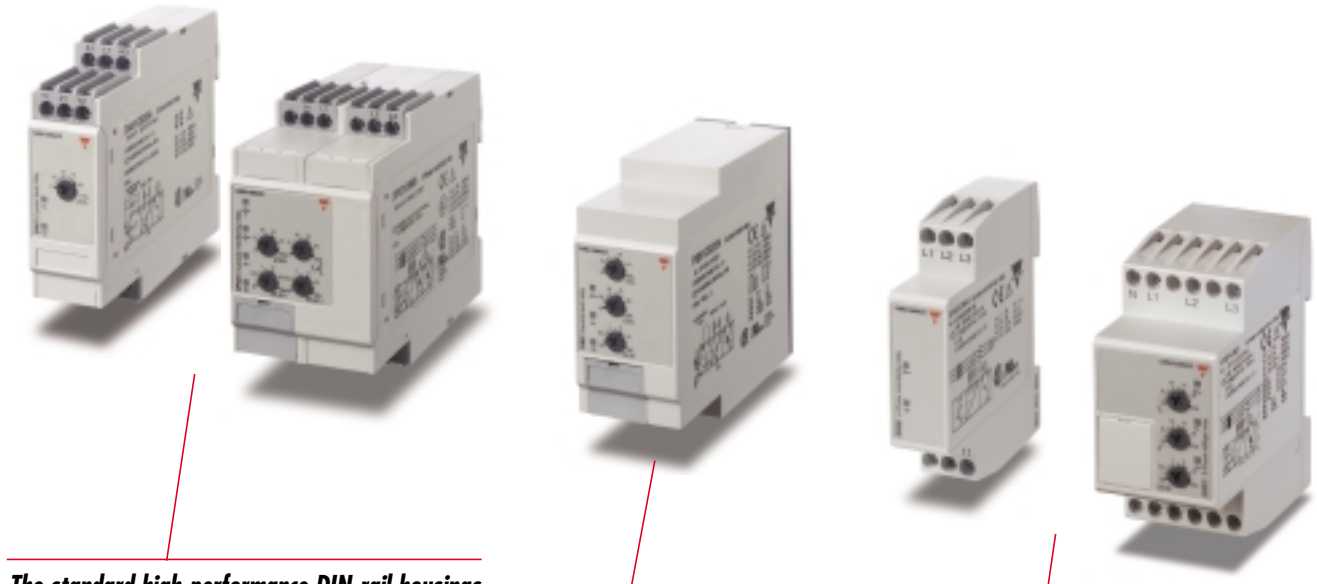
CARLO GAVAZZI
Automation Components

Monitoring in line with your applications

CARLO GAVAZZI

When technology and experience meet your expectations



The standard high-performance DIN-rail housings

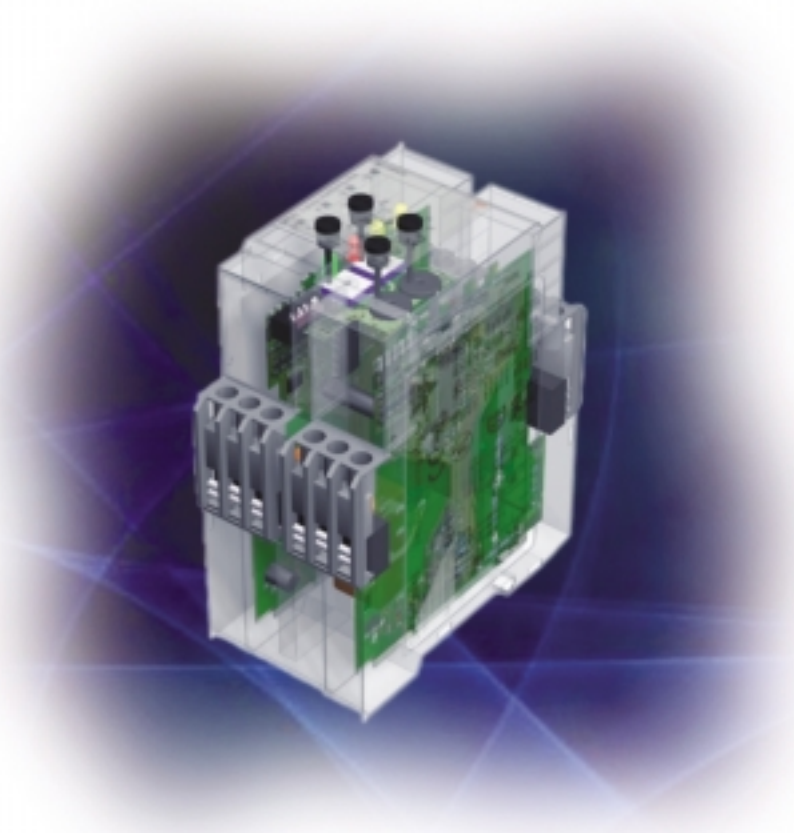
Plug-in versions for maximum flexibility

