ENGINEERING
TOMORROW

Data sheet

# ACCSCS
## Fans speed control



ACCSCS are designed to regulate the speed of fans and pumps proportionally and continuously. They function as a simple voltage regulator whose command signal (PWM for single phase controllers and 0..10 V or 4..20 mA or PWM for three phase controllers) comes from an external regulating device.
It's possible to connect more than one motor in parallel provided that the maximum input regulating current is less than the controller nominal current.

**Features ACCSCS**

**Single phase model**
- Power 230 V
- Input voltage 230 V AC -15 +10%, 50/60 Hz
- Output voltage 0…98% of supply line
- Command signal PWM
- RF filter inside

**Three phase model**
- Power 400 V
- Input voltage three phase 400 V AC -15 +10%, 50/60 Hz
- Output voltage 30…99% of supply line
- Command signal 0…10 V, 4..20 mA and PWM 5 / 10 V
- Aux output supply +10 V aux power (Imax = 50 mA) for external potentiometer
- Output relay that commute in case of phase loss or overtemperature

## General features

| FEATURES | DESCRIPTION |
|---|---|
| **Power supply** | 400 V AC or 230 V AC |
| **Metal housing** | DIN rail mounting |
| **Test** | According to EN60730 this device provides a type 1 action, it is an incorporated controller suitable for assembly on a flat surface and for use in conditions of normal pollution. |
| **Storage conditions** | -20 °C...+70 °C |
| **Index of protection** | Plastic covering which is self-extinguishing: IP55<br>Metallic covering: IP20 |
| **EMC (Electro-Magnetic Compatibility** | The controller has a built-in suppression filter to meet all required CE directives. Danfoss controls are designed to be installed inside a machine or a standard electrical cabinet and is therefore considered a component.<br>It is the installer's responsibility to observe the criteria of compatibility to guarantee compliance with the directives. |
| **Wiring** | All wiring should conform to local regulations and must be made by authorized personnel only.<br>All connections wires must ensure efficient insulation also at temperatures exceeding 80 °C.<br>Attach the controller to a non-painted plate with anti-corrosive treatment.<br>If the length of the motor cable exceeds 5 m, use shielded cable. To avoid dispersion currents, both ends of the motor cable shield, the motor earth, and the controller earth must be connected to the same earth pole.<br>If the control cable length exceeds 2 m, use shielded cable, connecting the shield only at the end of the controller.<br>Ensure that the control 0 V is not connected to earth. If the power, motor and control cables exceed 10 m, make sure they are separated by at least 0.3 m to avoid creating a coupling effect.<br>To protect the power line and the regulator, the installation technician must install extra-rapid fuses upstream of the power supply.<br>If a differential circuit breaker is installed, it must be of the delayed action type. |

## Technical data single phase

| FEATURES | 080G0215 |
|---|---|
| Power - 230 V AC | 2 K V A |
| Current nom (Arms) | 8 A |
| Input voltage | Single phase 230 V AC -15 +10%, 50/60 Hz |
| Output voltage | 0…98% of supply line |
| Command signal | PWM |
| Protections | Class II at the input terminal block (4 KV)<br>Surge protection |
| Operating temperature | -10 °C...+50 °C |
| Storage temperature | -20 °C...+70 °C |
| Protection degree | Metallic covering IP20 |
| Dimensions (mm) - LxHxP | 90x120x85 |

