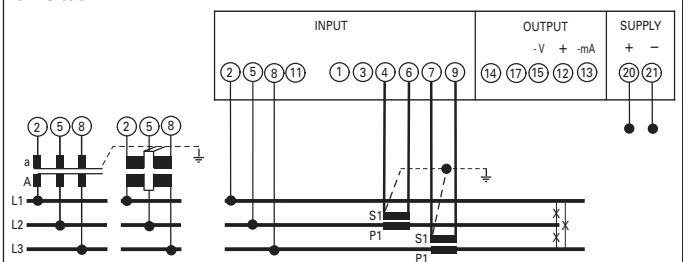
3-wire three-phase, balanced load

S.250/99



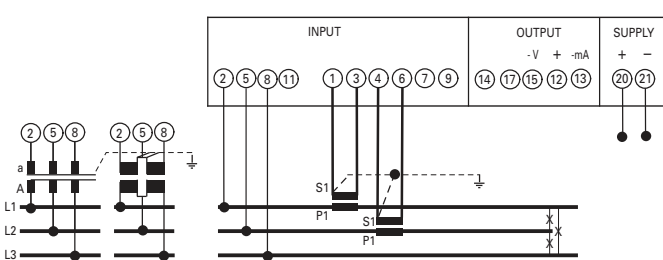
4-wire three-phase, unbalanced load

S.250/94



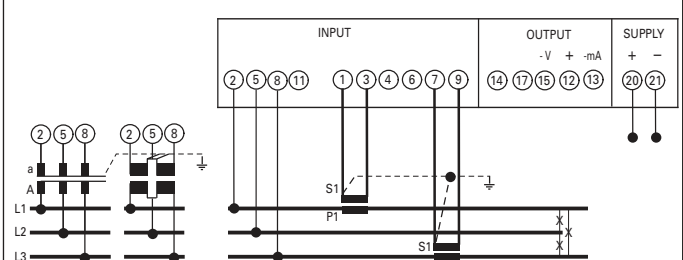
3-wire three-phase, unbalanced load (ARON L2-L3)

S.250/96

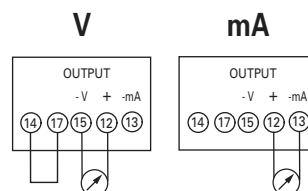


3-wire three-phase, unbalanced load (ARON L1-L2)

S.250/98



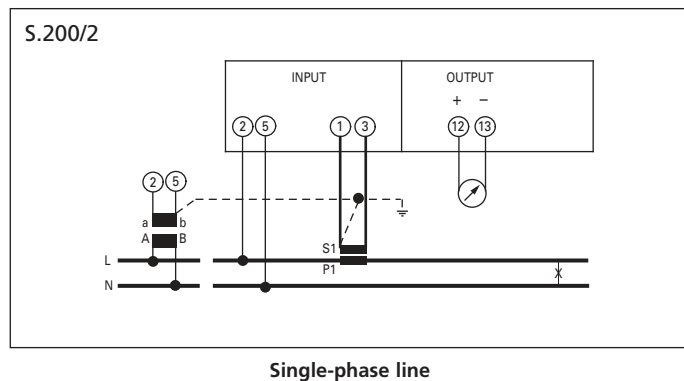
3-wire three-phase, unbalanced load (ARON L1-L3)



