



# SM20

## Level controller or high power interface module



The SM20 is a versatile level control or interface module that can also be used in many other process control applications.

One level switch can be connected for an alarm or two level switches to start and stop a submersible pump or a solenoid valve for emptying/filling function

It works with all kind of level switches, including conductive probes, as well as pressure switches or other limit switches.

The module can be used as a dry-running protection, with a pressure switch or filling level control switch, to start and stop a pump.

Power supply 240/415 Vac.

Two out-puts:

Main output SPCO 20(8) Ampere 250V

Secondary output SPCO 10(4) Ampere 250V automatic/manual switch

LED indicators for:

power supply, low level and output on.

- Primary output can directly control motors up to 2HP  $\cos\Phi$  0.4-0.5 single phase
- 2 SPCO relay outputs
- 12Vac sensor voltage
- 1, 2 or 3 sensor inputs
- 240 or 415Vac supply
- DIN rail mounting

### Technical Specification

|                |                                      |              |
|----------------|--------------------------------------|--------------|
| Supply Voltage | V                                    | 240 or 415ac |
| Sensor Voltage | V                                    | 12Vac        |
| Sensor Inputs  | switch contacts or conductive probes |              |

### Output ratings

|                                 |    | Output 1 | Output 2     |
|---------------------------------|----|----------|--------------|
| Contact Form                    |    | SPCO     | SPCO         |
| Switching Power Max ac          | VA | 1500     | 750          |
| Switching Power Max dc          | W  | 560      | not approved |
| Switching Voltage AC Max        | V  | 250      | 250          |
| Switching Voltage DC Max        | V  | 28       | not approved |
| Switching Current Max Resistive |    |          |              |
| (n/o contact)                   | A  | 20       | 10           |
| (n/c contact)                   | A  | 10       | 10           |
| Switching Current Max Inductive | A  | 8        | 4            |

### Standard Parts

SM20

### Inputs

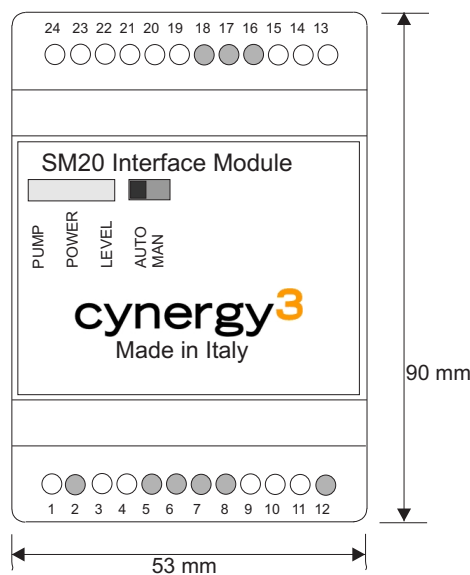
1, 2 or 3

### Outputs

2

Other versions can be made for particular applications. Please contact Cynergy3 with your requirements.

### Mechanical Diagram



### Terminal Assignment

|       |                          |
|-------|--------------------------|
| 1     | Supply Neutral           |
| 3     | Supply Live 240Vac       |
| 4     | Supply Live 415Vac       |
| 9     | Output 1 nc contact      |
| 10    | Output 1 no contact      |
| 11    | Output 1 common          |
| 13    | Output 2 no contact      |
| 14    | Output 2 common          |
| 15    | Output 2 nc contact      |
| 19-20 | Low voltage input sensor |
| 21-22 | Sensor common input      |
| 23    | Sensor minimum level     |
| 24    | Sensor maximum level     |

Low voltage input 19-20 for pressure switch with contacts closed at minimum pressure or level switch with contacts closed when level low. **NB These terminals must be bridged if no sensor is connected.**

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## Level controller or high power interface module



The SM20 can be used for many process control functions, including:

- Dry running control with 2 level switches
- Dry running control with 1 level switch
- Dry running control with conductive probes
- Pump control by pressure switch
- Pump control by level switch
- Automatic/manual control selector
- "No water" alarm or secondary control output

### Troubleshooting

- Pump does not start, green LED off
- Pump does not start, yellow LED on
- Pump does not start, yellow LED off

No power to module

check connections 9-10-11 for pump supply

Check link between 19-20. Check pressure or level switch, if fitted. Check system has not already reach maximum pressure or level

