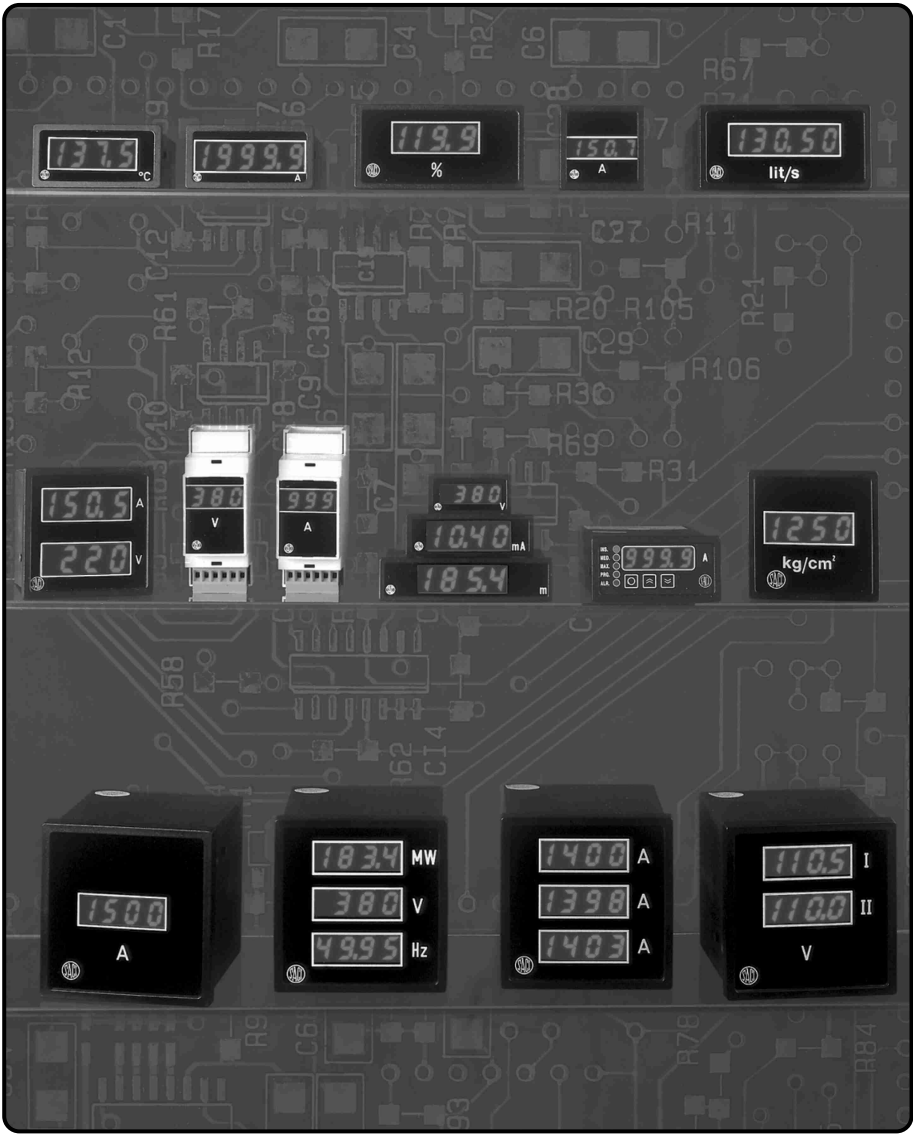


DIGITAL INSTRUMENTS



Digital



DIGITAL INSTRUMENTS

Digital Instruments

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DIGITAL INSTRUMENTS

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GENERAL

- 3, 3½, 4 and 4½ digits.
- Self-extinguishing plastic case (V0 Grade).
- Direct current.
- Attachment to panel or DIN rail (according to models).
- Alternating current.
- Fixed connection terminals by screw.
- AC. and DC. auxiliary power supply
- Maximum cable diameter, 2.5 mm².

DIMENSIONS: 48x24, 72x24, 96x24
 72x36, 96x48
 48x48, 72x72, 96x96
 2 modules DIN rail

STANDARDS

EN	60051 Direct measuring equipment.
EN	60068 Environment and vibration test.
EN	60801 Electromagnetic compatibility.
EN	61010 Safety requirements for electrical equipment.
EN	60529 Casing protection class (IP Code).
EN	50081 Electromagnetic compatibility - Emission.
EN	50082 Electromagnetic compatibility - Immunity.
UL	94 Flammability test.
IEC	664 Insulation requirements.
IEC	255 Insulation test.

