

FEATURES

- Measures AC current or voltage
- CT connected ammeters
- Direct and VT connected voltmeters
- Linear scaling
- 240° long scale version
- x6 overload



CONSTRUCTION

- Mean value measurement of current or voltage
- Containing germanium diodes of low reverse current
- Slot in screw fixing

APPROVALS

- CE marked



APPLICATIONS

- AC switchgears, panels and distribution boards

BENEFITS

- Easy to operate
- Exchangeable dial
- Low consumption
- Terminal cover included

SPECIFICATION

Accuracy class	1.5
Maximum continuous overload	1.2 x In, 1.2 x Un
Maximum short duration overload	10xIn - 9x0.5s+1x5s/60s - 2xUn - 9x0.5s+1x5s/60s
Frequency	50/60 Hz

PRODUCT CODES

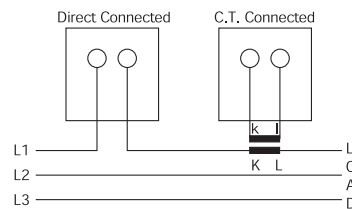
Bezel size (mm)	48	72	96	144
Scale length (mm)	71	113	155	235
AC ammeter rectified 240°	M242-05B	M243-05B	M244-05B	M246-05B
AC voltmeter rectified 240°	M242-05W	M243-05W	M244-05W	M246-05W
AC ammeter rectified 240° x6 overload		M243-056B	M244-056B	

Standard input ranges

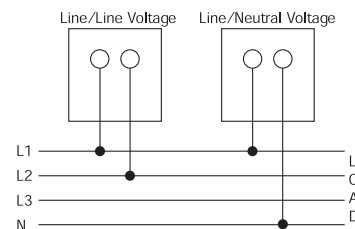
AC ammeter rectified 240° scaling (0/x A) meter (0/x A), (0/ x A x6), 1, 5A M243, M244	1, 5 A (M242-05B delivered with separated current transformer)
AC voltmeter rectified 240° scaling (0/x V)	20, 15, 20, 30, 60, 100, 150, 250, 300 (limit at M242). 400, 500, 600 V
AC voltmeter for VT connection (0/x V)	120 V (for use with VT's x/100 V), 132 V (for use with VT's x/110 V), 144 V (for use with VT's 120 V), 125 V, 137,5 V, 150 V (for use with some VT's having primary voltage less then 1 kV)

CONNECTION DIAGRAMS

AC AMMETER



AC VOLTMETER



ORDER DATA/EXAMPLES

AMMETER

- 1) Select type: M243-05B,
- 2) Specify input: 0-1 A,
- 3) Specify scaling: 0-1 kA,
- 4) Specify frequency: 50/60 Hz

VOLTMETER

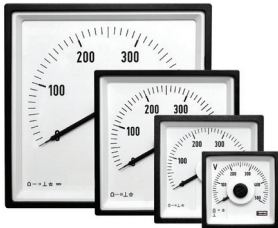
- 1) Select type: M244-05 W,
- 2) Specify input: 0-500 V,
- 3) Specify scaling: 0-500 V,
- 4) Specify frequency: 50/60 Hz

VOLTMETER, VT CONNECTED

- 1) Select type: M244-05 W,
- 2) Specify input: 0-120 V,
- 3) Specify scaling: 0-12 kV,
- 4) Specify frequency: 50/60 Hz,
- 5) Specify VT ratio: 10/0.1 kV

FEATURES

- Measures DC current or voltage
- Direct and shunt connected ammeters
- Direct connected voltmeters
- Live zero ammeters and voltmeters
- Centre zero ammeters and voltmeters
- Linear scaling
- 240° long scale version



APPLICATIONS

- DC switchgears, panels and distribution boards
- Control boards
- Process indication
- Battery supervision

BENEFITS

- Easy to operate
- Exchangeable dial
- Terminal cover included

SPECIFICATION

Accuracy class	1.5
Maximum continuous overload	1.2 x I _n , 1.2 x U _n
Maximum short duration overload	10xI _n - 9x0.5s+1x5s/60s, 2xU _n - 9x0.5s+1x5s/60s

PRODUCT CODES

Bezel size (mm)	48	72	96	144
Scale length (mm)	71	113	155	235
DC ammeter 240°	M242-05A	M243-05A	M244-05A	M246-05A
DC voltmeter 240°	M242-05V	M243-05V	M244-05V	M246-05V
DC ammeter 240° live zero	M242-05R	M243-05R	M244-05R	M246-05R
DC voltmeter 240° live zero	M242-05S	M243-05S	M244-05S	M246-05S
DC ammeter 240° centre zero	M242-05C	M243-05C	M244-05C	M246-05C
DC voltmeter 240° centre zero	M242-05N	M243-05N	M244-05N	M246-05N

Standard input ranges

DC ammeter 240° scaling (0/x A)	1, 1.5, 2.5, 4, 5, 6, 10, 15, 20, 25 (limit on M242), 30, 40, 50, 60 A
DC ammeter 240° scaling, process and shunt indicators	0-1, 0-5, 0-10, 0-20, 4-20 mA, 0-50, 0-60, 0-75 mV
DC ammeter 240° scaling, centre zero (x-0-x A)	1-0-1, 1.5-0-1.5, 2.5-0-2.5, 4-0-4, 5-0-5, 6-0-6, 10-0-10 (limit on M242), 15-0-15, 20-0-20, 25-0-25, 30-0-30A
DC ammeter 240° scaling, centre zero process and shunt indicators	1-0-1, 5-0-5, 10-0-10, 20-0-20 mA, 50-0-50, 60-0-60, 75-0-75 mV
DC voltmeter 240° scaling (0/x V)	10, 15, 20, 30, 60, 100, 150, 250, 300 (limit on M242). 400, 500, 600 V
DC voltmeter 240° scaling, process indicators	1-5, 2-10 V
DC voltmeter 240° scaling, centre zero (x-0-x V)	10-0-10, 15-0-15, 20-0-20, 30-0-30, 60-0-60, 100-0-100, 150-0-150 (limit on M242) 250-0-250, 300-0-300 V

