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The range of wall and floor mounted Powerpact 4 panelboards is designed, manufactured and tested to BS EN 60439-1. The structures are rigid sheet steel finished in a cream colour epoxy powder (RAL 9001).

All the boards contain a unique connection system which ensures that all busbar/ breaker connections are tightened to the correct torque. The system comprises a tightening bolt head which shears off when the correct torque is reached. Facilities are provided to enable the breaker to be repositioned at a later time if so required.

The breaker range comprises single pole, single pole with switched neutral, double pole, triple pole and three pole with switched neutral and four pole. Incoming device ratings up to 1600A and outgoing ratings up to 630A.

The extremely flexible board design allows 1, 2, 3 and 4 pole breakers to be positioned in any order on the busbar stack thus allowing maximum use of the available space and also allowing breakers feeding associated loads to be positioned together.

For this reason the number of outgoing ways in the selection tables is expressed in single pole ways as well as three pole ways.

Full discrimination simply by missing a frame size.

### Special breakers

Details of the standard breakers that may be fitted into the various sizes of panelboard are given on the following pages.

The full range of Compact NSX moulded case circuit breakers includes a wide range of breakers for special applications, higher breaking capacities, additional ratings and adaptations including rotary handles and motor mechanisms for remote operation. Most of these breakers, of ratings up to 630A, can be adapted for use in the Powerpact 4 panelboards.

To order these special breakers add the words **'for use in Powerpact 4 panelboard'** to your ordering description of the breaker.

### Application

The Powerpact 4 is the straight forward answer to all power requirements. It provides an off-the-shelf solution for most standard distribution applications.

### Range

Powerpact 4 is available in many styles to suit various applications in wall mounted and floor standing up to 1600 amps incoming

■ Style A is a wall mounted Powerboard with 250amp main bars up to 17 single pole outgoing ways.

There is no dedicated incomer position giving complete flexibility in the use of the board: splitter board, 2 incomers/1 outgoing or as a conventional board

■ Style C is a wall mounted Panelboard with 250 amp main bars and side mounted incomer up to 13 outgoing triple pole ways

■ Style D is a wall mounted Panelboard with up to 630 amp main bars and vertically mounted incomer up to 18 triple pole outgoing ways

■ Style E is a wall mounted Panelboard with 800 amp main bars and vertically mounted incomer up to 18 triple pole outgoing ways

■ Style G is a floor standing Panelboard with 1600 amp main bars and the incomer mounted in its own cubicle 14 outgoing triple pole ways extendible to 28 TP ways

### Technical data

Incoming	Up to 1600A
Outgoing	Up to 28 triple pole ways (84 single pole ways)
Main cable entry	Top or bottom
Metering	Incoming metering and Outgoing metering as an option (incoming standard on style G)
Manufactured and tested to	BSEN60439-1
Busbars rated	Up to 1600A at 415V, 50Hz
Short circuit withstand	36 or 50kA for .5 or 1s
Construction	Rigid folded sheet steel with removable gland plates and end covers
Finish	Steelwork in polyester epoxy powder, cream colour RAL9001
Degree of protection	IP3X
Form 3b type 2	As standard
Form 4 type 2 & 6	Can be achieved by use of individual disconnectable neutral links adjacent to breakers or by the use of 4 pole breakers. Tunnel terminals are to be fitted on the breaker outgoing terminals and shrouded by short terminal shields. The main neutral bar either side of the incomer should be removed and discarded together with the connecting copper bar. The incoming breaker should be a 4 pole breaker
Extension cubicles	Side/top/bottom extension cubicle is available as an addition

### NSX moulded case circuit breakers

Powerpact 4 panelboards have a unique interconnection system which automatically gives the correct torque settings. 1, 2, 3, and 4 pole devices may be mixed to suit the installation needs without loss of space.

### Metering

- A PowerLogic PM750MG multi-function digital meter is fitted as standard to monitor the incoming supply on style G and as an option on other styles. It is also used for all outgoing metering. Readings available voltage, current, frequency, power, energy, demand values and harmonic distortion. The meter also provides a pulse output for kWh and kVarh.
- A side extension cubicle may be fitted on styles D/E/G which has provision for metering outgoing circuits, refer to metering on page 2/18. This cubicle also acts as a cable extension box.

### Technical data for circuit breakers

Manufactured and tested to	BS EN 60947-2
Ics	100% Icu 16 - 630A, 75% Icu 800 - 1600A
Calibration temperature	40°C
Thermal adjustment	16 - 250A = 0.7 - 1 x In
(3 and 4 pole)	400 - 630A = 0.4 - 1 x In
	800 - 1600A = 0.4 x In

### MCCB Icu & terminal size

16 - 100A 36kA 6mm bolt  
 160 - 250A 36kA 8mm bolt  
 400 - 630A 50kA 10mm bolt  
 800 - 1600 50kA 2 x 12mm bolts

### Earth fault protection

- May be added to any 4 pole MCCB
- Sensitivities 30, 300mA 1, 3, 10A
- Time delay 0, 60, 150, 310 milli - seconds

### 800/1250/1600A breakers

800/1250/1600A breakers are fitted with Micrologic 5.0 control units to enable full discrimination with the outgoing breakers to be obtained. Alternative control units may be fitted if required.

### 250A panelboards

The main incoming device is side mounted at the bottom right hand side. If a 4 pole incomer is used the number of outgoing ways available is reduced by one single pole way. The incoming terminal shroud can be positioned to suit a 3 or 4 pole incoming breaker.

### 250A powerboard

One 3 pole terminal shield for a 250A breaker is supplied as standard for the main incoming terminals. Two adjacent 3 or 4 pole toggle operated breakers may be mechanically interlocked using Part number LV429354.

### 400/630A panelboard

The line (supply) terminals on the incoming device must be suitably shrouded. The board is supplied with 1 or 3 pole shroud for a 400/630A breaker. For other breakers suitable terminal shields should be ordered separately:

250A 3 pole LV429323  
 250A 4 pole LV429324  
 400/630A 4 pole LV432565

These terminal shields are supplied singly.

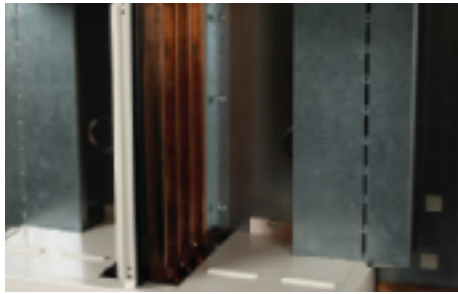
# Selection table

## Powerpact 4 panelboards

2

	250A Powerboard	250A Panelboard	400/630A Panelboard	800A Panelboard	1600A panelboard
<b>Busbar short circuit withstand</b>	36kA, 1s	36kA, 1s	36kA, 1s	50kA, 1s	50kA, 1s
<b>Number of outgoing ways</b>					
13SP inc incomer	■				
17SP inc incomer	■				
15SP (5TP)		■			
18SP (6TP)			■	■	
21SP (7TP)		■			
27SP (9TP)		■			
36SP (12TP)			■	■	
39SP (13TP)		■			
42SP (14TP)					■
54SP (18TP)			■	■	
84SP (28 TP)					□
<b>Incoming device</b>					
100A MCCB	□	□			
160A MCCB	□	□			
250A MCCB	□	□	□		
400A MCCB			□		
630A MCCB			□		
800A MCCB				■	
1250A MCCB					□
1600A MCCB					□
250A fuse switch		□			
<b>Incomer - field installable</b>	■	■	■	■	■
<b>Two incomers, mechanically interlocked</b>	□				
<b>Main incoming cable entry</b>					
Top		□	□	□	□
Bottom	■	□	□	□	□
<b>Incoming metering</b>	□		□	□	■
<b>Outgoing metering</b>	□		□	□	□
<b>Top/bottom extension boxes</b>		□	□	□	
<b>Side extension boxes</b>	□		□	□	□
<b>Integrated control and distribution unit</b>			□	□	
<b>Earth leakage protection on outgoing circuits</b>			□	□	□

Standard ■ Option □



The 4 pole busbar system ready to accept the circuit breaker.