TECHNICAL SPECIFICATIONS

Test voltage	2 kV, 50 Hz, 1 min.
Impulse voltage strength test	5 kV, 1,2/50 µs.
High frequency disturbance test	2,5 kV, 1 MHz.
Admissible overloads	
- Current input	
· Standard	1,2 In continuously 2 In, 10s.
· Motors starting	2 In continuously 5 In , 10 s.
- Voltage input	1,2 Vn continuously 2 Vn, 10 s.
Reference temperature	23 °C ±1 °C
Operating temperature	-10° C a + 55 °C
Storage temperature	-30 °C a + 70 °C

(*) Other technical specifications, please enquire.

DIGITAL INSTRUMENTS

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ALTERNATING CURRENT 3 DIGITS

MULTIRANGE VOLTMETERS-AMMETERS

Instrument with microprocessor for direct current.

Display: Red LED, high luminosity
 DB4E: Digit height 14.2 mm
 DB5RE: Digit height 9 mm

Max. reading: 999
 Overrange indication: EEE
 Accuracy: 1% of reading \pm 1 digit
 Auxiliary voltage: AC. 115 or 230 \pm 20%
 Burden < 1.5VA
 Temperature coefficient: 0,01% / $^{\circ}$ C



Switch for input range selection and position of decimal point.

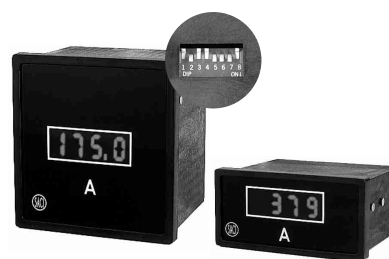
MODEL	DB5RE (DIN RAIL)	DB4E (72X72)
VOLTMETERS	100 and 600 V	
AMMETERS (.../5 or.../1)	5; 10; 15; 20; 25; 30; 40; 50; 60; 75 A	
	100; 125; 150; 200; 300; 400; 500; 600; 750; 1000 A 1,25; 1,5; 2; 2,5; 3; 4; 5; 6; 7,5; 10 kA	

3½ DIGITS

MULTIRANGE AMMETERS

Display: Red LED,
 Digit height 14,3 mm,
 High luminosity

Max. reading: 1999
 Overrange indication: 1---
 Accuracy: 0.5% of reading \pm 1 digit
 Auxiliary voltage: AC. 110, 230 or 400 V \pm 20%
 Burden < 3VA
 Temperature coefficient: 0,01% / $^{\circ}$ C



Current transformer ratio selection by switch.

MODEL	DH4EM (72x72)	DH3EM (96x96)	DP46EM (72X36)	DP35EM (96X48)
Measuring range (A)	10-15-20 /5 A			
	100-125-150-200-800 /5 A 1000-1200-1500-2000 A			
Measuring range (B)	5-25-30-40-50-60-75 /5 A			
	250-300-400-500-600-750 /5 A 2500-3000-4000-5000/5 A			

DIGITAL INSTRUMENTS

Digital Instruments

ALTERNATING CURRENT

3½ DIGITS

GENERAL FEATURES

Display: Red LED, digit height 14.3 mm, high luminosity
 DH5_ and DP57_ models, digit height 10.2 mm

Max. reading: 1999

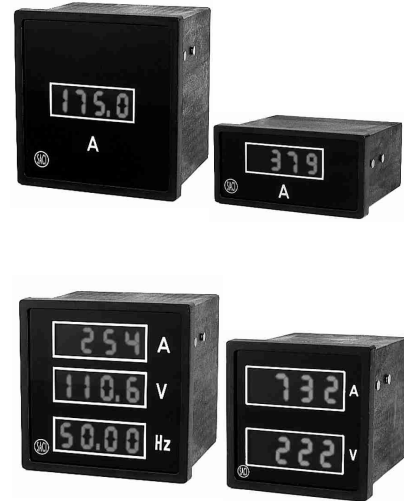
Overrange indication: 1---

Accuracy: 0.5% of reading ± 1 digit

Auxiliary voltage: AC. 110, 230 or 400 V ± 20%
 Burden < 3VA

AC. 12, 24, 48 or 110V ± 20%
 Burden < 2W

Temperature coefficient: 0,01% / °C



AMMETERS

	ALTERNATING CURRENT		
MODEL	DH5E (48x48) (2) DH4E (72x72)(2) DH3E (96x96)	DP46E (72x36)(2) DP35E (96x48)	DP57E (48x24) (1) DP47E (72x24) (1) DP37E (96x24) (1)
Measuring range	199.9 or 1.999 mA X/1A or X/5A		