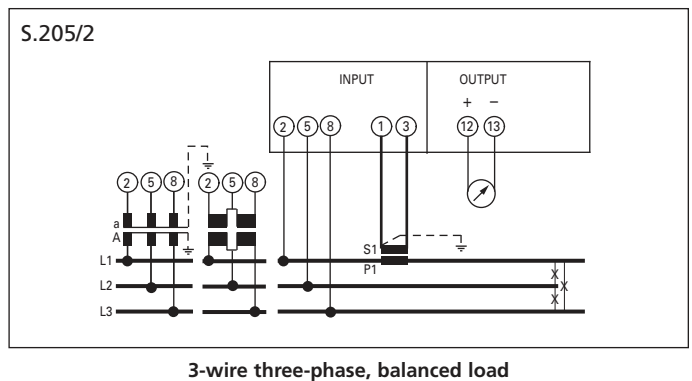
ANALOG OUTPUT

Tesi P

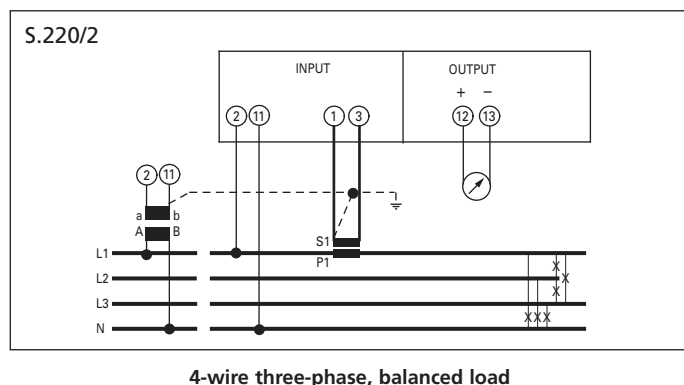
TN1P1...



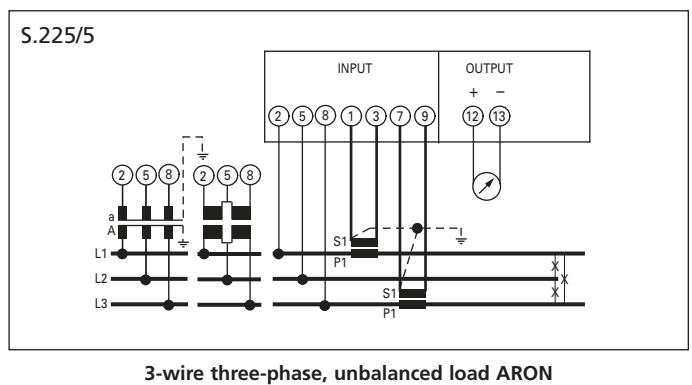
TN1P2...



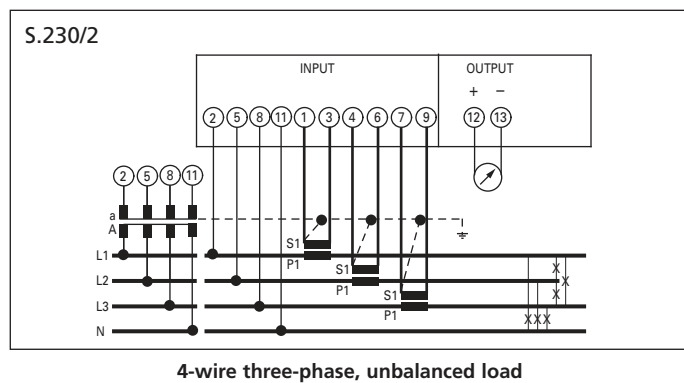
TN1P3...



TN1P4...

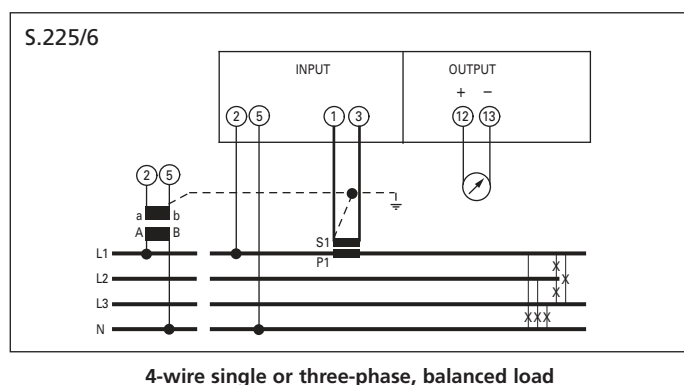


TN1P5...