The circuit breaker is placed in the panelboard and pushed up to the busbars. 1P, 2P, 3P and 4 pole breakers may be mixed in any order on the busbars.



The circuit breaker fixing screw is fitted and tightened to retain the breaker in the board.



The connections to the busbars are tightened until the tops of the connection bolts shear off. This ensures that the correct torque has been applied to the connections.



The circuit breaker is now mechanically & electrically connected in the panel board. It is now ready for the outgoing cables. Note how the breaker cassette fully shrouds the busbars. Unused positions must be fitted with blanking plates.

## Selection table

## Powerpact 4 panelboards Bottom entry boards

2



### Main cable entry at bottom

Busbar short circuit withstand	Number of outgoing ways		Part number
	Single pole	Triple pole	
<b>250A Powerboard</b>			
Style A	13	3	<b>MG25C2</b>
36kA, 1s	17	4	<b>MG25C4</b>
	13		<b>MG25C2M</b>
	17		<b>MG25C4M</b>

Style C 36kA, 1s	15	5	<b>MG2C5</b>
	21	7	<b>MG2C7</b>
	27	9	<b>MG2C9</b>
	39	13	<b>MG2C13</b>

### 400/630A Panelboard

Style D 36kA, 1s	18	6	<b>MG6C6</b>
	36	12	<b>MG6C12</b>
	54	18	<b>MG6C18</b>

### 800A Panelboard

Style E 50kA, 1s	18	6	<b>MG8C6</b>
	36	12	<b>MG8C12</b>
	54	18	<b>MG8C18</b>

### 1600A Panelboard

Style G 50kA, 1s	42	14	<b>MG16C14</b>
	42	14 Extension cubicle	<b>MG16CE14</b>

# Powerpact 4 panelboards Bottom entry moulded case circuit breakers



### Incoming devices

Current rating	Number of poles	Style of board	Part number
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#### Circuit breaker

100	3	A,C,D	MGP1003X
160	3	A,C,D	MGP1603X
250	3	A,C,D	MGP2503X
400	3	D	MGP4003X
630	3	D	MGP6303X
800	3	E	MGP8003B5
1250	3	G	33564
1600	3	G	33568

100	4	A,C,D	MGP1004X
160	4	A,C,D	MGP1604X
250	4	A,C,D	MGP2504X
400	4	D	MGP4004X
630	4	D	MGP6304X
800	4	E	MGP8004B5
1250	4	G	33566
1600	4	G	33570

If specifying alternative breakers for the 800A panelboard, one long terminal shield and one set of phase separators must also be ordered.

#### Switch disconnector

100	3	A,C,D	MGP1003NAX
160	3	A,C,D	MGP1603NAX
250	3	A,C,D	MGP2503NAX
400	3	D	MGP4003NAX
630	3	D	MGP6303NAX
800	3	E	MGP8003NAX
1250	3	G	33489
1600	3	G	33490

100	4	A,C,D	MGP1004NAX
160	4	A,C,D	MGP1604NAX
250	4	A,C,D	MGP2504NAX
400	4	D	MGP4004NAX
630	4	D	MGP6304NAX
800	4	E	MGP8004NAX
1250	4	G	33494
1600	4	G	33495

#### Fuse switch

250	3	C	MG2C250FS
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This incoming unit is an additional enclosure that fits above or below the standard panelboard. It is supplied with all connections and accessories to electrically and mechanically join the enclosures.

#### Direct connection

250	3	C	MGP2503LL
250	4	C	MGP2504LL
630	4	D	MGPCIN

Protection must be provided upstream by a suitably rated breaker.

#### Disconnectable neutral link

250	1	A,C,D	MGP250NL
630	1	D	MGP630NL

## Selection table

## Powerpact 4 panelboards Top entry boards

2



### Main cable entry at top

Busbar short circuit withstand	Number of outgoing ways		Part number
	Single pole	Triple pole	
<b>250A Panelboard</b>			
Style C	15	5	<b>MG2C5</b>
36kA, 1s	21	7	<b>MG2C7</b>
	27	9	<b>MG2C9</b>
	39	13	<b>MG2C13</b>



### 400/630A Panelboard

Style D	18	6	<b>MG6C6</b>
36kA, 1s	36	12	<b>MG6C12</b>
	54	18	<b>MG6C18</b>



### 800A Panelboard

Style E	18	6	<b>MG8C6T</b>
50kA, 1s	36	12	<b>MG8C12T</b>
	54	18	<b>MG8C18T</b>



### 1600A Panelboard

Style G	42	14	<b>MG16C14T</b>
50kA, 1s	42	14 Extension cubicle	<b>MG16CE14T</b>

**Incoming devices**

Current rating	Number of poles	Style of board	Part number
<b>Circuit breaker</b>			
100	3	C	MGP1003X
160	3	C	MGP1603X
250	3	C	MGP2503X
100	3	D	MGP1003TX
160	3	D	MGP1603TX
250	3	D	MGP2503TX
400	3	D	MGP4003TX
630	3	D	MGP6303TX
800	3	E	MGP8003B5
1250	3	G	33564
1600	3	G	33568

100	4	C	MGP1004X
160	4	C	MGP1604X
250	4	C	MGP2504X
100	4	D	MGP1004TX
160	4	D	MGP1604TX
250	4	D	MGP2504TX
400	4	D	MGP4004TX
630	4	D	MGP6304TX
800	4	E	MGP8004B5
1250	4	G	33566
1600	4	G	33570

If specifying alternative breakers for the 800A panelboard, one long terminal shield and one set of phase separators must also be ordered.

**Switch disconnecter**

100	3	C	MGP1003NAX
160	3	C	MGP1603NAX
250	3	C	MGP2503NAX
100	3	D	MGP1003NATX
160	3	D	MGP1603NATX
250	3	D	MGP2503NATX
400	3	D	MGP4003NATX
630	3	D	MGP6303NATX
800	3	E	MGP8003NAX
1250	3	G	33489
1600	3	G	33490

100	4	C	MGP1004NAX
160	4	C	MGP1604NAX
250	4	C	MGP2504NAX
100	4	D	MGP1004NATX
160	4	D	MGP1604NATX
250	4	D	MGP2504NATX
400	4	D	MGP4004NATX
630	4	D	MGP6304NATX
800	4	E	MGP8004NAX
1250	4	G	33494
1600	4	G	33495

If specifying alternative breakers for the 800A panelboard, one long terminal shield

**Fuse switch**

250	3	C	MG2C250FS
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This incoming unit is an additional enclosure that fits above or below the standard

**Direct connection**

250	3	C	MGP2503LL
250	4	C	MGP2504LL
630	4	D	MGPCIN

Protection must be provided upstream by a suitably rated breaker.

