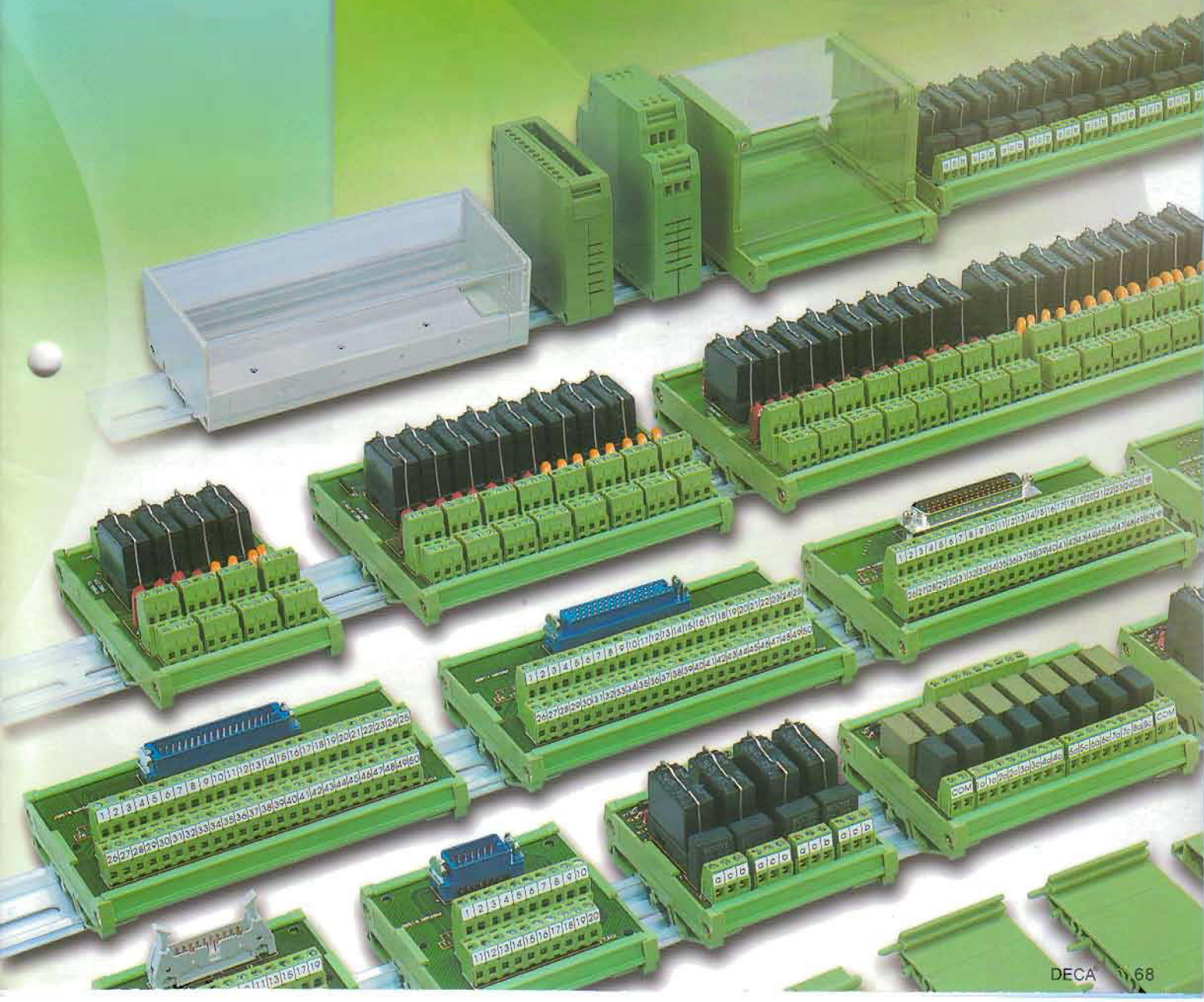



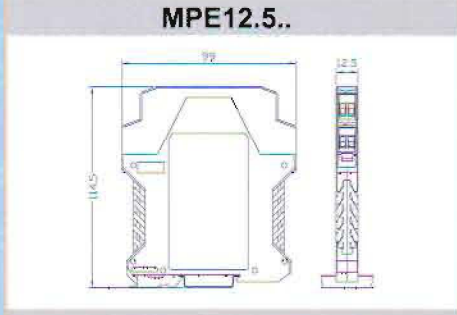
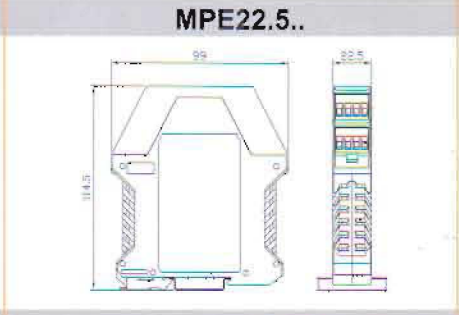
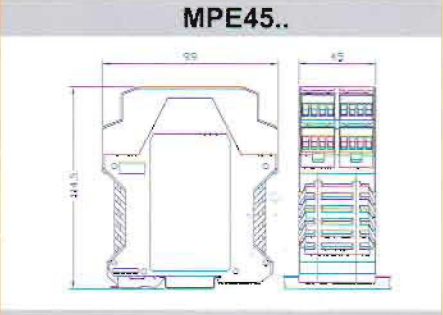


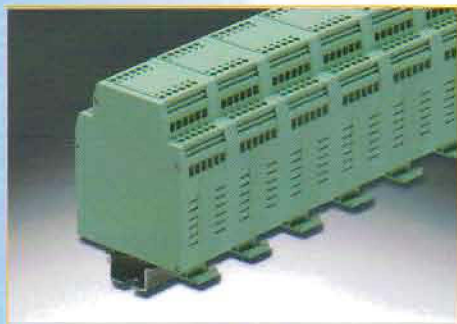
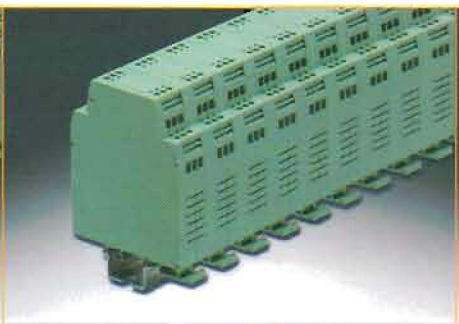
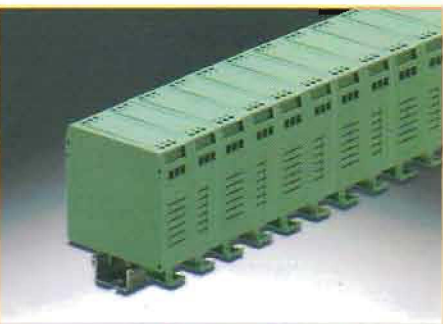
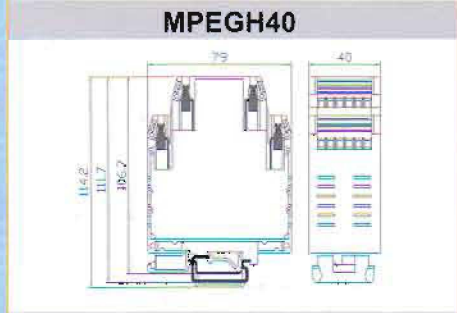
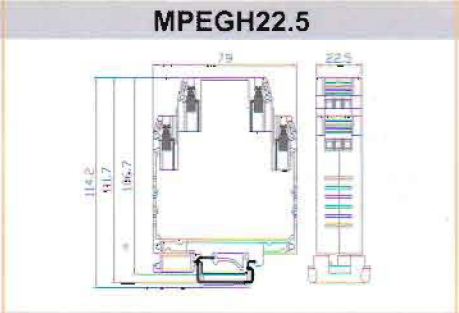
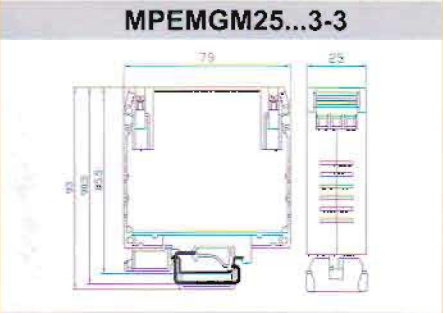
# Interface Module