STARTING MOTORS AMMETERS

	ALTERNATING CURRENT	
MODEL	DH4E (72x72)(2) DP46E (72x36)(2)	DH3E (96x96) DP35E (96x48)
Measuring range	X/1A or X/5A	

VOLTMETERS

	ALTERNATING VOLTAGE		
MODEL	DH5E (48x48) (2) DP46E (72x36)(2) DP47E (72x24) (1)	DH4E (72x72)(2) DP35E (96x48) DP37E (96x24) (1)	DH3E (96x96) DP57E (48x24) (1)
Measuring range	19.99-199.9 or 1.999 mV 1.999-19.99-199.9 or 600V .../100V or .../110V		

DOUBLE AND TRIPLE INSTRUMENTS

Frequency 4 digits

Max. reading: 9999

Accuracy 0.05% of reading ± 1 digit

	CURRENT - ALTERNATING VOLTAGE			
MODEL	DH5E2 (48x48) (2 Displays)(1)	DH4E2 (72x72) (2 Displays)(2)	DH3E2 (96x96) (2 Displays)	DH3E3 (96x96) (3 Displays)
Measuring range	V, I			V, I, Hz

(1) AC. and 110 V DC. auxiliary voltage not available
 (2) 110 V DC. auxiliary voltage not available

DIGITAL INSTRUMENTS

Digital Instruments

DIRECT CURRENT

3 DIGITS

MULTIRANGE VOLTMETERS-AMMETERS

Instrument with microprocessor for direct current.

Display:	Red LED, high luminosity
	DB4C: Digit height 14.2 mm
	DB5RC: Digit height 9 mm
Max. reading:	999
Overrange indication:	EEE
Accuracy:	1% of reading \pm 1 digit
Auxiliary voltage:	AC. 115 or 230 \pm 20%
	Burden < 1.5VA
Temperature coefficient:	0,01%/°C



Switch for input range selection and position of decimal point.

MODEL	DB5RC (DIN RAIL)	DB4C (72X72)
VOLTMETERS	100 and 600 V	
AMMETERS (.../60 mV)	5; 10; 15; 20; 25; 30; 40; 50; 60; 75 A	
	100; 125; 150; 200; 300; 400; 500; 600; 750; 1000 A	
	1,25; 1,5; 2; 2,5; 3; 4; 5; 6; 7,5; 10 kA	

3½ DIGITS

Display:	Red LED, digit height 14.3 mm, high luminosity
	DH5_ and DP57_ models, digit height 10.2 mm
Max. reading:	1999
Overrange indication:	1---
Accuracy:	0.2% of reading \pm 1 digit
Auxiliary voltage:	AC. 110, 230 or 400 V \pm 20%
	Burden < 2VA
	DC. 12, 24, 48 or 110V \pm 20%
	Burden < 2W
Temperature coefficient:	0,01%/°C



AMMETERS

MODEL	DIRECT CURRENT		
	DH5C (48x48) (2) DH4C (72x72)(2) DH3C (96x96) (1)	DP46C (72x36)(2) DP35C (96x48)	DP57C (48x24) (1) DP47C (72x24) (1) DP37C (96x24) (1)
Measuring range	199,9 μ A 1,999 - 19,99 - 199,9 or 4-20 mA 1,999 A; ../60mV or ../150mV		

VOLTMETERS

MODEL	DIRECT CURRENT		
	DH5C (48x48) (2) DH4C (72x72)(2) DH3C (96x96) (1)	DP46C (72x36)(2) DP35C (96x48)	DP57C (48x24) DP47C (72x24) (1) DP37C (96x24) (1)
Measuring range	199,9 mV 1,999 - 19,99 - 199,9 or 600 V		

(1) AC. and 110 V DC. auxiliary voltage not available
(2) 110 V DC. auxiliary voltage not available

DIGITAL INSTRUMENTS

Digital Instruments

DIRECT CURRENT

3½ DIGITS

DOUBLE AND TRIPLE INSTRUMENTS

Display: Red LED
 Digit height 14,3 mm,
 High luminosity
 Models DH5_, Digit height 10,2 mm