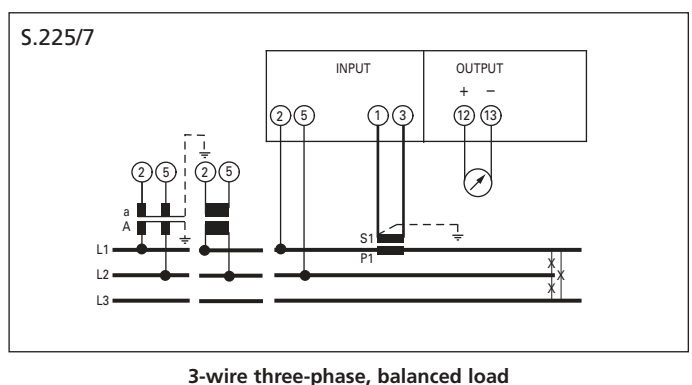


Tesi PF

TN1C1...

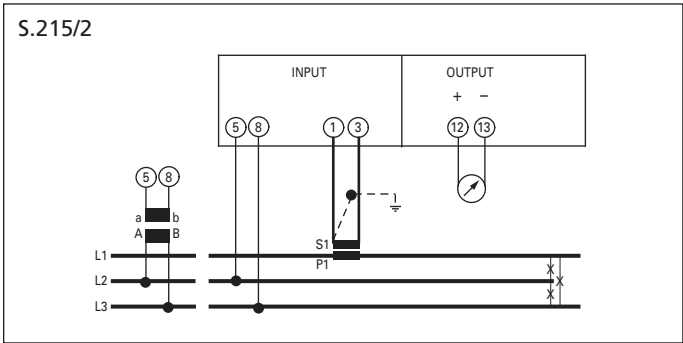


TN1C2...



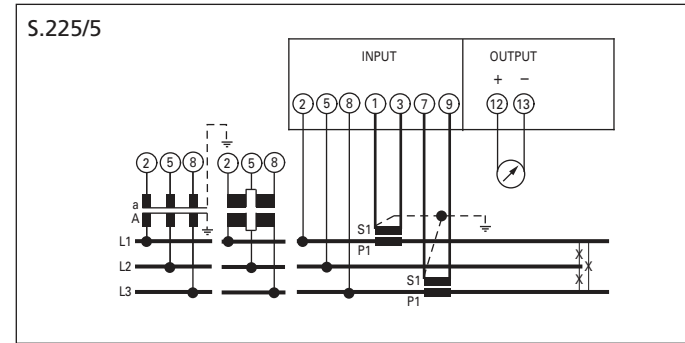
Tesi Q

TN1Q2...



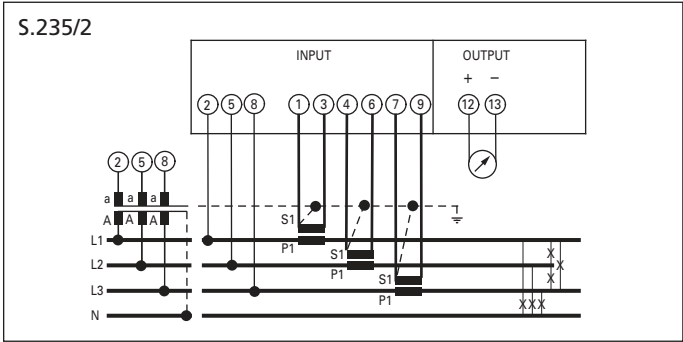
3/4-wire three-phase, balanced load

TN1Q4...



