

## System 27 NOVA

### Modular Electronic Pressure Control System

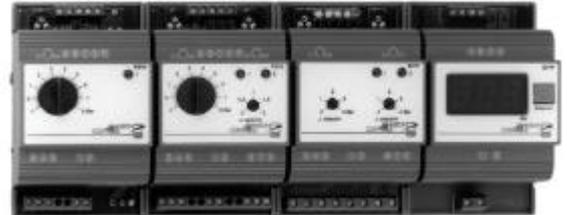
#### Introduction

*System 27 NOVA is a family of modern modular electronic modules designed for a wide variety of control configurations in refrigeration, heating, ventilation, air-conditioning and other related fields.*

*The pressure control modules can be used as a stand alone device or together with other modules, such as, stage modules, display modules, signal converter modules, etc., to achieve a diverse number of single or multistage applications.*

*Typical applications are:*

- high pressure alarm
- condenser fan cycling
- compressor control



**System 27 NOVA Modular  
Pressure Controls**

#### Description

The modular concept was specially designed to make control configuration easier and still offer the flexibility necessary to answer the many individual control requirements encountered today.

#### Feature and Benefits

q <b>Modular design</b>	Provides the flexibility to realise the required control set up without redundancy and makes future expansion easy.
q <b>“Plug-in” quick connector wiring system</b>	Eliminates wiring between modules and reduces installation cost.
q <b>Adjustable differential and set high/set low setting</b>	Provides flexibility to match any combination of heating or cooling applications.
q <b>Various pressure sensors are available</b>	Matches various applications.
q <b>Attractive DIN-rail mount housing</b>	Easy and quick to install.
q <b>Setpoint shift output function</b>	Modules can be used for “multiple setpoint” applications.

The System 27 NOVA family includes the following modules:

### P27 Pressure Control Modules



These one- or two-stage pressure control modules can be used as a low cost control for stand alone applications, or as the primary control module for multiple stage applications. For this type of applications one or more stage modules can be connected to the

pressure control module very easy by using the quick connector system.

### S27 Stage Modules



If multi-stage control is required one or more stage modules can be hooked up easily to a P27 pressure control module, simply by using the included quick connector. A maximum of 4 four stage modules can be connected to a pressure control module.

### D27P Pressure Display Modules



A display module connected to a pressure control module gives a digital indication of the measured pressure or setpoint. It is also possible to connect a sensor directly to the D27P for pressure read-out.

### Y27M Signal Converter



This module converts a voltage input signal to a standardised output signal of 0 to 10 Vdc or 4 to 20 mA. The input signal can either be obtained from a pressure sensor or a pressure control module. The signal converter can be used for those applications

where an analogue output is required. Such as; to a motor, motor actuated valve, recorder etc.

### P99 Pressure Sensor



Three pressure ranges and male or female connection styles are available. For detailed information please refer to the P299 Pressure Sensor bulletin.

### Note

The System 27 modules are intended to control equipment under normal operating conditions. Where failure or malfunction of the modules could lead to an abnormal operating condition that could cause personal injury or damage to the equipment or other property, other devices (limit or safety controls) or systems (alarm or supervisory systems) intended to warn of or protect against failure or malfunction of the modules must be incorporated into and maintained as part of the control system.

### Application examples

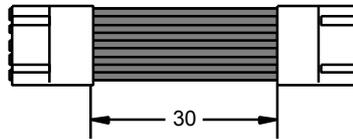
At page 6 to 7 you will find some applications examples. For more detailed information about wiring and adjustment reference should be made to the installation sheet

### Repair and Replacement

Repair is not possible. In case of an improperly functioning control, please check with your nearest supplier.

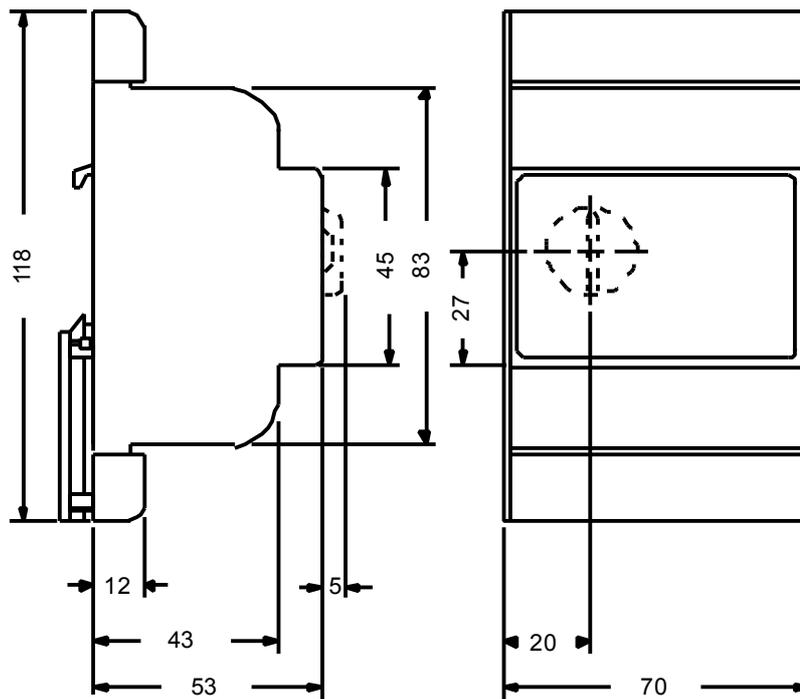
When contacting the supplier for a replacement you should state the type-model number of the control. This number can be found on the dataplate.