The new small norm DIN-rail housings for the new challenges

Monitoring is **the art of knowledge**.

If the electrical parameters of the system are in control, everything runs correctly, enabling down time and maintenance costs to decrease. Our people in Carlo Gavazzi learned this fundamental lesson through our thirty years experience in design and manufacturing monitoring relays. The most sophisticated measuring techniques, together with the highest attention to make the unit really easy to set up, make Carlo Gavazzi's Monitoring Relays the ideal solution whatever electrical value has to be measured.

The family is available, with the same functions, in **three different housings**: the standard DIN-rail one, perfect for industrial panels, the Plug-in housing to allow fast and safe replacement (without moving cables), and the new Mini-D housings for DIN-rail mounting, that can be mounted in industrial panels as well as in smaller panels as, for instance, for buildings or for special industrial applications.



Not all applications are the same... so we are looking for solutions

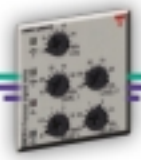
Our way of developing products always starts from listening. We begin from the final application, meeting people to understand which is the real issue. We design the products so that they really fulfil the monitoring needs. The final result is in line with excellence.

A guarantee of reliability by our specialised manufacturing centers

Our monitoring relays are manufactured according to the latest and most reliable techniques and 100% tested to be sure that when the unit is mounted on the final application is going to be a real source of tranquillity for the user.

A certified quality

The **high quality** of production is guaranteed by the ISO9001 certification of the factory, as well continuously testing and improving the production processes. CE tests, UL and CSA approvals, meaning that the three different independent bodies have tested and approved the units, testify the level of development and production of our products. Some of them are also provided with other specific and high demanding approvals, like Germanischer Lloyd.



Some useful information to find your unit...

how to type the complete code of the monitoring relay you need

If you need a current or voltage relay add...

The output - add the code:

C	SPDT relay
D	DPDT relay or 2xSPDT relays
S	solid state

The power supply - add the code:

724	24 VDC
748	48 VDC
B48	24 & 48 VAC
B23	115 & 230 VAC

The range - add the code:

5MA	1, 2 & 5 mA AC/DC
50MA	10, 20 & 50 mA AC/DC
500MA	100, 200 & 500 mA AC/DC
5A	1, 2 & 5 A AC/DC
10A	10 A AC/DC
20A	20 A AC (DIA53 only)
50A	50 A AC (DIA53 only)
100A	100 A AC (DIA53 only)
150MV	60 & 150 mV (DIB02, PIB02)
10V	1, 2, 5 & 10 V AC/DC
500V	20, 50, 200 & 500 V AC/DC
AV0	combined ranges

If you need a 3-phase voltage relay or a power relay add...

The output - add the code:

C	SPDT relay
D	DPDT relay or 2xSPDT relays

The power supply - add the code:

M44	208 to 480 VAC
M23	208 to 240 VAC
M48	380 to 480 VAC
M60	400 to 600 VAC
M69	600 to 690 VAC

The current range (power relays only) - add the code:

5A	5 A AC
10A	5 & 10 A AC

If you need a frequency relay add...

The output - add the code:

C	SPDT relay
D	2xSPDT relays

The power supply - add the code:

M24	24 to 240 VAC
B48	24 & 48 VAC
B23	115 & 230 VAC

If you need a motor temperature relay add...