**Disconnectable neutral link**

250	1	C,D	
630	1	D	

2



Rating	Module width (35mm)	Part Number		
<b>Single pole</b>				
<b>Breaking capacity 25kA at 230V</b>				
		L1	L2	L3
16	1	MGP0161L1	MGP0161L2	MGP0161L3
25	1	MGP0251L1	MGP0251L2	MGP0251L3
30	1	MGP0301L1	MGP0301L2	MGP0301L3
40	1	MGP0401L1	MGP0401L2	MGP0401L3
63	1	MGP0631L1	MGP0631L2	MGP0631L3
80	1	MGP0801L1	MGP0801L2	MGP0801L3
100	1	MGP1001L1	MGP1001L2	MGP1001L3
125	1	MGP1251L1	MGP1251L2	MGP1251L3
160	1	MGP1601L1	MGP1601L2	MGP1601L3

<b>Two pole phase to neutral</b>				
<b>Breaking capacity 85kA at 230V</b>				
		L1 - N	L2 - N	L3 - N
16	2	MGP0162L1N	MGP0162L2N	MGP0162L3N
25	2	MGP0252L1N	MGP0252L2N	MGP0252L3N
30	2	MGP0302L1N	MGP0302L2N	MGP0302L3N
40	2	MGP0402L1N	MGP0402L2N	MGP0402L3N
63	2	MGP0632L1N	MGP0632L2N	MGP0632L3N
80	2	MGP0802L1N	MGP0802L2N	MGP0802L3N
100	2	MGP1002L1N	MGP1002L2N	MGP1002L3N
125	2	MGP1252L1N	MGP1252L2N	MGP1252L3N
160	2	MGP1602L1N	MGP1602L2N	MGP1602L3N

<b>Two pole phase to phase</b>				
<b>Breaking capacity 25kA at 415V</b>				
		L1 - L2	L2 - L3	L3 - L1
16	2	MGP0162L12	MGP0162L23	MGP0162L31
25	2	MGP0252L12	MGP0252L23	MGP0252L31
30	2	MGP0302L12	MGP0302L23	MGP0302L31
40	2	MGP0402L12	MGP0402L23	MGP0402L31
63	2	MGP0632L12	MGP0632L23	MGP0632L31
80	2	MGP0802L12	MGP0802L23	MGP0802L31
100	2	MGP1002L12	MGP1002L23	MGP1002L31
125	2	MGP1252L12	MGP1252L23	MGP1252L31
160	2	MGP1602L12	MGP1602L23	MGP1602L31



Rating	Module width (35mm)	Part Number
<b>Three pole</b>		
<b>Breaking capacity 36kA at 415V 3 phase</b>		
16	3	MGP0163X
25	3	MGP0253X
32	3	MGP0323X
40	3	MGP0403X
63	3	MGP0633X
80	3	MGP0803X
100	3	MGP1003X
125	3	MGP1253X
160	3	MGP1603X
200	3	MGP2003X
250	3	MGP2503X
400	4 <sup>(1) (2)</sup>	MGP4003X
630	4 <sup>(1) (2)</sup>	MGP6303X

<b>Four pole</b>		
<b>Breaking capacity 36kA at 415V 3 phase + neutral</b>		
16	4	MGP0164X
25	4	MGP0254X
32	4	MGP0324X
40	4	MGP0404X
63	4	MGP0634X
80	4	MGP0804X
100	4	MGP1004X
125	4	MGP1254X
160	4	MGP1604X
200	4	MGP2004X
250	4	MGP2504X
400	6 <sup>(1) (2)</sup>	MGP4004X One MGPBB25 also required
630	6 <sup>(1) (2)</sup>	MGP6303X One MGPBB25 also required

<b>Disconnectable neutral links</b>		
250	1	MGP250NL
630	2	MGP630NL One MGPBB25 also required

(1) If fitted in 630 or 800A board a shrouding kit is required.

(2) Breaking capacity 50kA at 415V.

**Dimensions**

Type	Height mm	Width mm	Depth mm	(1)	Weight kg
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**Style A - 250A powerboard**

3 way	650	600	268		32
4 way	650	778	268		57

**Style C - 250A panelboard**

5 way	680	853	270	198	40
7 way	785	853	270	198	44
9 way	890	853	270	198	50
13 way	1075	853	270	198	60

**Style D - 400/620A panelboard**

6 way	1178	850	270	290	66
12 way	1493	850	270	290	89
18 way	1808	850	270	290	98

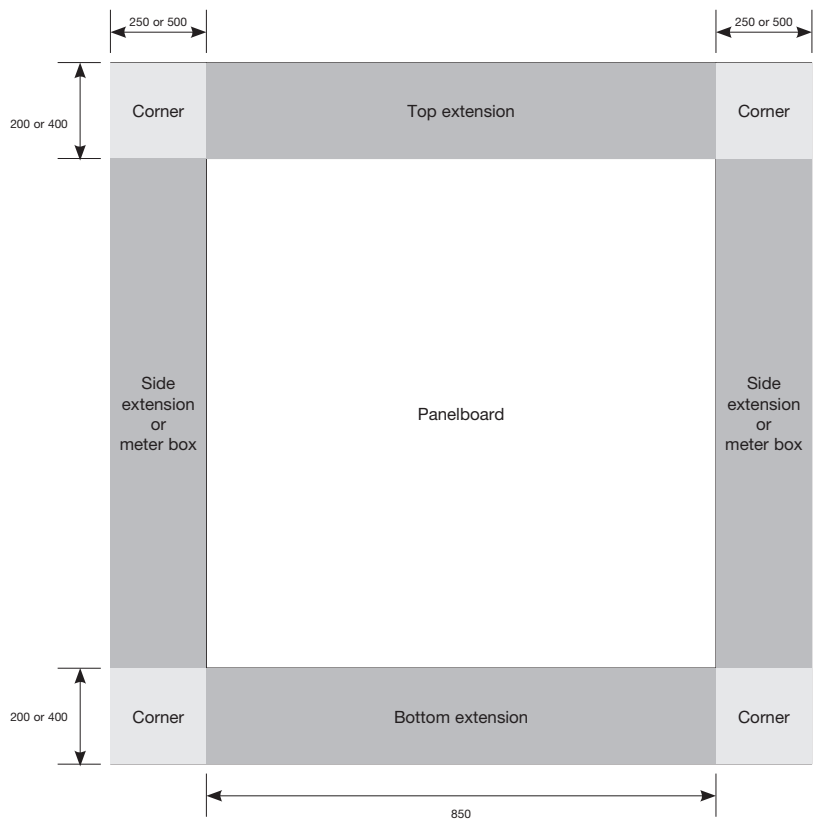
**Style E - 800A panelboard**

6 way	1580	850	270	490 <sup>(3)</sup>	86
12 way	1896	850	270	490 <sup>(3)</sup>	104
18 way	2210	850	270	490 <sup>(3)</sup>	122

**Style G - 1600A panelboard**

14 way	2106	1256	450	708 <sup>(2)</sup>	375
14 way extension	2106	850	450		200

- (1) Distance from gland plate to incoming terminals
- (2) Terminals will accept up to 3 lugs 400mm<sup>2</sup> per phase
- (3) Main connection M12 bolt

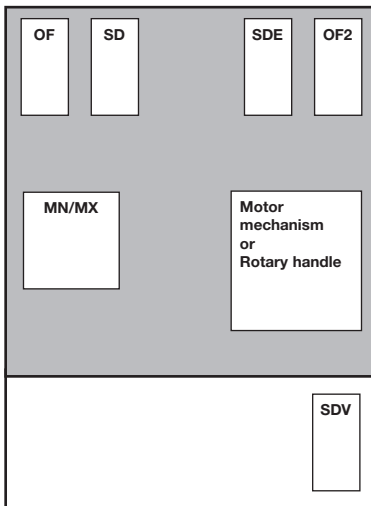


**Note:** Side extensions and corner units cannot be fitted to 250A panelboards

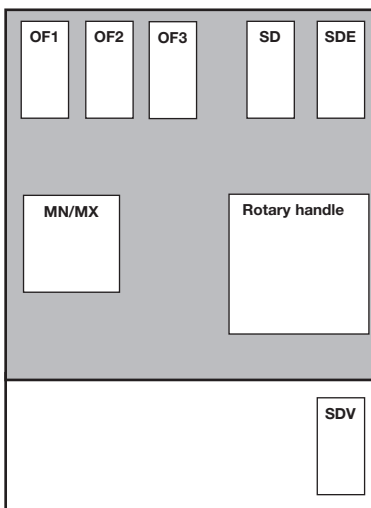
## Moulded case circuit breakers

## Powerpact 4 panelboards Auxiliary function options

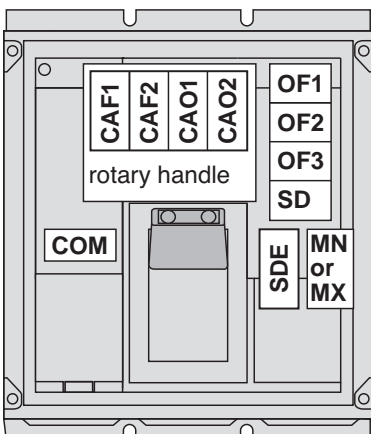
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### NSX100/160/250



### NSX400/630



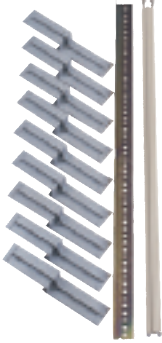
### NS800/1600

- OF** Changeover auxiliary contact
- SD** Changeover alarm switch
- MX** Shunt trip
- MN** Undervoltage release
- SDE** Fault alarm
- SDV** Earth fault alarm
- CAF** Early make auxiliary contacts (with rotary handle)
- CAO** Early break auxiliary contacts (with rotary handle)
- COM** Communications function

All accessories are capable of being fitted on site. Full details may be obtained from the Compact NSX moulded case circuit breaker catalogue.