Max. reading: 1999

Overrange indication: 1---

Accuracy: 0,2% of reading \pm 1 Digit

Auxiliary voltage: AC.
 110, 230 or 400 V \pm 20%
 Burden < 2VA

DC.
 12, 24, 48 or 110V \pm 20%
 Burden < 2W

Temperature coefficient: 0,01% / °C



MODEL	CURRENT - ALTERNATING VOLTAGE			
	DH5C2 (48x48) (2 Display)(1)	DH4C2 (72x72) (2 Display)(2)	DH3C2 (96x96) (2 Display)	DH3C3 (96x96) (3 Display)
Measuring range	V, I, or Converter output (mA)			

(1) AC. and 110 V DC. auxiliary voltage not available
 (2) 110 V DC. auxiliary voltage not available

PROGRAMMABLE MAXIMUM DEMAND AMMETER

Maximum and instantaneous value of the current.
 Average value of the current (programmable period of time of 8, 15, 20 and 30 mins).
 True effective value.
 Programmable alarm set point.

Display: Red LED
 Digit height 10,2 mm, high luminosity.

Max. reading: 9999

Accuracy: 0,7% of reading \pm 1 Digit

Overrange indication: ----

Temperature coefficient: 0,007% / °C

Alarm circuit: 1 commutated potential-free contact (250V,3A,200VA)

Auxiliary voltage: AC.
 110, 230 or 400 V \pm 20%
 Burden < 3 VA

D.C.
 12, 24, 48 or 110V \pm 20%
 Burden < 1W



MODEL	ALTERNATING CURRENT		
	DP46M (72x36mm)	DP46MIR (72x36mm)	DP46MII (72x36mm)
Measuring range	x/1A or x/5A	x/1A or x/5A	x/1A or x/5A
MODEL	DIRECT CURRENT		
	DP46MC (72x36mm)	DP46MCIR (72x36mm)	DP46MCII (72x36mm)
Measuring range	1, 5, 10, 20 or 4-20mA	1, 5, 10, 20 or 4-20mA	1, 5, 10, 20 or 4-20mA
Alarm over the current type	Integrated	Instantaneous	Inverted Instantaneous
Contacts	NC	NC	NO
Delay	NO	0... 99,9 s	NO
Hysteresis	NO	5%	5%

DIGITAL INSTRUMENTS

Digital Instruments

FREQUENCY METERS MULTIRANGE

3 DIGITS

Display: Red LED, high luminosity
 DB4E: Digit height 14,2 mm
 DB5RE: Digit height 9 mm
 Max. reading: 999
 Overrange indication: EEE
 Accuracy: 1% of reading \pm 1 Digit.
 Operating voltage: 110, 230, 400 V \pm 20%
 Auxiliary voltage: AC. 115 or 230 \pm 20%
 Burden < 1,5VA
 Temperature coefficient: 0,01%/°C



Switch for measuring voltage selection of 100 or 600 V

MODEL	DB5RF (RAIL DIN)	DB4F (72X72)
Measuring range	30 ÷ 500 Hz	

FREQUENCY METERS 4 DIGITS

Display: Red LED, digit height 14,3 mm, high luminosity.
 Max. reading: 9999
 Accuracy: 0,05% of reading \pm 1 Digit.
 Automatic selection range.
 Operating voltage: 110, 230, 400 V \pm 20%
 Auxiliary voltage: AC. 110, 230, 400 V \pm 20%
 Burden < 3VA
 Not required if operating voltage is maintained at $V_n \pm 20\%$.
 Temperature coefficient: 0,005%/°C



MODEL	ALTERNATING CURRENT	
	DH4F (72x72) DP46F (72X36)	DH3F (96x96) DP35F (96X48)
Measuring range	40,00 ÷ 999,9 Hz	

PROGRAMMABLE DIGITAL INSTRUMENTS

Measuring instruments complementing physical or electrical parameters converters. The scaling of the display is selected through the keypad (offset, end scale and decimal point). Optionally the meter can include a programmable alarm. The setting is done via the keypad.