Electronics Enclosure



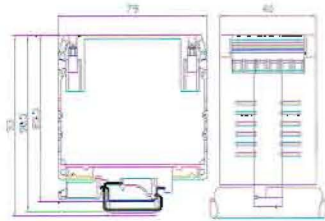
## Component housings

		
<b>MPE12.5..</b>	<b>MPE22.5..</b>	<b>MPE45..</b>
		
L/W/H (mm) : 99×12.5×114.5	L/W/H (mm) : 99×22.5×114.5	L/W/H (mm) : 99×45×114.5
PCB : 1	PCB : 1	PCB : 1
Current rating : 10Amp AC300V	Current rating : 10Amp AC300V	Current rating : 10Amp AC300V
Wire Size : 30-12 AWG	Wire Size : 30-12 AWG	Wire Size : 30-12 AWG
Torque(lb-in) : 4.5	Torque(lb-in) : 4.5	Torque(lb-in) : 4.5

		
<b>MPEGH40</b>	<b>MPEGH22.5</b>	<b>MPENGM25...3-3</b>
		
L/W/H (mm) : 79×40×114.2	L/W/H (mm) : 79×22.5×114.2	L/W/H (mm) : 79×25×93
PCB : 1	PCB : 1	PCB : 1
Current rating : 10Amp AC300V	Current rating : 10Amp AC300V	Current rating : 8Amp AC300V
Wire Size : 30-12 AWG	Wire Size : 30-12 AWG	Wire Size : 24-12 AWG
Torque(lb-in) : 4	Torque(lb-in) : 4	Torque(lb-in) : 4



**MPEMGM40...6-6**



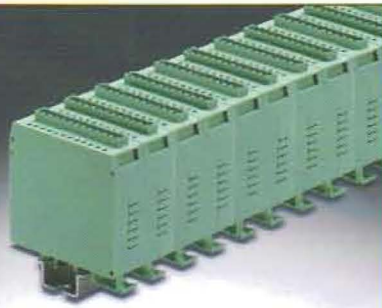
L/W/H (mm) : 79×40×93

PCB : 1

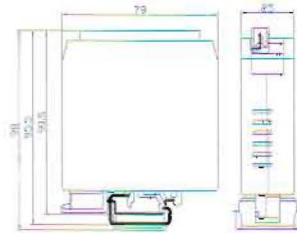
Current rating : 8Amp AC300V

Wire Size : 24-12 AWG

Torque(lb-in) : 4



**MPEMGM25...12**



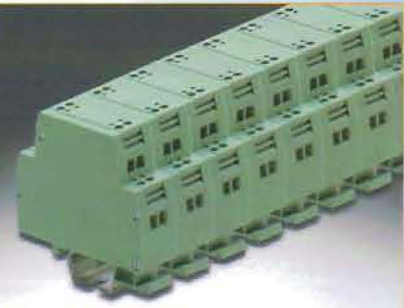
L/W/H (mm) : 79×25×98

PCB : 1

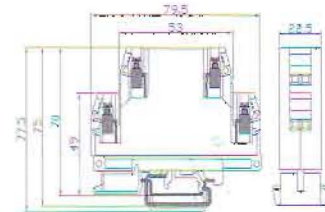
Current rating : 8Amp AC300V

Wire Size : 24-12 AWG

Torque(lb-in) : 4



**MPEGS22.5**



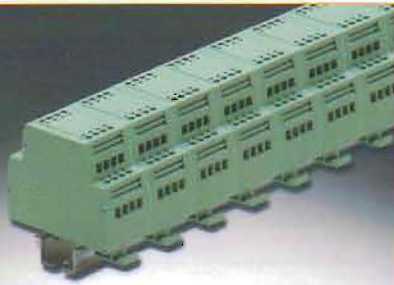
L/W/H (mm) : 79.5×22.5×77.5

PCB : 1

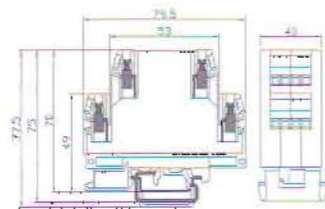
Current rating : 10Amp AC300V

Wire Size : 30-12 AWG

Torque(lb-in) : 4



**MPEGS30**



L/W/H (mm) : 79.5×40×77.5

PCB : 1

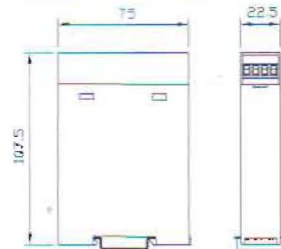
Current rating : 10Amp AC300V

Wire Size : 30-12 AWG

Torque(lb-in) : 4



**MPEG22.5**



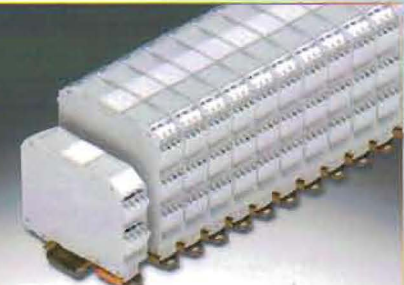
L/W/H (mm) : 75×22.5×107.5

PCB : 1

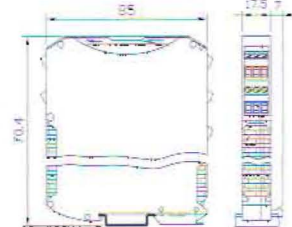
Current rating : 8Amp AC300V

Wire Size : 24-12 AWG

Torque(lb-in) : 4



**MPE22.5SC4-4..**



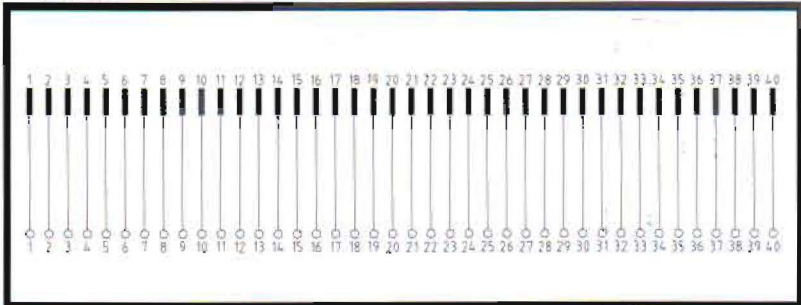
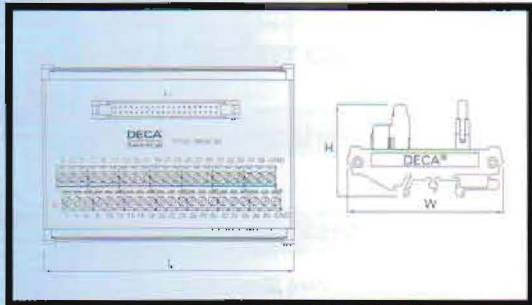
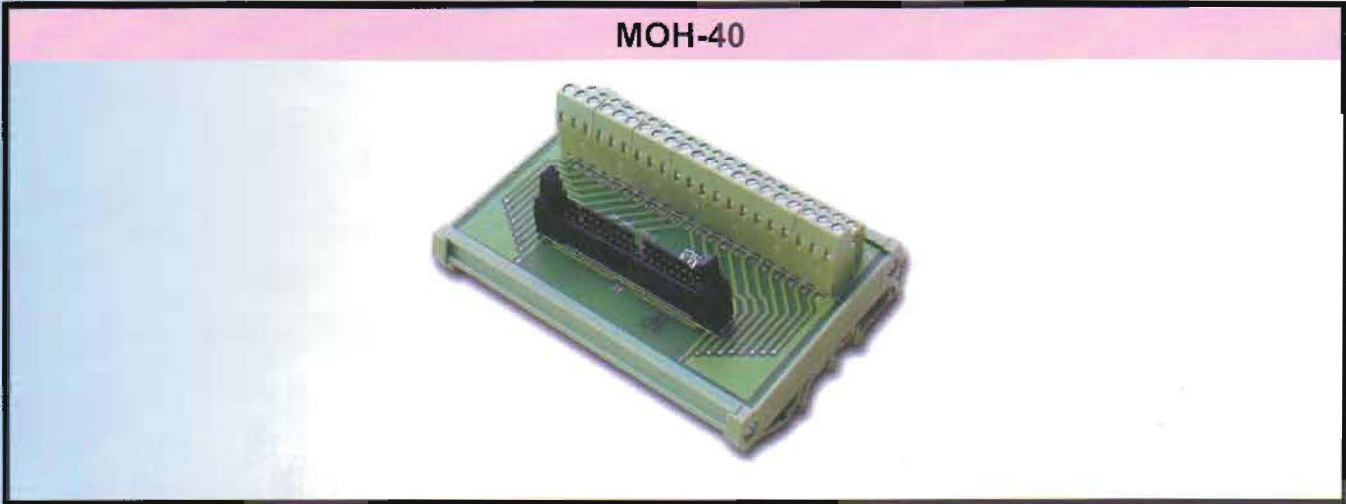
L/W/H (mm) : 85×17.5×70.4

