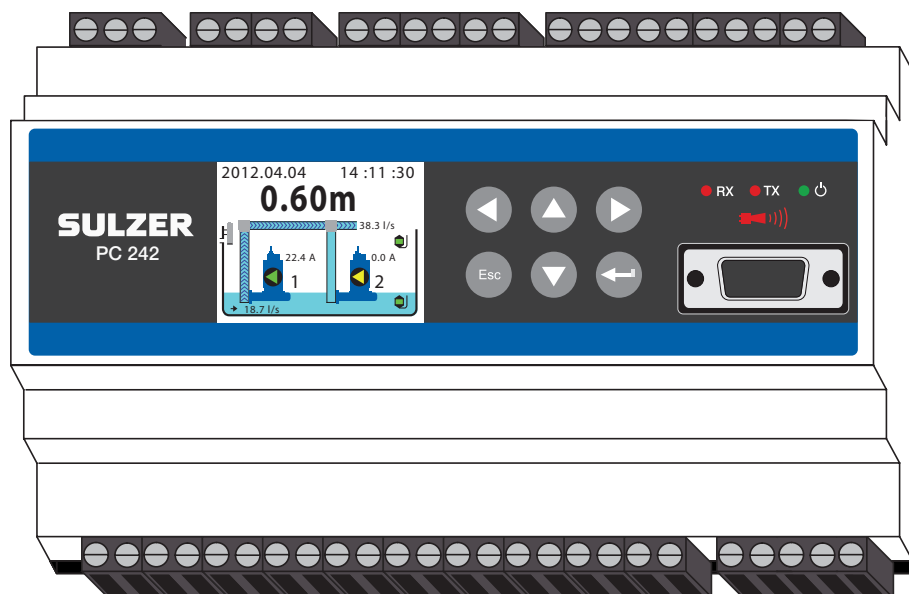

Pump Controller Type ABS PC 242



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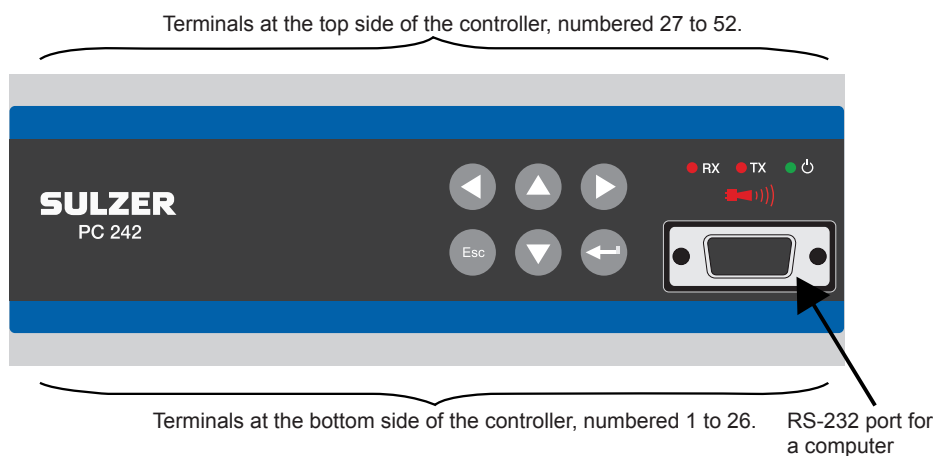
INSTALLATION

Mount the controller

Mount the controller on a 35 mm DIN rail. The physical dimension of the controller is: 86x160x60 mm (3.39x6.30x2.36 inch) (HxWxD). If it doesn't easily snap onto the rail, you can pull the small tab at the bottom side of the unit, using a small screwdriver.

Make all connections

There are a total of 46 terminals that may be connected to power, sensors, switches, relays and a modem; these terminals are numbered from 1 to 52 according to the following figure:



WARNING! Ensure that **all power is off**, and that **all** output devices to be connected to the controller also are turned **off** before you connect anything!

Table 1 shows all connections to terminals 1–26 at the bottom side of the controller. The usage of the configurable *Digital In* shown in the table is the default configuration. “Digital In” means a signal that is either *on* or *off* — *high* or *low*, where *high* is between 5 and 34 volts DC. *Digital In* may be connected to either passive devices, such as switches, or active devices that are powered and deliver signals. Figure 1 shows how to connect such devices to the *Digital In* terminals.

Table 2 shows all connections to terminals 27–52 at the top side of the controller. The usage of the configurable *DO 4*, *5*, *6* and *AI 4* shown in the table is the default configuration. “DO” stands for “Digital Outputs”, which are terminals to relays inside the controller.