3-wire three-phase, unbalanced load ARON

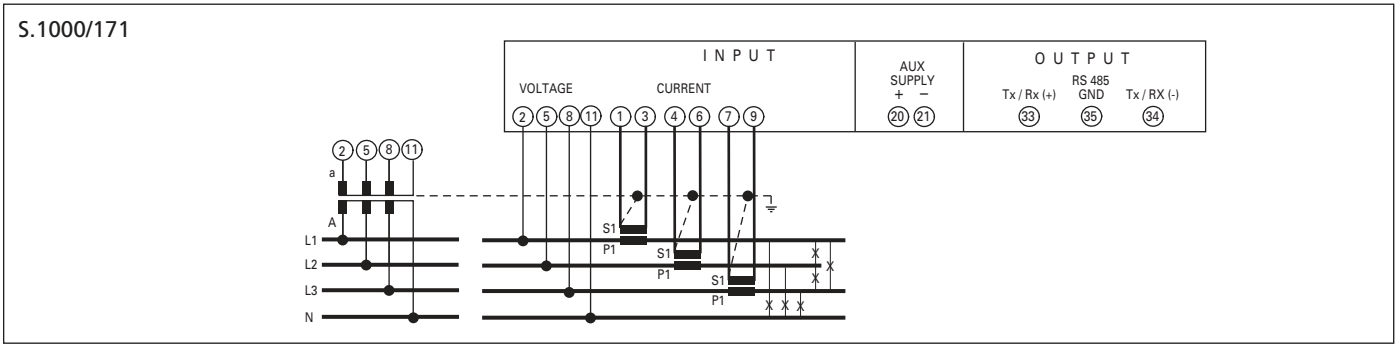
TN1Q5...



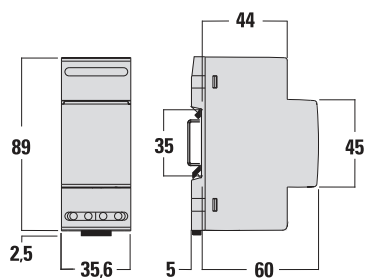
4 wire three-phase, unbalanced load

XTEM CJM

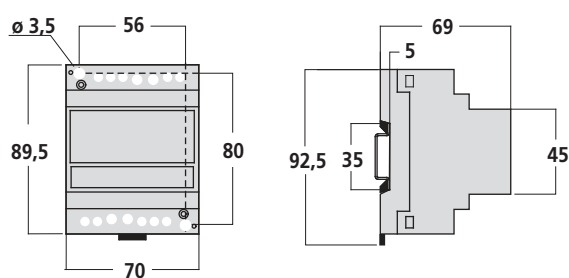
PF22...



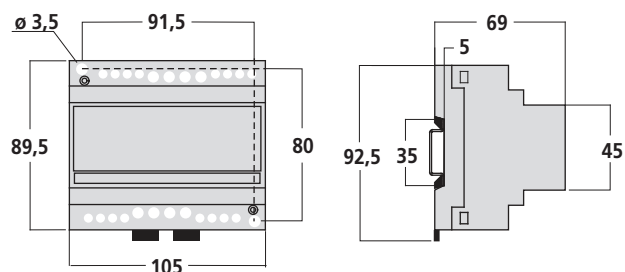
4-wire three-phase, unbalanced load

Tema I / Tema I4 / Tema I4e / Tema U / Tema U4 / Tema U4e

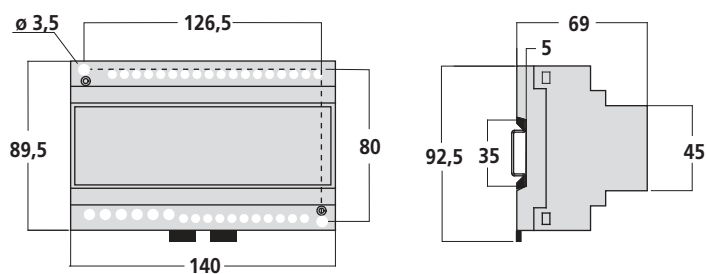
2 Module

Tema SG

4 Module

Tema Hz / Tema DC / Tesi PF

6 Module

Tema fP / Tesi P / Tesi Q / XTEM CJM

8 Module