PCB : 1

Current rating : 12Amp AC250V

Wire Size : 24-12 AWG

Torque(lb-in) : 4.5



**IDC Connector Module**

IDC connector modules are used in industrial control as a connecting interface between electronic and conventional components. They serve as the signal conversion from ribbon cable connector and screw type terminals. The IDC connector modules provide user a convenient, quickly installed, and easily replaced input/output platform for all common PLC's.

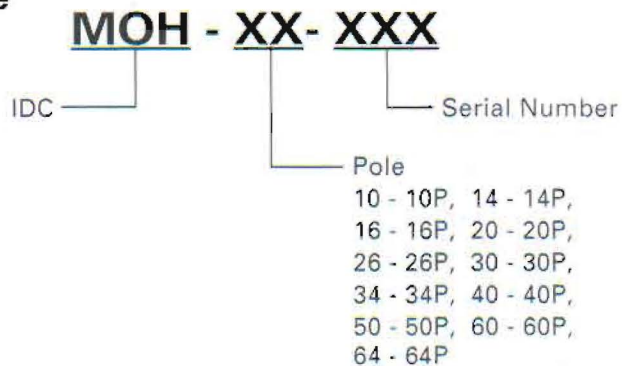
The standard models have the header from 10 to 64 with ejectors and strain/relief features to fit different application. Customer specified design will be accepted for particular requirement. The modules can be mounted on standard rails TS15, TS32, and TS35.

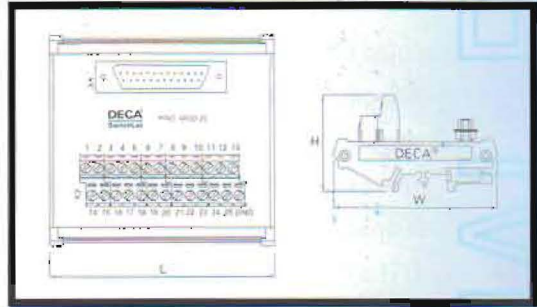
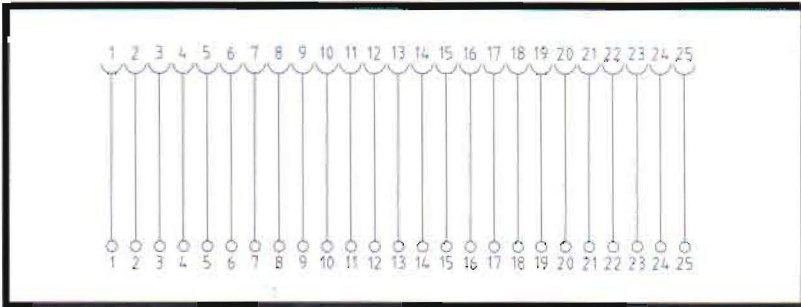
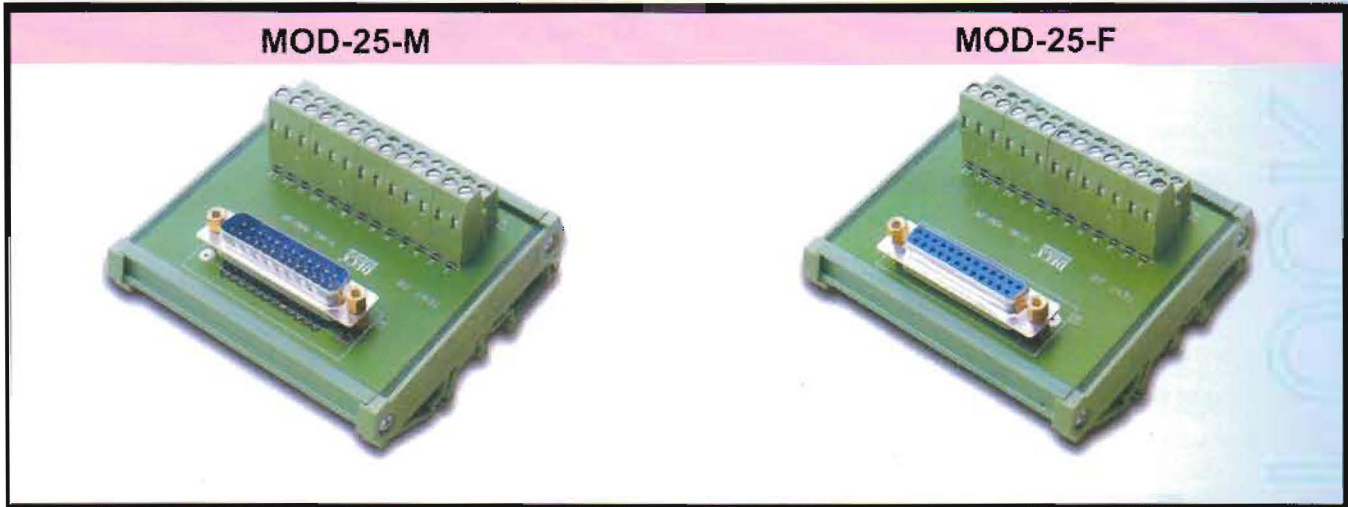
**Specification**

Unit: mm

Pole	Dimension (L x W x H)
10P	46 x 85 x 53
14P	56 x 85 x 53
16P	61 x 85 x 53
20P	71 x 85 x 53
26P	86 x 85 x 53
30P	96 x 85 x 53
34P	106 x 85 x 53
40P	121 x 85 x 53
50P	146 x 85 x 53
60P	171 x 85 x 53
64P	181 x 85 x 53

**Order Guide**



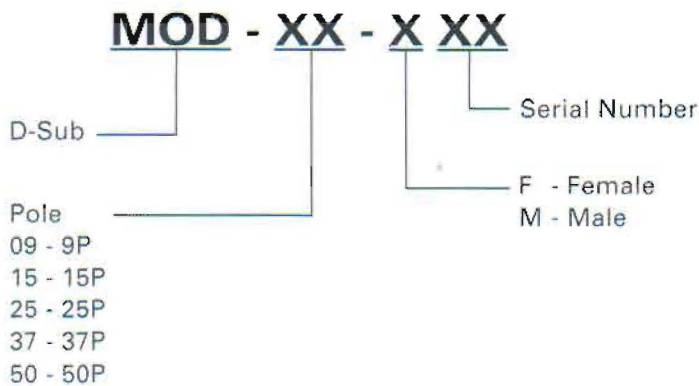


Specification

Unit: mm

Pole	Connector Type	Dimension (L x W x H)
9P	Male / Female	46 x 85 x 52
15P	Male / Female	68 x 85 x 52
25P	Male / Female	92 x 85 x 52
37P	Male / Female	122 x 85 x 52
50P	Male / Female	157 x 85 x 52

Order Guide



D-Sub Connector Module

D-Subminiature connector modules are used in industrial control as a connecting interface between electronic and conventional components. They serve as the signal conversion from D-Sub to screw connection. The D-Sub connector modules provide user a convenient, quickly installed, and easily replaced input/output platform for all common PLC's.