CONSTRUCTION

- Magnet core none sensitive to external fields
- Slot in screw fixing

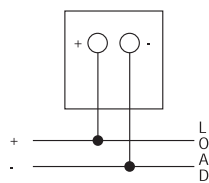
APPROVALS

- CE marked

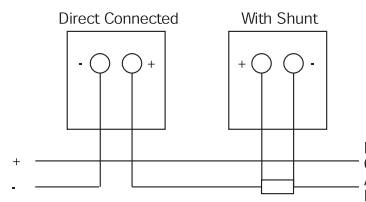


CONNECTION DIAGRAMS

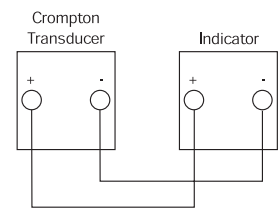
DC VOLTMETER



DC AMMETER



TRANSDUCER INDICATOR



ORDER DATA/EXAMPLES

AMMETER
EXAMPLE A

- 1) Select type: M243-05 A,
- 2) Specify input: 0-10 A,
- 3) Specify scaling: 0-10 A

EXAMPLE B

- 1) Select type: M244-05R,
- 2) Specify input: 4-20 mA,
- 3) Specify scaling: 0-100 MVA

EXAMPLE C

- 1) Select type: M244-05C,
- 2) Specify input: 60-0-60 mV,
- 3) Specify scaling: 150-0-150 A

VOLTMETER
EXAMPLE A

- 1) Select type: M244-05 V,
- 2) Specify input: 0-15 V,
- 3) Specify scaling: 0-15 V

EXAMPLE B

- 1) Select type: M244-05S,
- 2) Specify input: 2-10 V,
- 3) Specify scaling: 0-100 %

EXAMPLE C

- 1) Select type: M242-05N,
- 2) Specify input: 10-0-10 V,
- 3) Specify scaling: 2 0-0-20 A

FEATURES

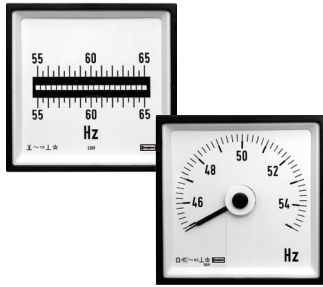
- Measures AC frequencies
- Pointer type available as 240° long scale version
- Reed type available with
 - 13 reeds (47-53 Hz, 57-63 Hz)
 - 21 reeds (45-55 Hz, 55-65 Hz)
- Direct or VT connected

APPLICATIONS

- AC switchgears, panels and distribution boards
- Control board
- Generator sets

BENEFITS

- Easy to operate
- High visibility
- Terminal cover included
- Marine approved



SPECIFICATION	
Accuracy class	0.5 - 1.2 x Un continuously
Overload	1.5 x Un for 2 hours (pointer type only) - 2 x Un for 5 seconds - 1 VA at nominal voltage 57-110 V and 230 V
Burden pointer type	1.7 VA at nominal voltage 400V - 2VA at nominal voltage 500 V
Burden reed type	0.7 ... 1.2 VA at nominal voltage 110-230 V - 1.4 ... 2 VA at all other nominal voltages

PRODUCT CODES				
Bezel size (mm)	96	96	96	96
Scale length (mm)	95	135	-	-
Frequency meter 240°	-	M244-41L	-	-
Frequency meter 13 reeds	-	-	M244-41R	-
Frequency meter 21 reeds	-	-	-	M244-41R

CONSTRUCTION

- Pointer type contains internal transducer, powered from input voltage and moving coil meter
- Reed type uses steel reeds in an electromagnetic field. Reeds are calibrated to its individual frequency to vibrate in resonance with the electromagnet and vibrates at full amplitude

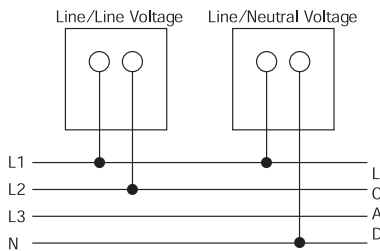
Standard input ranges	
Pointer type	57-110 V, 400V +/- 20%, 500V +/-20%
Reed type	100V, 110V, 230V, 400V +/- 20%, 500V +/-20%
Scaling	
13 reeds on reed type meters with scaling	47-50-53 Hz, 57-60-63 Hz
21 reeds on reed type meters with scaling	45-50-55 Hz, 55-60-65 Hz
Scaling 240° pointer types	45-50-55 Hz, 55-60-55 Hz, 45-55-65 Hz

APPROVALS

- CE marked
- BV approved



CONNECTION DIAGRAMS



ORDER DATA/EXAMPLES

POINTER TYPE 240°

- 1) Select type: M244-41L,
- 2) Specify input voltage: 57-110 V,
- 3) Specify frequency: 45/65 Hz,
- 4) Specify scaling: 45-55-65 Hz

REED TYPE 13 REEDS

- 1) Select type: M244-41R,
- 2) Specify input voltage: 230 V,
- 3) Specify frequency: 47/53 Hz,
- 4) Specify scaling: 47-50-53 Hz

REED TYPE 21 REEDS

- 1) Select type: M244-41R,
- 2) Specify input voltage: 110 V,
- 3) Specify frequency: 55/65 Hz,
- 4) Specify scaling: 55-60-65 Hz