Manually operated device

2



**Shrouding kit (400/630A and 800A panelboards only)**

Provides additional support for device and shrouding for front cover. One shrouding kit must be used per side when fitting either outgoing 400/630A MCCBs or outgoing ammeter and/or earth leakage protection. In addition to the shrouding kit an additional 25mm three stage filler piece is required when 4 pole 400A or 630A circuit breakers are fitted on the outgoing pan assembly **MGPTSF25**.

Number of outgoing ways		Part number
SP	TB	
18	6	<b>MGPCH6</b>
36	12	<b>MGPCH12</b>
54	18	<b>MGPCH18</b>

**Extension enclosure**

**250A powerboard style A side extension**

TP ways	Mounting arrangement	Part number
Side	Top/bottom	
3	W600	<b>MG25EXC</b>
4	W600	<b>MG25EXC</b>

**250A panelboard style C top or bottom extension**

5,7,9,13	H200	<b>MG6CEX</b>
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More than one extension can be added if required.

**400/630A panelboard style D and 800A panelboard style E top or bottom extension**

6,12,18		H200	<b>MG6CEX</b>
6	W250		<b>MGPXC206</b>
12	W250		<b>MGPXC212</b>
18	W250		<b>MGPXC218</b>
6	W500		<b>MGPXC506</b>
12	W500		<b>MGPXC512</b>
18	W500		<b>MGPXC518</b>

For side extensions with metering facility see page 2/19.

More than one extension can be added if required. Side extensions are recommended when 400A and 630A outgoers are fitted or when outgoing circuit breakers have earth fault protection.

**Corner units style D/E**

W250	H200	<b>MGPC2025</b>
W500	H200	<b>MGPC2050</b>
W250	H400	<b>MGPC4025</b>
W500	H400	<b>MGPC4050</b>

For squaring off a panelboard when a top or bottom extension and side extension are used together and side extension are used together.

**1600A panelboard style G side extension**

14	W400	<b>MG16CEX4</b>
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More than one extension can be added if required.



**Integrated control and distribution systems (ICDS)**

Side mounted on 400 - 800A panelboards. The ICDS unit offers the facility to incorporate MCBs, and command and control products into a single integrated unit.

The ICDS has mounting rails to accept:

- An Isobar 4 TP&N pan assembly
- An Isobar 4 SP&N pan assembly or a DIN rail to accept 34 x 9mm modules
- A tray for control gear

**Order references**

To fit 6 way panelboard		
Enclosure		<b>MGPXCA6</b>
Pan assemblies	8 way TP&N	<b>MGBN8E</b>
	8 way TP&N	<b>MGAN15P</b>

To fit 12 way panelboard		
Enclosure		<b>MGPXCB12</b>
Pan assemblies	16 way TP&N	<b>MGBN16E</b>
	15 way SP&N	<b>MGAN15P</b>

The Isobar 4c pan assemblies need to be ordered separately

**Replacement items**

**Door and cover assembly**

250A powerboard	9 way	<b>MG25FCC2</b>
	13 way	<b>MG25FCC4</b>
	9 way + metering	<b>MG25FCC2M</b>
	13 way + metering	<b>MG25FCC4M</b>
400/630A panelboard	18 way	<b>MG6FCC6</b>
	36 way	<b>MG6FCC12</b>
	54 way	<b>MG6FCC18</b>
800A panelboard	18 way	<b>MG8FCC6</b>
	36 way	<b>MG8FCC12</b>
	56 way	<b>MG8FCC18</b>
Gland plate for 400/630/800A panelboard		<b>MGPGPC8</b>
Door lock kit up to 800A		<b>MGPP4S007</b>
2 spare door keys		<b>MGK33</b>
Touch up paint RAL9001	Spray	<b>08962</b>
	Brush	<b>08961</b>
Adhesive drawing pocket	RAL9001	<b>08963</b>



**Residual current protection modules**

Using 4 pole residual current add-on modules (Vigi block) for incoming or outgoing ways (requires a 4 pole MCCB).

Frame rating	Earth leakage tripping current options (A)	Current rating MCCB	Vigi module Part number
Up to 160A	0.03 - 0.3 - 1 - 3 - 10*	NSX100/160	<b>LV429211</b>
200 - 250A	0.03 - 0.3 - 1 - 3 - 10*	NSX250	<b>LV431536</b>
400 - 630A	0.3 - 1 - 3 - 10 - 30*	NSX400/630	<b>LV432456</b>

\* Time delay settings (ms) 0 - 60 - 150 and 310 (30mA - instantaneous only).  
 (i) For combinations of items of RCD's, metering and remote metering please contact us for further information.

**Ammeter**

3 phase ammeter complete with CT's (mounted on the breaker). Can be fitted on incoming or outgoing device.

Current rating	Part number	
	3 pole	4pole
NSX100	<b>LV429455</b>	<b>LV429456</b>
NSX160	<b>LV430555</b>	<b>LV430556</b>
NSX250	<b>LV431565</b>	<b>LV431566</b>
NSX400	<b>LV432655</b>	<b>LV432656</b>
NSX630	<b>LV432855</b>	<b>LV432856</b>

2



**Metering facility**

- 3 phase current transformer module with voltage measurement outputs.
- Fits directly on the terminals of the breaker.
- The voltage measurement outputs have inbuilt protection with automatic reset.
- Suitable for use with the PowerLogic range of meters.

Breaker	CT ratio	VA output	Class at VA output	Part number	
				3 pole	4 pole
NS100	125/5	1.1	1.0	LV429461	LV429462
NS160	150/5	1.1	1.0	LV430561	LV430562
NS250	250/5	1.1	0.5	LV431569	LV431570
NS400	400/5	2.0	0.5	LV432653	LV432654
NS630	600/5	2.0	0.5	LV432861	LV432862



**Current transformer module nt transformer module**

- 3 phase current transformer module.
- Fits directly on the terminals of the breaker.

Breaker	CT ratio	VA output	Class at VA output	Part number	
				3 pole	4 pole
NS100	125/5	1.6	3.0	LV429457	LV429458
NS160	150/5	3.0	3.0	LV430557	LV430558
NS250	250/5	5.0	3.0	LV431567	LV431568
NS400	400/5	8.0	3.0	LV432657	LV432658
NS630	600/5	8.0	3.0	LV432857	LV432858



**Motor operator module**

All 3 pole and 4 pole breakers up to 250A can be fitted with a motor operator mechanism allowing remote opening and closing of the circuit breaker.

**Operating voltages**

50Hz	a.c.	48 - 415V
	d.c.	24 - 250V

Specify requirements at time of ordering the breaker.