The standard models offer 9, 15, 25, 37 and 50 connections either in male or female connector type to fit different application. Customer specified design will be accepted for particular requirement. The modules can be mounted on standard mounting rails TS15, TS32, and TS35.

## Relay Module

### Relay Module

Since more complex raises on plant process, building automation and tech-trend increase in need of wires, relay module is designed as the solution to integrate wirings instead of traditional single wire usage. The relay modules are utilized as the connecting interface between electronic and conventional components. They are successfully in offering user the convenient, secure, cost and easy-to-install, easy-to-replace input/output platform.

The modules offer 1, 2, 4, 8 and 16 relays with one or two changeover contact (SPDT or 2 SPDT) to fit different application. The LED indicator indicates On/Off status of input signals. In order to prevent improper operating, reverse polarity protection is provided. The modules can be mounted on standard rails TS15, TS32, and TS35.

Customer specified design will be accepted for particular requirement.

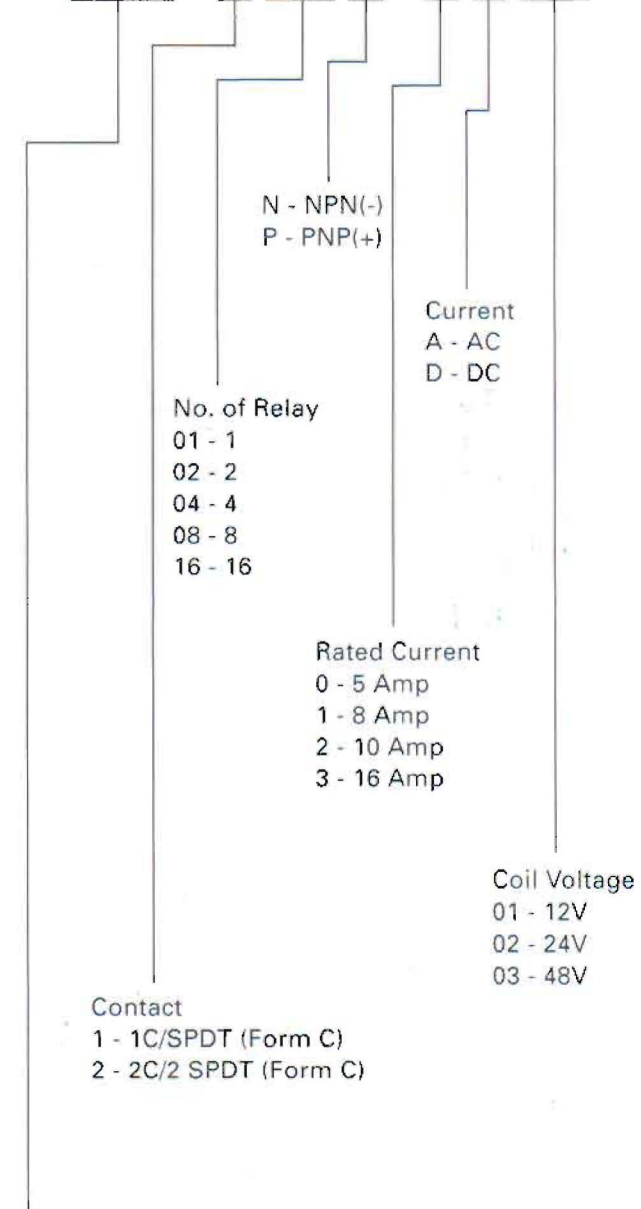
### Advantage

Relay module is designed to be space saving, flexible, secure and integrated, providing user the most convenient choice.

- Clear structure in the panel by adapting system cables instead of single wire
- Minimum wiring on site through plug-in technology that can also prevent wiring errors
- Clear markings between interface module and PLC
- Compact design to reducing space needed in control box and cable conduits
- Time saving on planning, start-up, installation and fault located
- Simple and easy to expand and replace
- Flexibility on exchange input/output interfaces

### Order Guide

**MLR - X XX X - X X XX**

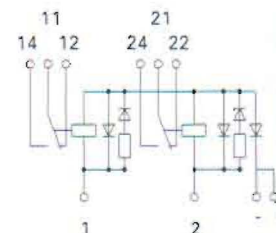
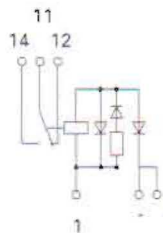
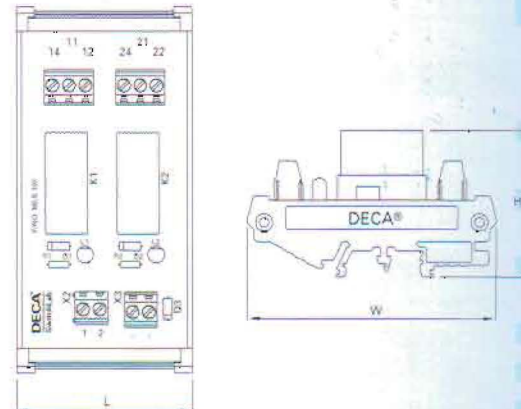
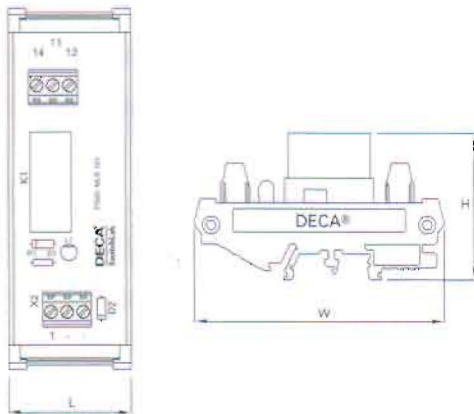
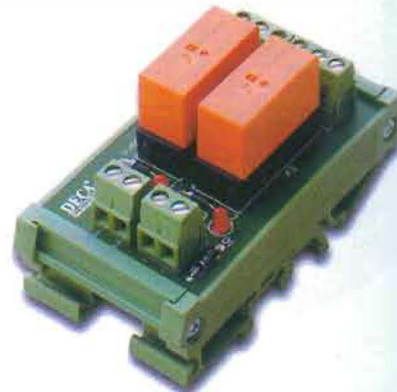


MLR - Relay Module  
MSR - Low Current Relay Module  
MSS - Solid State Relay Module