The power must be DC between 9 and 34 volts. Figure 2 shows how to connect a power-fail switch to *Digital In 9* (terminal 11) and how to connect a battery pack for uninterrupted operation.

The modem should be connected according to Figure 3.

For recommended ABS products, see the *Accessories* chapter in the *Pump controller type ABS PC 242 User Guide*, located on the CD. While connecting the leakage sensors (terminal 17 through 20), we recommend a separate reference wire to each sensor to protect against magnetic induced ground currents. However, it may also work with a common ref-wire for both sensors, provided that it is also connected to the ground on the PC 242.

Table 1. Terminals at the bottom side of the pump controller

Default configuration	Name ⁱ	Signal	#
Voltage supply, 9–34 V DC ⇒	V+	⊗	1
	GND	⊗	2
Overflow sensor	Digital In 1	→ ⊗	3
High-level float	Digital In 2	→ ⊗	4
Fallen motor protector for pump 1	Digital In 3	→ ⊗	5
Fallen motor protector for pump 2	Digital In 4	→ ⊗	6
From switch indicating that pump 1 is not in auto	Digital In 5	→ ⊗	7
From switch indicating that pump 2 is not in auto	Digital In 6	→ ⊗	8
From switch indicating that pump 1 is running	Digital In 7	→ ⊗	9
From switch indicating that pump 2 is running	Digital In 8	→ ⊗	10
Power failure	Digital In 9	→ ⊗	11
From switch indicating that staff is in station	Digital In 10	→ ⊗	12
Low-level float	Digital In 11	→ ⊗	13
Fallen motor protector for motor connected to DO 6	Digital In 12	→ ⊗	14
Pulse channel 1 (usually for a precipitation meter)	Digital In 13	→ ⊗	15
Pulse channel 2 (usually for an energy meter)	Digital In 14	→ ⊗	16
Leakage sensor for pump 1 <i>ref</i> is the negative reference point -it may be connected to ground		→ ⊗	17
	ref	⊗	18
Leakage sensor for pump 2 <i>ref</i> is the negative reference point -it may be connected to ground		→ ⊗	19
	ref	⊗	20
			21
See figure 3 for how to connect different types of modems.	GND	⊥	22
	RXD	→ ⊗	23
	TXD	← ⊗	24
	RTS	← ⊗	25
	CTS	→ ⊗	26

- i. “Digital In” mean a signal that is either *on* or *off* (high or low), where *high* is anything between 5 and 34 volts DC and *low* is anything below 2 volts. All digital inputs are configurable in the menu *Settings > Digital Inputs*, but the configuration shown here is the default one. The arrows indicate the direction of information; the only outgoing signals here are TXD and RTS for the modem.

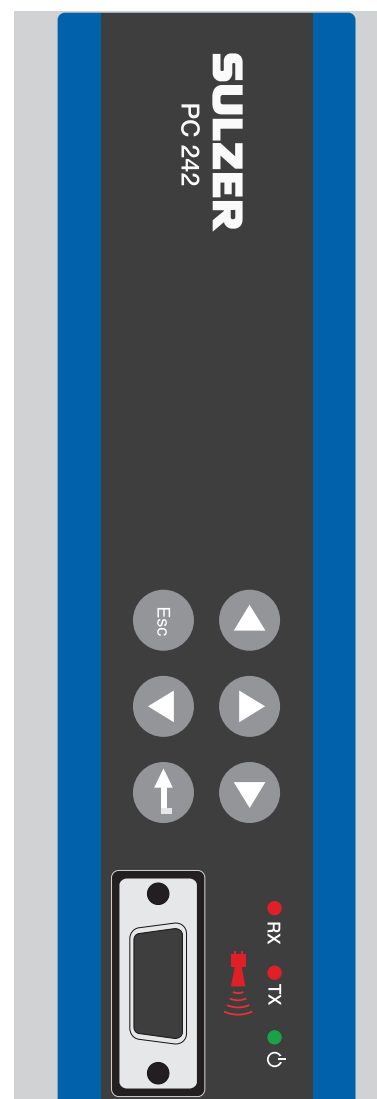
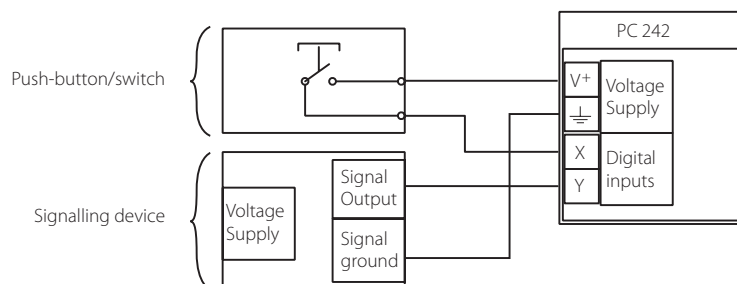


Figure 1. The *Digital In* terminals may be connected to either passive devices, such as switches, or active devices that are powered and deliver signals. Connect devices according to the figure.