The output - add the code:

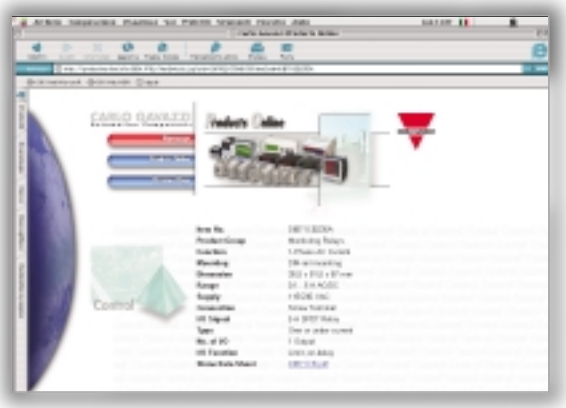
C	SPST relay or SPDT relay

The power supply - add the code:

724	24 VDC
024	24 VAC
115	115 VAC
230	230 VAC

Find more technical information on "www.ProductsOnline.info"

Carlo Gavazzi provides continuosly updated technical information on our website in the Products OnLine section. All the details are available to provide the engineer with all the tools to perfectly develop the project.
Available in English, French, German, Spanish, Danish and Italian languages.



The easy way to find your solution

Select your Function Level

Select your Measured Value

	Single Function *React when the setpoint is overtaken or for major failures (phase sequence and loss)*	Extended Functions *Adding time delay, more ranges, TRMS measurement and more*	Full Functions *For complete monitoring Two setpoints Two relays output*
Current	DIA01 PIA01 DIA53*	DIB01 - DIB71* PIB01 - DIB02 PIB02	DIC01 PIC01
Voltage	DUA01 PUA01 DUA52*	DUB01 - DUB71* PUB01 - DUB02 PUB02	DUC01 PUC01
3-phase	DPA01 - PPA01 DPA51* - DPA02 PPA02 - DPA53*	DPB01 - DPB71* PPB01 - DPB02 PPB02	DPC01 PPC01 DPC02
Temperature	DTA01 - PTA01 DTA02 - PTA02		
Frequency		DFB01 PFB01	DFC01
Power	DWA01 PWA01	DWB01 - PWB01 DWB02 - PWB02	

First letter:
"D" = for DIN-rail;
"P" = for plug-in
** are Mini-D housings*

Examples of typical applications

Correct motor rotation direction, ON/OFF current monitoring, motor overtemperature

Monitoring mains quality, motor overload, generator speed, pump dry running

Full mains monitoring, sophisticated current and voltage monitoring, full generator parameters

Monitoring Solutions for Water and Pumps Applications

Your issue

What happens if my pump runs dry? What if the phases sequence is not correct or one phase fails?

DWB01 **DIB71** **DPA51**

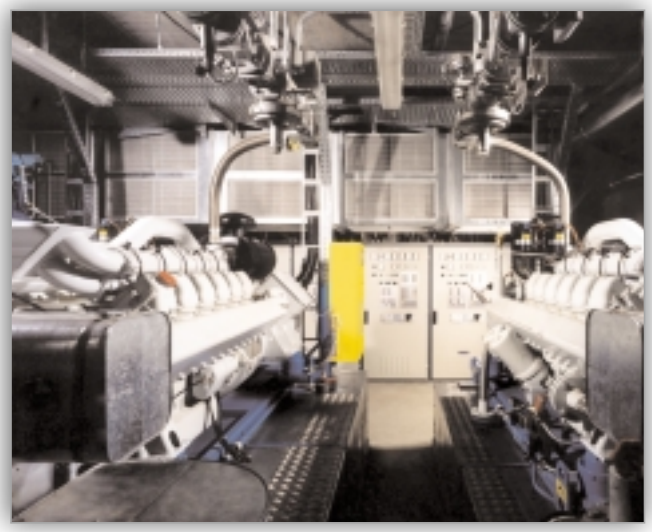
Our product proposal

- **DPA01, PPA01, DPA51**: 3-Phase sequence and loss monitoring relays
- **DWB01, PWB01**: 3-Phase cosφ monitoring relays
- **DWB02, PWB02**: 3-Phase active power monitoring relays
- **DIB01, PIB01, DIB71**: current relays