MLR-101



MLR-102

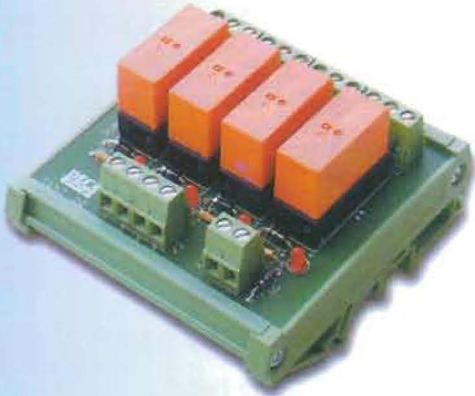


**Contact Specification**

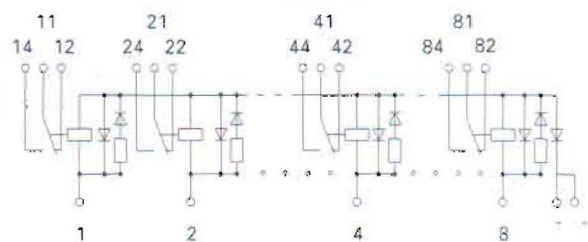
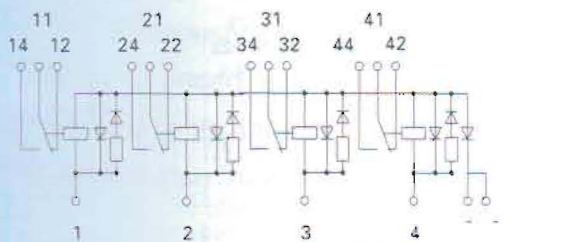
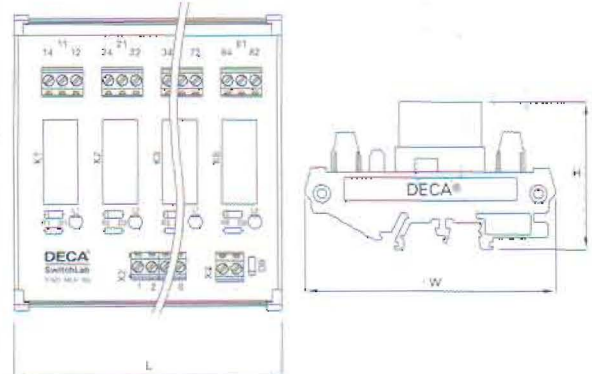
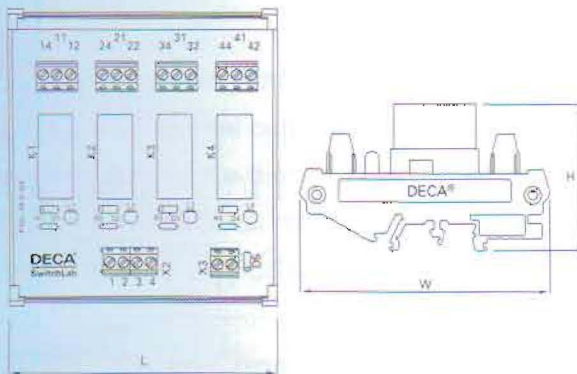
Model	MLR-101	MLR-102
Contact	SPDT (Form C)	SPDT (Form C)
No. of Relay	1	2
Rated Current (Amp)	16	16
Contact Material	AgNi 90/10	AgNi 90/10
Max. Breaking Voltage	440V AC	440V AC
Rated Voltage	250V AC	250V AC
Coil Voltage (VDC)	12, 24, 48	12, 24, 48
Dimension (LxWxHmm)	46 x 85 x 51	46 x 85 x 51

## Relay Module

### MLR-104



### MLR-108

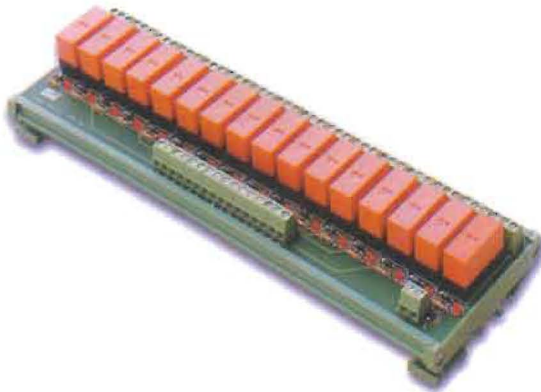


## Contact Specification

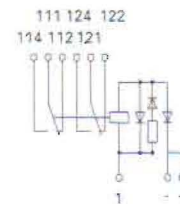
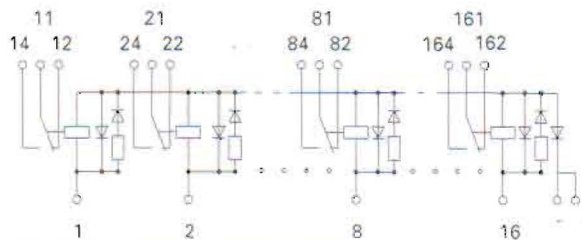
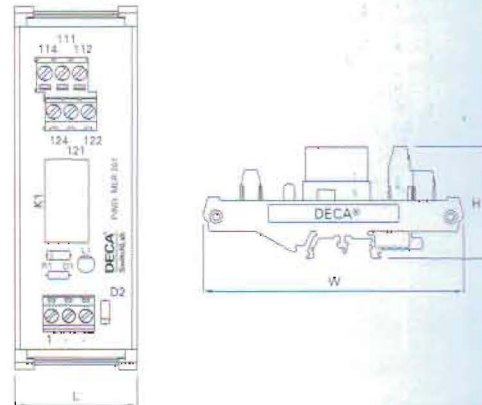
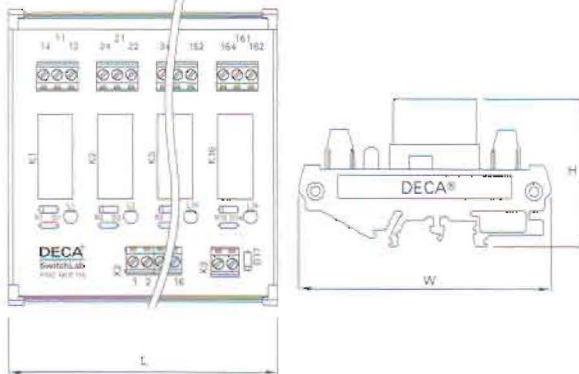
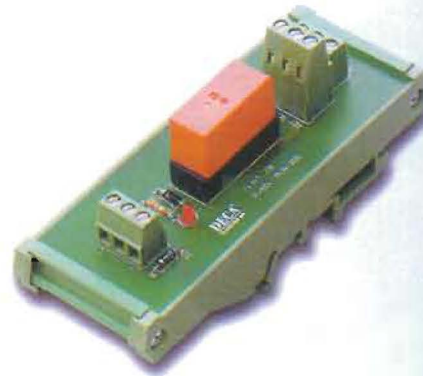
Model	MLR-104	MLR-108
Contact	SPDT (Form C)	SPDT (Form C)
No. of Relay	4	8
Rated Current (Amp)	16	16
Contact Material	AgNi 90/10	AgNi 90/10
Max. Breaking Voltage	440V AC	440V AC
Rated Voltage	250V AC	250V AC
Coil Voltage (VDC)	12, 24, 48	12, 24, 48
Dimension (LxWxHmm)	80 x 85 x 51	136 x 85 x 51