If you choose another configuration than the default one for Digital In and Digital Out, make notes accordingly in Table 3 and Table 4.

Table 2. Terminals at the top side of the pump controller

#	Default usage		Descriptions	
27		DO 1 ⁱ : Alarm output	Normally closed	
28			Relay for alarm	
29			Normally opened	
30				
31		DO 2 ⁱ : Pump 1 control	For start/stop of pump 1	
32				
33		DO 3 ⁱ : Pump 2 control	For start/stop of pump 2	
34				
35				
36		DO 4 ⁱ : Modem supply	See figure 3	
37				
38		DO 5 ⁱ : Personal alarm indication		
39				
40		DO 6 ⁱ : Mixer control	For start/stop of a mixer, cleaner or drain pump, depending on the setting of DO 6	
41				
42				
43		V+ →	Powering analogue sensors V+ feeds the analogue sensors. The value of each input is either in the range 4–20mA or 0–20mA, and this is configured in the menu: <i>Settings > Analogue Inputs</i> .	
44		←		
45		←		
46		←		
47		←		
48		GND	Common for temperature sensors	The GND is connected to V–, and is used as the reference ground for the temperature sensors.
49		←	AI 5 ⁱ : Temperature sensor Pump 1	
50		←	AI 6 ⁱ : Temperature sensor Pump 2	
51			Reserved for future use	
52				

- i. DO mean Digital Output. It is a relay that may either be *normally closed* or *normally open*. See the menu *Settings > Digital Outputs* for configuration of these relays.
WARNING: Since high and low voltage relay terminals require some insulation distance between them, these relay terminals are divided into three groups: (1) DO 1; (2) DO 2-3; (3) DO 4-6. Within each group, the manoeuvre voltage must be the same category (high or low), whereas it may differ between the groups.
- ii. AI means Analogue Input. They are all sensing the current in the range 4–20mA or 0–20mA. This is configured in the menu *Settings > Analogue Inputs*.
- iii. The analogue input AI 5 and AI 6 are for pump temperature sensors type PTC or Pt100.

Hint To save the relays in the controller and minimize transients; it's recommended to always use a transient suppression **RC unit** according to contactor manufacturer's guide line. In high electrical transient environment an additional relay will improve immunity to high voltage transients.

Figure 2. The power must be DC between 9 and 34 volts, but if it also charges batteries, it should be 27.2 V.

Connect a power-fail switch to *Digital In 9* (terminal 11) according to the figure.

For uninterrupted operation in case of power failure, connect a battery pack according to the figure.

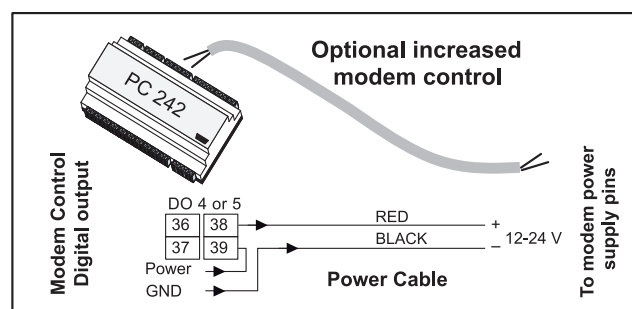
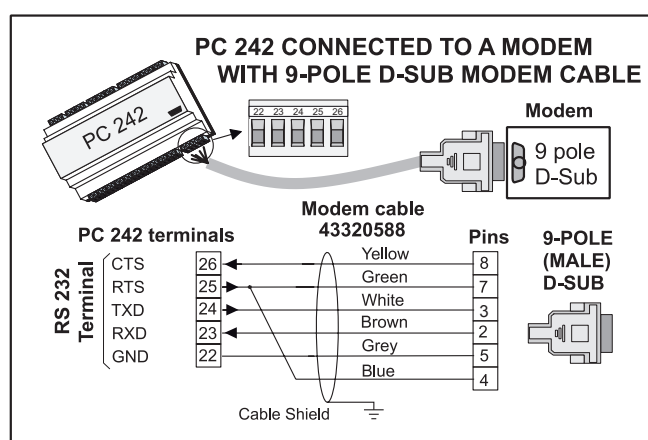
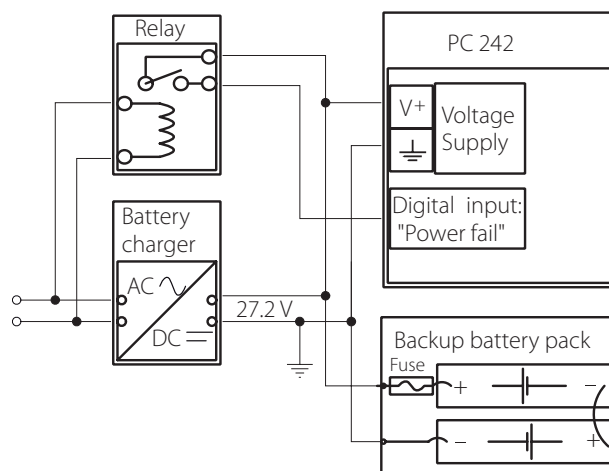