Display: Red LED
 digit height 14,3 mm, high luminosity.
 Max. reading: 1999
 Accuracy: 0,1% of reading \pm 1 Digit.
 Overrange indication: OFL
 Temperature coefficient: 0,01% / °C
 Auxiliary voltage: AC. 110, 230 or 400 V \pm 20%
 Burden < 12 mA, 230 V
 DC. 12, 24, 48 or 110V \pm 20%
 Burden < 1W
 Alarm circuit 1 commutated potential-free contact (250V, 3A, 200VA). Max. or Min. Value



MODEL	AMMETERS	VOLTMETERS
	DP46CPM (72x36) DP46CPM (72x36)	DP35CP (96x48) DP35CP (96x48)
Measuring range	1, 5, 10, 20 or 4-20mA	1, 5, 10,1-0-1, 5-0-5, 10-0-10, 1-5 or 2-10 V

DIGITAL INSTRUMENTS

Digital Instruments

(R.M.S.) 4½ DIGITS

Display: Red LED, digit height 14,3 mm, high luminosity
 Max. reading: 19999
 Overrange indication: 0000 (flashing)
 Accuracy: 0,2% of reading ± 1 Digit cc.
 0,1% of reading ± 1 Digit dc.
 Auxiliary voltage: AC. 110, 230 or 400 V ± 20%
 Burden < 3VA
 Temperature coefficient: 0,007%/°C



AMMETERS

MODEL	DIRECT CURRENT		ALTERNATING CURRENT	
	DQ4C (72x72) DQ3C (96x96)	DQ46C (72x36) DQ35C (96x48)	DQ4E (72x72) DQ3E (96X96)	DQ46E (72x36) DQ35E (96X48)
Measuring range	199,99 µA 1,9999 - 19,999 - 199,99 or 4-20 mA 1,9999 A .. /60mV or /150mV		199,99 or 1999,9 mA X/1A or X/5A	

VOLTMETERS

MODEL	DIRECT CURRENT		ALTERNATING CURRENT	
	DQ4C (72x72) DQ3C (96x96)	DQ46C (72x36) DQ35C (96x48)	DQ4E (72x72) DQ3E (96X96)	DQ46E (72x36) DQ35E (96X48)
Measuring range	199,99 - 199,99 or 1999,9 mV 1,9999 - 19,999 - 199,99 or 600 V		199,99 - 199,99 or 1999,9 mV 1,9999 - 19,999 - 199,99 or 600 V .. /100 or /110 V	

WATTMETERS AND VAR METERS

3½ or 4 DIGITS

Display: Red LED, digit height 14,3 mm, high luminosity
 Max. reading: 9999 monodirectional
 ±1999 bidirectional
 Overrange indication: OFL
 Voltage input: 110, 230 or 400 V cc.
 Burden: < 1mA per phase (measurement)
 < 3VA between phases (Balanced three-phase)
 or between phase and neutro (Single-phase)
 Current input: 1 or 5A cc. / Burden < 0,25 VA
 Accuracy: 0.5% of end scale value ± 1 digit
 Temperature coefficient: 0,01%/°C
 Alarm circuit: Optional programmable alarm, of Max. or Min. value
 1 commutated potential-free contact (250V, 3A, 200VA)



Current and voltage transformer ratio set via the keypad.

MODEL	WATTMETERS		VAR METERS	
	DP35W (96x48)	DP35WI (96X48)	DP35Wr (96X48)	DP35WIr (96X48)
Type	Single-phase, Alternating current	Three-phase, Balanced alternating current	Single-phase, Alternating current	Three-phase, Balanced alternating current

DIGITAL INSTRUMENTS

Digital Instruments

PHASE METERS

3 1/2 DIGITS

Display: Red LED, digit height 14,3 mm, high luminosity
 Max. reading: 1999
 Overrange indication: ----
 Voltage input: 110, 230 or 400 V cc.
 Burden: < 1mA per phase (measurement)
 < 3VA between phases (Balanced three-phase)
 or between phase and neutral (Single-phase)
 Current input: 1 or 5A cc.
 Burden < 0,25 VA
 Accuracy: 0.5% (90 electrical degrees)
 Temperature coefficient: 0,01%/°C
 Measuring range: CAP 0-1-0 IND
 IND: without sign on the display
 CAP: negative sign on the display
 Additional indications: LO.I for current < 10% In
 HI.I for current > 120% In
 HI.U for voltage > 120% Vn



MODEL	DH4S (72x72) DP46S (72X36)	DH3S (96x96) DP35S (96X48)	DH4SI (72X72) DP46SI (72X36)	DH3SI (96X96) DP35SI (96X48)
Type	Single-phase, Alternating current		Three-phase, Balanced alternating current	

DIGITAL INSTRUMENTS

Digital Instruments

CONNECTION DIAGRAMS

	Terminal No.		
	Aux. V.	Input	Aux. V.
DB5RE	115 V	6-7	3-5
	230 V	6-7	1-5
DB5E	115 V	3-4	7-8
	230 V	3-4	6-8

DB5RE / DB4E AMMETER (AC.)