Our solution

Since it very seldom happens that there is human surveillance on pumps, it may be that minor failures as incorrect phase sequence cause major problems like, for instance, flooding. **DPA01**, **PPA01** and **DPA51** detect the correct phase sequence and phase loss along with the voltage regenerated by the pump's motor: this means that maintenance can be easily and promptly requested before system failure occurs.
It is also possible to monitor the load of the pump, detecting if it is dry or blocked by some materials just by monitoring its electrical values. **DIB01**, **PIB01** or **DIB71** can be a solution to simply monitor overload; for dry running and overload **DWB01**, **PWB01** and **DWB02**, **PWB02** offer full protection.

Monitoring Solutions for Energy Generation Applications



Your issue

With an increased use of generators in a lot of applications it's absolutely necessary that the mains out of the generator is of high quality to avoid damages to the load connected.

DPC02 **DPC01** **DUA52**

Our product proposal

- **DPC01, PPC01**: 3-phase mains quality relays
- **DPC02**: 3-phase voltage and frequency monitoring relay
- **DUA52**: battery level monitoring relay

Our solution

Carlo Gavazzi's 3-phase monitoring relays **DPC01** and **PPC01** can guarantee that the voltage levels af all the phases (if necessary even the phase-neutral voltages) are correct. With **DPC02** the user also knows if the speed of the generator (that is the frequency of the mains) is correct. If the generation system is used to sell energy to the electricity company, **DPC02** can be used as an interface relay to separate the generator from the mains if this is required. Finally **DUA52** allows to monitor the voltage level of the start-up battery.

Monitoring Solutions Applications for . . .

. . . Material Handling

Your issue

All the industrial applications where sophisticated mechanical machines are used to manufacture, package, mix... they need a high quality mains. A faulty system can cause poor product quality

.

DPB01

DIA01

DIA53

Our solution

Carlo Gavazzi's **DPB01**, **DPB71** or **PPB01** keep the mains fully monitored, to prevent from loose or dangerous working mode. Furthermore the most important currents of the process can be easily monitored by means of **DIA53**, a 17.5 mm DIN rail unit capable to directly measure up to 100 A and provide a transistor output with no need of auxiliary voltage.

Our product proposal

- **DIA53**: over current relay
- **DIA01** and **PIA01**: over current relays
- **DPB01** and **PPB01**, **DPB71**: 3-phase over and under voltage relays

. . . Packaging

Your issue

Industrial plants using advanced technological machines to optimize the productivity level and the product quality often need to monitor the quality of the mains.

DPB01

PPB01

DPB71

Our solution

Using **DPB01/PPB01** or the new **DPB71** (new mini DIN-rail housing perfect to be mounted on a front panel saving a lot of space) it is possible to monitor phase sequence-loss and over-under voltage of the mains to set up a window comparator system.
It's also possible to set a delay on alarm from 0.1 to 30 s to avoid to stop the machine just for a passing variation.

Our product proposal

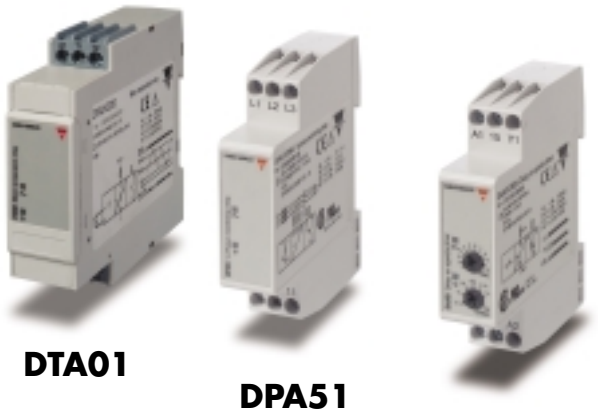
- **DPB01, PPB01** or **DPB71**: 3-phase over and under voltage relays

Monitoring Solutions Applications for . . .

. . . Lift

Your issue

For lifts the direction of the motion must be 100% correct. Phase sequence relays are a fast, reliable and easy to maintain solution. In case of overload the motor temperature can damage and eventually break the motor itself.