## Technical data three phase

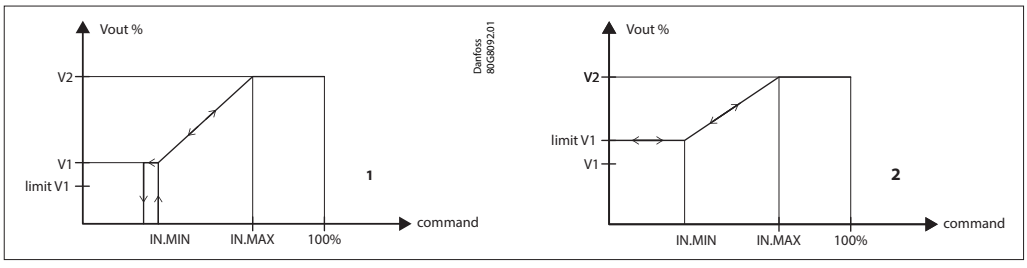
| FEATURES | 080G0217 | 080G0218 | 080G0219 | 080G0220 |
|---|---|---|---|---|
| Power - 400 V AC | 5.5 K V A | 8 K V A | 13 K V A | 19 K V A |
| Current nom (Arms) | 8 A | 12 A | 20 A | 28 A |
| Input voltage | Three phase 400 V AC -15 +10%, 50/60 Hz | | | |
| Output voltage | 30…99% of supply line | | | |
| Command signal | Signal 0…10 V, 4..20 mA, PWM 5/10 V and Modbus | | | |
| Analog output | +10 V (max load 50 mA) | | | |
| Digital output | Emergency relay 1 A-250 V AC / 3 A-30 V DC | | | |
| Protections | Class II at the input terminal block (4 K V)<br>Class I as regards the accessible parts<br>Phase lost, overheating (the regulator restores automatical) | | | |
| Operating temperature | -10 °C...+50 °C (-20 °C when the power is maintained) | | | |
| Max heat sink tempearture | 75 °C | | | |
| Storage temperature | -20 °C...+80 °C | | | |
| Protection degree | Self-extinguishing plastic covering IP55 | | | |
| Dimensions (mm) - LxHxP | 230x165x150 | 230x265x165 | 230x265x230 | 340x270x235 |

## MODbus address

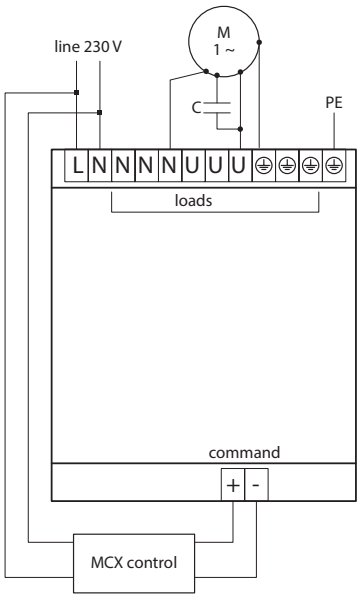
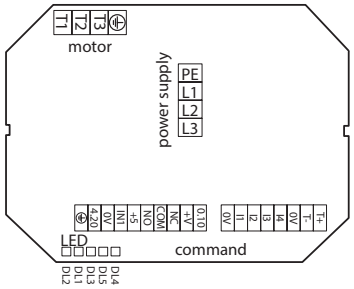
Example: Request by the MASTER to read the variable "*output voltage*" identified with address 0x0B: 01 03 00 0B 00 01.
Request by the MASTER to write on the variable "*Modbus input command*" identified with address 0x401: 01 06 04 01 00 01.
Caution: the regulation command via Modbus requires rewriting in its address within the time out (default 30 seconds) even if the value remains unchanged.
Over the time out, in absence of any other command signal, the regulator switch OFF the power outputs.

| HEX address | Variable | Unit | Reading/ Writing | Min. value | Max. value | Description |
|---|---|---|---|---|---|---|
| **0x00B** | Voltage output | % | L | – | – | Indicates the output percentage voltage / speed |
| **0x00D** | Allarm | Num | L | – | – | 0=no error<br>1=phase lost<br>3=over temperature<br>5=incorrect settings<br>6=timeout MDB |
| **0x400** | Stop regulation | Num | L/S | 0 | 1 | Write the value 1 to enable writing and disable the running place to 0 to re-enable the running |
| **0x421** | Regulator address | Num | L/S **) | 1 | 247 | Indicates the modbus address (slave) - default 0x01 |
| **0x422** | Baudrate | Num | L/S **) | 1 | 3 | (=1 if 9600bps)<br>(=2 if 19200)<br>(=3 if 38400) - default =2 |
| **0x423** | Stop Bit | Num | L/S **) | 1 | 2 | (=1 if 1 stop bit)<br>(=2 if 2 stop bit) - default=1 |
| **0x424** | Parity | Num | L/S **) | 1 | 3 | (=1 if no parity)<br>(=2 if even parity)<br>(=3 if odd parity) - default =1 |
| **0x425** | Timeout | Sec | L/S *) | 1 | 240 | Indicates the time within which the master must renew his command regulation |
| **0x401** | Command by Modbus | % | L/S *) | 0 | 100 | Variable for command the regulation (0-100) by Modbus |
| **0x402** | Min. input | % | L/S *) | 10 | Max input | Voltage signal command / speed V1 |
| **0x403** | Max input | % | L/S *) | Min. input | 100 | Voltage signal command / speed V2 |
| **0x404** | Min. V1 voltage | % | L/S *) | Lim. min. motor | Max. V2 Voltage | Voltage / speed of IN.MIN. command signal point |
| **0x405** | Max. V2 voltage | % | L/S *) | Min. V1 voltage | Lim. max. motor | Voltage / speed of IN.MAX. command signal point |
| **0x407** | Reset | Num | L/S *) | 1 | 3 | (=2 to reset and load the controller's default values)<br>(=3 to restart the regulator after changing the parameter / s when is required the reboot) |
| **0x40A** | Lim. Speed V1 | % | L/S *) | Lim. min. motor | V2 limit | Voltage that replaces V1, when V1 LIMIT>V1 |
| **0x411** | Kick start | Num | L/S *) | 0 | 1 | (=0 kick start enable)<br>(=1 kick start able) |
| **0x41E** | Regulation profile | Num | L/S *) | 1 | 2 | (=1 linear profile)<br>(=2 axial fans profile) |