**Rotary handles with inbuilt padlocking facilities**

Current rating	Part number	
	Black	Red/yellow
Up to 250A	LV429337	LV429339
400/630A	LV432597	LV432599

**Toggle padlocking attachments Locking in OFF position**

Current rating	Part number	
	Removable	Fixed
250A	LV429370	LV429371
630A	LV429370	LV432631
800A	LV444936	LV432631



**Connection accessories**

Bare cable connectors			
Capacity	Breaker	Part number	
		Set of 3	Set of 4
1.5 - 95mm <sup>2</sup>	160	LV429242	LV429243
10 - 185mm <sup>2</sup>	250	LV429259	LV429260
35 - 300mm <sup>2</sup>	630	LV432479	LV432480
2 x 95 - 240mm <sup>2</sup>	630	LV432481	LV432482

**Crimp cable lugs supplied with phase barriers**

120mm <sup>2</sup> copper	250	LV429252	LV429256
150mm <sup>2</sup> copper	250	LV429253	LV429257
185mm <sup>2</sup> copper	250	LV429254	LV429258
240mm <sup>2</sup> copper	630	LV432500	LV432501
300mm <sup>2</sup> copper	630	LV432502	LV432503
150mm <sup>2</sup> aluminium	250	LV429504	LV429505
185mm <sup>2</sup> aluminium	250	LV429506	LV429507
240mm <sup>2</sup> aluminium	630	LV432504	LV432505
300mm <sup>2</sup> aluminium	630	LV432506	LV432507



**Spreaders**

A	Pole pitch mm	Quantity	Part number
250	45	Set of 3	LV431563
250	45	Set of 4	LV431564
630	52.5	Set of 3	LV432490
630	52.5	Set of 4	LV432491



**Auxiliary switch for 3 or 4 pole devices only**

- For all MCCBs
- Used to indicate open, closed or tripped status
- SDE adaptor required for trip unit devices up to 250A TM or MA (to indicate trip on overcurrent). **Two** auxiliary switches will be needed to indicate open, closed **and** tripped status

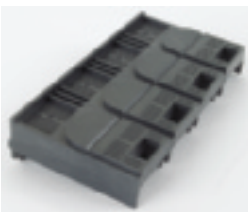
	Part number
Auxiliary changeover switch	LV429450
SDE adaptor	LV429451



**Voltage releases to fit all MCCBs 16/630A for 3 or pole devices only**

AC 50/60Hz	Part number	
Voltage (V)	Shunt trip (MX)	Undervoltage release (MN)
200/240	LV429387	LV429407
380/415	LV429388	LV429408

Other voltages available - refer to Comcat NS catalogue.



**Terminal shields**

Current rating (A)	Part number
Up to 160A single pole and 250A neutral link	29320
Up to 160A 2 pole	29320 x 2
Up to 250A 3 pole (single)	LV429517
Up to 250A 4 pole (single)	LV429518
Up to 400/630A 3 pole (single)	LV432593
Up to 400/630A 4 pole (single)	LV432594

For shielding a TP MCCB with neutral link use the 4 pole terminal shield.



**Single pole shrouding plates**

- |   |   |
|---|---|
| <b>MGPBBP</b>   | <b>MGPBB25</b>  |
| Single pole shrouding plates are required for each unoccupied outgoing way. | In addition a 25mm shrouding plate is always required when 4 pole 400A or 630A circuit breakers are mounted on the outgoing pan assembly. |

Boards up to 800A are supplied with 3 x MGPBBP. 1600A board is supplied with 6 x MGPBBP.



The PowerLogic PM700 series power meter offers all the measurement capabilities required to monitor an electrical installation in a single 96 x 96 mm unit extending only 50 mm behind the mounting surface. With its large display, you can monitor all three phases and neutral at the same time. The anti-glare display features large 11 mm high characters and powerful backlighting for easy reading even in extreme lighting conditions and viewing angles.

The PowerLogic PM700 series meters are available in four versions:

- PM700, basic metering with THD and min/max readings
- PM700P, same functions as the PM700, plus two solid-state pulse outputs for energy metering
- PM710, same functions as the PM700, plus one RS 485 port for Modbus communication
- PM750, same functions as the PM710, plus two digital inputs, one digital output and alarms

### Applications

Panel instrumentation.  
 Sub-billing and cost allocation.  
 Remote monitoring of an electrical installation.  
 Harmonic monitoring (THD).  
 Alarming with under/over conditions and I/O status (PM750)

### Characteristics

#### Requires only 50 mm behind mounting surface

The Power Meter Series 700 can be mounted on switchboard doors to maximise free space for electrical devices.

#### Large back lit display with integrated bar charts

Displays 4 measurements at a time for fast readings.

#### Intuitive use

Easy navigation using context-sensitive menus.

#### Power and current demand, THD and min/max reading in basic version

A high-performance solution for trouble-free monitoring of your electrical installation.

#### Active energy IEC 62053-22 class 0.5S (PM750) and IEC 62053-21 class 1 (PM700, PM700P, PM710)

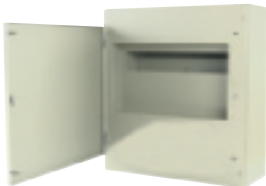
Suitable for sub-billing and cost-allocation applications.

#### Performance measuring and monitoring devices

Meet IEC 61557-12 PMD/S/K55/0.5 (PM750) and IEC61557-12 PMD/S/K55/1 (PM700, PM700P, PM710) that specifies requirements for combined Performance Measuring and monitoring Devices (PMD)

#### Innovative Power Meter

RS 485 communications, alarming and digital I/O in a single Power Meter (PM750).



### Power meter inputs

The NSX moulded case circuit breakers up to 630A have current transformer modules that fit directly on to the load terminals of the breaker. As well as the current transformer coils they also have self protected voltage connections off each phase. This eliminates the need to have additional overcurrent protection on these circuits. The meter is wired direct from this CT module without the need for any intermediate devices.

### Panelboard configurations

#### 250A Powerboard

There are two versions of this equipment, basic or with the facility to have metering. The meter versions allow metering to be added to any 3 or 4 pole MCCB fitted in the board. All components are easily fitted; there are no extension boxes to fit or apertures to cut. The meters are positioned behind the overall lockable door preventing unauthorised access to the meters. MG25P2M has 4 apertures, MG25P4M has 5.

Note: the meters and CT modules must be ordered separately. The wiring looms to link the CT modules to the meters are included with the panelboards.

Metering options are not available for the 250A panelboard. It is recommended that a MG6Pxx board is used with a 250A incomer.

### Ordering references

#### 250A powerboard with metering facility

13 SP positions	MG25C2M
17 SP positions	MG25C4M

#### 630 & 800A Panelboards

##### Incoming metering

This is easily added to a board when it is first being installed. The kit comprises an extension box that houses the meter and, when fitted to the same end of the board as the incomer, provides additional space for the main incoming cables. All components including the meter, CTs and wiring is included in the kit. The meter is fully set up for the CT ratio and the voltage configuration.

##### Outgoing circuit metering

Metering can be fitted to some or all of the three phase outgoing circuits on 630A & 800A boards whether the boards are fitted with incoming metering or not.

The arrangement consists of side extension boxes that house the meters and also provide additional cabling space. Meters and current transformers are ordered separately to meet the needs of the installation. The necessary cable looms are included with the steelwork. The meters are mounted on hinged doors. The box also contains the auxiliary busbar that provides the 240V control supply for the meters. The left hand extensions have sufficient meter positions for half the number of outgoing ways. The right hand extensions have positions for half the number of outgoing ways plus three additional positions. These extra positions may be used for additional metering or mounting surge arresters, control fuses etc. The lower two positions have a transparent window and DIN rail. This can be removed if not required.

