

Photo of the controller ARI 205

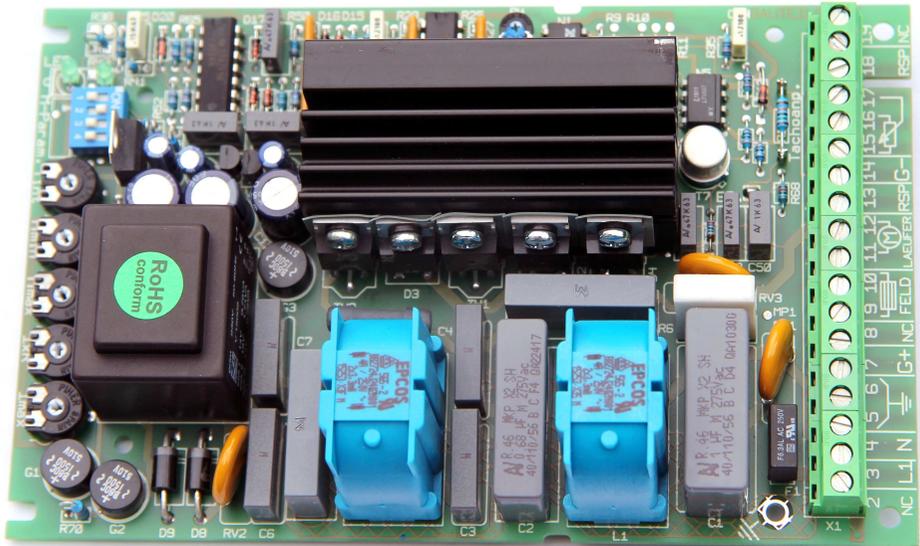


Photo of the controller ARI 605 Housing version IP 65



Short introduction speed controller ARI 205/605



Operation field of controller



- LED 1** Power display, lights up when power is on.
- LED 2** Controller disable display, lights up when the controller is locked
- M-Parameter** DIP-switch S1 - S4 to adapt the motor parameters
- Tint** Ramp time, adjustable from 0,1 to 15 seconds.
- nmin** Minimum speed of motor at setpoint „0“
- nmax** Maximum speed of motor at setpoint „max“
- IxR** Rotor voltage turnback compensation
- Imax** Current limit

Motor parameter

Through DIP-switches S1 - S4 you can optimally adapt almost every motor for the following applications

Photo: S1 - S4 not fixed (Small motor up to 0.6 nominal current)



Nr.	Application	S1	S2	S3	S4
1	Small motor up to 0.6 nominal current				
2	Motors between 0.7 and 1.1 A	ON			
3	Motors between 1,2 and 1,7 A		ON		
4	Motors between 1,8 and 2,5 A, quick load change	ON			ON
5	Motors between 1.8 and 2,5 A, slow load change	ON		ON	ON
6	Motors between 2,6 and 5,0 A, quick load change	ON	ON		ON
7	Motors between 2,6 and 5,0 A, slow load change	ON	ON	ON	ON
8	Motors with smoothing choke in rotor			ON	

ON - DIP-switch fixed

Technical notes to S1, S2, S3 and S4

- **S1 and S2** are to be fixed depending on the nominal motor current.
- **S4** determines the approximate current adjustment (2.5 A or 5,0 A maximum current), potentiometer I_{max} determines the precise nongraduate current adjustment.
- **S3** is used only for slow drivers (e.g. big swing mass) and only for motors with smoothing choke in rotor irrespective of motor current or load change.

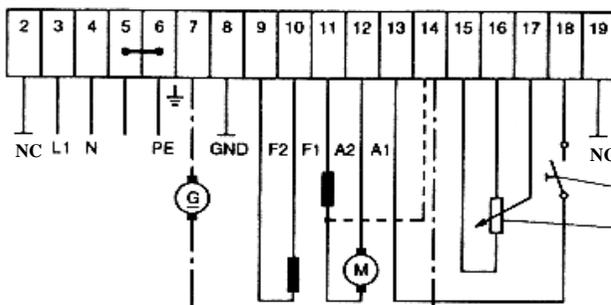
In practical operation there can occur discrepancies to this chart, depending on the different motor types - in this case the optimal alternative has to be defined by testing various adjustments.