Figure 3. Depending on the type of modem, connect according to the figure. Modem cable 43320588 can be ordered from Sulzer.

Table 3. Customized configuration for Digital In

Default	NO/NC	Customized usage	Name			#
Overflow sensor	NO		Digital In 1	→	⊗	3
High-level float	NO		Digital In 2	→	⊗	4
Motor protector for pump 1	NO		Digital In 3	→	⊗	5
Motor protector for pump 2	NO		Digital In 4	→	⊗	6
Pump 1 is <i>not</i> in auto	NO		Digital In 5	→	⊗	7
Pump 2 is <i>not</i> in auto	NO		Digital In 6	→	⊗	8
Pump 1 is run	NO		Digital In 7	→	⊗	9
Pump 2 is run	NO		Digital In 8	→	⊗	10
Power failure	NO		Digital In 9	→	⊗	11
Staff is in station	NO		Digital In 10	→	⊗	12
Low-level float	NO		Digital In 11	→	⊗	13
Motor protector for DO 6	NO		Digital In 12	→	⊗	14
Pulse channel 1	NO		Digital In 13	→	⊗	15
Pulse channel 2	NO		Digital In 14	→	⊗	16

Table 4. Customized configuration for Digital Out

#	Relay		Customized usage	Default
27			DO 1	27-28 open under normal operation) Alarm Relay
28				
29				
30				
31			DO 2	Pump 1 Control
32				
33			DO 3	Pump 2 Control
34				
35				
36			DO 4	Modem Supply
37				
38			DO 5	Personal alarm indication
39				
40			DO 6	Mixer Control
41				

Declaration of Conformity

As defined by:

EMC Directive 2014/30/EU, RoHS II Directive 2011/65/EU

(EN)	EC Declaration of Conformity	(SV)	EG-försäkran om överensstämmelse
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Pump controller type ABS PC 242

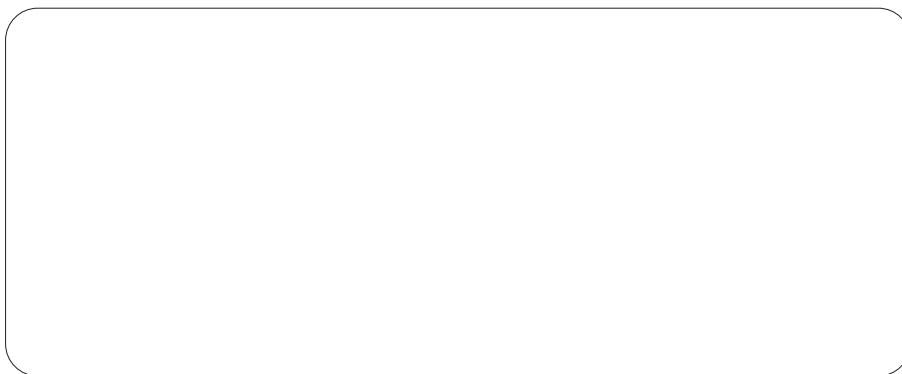
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Stockholm 2017-06-15



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Sulzer Pumps Sweden AB



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Sulzer Pump Solutions Ireland Ltd., Clonard Road, Wexford, Ireland
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