Note: the meters, CT modules and surge arresters must be ordered separately

### Incoming and outgoing metering for boards up to 630A

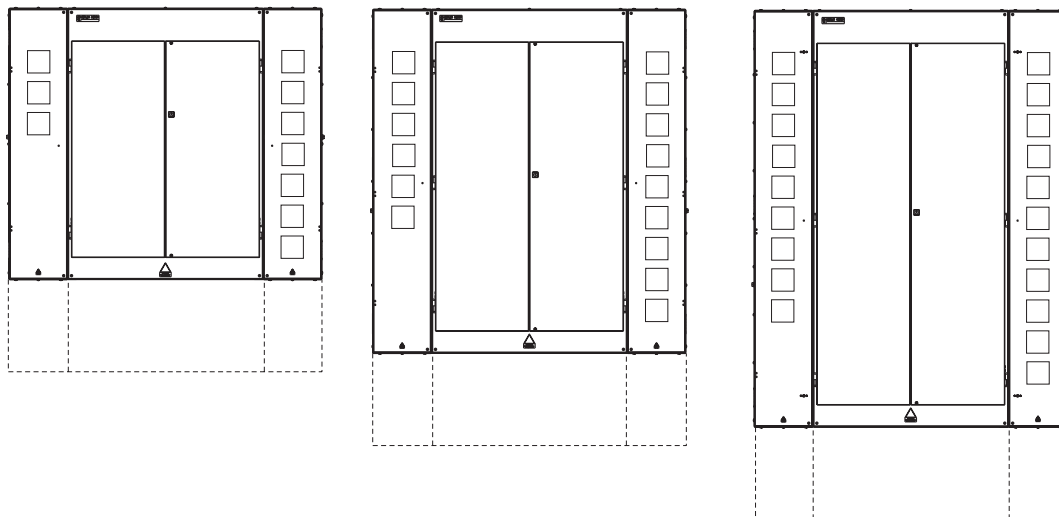
(This arrangement is not applicable for boards fitted with MGPINC direct connections).

When both incoming and outgoing metering is required there is a very cost effective solution by incorporating the incoming metering into the right hand side extension box. Components required are:

- Standard extension box MG6CEX to provide the required cable spreading space
- Current transformer module to fit on line side of incoming breaker.
- PM750MG meter.
- Two MGPC2025 corner units, optional

The meter should be cabled to the CT module according to the diagram supplied. (loom not supplied). The auxiliary supply to the meter should be taken from one phase and neutral and must be suitably fused.

Note. A warning notice should be placed in the board as the voltage connections are taken off the live side of the main breaker.



### MG6Cxx 630A board

Incoming metering kit	400A	<b>MG64M</b>
	630A	<b>MG66M</b>

### MG8Cxx 800A board

Incoming metering kit	800A	<b>MG88M</b>
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### 630A & 800A outgoing metering side extension boxes

6 way board	Left hand side (*)	3 meter positions	<b>MGPCM6L</b>
	Right hand side (*)	7 meter positions	<b>MGPCM6R</b>
12 way board	Left hand side (*)	6 meter positions	<b>MGPCM12L</b>
	Right hand side (*)	9 meter positions	<b>MGPCM12R</b>
18 way board	Left hand side (*)	9 meter positions	<b>MGPCM18L</b>
	Right hand side (*)	11 meter positions	<b>MGPCM18R</b>

(\*) When the board is inverted for top entry main cables these side extensions fit on the other side of the board.

## 1600A Panelboards

### Incoming metering

A PM750MG meter is fitted as standard in the board. The meter is fully set up for use on a 415V 3ph 4 wire system and for use with the 1600/5 current transformers that are installed on the busbars.

### Outgoing circuit metering

Metering can be fitted to some or all of the three phase outgoing circuits in these boards. The arrangement consists of a side extension cubicle that houses the meters and also provides additional cabling space. Meters and current transformers are ordered separately to meet the needs of the installation. The necessary cable looms are included with the cubicle.

The meters are mounted on the front, hinged cover of the cubicle and can be aligned with their associated breaker. The cubicle also contains the auxiliary busbar that provides the 240V control supply for the meters

### 1600A panelboard

Side extension cubicle

**MG16CEM4**

### Current transformer modules for direct fitting to NS breakers in all boards

Breaker	Poles	CT ratio	Part number
NS100X	3	125/5	<b>LV429461</b>
NS100X	4	125/5	<b>LV429462</b>
NS160X	3	150/5	<b>LV430561</b>
NS160X	4	150/5	<b>LV430562</b>
NS250X	3	250/5	<b>LV431569</b>
NS250X	4	250/5	<b>LV431570</b>
NS400X	3	400/5	<b>LV432653</b>
NS400X	4	400/5	<b>LV432654</b>
NS630X	3	600/5	<b>LV432861</b>
NS630X	4	600/5	<b>LV432862</b>

Unused 92 x 92 metering apertures can be blanked off using Part number **03908**  
All these CT modules have voltage connections.



The intelligent panelboard system utilises the advanced features of the Compact NSX range with Micrologic 5 trip units for integrated protection, metering, measuring and monitoring.

With no requirement for external current transformers and an advanced plug and play communication cable system, on site adaptation is tool free, simple and quick to install.

**This system is available in 4 levels for incoming and outgoing devices.**

- 1 Local display on the NSX breaker only
- 2 Local display plus data available via Modbus
- 3 Local display and remote functional display on the panelboard
- 4 Local display and remote functional display on the panelboard plus data available via Modbus

All devices are 4 pole and may be configured into a form 4b type 2 or 6 to BSEN 61439-1



- Key**
- A - Main incomer
  - B - Interface kit
  - C - Outgoing devices area
  - D - Display modules

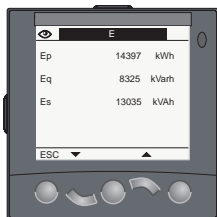
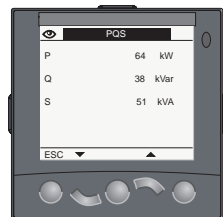
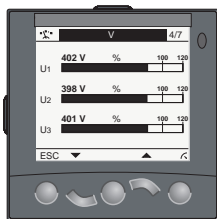
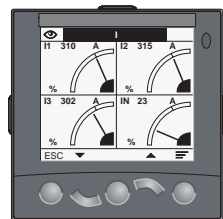
# Functions and characteristics

# Power Meter functions Electronic Micrologic 5E

2

In addition to protection functions, Micrologic 5 offers all the functions of Power Meter products as well as operating assistance for the circuit breaker:

- Display of settings
- Measurement functions:
  - Energy (E)
- Alarms
- Time stamped histories and event tables
- Maintenance indicator
- Communication



Micrologic E measurement functions are made possible by Micrologic intelligence and the accuracy of the sensors. They are handled by a microprocessor that operates independent of protection functions.

## Display

### Micrologic LCD

The user can display all the protection settings and the main measurements on the LCD screen of the trip unit.

- Instantaneous rms current measurements
  - Micrologic E voltage, frequency and power measurements and energy metering
- To make the display available under all conditions and increase operating comfort, an external power supply is recommended.

It is indispensable to:

- Display faults and interrupted current measurements
- Use all the functions of Micrologic E (e.g. metering of low power and energy values)
- Ensure operation of the communication system

The external power supply can be shared by several devices.

### FDM121 display unit

An FDM121 switchboard display unit can be connected to a Micrologic trip unit using a prefabricated cord to display all measurements on a screen. The result is a veritable 96 x 96 mm Power Meter.

In addition to the information displayed on the Micrologic LCD, the FDM121 screen shows demand, power quality and maximeter/minimeter values along with alarms, histories and maintenance indicators.

The FDM121 display unit requires a 24 V DC power supply. The Micrologic trip unit is supplied by the same power supply via the cord connecting it to the FDM121.


### PC screen

When the Micrologic, with or without an FDM121 switchboard display unit, is connected to a communication network, all information can be accessed via a PC.



## Measurements

### Instantaneous rms measurements

The Micrologic E continuously display the RMS value of the highest current of the three phases and neutral (Imax). The navigation buttons  can be used to scroll through the main measurements.

In the event of a fault trip, the current interrupted is memorised.

Measures phase, neutral, ground fault currents plus voltage, frequency and power measurements

### Maximeters / minimeters

Every instantaneous measurement provided by Micrologic E can be associated with a maximeter/minimeter. The maximeters for the highest current of the 3 phases and neutral, the demand current and power can be reset via the trip unit keypad, the FDM121 display unit or the communication system.

### Energy metering

The Micrologic E also measures the energy consumed since the last reset of the meter. The active energy meter can be reset via the keypad and the FDM121 display unit or the communication system.