	Terminal No.		
	Aux. V.	Input	Aux. V.
DB5RE 100 V	115 V	6-8	3-5
	230 V	6-8	1-5
DB5RE 600 V	115 V	6-9	3-5
	230 V	6-9	1-5
DB4E 100 V	115 V	2-4	7-8
	230 V	2-4	6-8
DB4E 600 V	115 V	1-4	7-8
	230 V	1-4	6-8

DB5RE / DB4E VOLTMETER (AC.)

3½ DIGITS AMMETER (AC.)

3½ DIGITS VOLTMETER (AC.)

	Terminal No.		
	Aux. V.	Input	Aux. V.
DB5RC	115 V	6-7	3-5
	230 V	6-7	1-5
DB5C	115 V	3-4	7-8
	230 V	3-4	6-8

DB5RC / DB4C AMMETER (DC.)

	Terminal No.		
	Aux. V.	Input	Aux. V.
DB5RC 100 V	115 V	6-8	3-5
	230 V	6-8	1-5
DB5RC 600 V	115 V	6-9	3-5
	230 V	6-9	1-5
DB4C 100 V	115 V	2-4	7-8
	230 V	2-4	6-8
DB4C 600 V	115 V	1-4	7-8
	230 V	1-4	6-8

DB5RC / DB4C VOLTMETER (DC.)

3½ DIGITS AMMETER (DC.)

3½ DIGITS VOLTMETER (DC.)

TRIPLE INSTRUMENT

DOUBLE INSTRUMENT

	Terminal No.		
	Aux. V.	Input	Aux. V.
DB5RF 100V	115 V	6-8	3-5
	230 V	6-8	1-5
DB5RF 600V	115 V	6-9	3-5
	230 V	6-9	1-5