*) *writing possible only if the parameter "Adjustment Lock" is set to 1*
**) *necessary reebot after writing the changes*



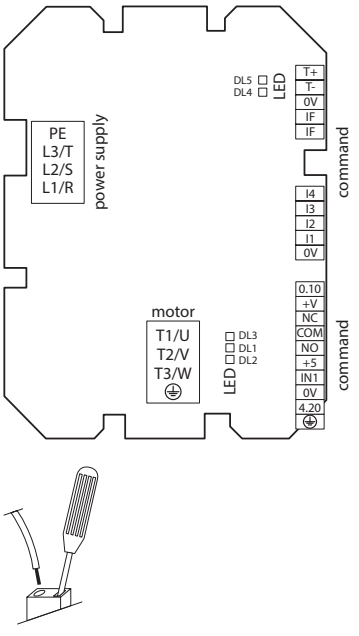
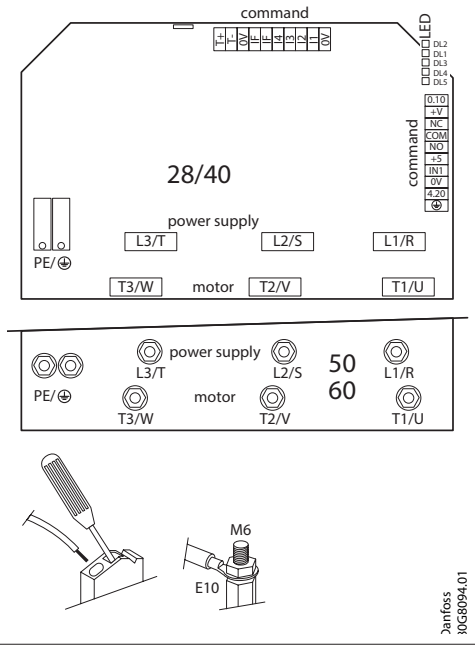
## Connection diagram

| Single phase<br>080G0215 | Three phase<br>080G0217 |
|---|---|
|  |  |





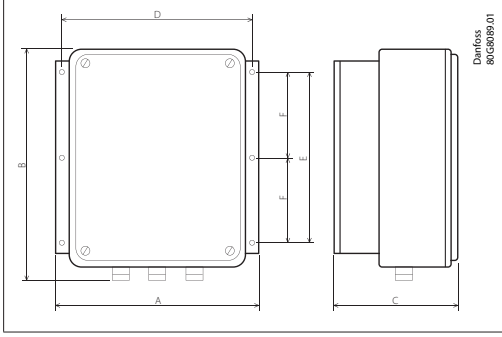
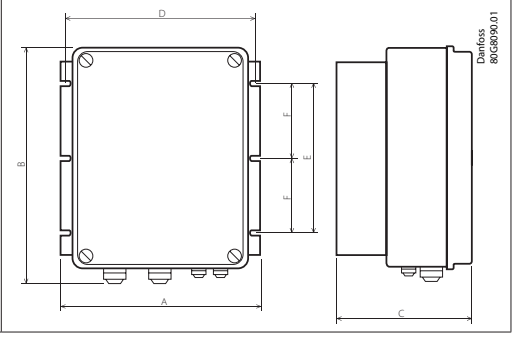
*NOTE: supply for ACCSCS single phase and remote control, must be in phase*

| Three phase<br>080G0218 - 080G0219 | Three phase<br>080G0220 - 080G0279 |
|---|---|
|  |  |