### Demand and maximum demand values

Micrologic E also calculates demand current and power values. These calculations can be made using a block or sliding interval that can be set from 5 to 60 minutes in steps of 1 minute. The window can be synchronised with a signal sent via the communication system. Whatever the calculation method, the calculated values can be recovered on a PC via Modbus communication.

Ordinary spreadsheet software can be used to provide trend curves and forecasts based on this data. They will provide a basis for load shedding and reconnection operations used to adjust consumption to the subscribed power.

### Power quality

Micrologic E calculates power quality indicators taking into account the presence of harmonics up to the 15th order, including the total harmonic distortion (THD) of current and voltage.



## Micrologic 5 / 6 integrated Power Meter functions Display

			E	Micrologic LCD	FDM121 display
<b>Display of protection settings</b>					
Pick-ups (A) and delays	All settings can be displayed	Ir, tr, lsd, tsd, li, lg, tg	■	■	
<b>Measurements</b>					
<b>Instantaneous rms measurements</b>					
Currents (A)	Phases and neutral	I1, I2, I3, IN	■	■	■
	Average of phases	$I_{avg} = (I1 + I2 + I3) / 3$	■	-	■
	Highest current of the 3 phases and neutral	$I_{max}$ of I1, I2, I3, IN	■	■	■
	Ground fault (Micrologic 6)	% Ig (pick-up setting)	■	■	■
	Current unbalance between phases	% Iavg	■	-	■
Voltages (V)	Phase-to-phase	U12, U23, U31	■	■	■
	Phase-to-neutral	V1N, V2N, V3N	■	■	■
	Average of phase-to-phase voltages	$U_{avg} = (U12 + U21 + U23) / 3$	■	-	■
	Average of phase-to-neutral voltages	$V_{avg} = (V1N + V2N + V3N) / 3$	■	-	■
	Ph-Ph and Ph-N voltage unbalance	% Uavg and % Vavg	■	-	■
	Phase sequence	1-2-3, 1-3-2	■	■	■
Frequency (Hz)	Power system	f	■	■	■
Power	Active (kW)	P, total / per phase	■	■	■
	Reactive (kVAR)	Q, total / per phase	■	■	■
	Apparent (kVA)	S, total / per phase	■	■	■
	Power factor and cos φ (fundamental)	PF and cosφ, total and per phase	■	-	■
<b>Maximeters / minimeters</b>					
	Associated with instantaneous rms measurements	Reset via Micrologic or FDM121 display unit	■	-	■
<b>Energy metering</b>					
Energy	Active (kW), reactive (kVARh), apparent (kVAh)	Total since last reset Absolute or signed mode <sup>(1)</sup>	■	■	■
<b>Demand and maximum demand values</b>					
Demand current (A)	Phases and neutral	Present value on the selected window	■	-	■
		Maximum demand since last reset	■	-	■
Demand power	Active (kWh), reactive (kVAR), apparent (kVA)	Present value on the selected window	■	-	■
		Maximum demand since last reset	■	-	■
Calculation window	Sliding, fixed or com-synchronised	Adjustable from 5 to 60 minutes in 1 minute steps	■	-	(2)
<b>Power quality</b>					
Total harmonic distortion (%)	Of voltage with respect to rms value	THDU, THDV of the Ph-Ph and Ph-N voltage	■	-	■
	Of current with respect to rms value	THDI of the phase current	■	-	■

(1) Absolute mode: E absolute = E out + E in; Signed mode: E signed = E out - E in.

(2) Available via the communication system only.

### Additional technical characteristics

#### Measurement accuracy

Accuracies are those of the entire measurement system, including the sensors:

- Current: Class 1 as per IEC 61557-12
- Voltage: 0.5 %
- Power and energy: Class 2 as per IEC 61557-12
- Frequency: 0.1 %

Micrologic measurement capabilities come into full play with the FDM121 switchboard display. It connects to Compact NSX via a simple cord and displays Micrologic information. The result is a true integrated unit combining a circuit breaker and a Power Meter. Additional operating assistance functions can also be displayed.



FDM121 display.



Surface mount accessory.



Connection with FDM121 display unit.

## FDM121 switchboard display

The FDM121 is a switchboard display unit that can be integrated in the Compact NSX100 to 630 A system. It uses the sensors and processing capacity of the Micrologic trip unit. It is easy to use and requires no special software or settings. It is immediately operational when connected to the Compact NSX by a simple cord. The FDM121 is a large display, but requires very little depth. The anti-glare graphic screen is backlit for very easy reading even under poor ambient lighting and at sharp angles.

## Display of Micrologic measurements and alarms

The FDM121 is intended to display Micrologic 5 measurements, alarms and operating information. It cannot be used to modify the protection settings. Measurements may be easily accessed via a menu.

All user-defined alarms are automatically displayed. The display mode depends on the priority level selected during alarm set-up:

- High priority: a pop-up window displays the time-stamped description of the alarm and the orange LED flashes
- Medium priority: the orange "Alarm" LED goes steady on
- Low priority: no display on the screen

All faults resulting in a trip automatically produce a high-priority alarm, without any special settings required.

In all cases, the alarm history is updated.

If power to the FDM121 fails, all information is stored in the Micrologic non-volatile memory. The data can be consulted via the communication system when power is restored.

## Status indications and remote control

When the circuit breaker is equipped with the BSCM module, the FDM121 display can also be used to view circuit breaker status conditions:

- O/F: ON/OFF
- SD: trip indication
- SDE: Fault-trip indication (overload, short-circuit, ground fault)

## Main characteristics

- 96 x 96 x 30 mm screen requiring 10 mm behind the door (or 20 mm when the 24 volt power supply connector is used)
  - White backlighting
  - Wide viewing angle: vertical  $\pm 60^\circ$ , horizontal  $\pm 30^\circ$
  - High resolution: excellent reading of graphic symbols
  - Alarm LED: flashing orange for alarm pick-up, steady orange after operator reset if alarm condition persists
  - Operating temperature range  $-10^\circ\text{C}$  to  $+55^\circ\text{C}$
  - CE / UL marking
  - 24 V DC power supply, with tolerances 24 V  $-20\%$  (19.2 V) to 24 V  $+10\%$  (26.4 V)
- When the FDM121 is connected to the communication network, the 24 V is supplied by the communication system wiring system
- Consumption 40 mA

## Mounting

The FDM121 is easily installed in a switchboard.

- Standard door cut-out 92 x 92 mm
- Attached using clips

To avoid a cut-out in the door, an accessory is available for surface mounting by drilling only two 22 mm diameter holes.

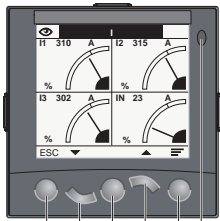
The FDM121 degree of protection is IP54 in front. IP54 is maintained after switchboard mounting by using the supplied gasket during installation.

## Connection

The FDM121 is equipped with:

- A 24 V DC terminal block:
- Plug-in type with 2 wire inputs per point for easy daisy-chaining
- Power supply range of 24 V  $-20\%$  (19.2 V) to 24 V  $+10\%$  (26.4 V)
- Two RJ45 jacks

The Micrologic connects to the internal communication terminal block on the Compact NSX via the pre-wired NSX cord. Connection to one of the RJ45 connectors on the FDM121 automatically establishes communication between the Micrologic and the FDM121 and supplies power to the Micrologic measurement functions. When the second connector is not used, it must be fitted with a line terminator.



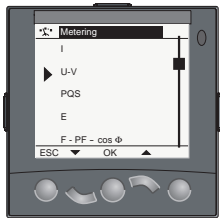
- 1 Escape
- 2 Down
- 3 OK
- 4 Up
- 5 Context
- 6 Alarm LED



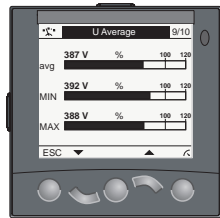
Product identification



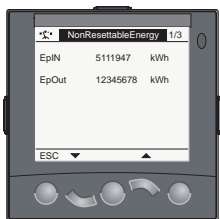
Quick view



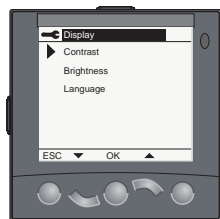
Metering: sub-menu



Metering: U average



Metering: meter



Services

## Navigation

Five buttons are used for intuitive and fast navigation.