## Accessories dim. in mm



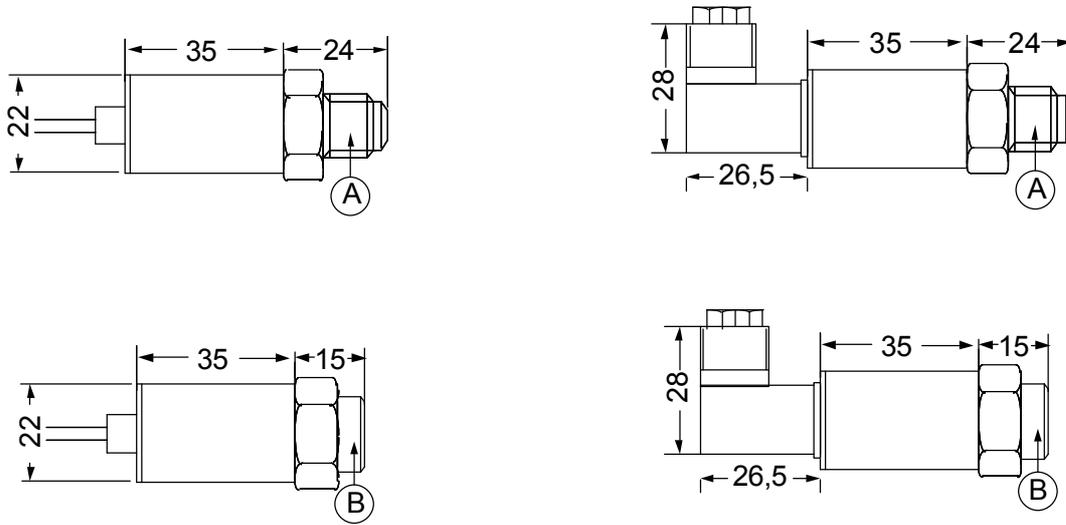
**Fig. 1**  
**WRE027N600**  
Quick Connector for connecting System 27 NOVA modules.

## Dimensions (mm)



**Fig. 3**  
**System 27 NOVA Modules**

## Dimensions P299



**A: Pressure connection male 7/16"-20UNF**  
**B: Pressure connection female 7/16"-20UN**

## Type Number Selection Table

### One Stage Pressure switch

Order number	Power supply	Setpoint range (bar)	Diff. (bar)	Additional
P27A2N11	230 V ac	-1 to 8	0.1 to 3.5	* Mode: field adjustable * SPDT contact 10(5)A 250 V ac
P27A2N12	230 V ac	0 to 30	0.5 to 7	

### Two stage pressure switch

Order number	Power supply	Setpoint range (bar)	? setpoint between stage	Additional features
P27A2N21	230 V ac	-1 to 8	0 to 2	* 2 x SPDT contact 10 (5) A 250 V ac * Differential: 0.1 to 3.5 bar * Mode: field adjustable
P27A2N22	230 V ac	0 to 30	0 to 4	

### Stage module

Order number	Power supply	Additional features
S27P2	230 V ac	* Mode: field adjustable * 2x SPDT contact 10(5)A 250V ac * Δ Setpoint: 0 to 4 bar * Differential: 0.1 to 3.5 bar * Quick connector is included

### Pressure display module

Order number	Power supply	Quick connector incl.	Additional features
D27P2N3	230 V ac	no	* Can be used as stand alone or in conjunction with a pressure switch * Range -1 to 8/0 to 30 bar * Setpoint read-out