Technical data

Supply voltage	230 VAC +6%, -10%, 50/60 Hz
Fuse	6,3 A, 250V, F
Rotor current	5,0 Aeff
Rotor voltage	0 - 160 VDC
Field voltage/current	190 VDC
Setting range of tachometer	ca. 1:100
Controller accuracy of tachometer	ca. +1%, -1%
Setting range of IxR	ca. 1:30
Controller accuracy of IxR	ca. +3%, -3%
Run-up time	0,1 - 15 sec.
Setpoint value*	4,7 or 10 kΩ
Setpoint voltage*	0 - 10 VDC
Setpoint current*	0 - 20 mA
EMC - Ratio interface suppression	limit B according to EN 55011
EMC - Interference immunity	according EN 50082 part 2
Dimension (Installation version)	160x100x35 mm (ARI 205)
Dimension (Housing version)	200x120x77 mm (ARI 605)
Protective type (Installation version)	IP 00 (ARI 205)
Protective type (Housing version)	IP 65 (ARI 605)
Ambient temperature	max. 45° C
Weight ARI 205/605	0,5/0,8 Kg.

* The inputs (setpoint and controller disable) are potential-free

Connection diagram



Options:

- operation with smoothing, choke, see — — — —
- operation with direct current tachometer, see — . — . —

- 1 - Setpoint potentiometer
4,7 kΩ or 10 kΩ
- 2 - Controller disable

Starting of controller

Preparing

- Connection according to the connection plan
- Adjust DIP - switches S1 - S4 according to the application case - see table with motor parameters
- Turn on potentiometer Nmin, Tint, Nmax and IxR to the left
- By rotor voltage turnback solder bridge BR - it is irrelevant whether the resistor R100 exists or not - or detach bridge BR at tachometer turnback and according to tachovoltage solder resistor R100
- Adjust setpoint potentiometer to the left (min) - respectively put the external setpoints to „0“

Switching on

- The apparatus have a switch-on logic, that means a switch-on sequence between connection voltage and controller disable is not necessary
- Connect connection voltage, power display LED 1 (green) must light up
- lock controller disable, LED 2 (green) light up

Speed adjustment Nmin

- Turn setpoint potentiometer to the left (min)
- Adjust the minimum speed by turning the potentiometer Nmin to the right

Speed adjustment Nmax

- Turn setpoint potentiometer to the right (max), respectively adjust the setpoint surces (current or voltage) to maximum
- Turning the potentiometer Nmax to the right you adjust the wanted maximum speed
- The maximum speed should not exceed the motor nominal speed

IxR compensation

- Using the rotor voltage turnback you can balance the load dependent speed variation through the potentiometer IxR.
- Adjust the motor speed to approx. 50% of the nominal speed
- Load the motor with the nominal load, measure speed and compensate the speed difference by turning the potentiometer IxR to the right. Avoid to overcompensate the speed, or the motor would start to swing.
- In case the controller accuracy is not satisfactory the same procedure should be repeated and potentiometer IxR should be adjusted again.



Current adjustment Imax

- The adjustment of the current limit is only then necessary when the maximum output current should be reduced to protect the motor.
- The controller has an approximate current adjustment (DIP-switch S4 which selects the current limit), and a precise nongradual one (potentiometer Imax).
- Define through DIP-switch S4 current limit up to 2,5 A (S4 not fixed) or up to 5,0 A (S4 fixed).
- Switch off power supply, unlock controller disable and connect the ampermeter in the rotor circle.
- Turn potentiometer Imax to the left, block motor, switch on power supply and turn setpoint potentiometer to the right.
- Lock controller disable and adjust the admissible blocking current of the motor by turning the potentiometer Imax to the right.
- Switch off controller, remove the ampermeter, connect again the rotor circle and switch on controller.

Adjustment of the run-up time (ramp time)

The ramp time is adjusted by potentiometer Tint. Through maximum setpoint voltage of + 10 V results an adjustment range of 0,1 - 15 seconds.

Rotation direction

Rotor should not be opened when the controller disable is locked and when the power supply is on. Reversal of direction of rotation is possible by changing of rotor polarity. This may be done only with the controller disable unlocked and the motor at standstill !