3 DIGITS FREQUENCY METER - DB5RF

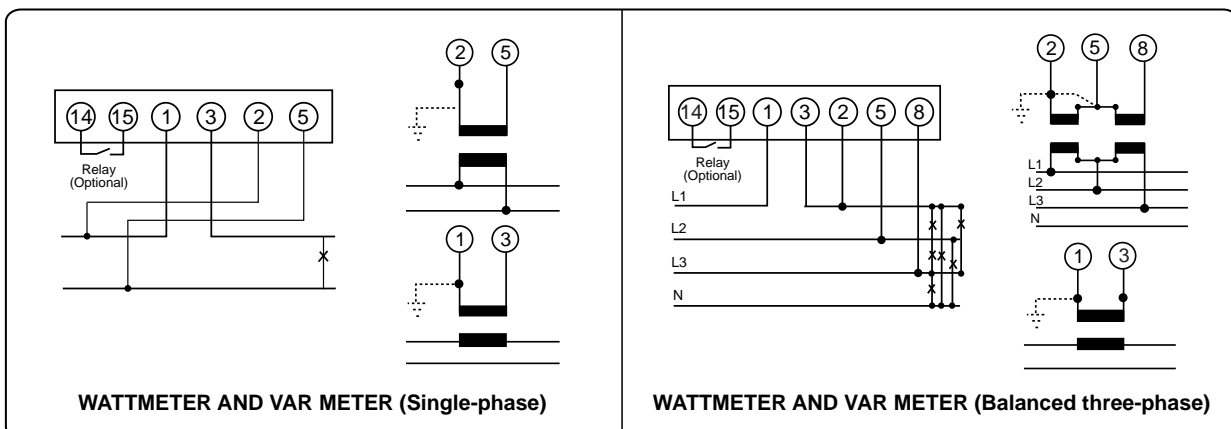
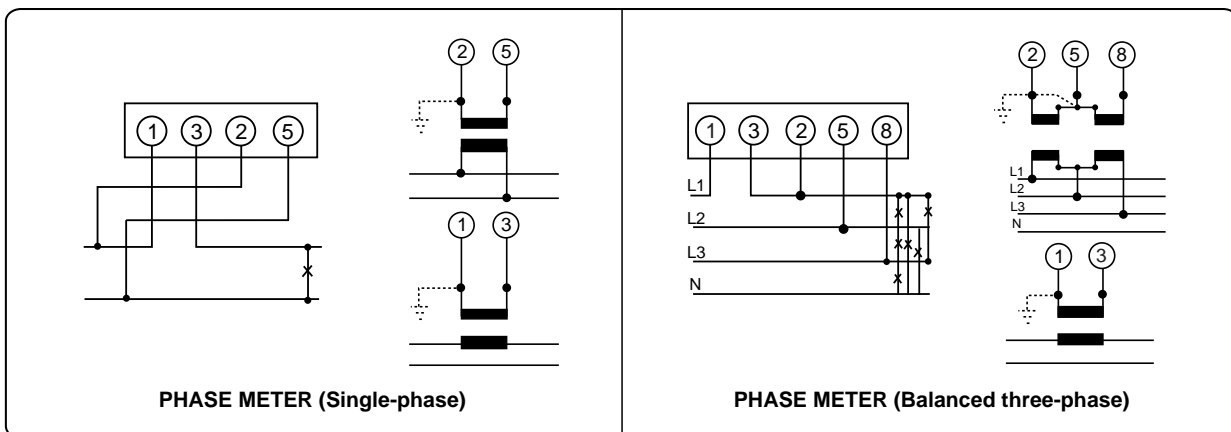
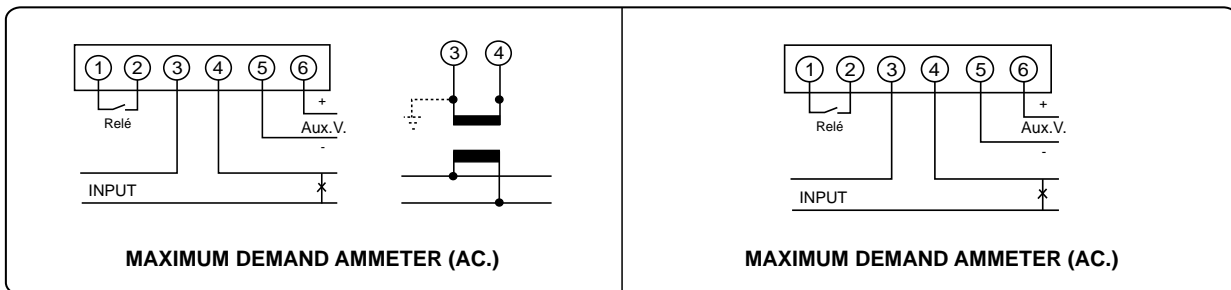
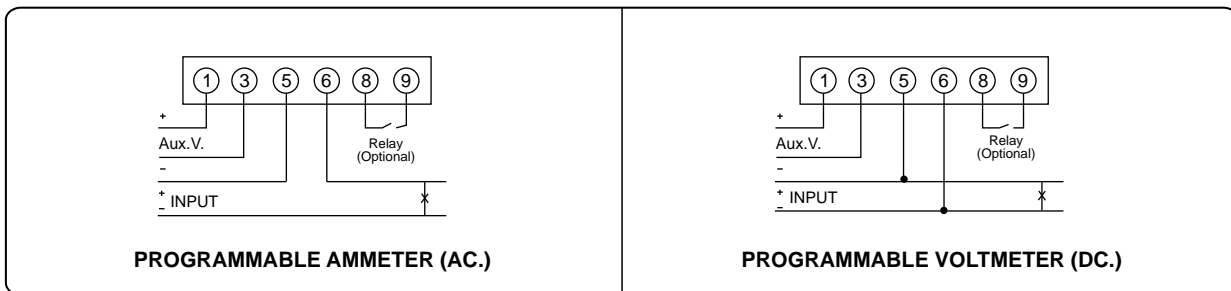
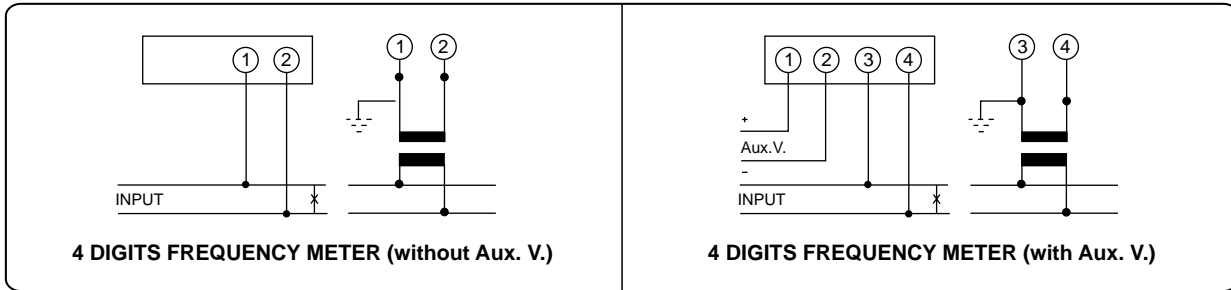
	Terminal No.		
	V. Aux.	Input	V. Aux.
DB4F 100V	115 V	2-4	7-8
	230 V	2-4	6-8
DB4F 600V	115 V	1-4	7-8
	230 V	1-4	6-8