MLR-116



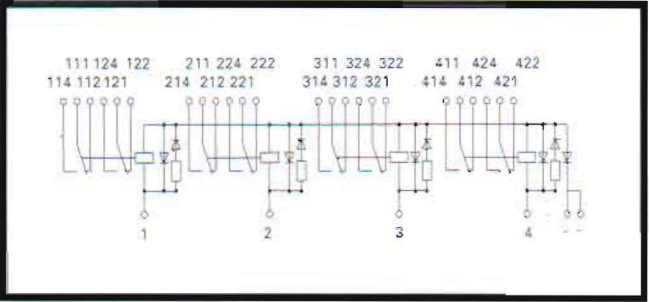
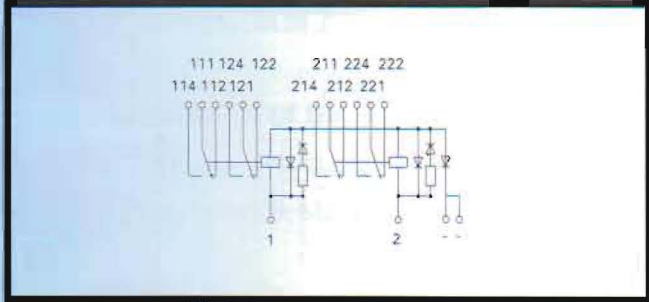
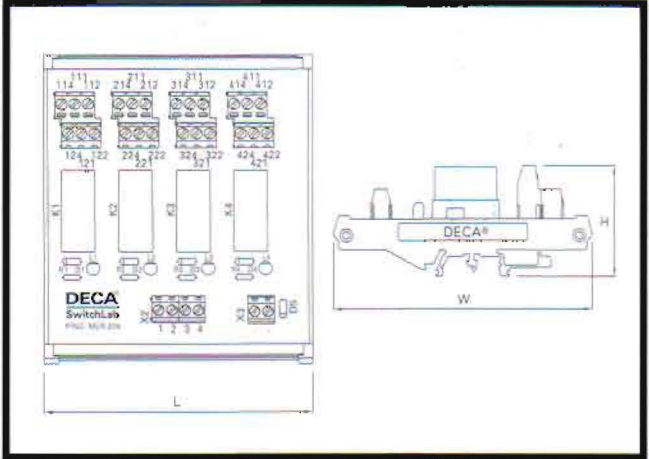
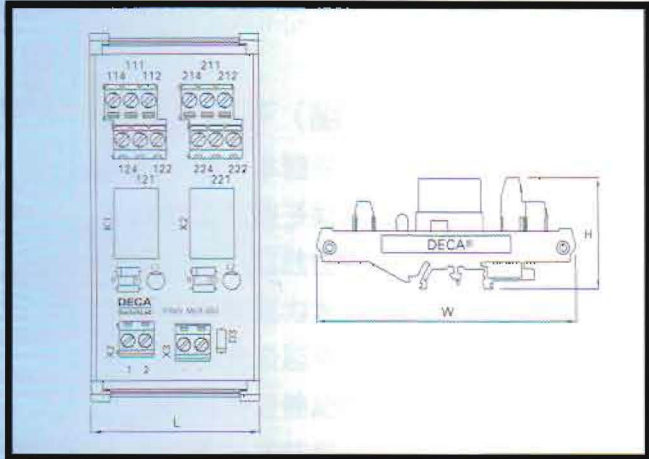
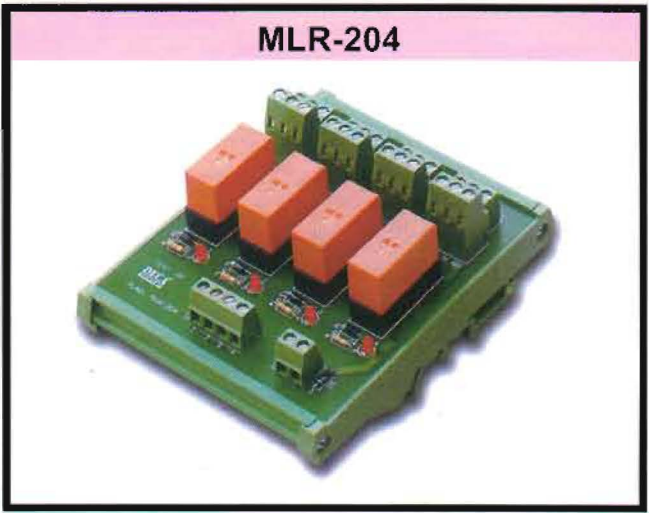
MLR-201



Contact Specification

Model	MLR-116	MLR-201
Contact	SPDT (Form C)	2 SPDT (Form C)
No. of Relay	16	1
Rated Current (Amp)	16	8
Contact Material	AgNi 90/10	AgNi 90/10
Max. Breaking Voltage	440V AC	440V AC
Rated Voltage	250V AC	250V AC
Coil Voltage (VDC)	12, 24, 48	12, 24, 48
Dimension (LxWxHmm)	264x85x51	46x120x52

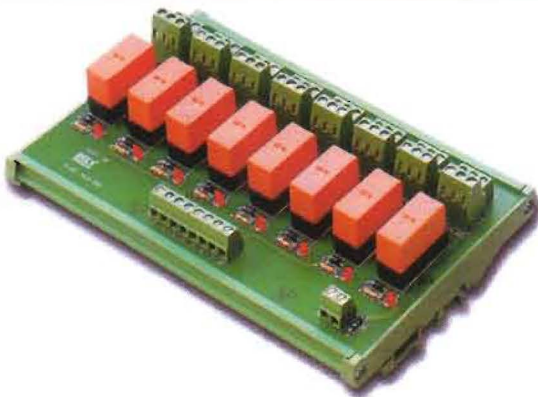
# Relay Module



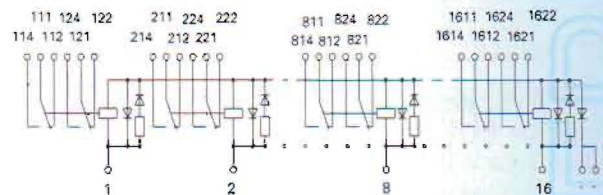
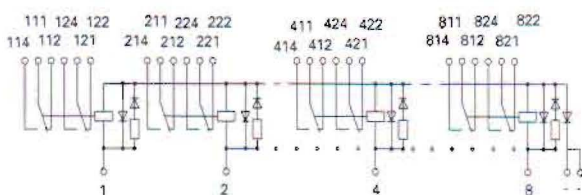
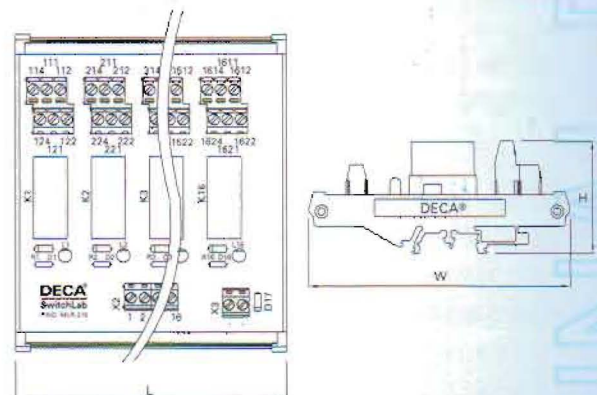
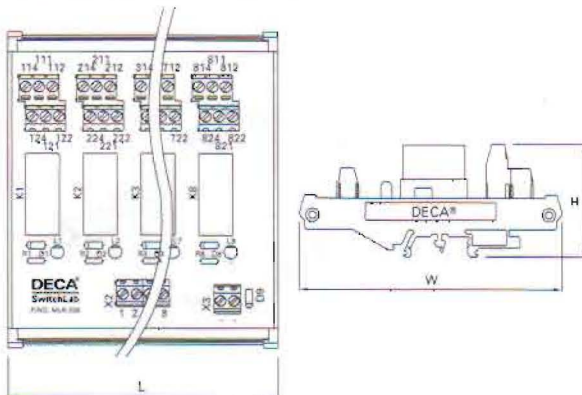
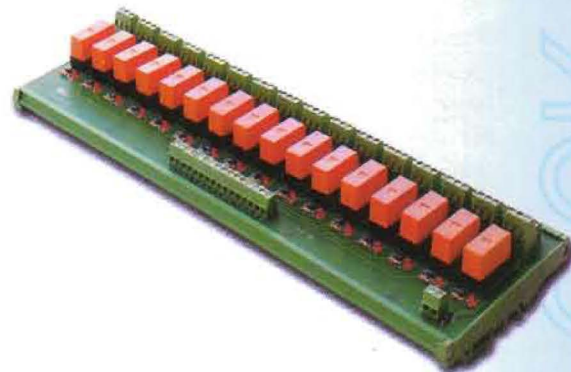
## Contact Specification

Model	MLR-202	MLR-204
Contact	2 SPDT (Form C)	2 SPDT (Form C)
No. of Relay	2	4
Rated Current (Amp)	8	8
Contact Material	AgNi 90/10	AgNi 90/10
Max. Breaking Voltage	440V AC	440V AC
Rated Voltage	250V AC	250V AC
Coil Voltage (VDC)	12, 24, 48	12, 24, 48
Dimension (LxWxHmm)	51x120x52	95x120x52

MLR-208



MLR-216



Contact Specification

Model	MLR-208	MLR-216
Contact	2 SPDT (Form C)	2 SPDT (Form C)
No. of Relay	8	16
Rated Current (Amp)	8	8
Contact Material	AgNi 90/10	AgNi 90/10
Max. Breaking Voltage	440V AC	440V AC
Rated Voltage	250V AC	250V AC
Coil Voltage (VDC)	12, 24, 48	12, 24, 48
Dimension (LxWxHmm)	181x120x52	355x120x52

## Housing

### Housing

The plastic housing is designed as the base carrier, provides printed-circuit board packaging solution, that employs either to an IDC Connector module. it is ejected to one meter long in maximum and is available to be cut into any required length to fit the printed-circuit board design. The length of the housing is always by 4mm longer than printed circuit board the standard housings have two widths respectively in 85mm and 120mm. the material of housing is made of PVC. it assembles with end brackets at two end sides and can be mounted on standard rails TS15, TS32 and TS35 with design of optionally adding the protective cover for finger protection or dust-proof without affecting two sides entry of wire connection.