## Controls Terminal Board

| Name | Description | Application |
|---|---|---|
| T1 + | Serial RS485, Modbus RTU - slave | Serial connection line to a Master controlled device |
| T1 - | Serial RS485, Modbus RTU - slave | |
| 0 V | Ground I/O | Ground I/O |
| IF | Pwm input 2..20 kHz (Ri = 500 Ω, 5..24 V) | Variable frequency command input IF (only on request) |
| IF | | |
| 0.10 | Analog input, type 0..10 V (Ri = 40 kΩ) | 0..10 V analog command input |
| + V | Aux. supply output 12 V= (max 30 mA) | External potentiometer supply for manual command |
| NC | Relay 1 contact output normally closed | Programmable output. With standard setting for Defect, the relay is enabled (NO-COM eachother closed) and is disabled in emergency case |
| COM | Relay 1 common contact output (1A-250 V~ / 3 A-30 V=) | |
| NO | Relay 1 contact output norm. open | |
| +5 V | Output aux. supply 5 V= (max 15 mA) | / |
| IN 1 | Analog input pwm (5..15 V, 100 Hz frequency) | PWM input command with variable average value |
| 0 V | Ground I/O | Ground for analgical input |
| 4.20 | Analog input , type 4…20 mA (Ri = 100 Ω) | 4..20 mA analog command input |

## Dimensions

| Single phase | Three phase |
|---|---|
|  |  |



## Dimensions table

| CODE NO. | A | B | C | D | E | F | Weight |
|---|---|---|---|---|---|---|---|
| | [mm] | [mm] | [mm] | [mm] | [mm] | [mm] | [kg] |
| 080G0215 | 90 | 120 | 85 | - | - | - | 0.35 |
| 080G0217 | 230 | 165 | 150 | 215 | 80 | - | 2.5 |
| 080G0218 | 230 | 265 | 165 | 215 | 170 | - | 4 |
| 080G0219 | 230 | 265 | 230 | 215 | 170 | - | 4.8 |
| 080G0220 | 340 | 270 | 235 | 322 | 165 | - | 7 |
| 080G0279 | 230 | 165 | 150 | 215 | 80 | - | 2.5 |

## Installation

### Mechanical installation

The ACCSCS regulator must be wall-mounted vertically, in order to guarantee adequate dispersion of heat in the area of air circulation and prevent obstructions to air flow in the dissipator zone.
ACCSCS has IP55 grade protection, anyway protect it from corrosive liquids, gas, heat sources and position it preferably sheltered from the sun's rays. Make sure that it does not undergo vibrations.

### Electrical installation

All wiring should conform to local regulations and must be made by authorized personnel only.
To protect the power line and the regulator, the installation technician must install extra-rapid semiconductor fuses upstream of the power supply adequate for the load and with a value of $I^2xt$ less than the value given in the table below. If a differential circuit breaker is installed, it must be of the delayed action type.
The data are related to operate at 400 V ~ 50 Hz. For 230 V voltage supply or models at 440 / 460 V all current data are the same.
Max current refers to an enviroment temperature of 50 °C for a maximum time of 10 second every 5 minutes.

## Product part numbers

| DESCRIPTION | CODE NO. |
|---|---|
| ACCSCS, SINGLE PHASE REG. 230VAC, 8A | **080G0215** |
| ACCSCS, THREE PHASE REG. 400VAC, 8A | **080G0217** |
| ACCSCS, THREE PHASE REG. 400VAC, 12A | **080G0218** |
| ACCSCS, THREE PHASE REG. 400VAC, 20A | **080G0219** |
| ACCSCS, THREE PHASE REG. 400VAC, 28A | **080G0220** |
| ACCSCS, THREE PHASE REG. 400VAC, 8A, I | **080G0279** |

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