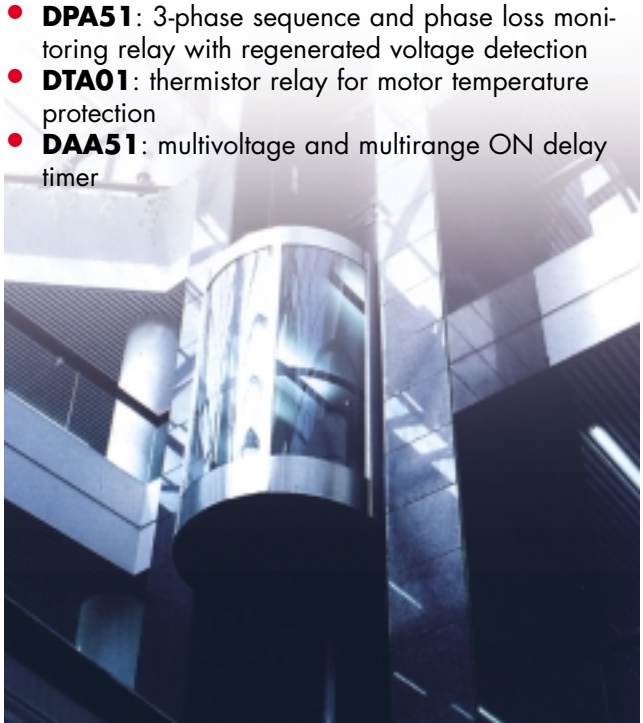
DTA01 **DPA51** **DAA51**

Our solution

DPA51CM44, beyond phase sequence, allows to detect the voltage regenerated by the motor in case of phase loss, which isn't always detected by similar units. This means that your motor won't overheat, burn or cause danger to people in such case. **DTA01**, **DTA02**, **PTA01** and **PTA02**, our thermistor relays, measure the temperature inside the motor allowing prompt disconnection in case of overheating.

Our product proposal

- **DPA51**: 3-phase sequence and phase loss monitoring relay with regenerated voltage detection
- **DTA01**: thermistor relay for motor temperature protection
- **DAA51**: multivoltage and multirange ON delay timer



. . . HVAC

Your issue

Correct direction means higher efficiency of the compressor (in some cases incorrect rotation means immediate breakdown). You never know what's going to happen after the compressor has been set up. Furthermore, starting more than one compressor at the same time can cause a high inrush current with several problems like EMC noise or low mains voltage.