**Y27M Signal Converter**

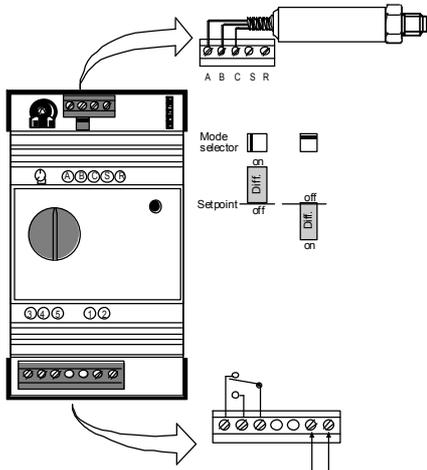
Order number	Power supply	Setpoint range (Vdc)	Span range (Vdc)
Y27M1	24 V ac	0 to 10	0 to 10
Y27M2	230 V ac	0 to 10	0 to 10

**Pressure sensors**

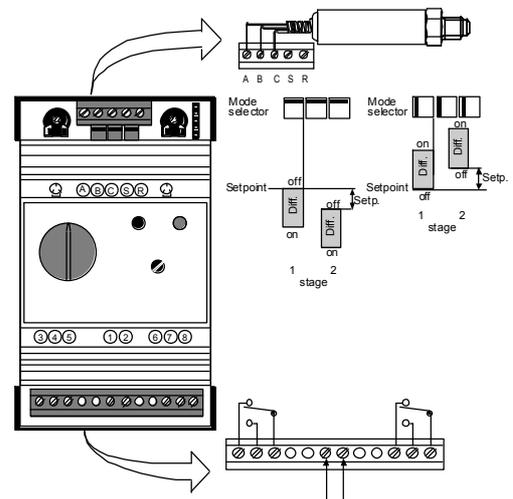
Order number	Range (bar)	Output (V)	Connection (style)	Additional features
P299DVB-1C	-1 to 8	0 to 10	male	* can be used with all media
P299DVC-1C	-1 to 8	0 to 10	female	* no O- ring seals or ceramics which are susceptible to leak
P299EVB-1C	0 to 30	0 to 10	male	* IP 67
P299EVC-1C	0 to 30	0 to 10	female	* stainless steel housing

# Wiring & Adjustments

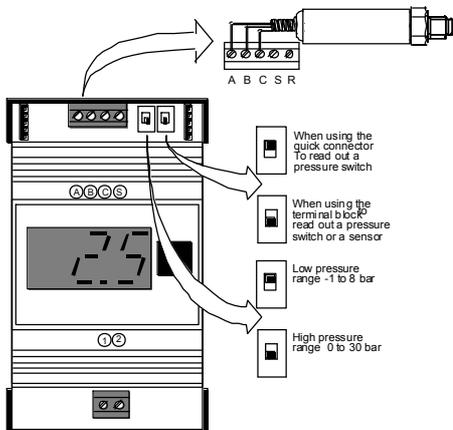
**One-stage Pressure switch  
P27A2N1x**



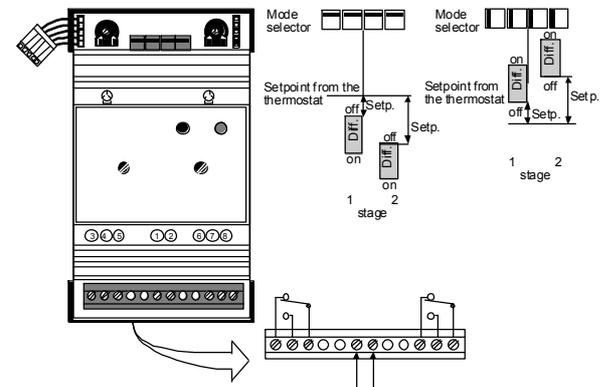
**Two-stage Pressure switch  
P27A2N2x**