- Pump does not start, red LED on
- Pump does no stop

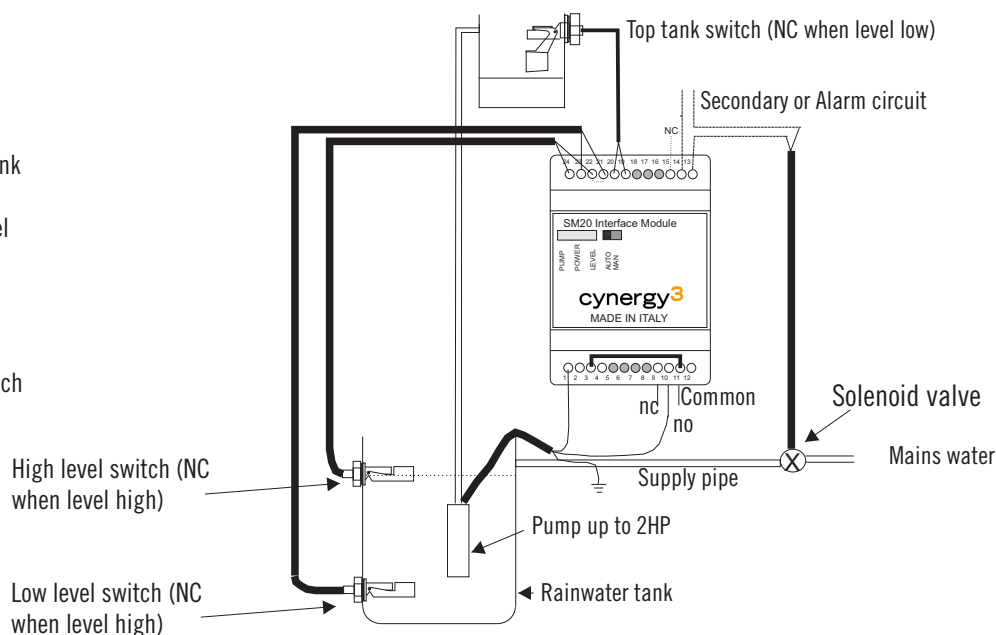
No water in supply tank. Check maximum level switch is correctly installed. Check terminals 21-22-23-24  
Check the Auto/Man selector. Check that pressure or level switch, on 19-20, functions correctly.

### Example: Rainwater supply

Filling a vented roof tank from a rainwater tank. The pump will operate when the roof tank level is not at max level and the water in the rainwater tank is above the low level.

The secondary output relay will operate, if the level in the rainwater tank drops to the low level, and opens a solenoid valve to supply water from the mains water supply, which will remain operated until the rainwater tank fills to the high level.

The illustration is only for 220/240Vac supply, which is connected to terminals 0 (neutral) and 3 (live).



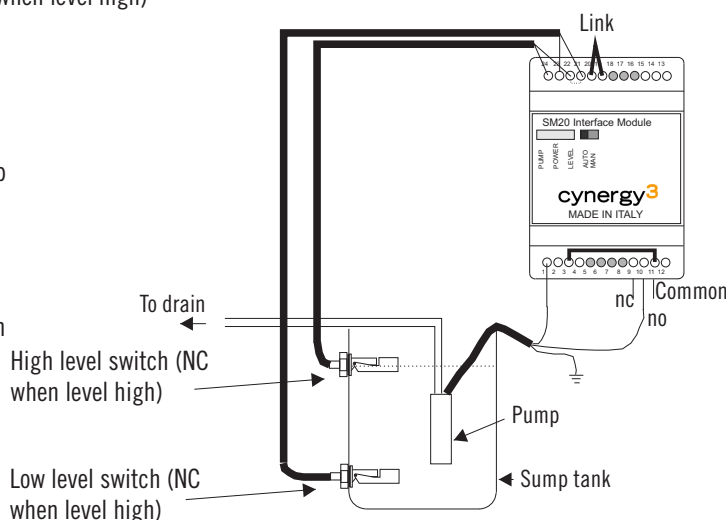
### Example: Sump pump to drain

This will pump out a sump from a high level down to a low level.

The pump will be started when the level in the sump reaches the high level and will continue to pump until the level falls to the low level.

The pump can also be operated manually using the switch on the module.

The illustration is only for 220/240Vac supply, which is connected to terminals 0 (neutral) and 3 (live).



NB The diagrams shown above are simplified illustrations of how the module may be used and do not include any necessary safety devices, such as fuses or thermal cutouts, or statutory requirements for installation of such electrical equipment.