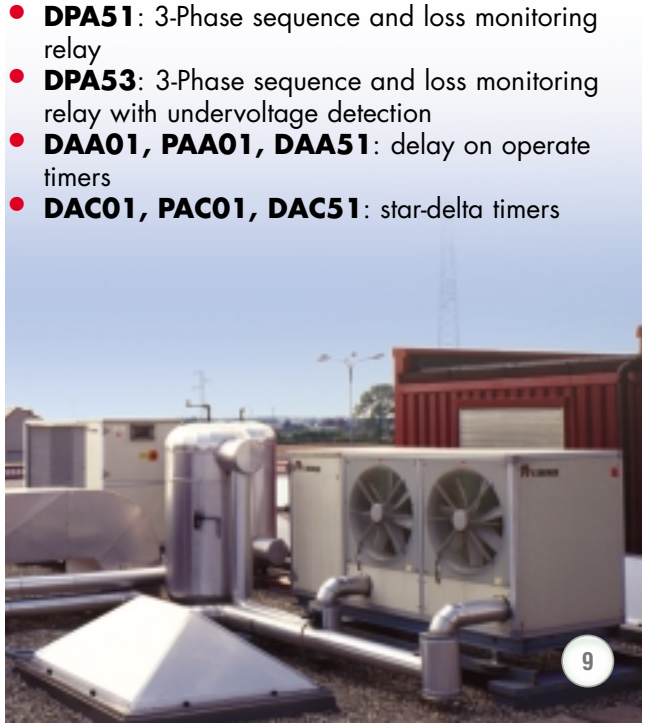
DAC51 **DPA51** **DAA51**

Our solution

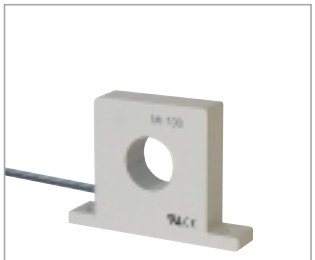
A timer is always the most flexible solution for the end user to set the delay times of the compressors.
The smallest multivoltage phase sequence and loss relay **DPA51** prevents from incorrect rotation direction as well as from single phasing, while **DPA53**, with undervoltage setpoint, can let the compressor work at its best. Finally, **DAC51,** the smallest star-delta timer in the market, helps reducing the space needed in the cabinet.

Our product proposal

- **DPA51**: 3-Phase sequence and loss monitoring relay
- **DPA53**: 3-Phase sequence and loss monitoring relay with undervoltage detection
- **DAA01, PAA01, DAA51**: delay on operate timers
- **DAC01, PAC01, DAC51**: star-delta timers



Accessories: Current Transformers, Shunts

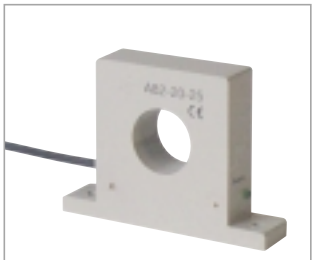


MI

AC current transformers for 5, 20, 100, 500 AAC. Output voltage (0.4-4 Vp) is proportional to the measured current.
To be used with:
DUA01/PUA01, DIB02/PIB02, DIC01/PIC01, DWA01/PWA01, DWB01/PWB01, DWB02/PWB02.

MP 3

3-phase transformers for 5, 20, 100 or 500 AAC. Output voltage (0.4-4 Vp) is proportional to the highest measured current.
To be used with:
DUA01/PUA01, DIB02/PIB02, DIC01/PIC01.



A 82

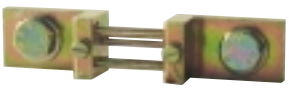
AC current metering transformers for 25, 50, 100, 250 or 500 AAC. Output current from the transformer is 0-20 mADC or 4-20 mADC in accordance with IEC 60381. Power supply ON is indicated by a green LED on the side of the housing.
To be used with:
DIB01/PIB01, DIC01/PIC01 or directly connected to a PLC.

E 82-20

AC current metering transformers with 3 knob selectable ranges. Output from the transformer is 4-20 mADC in accordance with IEC 60381. Power supply ON is indicated by a green LED. 12 mm hole for insulated current carrying wire makes it suitable for most applications.
For mounting on DIN-rail or directly on surface by screws.

TAD

Cable/bus-bar type current transformers with DIN-rail/ bus-bar and panel mounting facilities. Rated primary current from 40A to 4000A.
To be used with
DIA01/PIA01, DIB01/PIB01, DWA01/PWA01, DWB01/PWB01, DWB02/PWB02.



DER

Shunts for DC current in accordance with DIN-Standard.
Ranges from 1A to 10000A.
To be used with:
DIB02/PIB02.

ZPD11

Socket for mounting on DIN-rail (DIN EN 0022).

TADK

1-phase transformers with DIN-rail and panel mounting facilities. Rated primary current from 1A to 250A.
To be used with:
DIA01/PIA01, DIB01/PIB01, DWA01/PWA01, DWB01/PWB01, DWB02/PWB02.