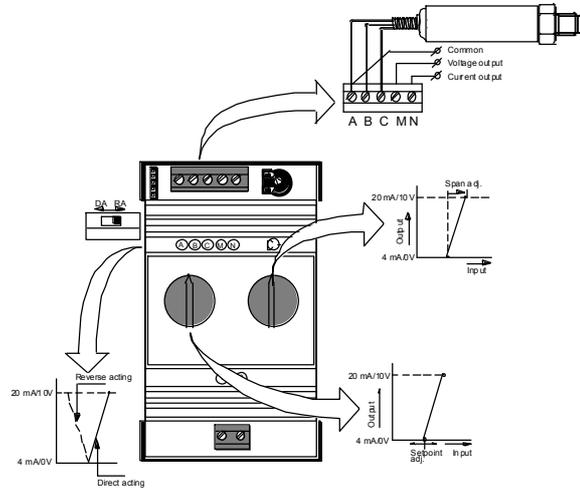
**Pressure Display module  
D27P2N3**



**Stage Pressure switch  
S27P2**

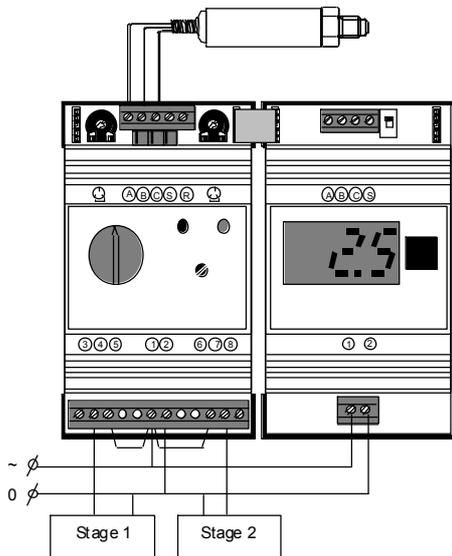


### Signal Converter Module Y27M

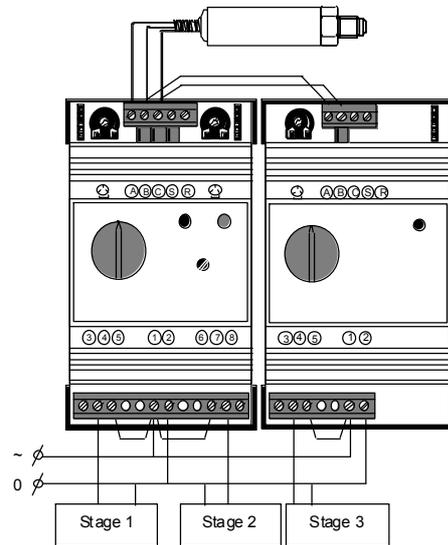


## Applications

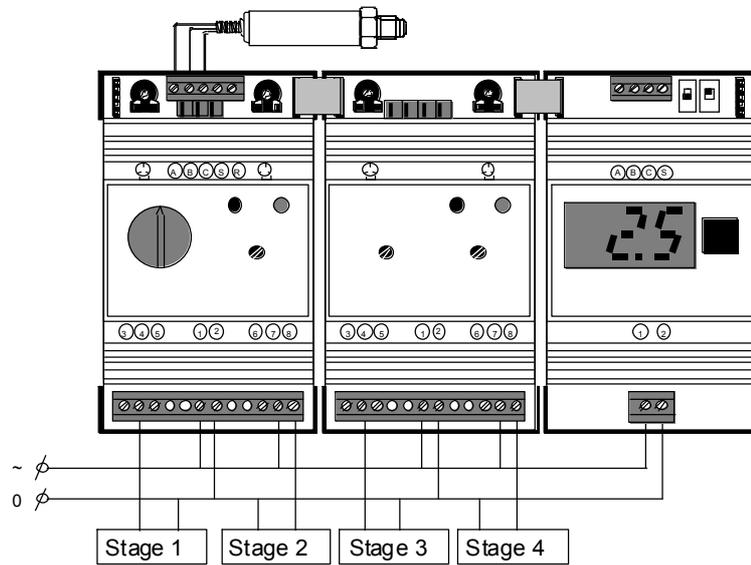
### Two stage pressure control with read-out



### Three stage pressure control



### Four stage pressure control with read-out



## Specifications

### General System 27 NOVA

<b>Output relay rating</b>	SPDT 10(5)A 250 V ac 10 A 30 V dc
<b>Operating ambient temperature</b>	-10 to +50 °C
<b>Storage temperature</b>	-40 to +70 °C
<b>Operating (storage) R.H.</b>	10 to 90 % R.H. (non condensing)
<b>Terminals</b>	screw type max. wire thickness 2,5 mm <sup>2</sup>
<b>Power supply</b>	230 V ac ; 50/60 Hz

### Additional specification for display modules

<b>Power supply</b>	230 V ac +10% / -15% ; 50/60 Hz
<b>Resolution</b>	0.1 bar
<b>Accuracy</b>	± 0.3 bar

### Signal converter

<b>Power supply</b>	230 V ac +10% / -15% ; 50/60 Hz 24 V ac +10% / -15% ; 50/60 Hz
<b>Output load</b>	voltage output Rmin = 1 k Ω current output Rmax = 500 Ω

*The performance specifications are nominal and conform to acceptable industry standards. For applications at conditions beyond these specifications, consult the local Johnson Controls office or representative. Johnson Controls shall not be liable for damages resulting from misapplication or misuse of its products.*



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