### 外殼

塑膠外殼是設計作為底部支撐物提供了PC板包裝的方式，其可用於使用在模組式的IDC連接器。其最高可頂出一公尺且可為符合PCB的設計裁切成任何需要的長度。外殼的長度通常比PC板長4mm。標準的外殼通常各有85mm, 92mm, 120mm及125mm四種長度。外殼的材質為PVC，其在兩側以側蓋作組裝且在不影響兩側進線的情況下可依不同設計選擇增加保護蓋作為護手或防塵的功能並安裝在TS15及TS35的軌道上。

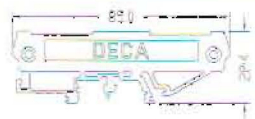
### End Bracket

The end bracket applies as the closed end to the base carrier. The standard models come with the mounting foot with two options respectively in 15.5mm and 8.0mm. The feet on the end bracket can be taken as the mounting fixture available to snap onto all standard mounting rails. End bracket is fixed to housing with two screws in each side. The material of end bracket Polyamide 66(UL 94V-0), in the case of longer end bracket, extra foot element can increase the total stability of the module to prevent deflection.

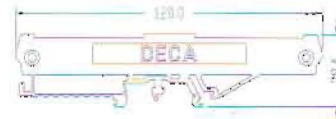
### 側蓋

側蓋應用在底部支撐座作為閉合。標準的模組附帶有各為15.5mm及8.0mm長度的安裝腳。在側蓋的安裝腳可被當作是安裝工具插入標準的安裝軌道中。側蓋在每一個側邊以兩個螺絲固定於外殼中。側蓋的材質是尼龍, PA66, 如為較長的側蓋, 則額外的安裝腳可增加整體模組的穩定性以防止偏斜。

AMK 01 (Assembled)



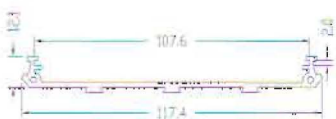
AMK 02 (Assembled)



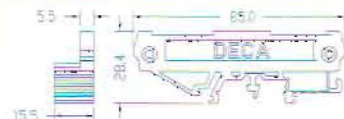
AMK 01-M01(Base)



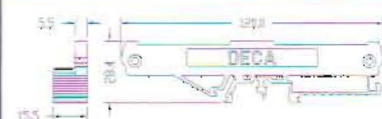
AMK 02-M02(Base)



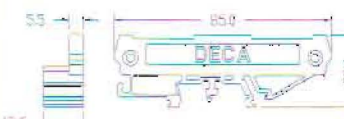
AMK 01-M02 (Left side)



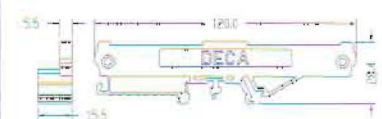
AMK 02-M02 (Left side)



AMK 01-M03 (Right side)



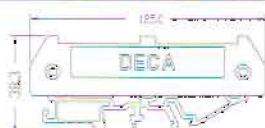
AMK 02-M03 (Right side)



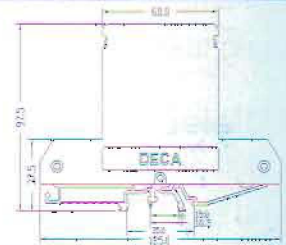
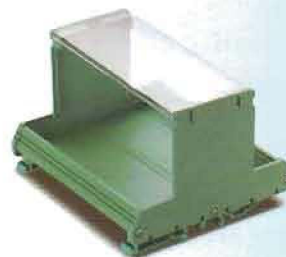
AMK 03 (Assembled)



AMK 04 (Assembled)



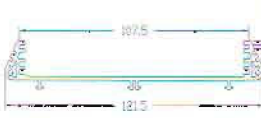
AMK 05 (Assembled)



AMK 03-M03(Base)



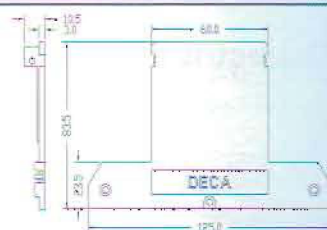
AMK 04-M04(Base)



AMK 04-M04 (Base)



AMK 05-M02 (Side cover)



AMK 03-M02 (Side cover)



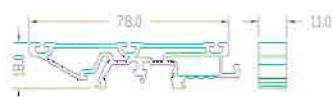
AMK 04-M02 (Side cover)



AMK 05-M03 (Retaining Plate)



AMK 03-M03 (Retaining Plate)



AMK 04-M03 (Retaining Plate)



AMK 05-M03 (Protection Cover)



## Test Requirement for Safety Approval

### Verification of electrical characteristics according to IEC60947-7-1

The verification of electrical characteristics includes the following :

- verification of clearances and creepage distances
- dielectric test
- verification of the voltage drop
- temperature-rise test
- short-time withstand current test
- ageing test for screwless-type terminal blocks

#### 8.4.3 Dielectric Test

Each test shall be carried out on five adjacent terminal blocks and then between all terminal blocks connected together and the support to which the terminal blocks are attached.

The test voltage shall be applied first between the adjacent terminal blocks and then between all terminal blocks connected together and the support to which the terminal blocks are attached.

#### 電氣特性之驗証

電氣特性之驗包括：

- 耐電壓試驗
- 電壓降試驗
- 溫度上昇試驗
- 短時間耐電流試驗
- 老化試驗

每一次測試使用5個端子台樣品配上最大線徑，其剝線長度依工廠規範指定。若產品有不同金屬之支撐物，須依最嚴格之使用方式進行。測試電流依據Table 12A（如附件）。共測試兩次—為對相鄰端子台間；二為5個端子台樣品共同連接在一起與金屬物之間。

Table 12A

Dielectric test voltage corresponding to the rated insulation voltage

（額定絕緣電壓對應之耐電壓試驗電壓）

Rated insulation voltage $U_i$ V	AC test voltage (r.m.s.) V	DC test voltage V
$U_i \leq 60$	1000	1415
$60 < U_i \leq 300$	1500	2120
$300 < U_i \leq 690$	1890	2670
$690 < U_i \leq 800$	2000	2830
$800 < U_i \leq 1000$	2200	3110
$1000 < U_i \leq 1500^{1)}$	-	3820

**Verification of voltage drop**

**The voltage drop shall be verified**

- a) before and after the test of mechanical strength of clamping units
- b) before and after the temperature-rise test
- c) before and after the short-time withstand current test
- d) before, during and after the aging test

The voltage drop is measured on each terminal block as indicated in figure 2. The measurement is made with a direct current of 0.1 times the value given table 4 or table 5.

Before the tests according to a), b), c) and d) above, the voltage drop shall not exceed 3.2mV.

After the tests mentioned above, the voltage drop shall not exceed 150% of the values measured before the test.