The "Context" button may be used to select the type of display (digital, bargraph, analogue).

The user can select the display language (Chinese, English, French, German, Italian, Portuguese, Spanish, etc.) Other languages can be downloaded.

## Screens

### Main menu

When powered up, the FDM121 screen automatically displays the ON/OFF status of the device.

- Quick view
- Metering
- Alarms
- Services.

When not in use, the screen is not backlit. Backlighting can be activated by pressing one of the buttons. It goes off after 3 minutes.

### Fast access to essential information

- "Quick view" provides access to five screens that display a summary of essential operating information (I, U, f, P, E, THD, circuit breaker On / Off)

### Access to detailed information

- "Metering" can be used to display the measurement data (I, U-V, f, P, Q, S, E, THD, PF) with the corresponding min/max values
- Alarms displays active alarms and the alarm history
- Services provides access to the operation counters, energy and maximeter reset function, maintenance indicators, identification of modules connected to the internal bus and FDM121 internal settings (language, contrast, etc.)

## Selection and order form

Panelboards with the new range of Moulded Case Circuit Breakers (NSX) Installation Monitoring & Measuring functionality all integrated into the MCCB (4 Pole only), with Remote Display (FDM) and Modbus output Compact NSX enable the measured and metered data to be integrated in software management systems.

Note:- 4 pole breakers only on the incommer

### Panel board Selection

Order Code	Description	Selection
<b>400A/630A Panelboard</b>		
MG6C6	18 single pole ways ( 4 x 4 pole)	<input type="checkbox"/>
MG6C12	36 single pole ways ( 8 x 4 pole)	<input type="checkbox"/>
MG6C18	54 single pole ways ( 12 x 4 pole + 2 x 3 pole)	<input type="checkbox"/>
<b>800A Panelboard</b>		
MG8C6	18 single pole ways ( 4 x 4 pole)	<input type="checkbox"/>
MG8C12	36 single pole ways ( 8 x 4 pole)	<input type="checkbox"/>
MG8C18	54 single pole ways ( 12 x 4 pole + 2 x 3 pole)	<input type="checkbox"/>
<b>1600A Panelboard</b>		
MG16C14	42 single pole ways (9 x 4 pole + 2 x 3 pole)	<input type="checkbox"/>

### Incomer

Order Code	Description	Selection
<b>400A/630A Panelboard 4 pole</b>		
SEP4004M5	400A 4 pole MCCB compact NSX Integrated Metering & Monitoring Micrologic 5 Including Metering Cable	<input type="checkbox"/>
SEP6304M5	630A 4 pole MCCB compact NSX Integrated Metering & Monitoring Micrologic 5 Including Metering Cable	<input type="checkbox"/>
<b>800A Panelboard</b>		
MGP8004B5	800A 4 Pole incomer	<input type="checkbox"/>
<b>1600A Panelboard</b>		
33566	1250A 4 pole Incomer	<input type="checkbox"/>
33570	1600A 4 pole incomer	<input type="checkbox"/>
SEPINTP1	Power and interface kit	<input type="checkbox"/>

### Outgoing ways 4 pole (only) with Micrologic 5 (Integrated U,I,E,P,f\*,THD\* Measuring and Monitoring\*\*)

Order Code	36kA rated circuit breakers	Out going way position											
		1	2	3	4	5	6	7	8	9	10	11	12
SEP0404M5	40 A protection module Micrologic 5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SEP1004M5	100 A protection module Micrologic 5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SEP1604M5	160 A protection module Micrologic 5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SEP2504M5	250 A protection module Micrologic 5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SEP4004M5	400 A protection module Micrologic 5***	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SEP6304M5	630 A protection module Micrologic 5***	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

\* FDM display required

\*\* Available via Modbus

\*\*\* 50kA rated breakers

## Metering options (Metering extension Box Required if Fitting Display module)

Order Code	Side Extension boxes	Selection
<b>630A &amp; 800A</b>		
<b>MGPCM6LX</b>	6 Way board Left Hand Side 3 remote display positions	<input type="checkbox"/>
<b>MGPCM6RX</b>	6 Way board Right Hand Side 6 remote display positions	<input type="checkbox"/>
<b>MGPCM12LX</b>	12 Way board Left Hand Side 6 remote display positions	<input type="checkbox"/>
<b>MGPCM12RX</b>	12 Way board Right Hand Side 9 remote display positions	<input type="checkbox"/>
<b>MGPCM18LX</b>	18 Way board Left Hand Side 9 remote display positions	<input type="checkbox"/>
<b>MGPCM18RX</b>	18 Way board Right Hand Side 11 remote display positions	<input type="checkbox"/>
<b>1600A</b>		
<b>MG16CEM4X</b>	Side Extension Cubicle	<input type="checkbox"/>
<b>Display</b>		
<b>TRV00121</b>	FDM121 Metering Display module	<input type="checkbox"/>
<b>Cable accessories</b>		
<b>TRV00870</b>	5 RJ45 female/ female connector	<input type="checkbox"/>
<b>TRV00810</b>	5 RJ45/RJ45 1M interconnector	<input type="checkbox"/>
<b>TRV00820</b>	5 RJ45/RJ45 2M interconnector	<input type="checkbox"/>
<b>TRV00880</b>	10 ULP Line terminators	<input type="checkbox"/>
<b>Modbus Communication accessories</b>		
<b>TRV00210</b>	Modbus interface	<input type="checkbox"/>
<b>TRV00217</b>	Stacking Connector for TRV00210	<input type="checkbox"/>

## Standard Outgoing way MCCB (3pole) order codes

Order Code	Description
<b>MGP0163X</b>	PP4 MCCB 3P 16A
<b>MGP0253X</b>	PP4 MCCB 3P 25A
<b>MGP0323X</b>	PP4 MCCB 3P 32A
<b>MGP0403X</b>	PP4 MCCB 3P 40A
<b>MGP0633X</b>	PP4 MCCB 3P 63A
<b>MGP0803X</b>	PP4 MCCB 3P 80A
<b>MGP1003X</b>	PP4 MCCB 3P 100A
<b>MGP1253X</b>	PP4 MCCB 3P 125A
<b>MGP1603X</b>	PP4 MCCB 3P 160A
<b>MGP2003X</b>	PP4 MCCB 3P 200A
<b>MGP2503X</b>	PP4 MCCB 3P 250A
<b>MGP4003X</b>	PP4 MCCB 3P 400A
<b>MGP6303X</b>	PP4 MCCB 3P 630A

## Other options

Order Code	Description	
	On site Engineer Support 1 Day	
<b>LV434205</b>	Breaker Status information required (up to 630A)	1 required per Breaker

## Example of ordering a Panel Board with Metering

Step 1	Select the Required Panel board from Section 1	<b>MG6C6</b>	x1
Step 2	Select Incomer device	<b>SEP6304M5</b>	x1
2a	Select Power & Interface Kit	<b>SEPINTP1</b>	x1
Step 3	Select appropriate outgoing device from Section 3	<b>SEP1004M5</b>	x1
Step 4	Add Metering accessories		
4a	If you require the display module for each outgoing way then select a side extension box	<b>MGPCM6L</b>	x1
4b	Select required Number of Display Modules (include Incommer)	<b>TRV00121</b>	x3
4c	If data is required over Modbus protocol select the required number of Modbus interfaces (include incomer)	<b>TRV00210</b>	x3
4d	Select modbus stacking connectors (pack of 10) include incommer	<b>TRV00217</b>	x1
4e	Select Required number of RJ45 interconnectors (Pack of 5)	<b>TRV00810</b>	x1
4f	Select ULP terminator (pack of 10)	<b>TRV00880</b>	x1

Note: If no display modules are required and data is to be made available over Modbus only items 4a and 4b are not required.