3 DIGITS FREQUENCY METER - DB4F

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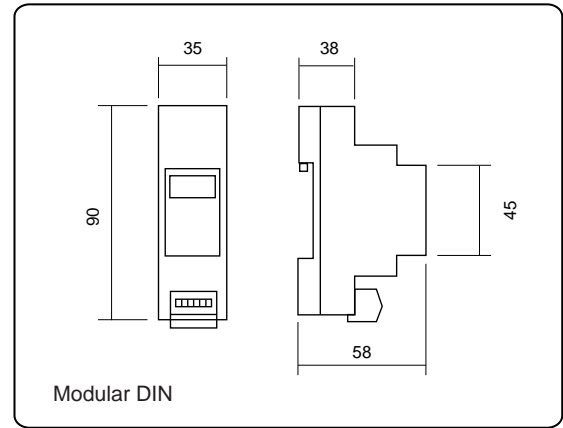
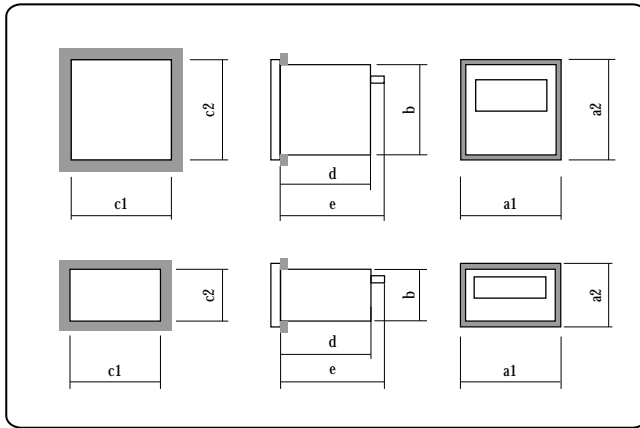
CONNECTION DIAGRAMS



DIGITAL INSTRUMENTS

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DIMENSIONS



	DH5_ DH5E_	DH4_ DQ4_* DH4_2 DH4F_* DH4EM DH4S_* DB4_**	DH3_ DQ3_* DH3_2 DH3_3 DH3F_* DH3EM DH3S_*	DP46_ DP46F_* DP46EM DP46M_ DP46S_*	DP35_ DP35F_* DP35CP_* DP35EM DP35S_* DP35W_	DP57_	DP47_	DP37_
a1 x a2	48x48	72x72	96x96	72x36	96x48	48x24	72x24	96x24
b	42,6x42,6	66x66	90x90	66x32	90x42,6	42x21	66x21	90x21
c1 x c2	$44,5^{+0,7}x$	$67,5^{+0,7}x$	$91,5^{+0,7}x$	$68^{+0,7}x$	$91,5^{+0,7}x$	$44^{+0,7}x$	$67,5^{+0,7}x$	$92^{+0,7}x$
	$44,5^{+0,7}$	$67,5^{+0,7}$	$91,5^{+0,7}$	$32,5^{+0,7}$	$43,5^{+0,7}$	$22^{+0,7}$	$22^{+0,7}$	$22^{+0,7}$
d	77	77	77	78,5	78,5	78,5	78,5	78,5
e	87	87	87	88,5	88,5	88,5	88,5	87,5
(* d	---	112	112	112	112	---	---	---
(* e	---	122	122	122	122	---	---	---
(** d	---	51	---	---	---	---	---	---
(** e	---	61	---	---	---	---	---	---