**電壓降之確認**

電壓降之確認需依下列情況執行：

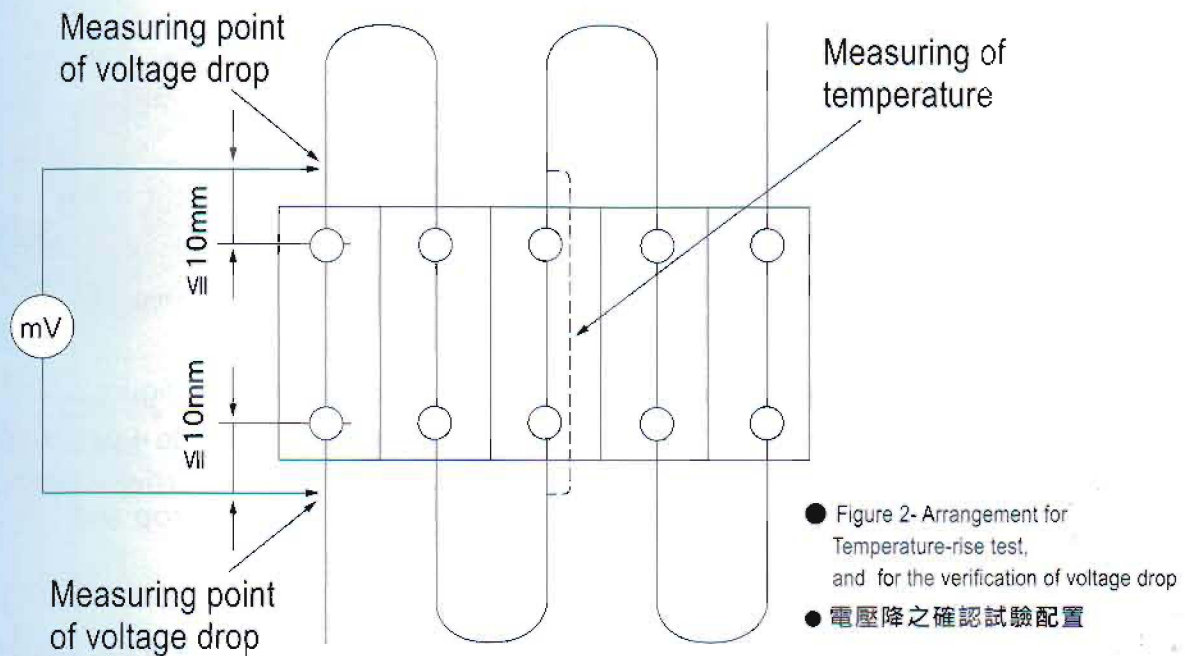
- a) 端子之機械強度試驗之前及後；b) 溫度上昇試驗之前及後；c) 短時間耐電流試驗之前及後；
- d) 老化試驗之前及後。

電壓降按照圖 2 所示對每一端子台作量測.. 量測係以直流電流按表四或表五所提供，根據其所使用導體截面積之值乘以 0.1 之電流值來量測。

試驗之前所量測之電壓降不得超過 3.2mV，並且試驗後所量測之值不得超過試驗前所量測值之 150%。

**Table 4**  
**Values of test current for temperature-rise test, ageing test**  
**and voltage drop verification for metric wire sizes**  
 ( 額定絕緣電壓對應之耐電壓試驗電壓 )

Rated cross-section (mm <sup>2</sup> )	0.2	0.34	0.5	0.75	1	1.5	2.5	4	6	10	16
Test Current (A)	4	5	6	9	13.5	17.5	24	32	41	57	78
Rated cross-section (mm <sup>2</sup> )	25	35	50	70	95	120	150	185	240	300	
Test Current (A)	101	125	150	192	232	269	300	353	415	520	



**Table 5**

**Values of test current for temperature-rise test, ageing test and voltage drop verification for AWG or kcmil wire sizes**

( AWG或MCM尺寸導線之溫昇試驗, 老化試驗及電壓降之試驗電流值 )

<b>Rated cross-section (AWG)</b>	24	22	20	18	15	14	12	10	8	6	4
<b>Test Current (A)</b>	4	5	8	10	16	22	29	38	50	67	90

<b>Rated cross-section (AWG or MCM)</b>	2	1	0	00	000	0000	250 MCM	300 MCM	350 MCM	500 MCM	600 MCM
<b>Test Current (A)</b>	121	139	162	185	217	242	271	309	353	415	520



## Temperature-rise Test

The voltage drop is measured before the temperature-rise test on each terminal block as indicated in figure 2. The measurement is made with a direct current of 0.1 times the value given table 4 or table 5. Five adjacent terminal blocks connected in series by conductors of the rated cross-section, as shown in figure 2. The conductors shall be tightened with a torque according to table 4 of IEC60947-1. A variation of less than 1 K between any two out of three consecutive measurements made at an interval of 5 min is considered as steady temperature and the temperature rise of the terminal block shall not exceed 45k.

Before the temperature-rise test, the voltage drop shall not exceed 3.2mV and after the test mentioned above, the voltage drop shall not exceed 150% of the values measured before the test.

### 溫昇試驗

以最大線徑進行測試，分別使用5 pole。測試線長及線種依標準要求。  
依據線徑對應的電流的0.1倍進行壓降量測，接著以對應電流進行溫昇測試。  
溫昇測試結束，待樣品降至室溫後再進行壓降量測。其溫昇值不可超過45K；  
第一次壓降值不可超過3.2 mV；測試後壓降不可超過第一次壓降值的1.5倍。

## Short-time withstand current

The purpose of this test is to verify the ability to withstand a thermal shock.

A terminal block shall be capable of withstanding for 1 second the rated short-time withstand current which corresponds to 120A/ mm<sup>2</sup> of its rated cross-section. The voltage drop shall be verified after the short-time withstand current test.

### 短時間耐電流試驗

本項試驗的目的為確認端子台能承熱應衝擊。

端子台應能承受相當於每mm<sup>2</sup> 額定截面積加120A之額定短時間電流通過一秒鐘時間。  
短時間耐電流試驗前依據線徑對應的電流的0.1倍進行壓降量測，測試後再次進行壓降量測，不可有任何會影響正常作用之損壞產生。第一次壓降值不可超過3.2 mV；測試後壓降不可超過第一次壓降值的1.5倍。

## Verification of rated cross-section(special test with gauges)

The test shall be carried out on each clamping unit of one terminal block.

Test for insertability of unprepared round copper conductors having max. cross-section

The test shall be carried out using the appropriate form A or form B in Table 7.

The measuring section of the gauge shall be able to penetrate freely into the terminal aperture to the full depth of the terminal (see also note to Table 7).

### 線規試驗

使用標準中與額定最大線徑對應的線規如進線般插入鎖線端子，每種欲申請線種所對應之線規均需測試。線規需可自由進入鎖線端子。

**Table 7**  
**Maximum conductor cross-section and corresponding gauges**  
(最大額定截面積與其對應之線規)

Conductor cross-section		Gauge(see figure 2)					Permissible deviation for a and b
Flexible conductors	Rigid conductors (solid or stranded)	Marking	Form A		Form B		
			Diameter a mm	Width b mm	Marking	Diameter a mm	
mm <sup>2</sup>	mm <sup>2</sup>						mm
1.5	1.5	A1	2.4	1.5	B1	1.9	0-0.05
2.5	2.5	A2	2.8	2.0	B2	2.4	
2.5	4	A3	2.8	2.4	B3	2.7	
4	6	A4	3.6	3.1	B4	3.5	0-0.06
6	10	A5	4.3	4.0	B5	4.4	
10	16	A6	5.4	5.1	B6	5.3	
16	25	A7	7.1	6.3	B7	6.9	0-0.07
25	35	A8	8.3	7.8	B8	8.2	
35	50	A9	10.2	9.2	B9	10.0	
50	70	A10	12.3	11.0	B10	12.0	0-0.08
70	85	A11	14.2	13.1	B11	14.1	
85	120	A12	16.2	15.1	B12	16.1	
120	150	A13	18.2	17.0	B13	18.0	
150	185	A14	20.2	19.0	B14	20.0	
185	240	A15	22.2	21.0	B15	22.0	0-0.09
240	300	A16	26.5	24.0	B16	26.0	