All our monitoring relays references

Current relays
DIA01C7245A
DIA01C7485A
DIA01CB485A
DIA01CB235A
DIA53S72420A
DIA53S72420AF
DIA53S72450A
DIA53S72450AF
DIA53S724100A
DIA53S724100AF
DIB01C7245MA
DIB01C7485MA
DIB01CB485MA
DIB01CB235MA
DIB01C72450MA
DIB01C74850MA
DIB01CB4850MA
DIB01CB2350MA
DIB01C724500MA
DIB01C748500MA
DIB01CB48500MA
DIB01CB23500MA
DIB01C7245A
DIB01C7485A
DIB01CB485A
DIB01CB235A
DIB01C72410A
DIB01C74810A
DIB01CB4810A
DIB01CB2310A
DIB71CB485MA
DIB71CB235MA
DIB71CB4850MA
DIB71CB2350MA
DIB71CB48500MA
DIB71CB23500MA
DIB71CB485A
DIB71CB235A
DIB02C724150MV
DIB02C748150MV
DIB02CB48150MV
DIB02CB23150MV
DIC01D724AV0
DIC01D748AV0
DIC01DB48AV0
DIC01DB23AV0
PIA01C7245A
PIA01C7485A
PIA01CB485A
PIA01CB235A
PIA53S72420A
PIB01C7245MA
PIB01C7485MA
PIB01CB485MA
PIB01CB235MA
PIB01C72450MA
PIB01C74850MA
PIB01CB4850MA
PIB01CB2350MA
PIB01C724500MA
PIB01C748500MA
PIB01CB48500MA
PIB01CB23500MA
PIB01C7245A
PB01C7485A
PIB01CB485A
PIB01CB235A
PIB01C72410A
PIB01C74810A
PIB01CB4810A
PIB01CB2310A
PIB02C724150MV
PIB02C748150MV
PIB02CB48150MV
PIB02CB23150MV
PIC01C724AV0
PIC01C748AV0
PIC01CB48AV0
PIC01CB23AV0

Voltage relays
DUA01C724500V
DUA01C748500V
DUA01CB48500V
DUA01CB23500V
DUA52C724
DUA52C748
DUB01C72410V
DUB01C74810V
DUB01CB4810V
DUB01CB2310V
DUB01C724500V
DUB01C748500V
DUB01CB48500V
DUB01CB23500V
DUB71CB4810V
DUB71CB2310V
DUB71CB48500V
DUB71CB23500V
DUB02CT23
DUC01D724500V
DUC01D748500V
DUC01DB48500V
DUC01DB23500V
PUA01C724500V
PUA01C748500V
PUA01CB48500V
PUA01CB23500V
PUB01C72410V
PUB01C74810V
PUB01CB4810V
PUB01CB2310V
PUB01C724500V
PUB01C748500V
PUB01CB48500V
PUB01CB23500V
PUB02CT23
PUC01C724500V
PUC01C748500V
PUC01CB48500V

3-phase relays
DPA01CM44
DPA01CM60
DPA01DM23
DPA01DM48
DPA02CM23
DPA02CM40
DPA51CM44
DPA53CM23
DPA53CM48
DPB01CM23
DPB01CM48
DPB02CM23
DPB02CM48
DPB71CM23
DPB71CM48
DPC01DM23
DPC01DM48
DPC01DM69
DPC01DM23400HZ
DPC01DM48400HZ
DPC01DM49400HZ
DPC01DM69400HZ
DPC02DM23
DPC02DM48
DPC02DM49
DPC02DM69
PPA01CM44
PPA01CM60
PPA01DM23
PPA01DM48
PPA02CM23
PPA02CM40
PPB01CM23
PPB01CM48
PPB02CM23
PPB02CM48
PPC01DM23
PPC01DM48
PPC01DM69

Power relays
DWA01CM235A
DWA01CM485A
DWB01CM2310A
DWB01CM4810A
DWB01CM6910A
DWB02CM2310A
DWB02CM4810A
DWB02CM6910A
PWA01CM235A
PWA01CM485A
PWB01CM2310A
PWB01CM4810A
PWB01CM6910A
PWB02CM2310A
PWB02CM4810A
PWB02CM6910A

Temperature relays
DTA01C024
DTA01C724
DTA01C115
DTA01C230
DTA02C024
DTA02C724
DTA02C115
DTA02C230
PTA01C024
PTA01C724
PTA01C115
PTA01C230
PTA02C024
PTA02C724
PTA02C115
PTA02C230

Frequency relays
DFB01CM24
DFC01DB48
DFC01DB23
PFB01CM24

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OUR PRODUCTION SITES

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Inductive and Capacitive Proximity Sensors in full metal and plastic housings.
Photoelectric Sensors.
Level Sensors: Optical, Conductive and Capacitive.
Ultrasonic Sensors and Magnetic Switches.
Limit Switches.

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Solid States Relays.
Versions for PCB and panel mounting.
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