



Automatic road gates

AG/500, AG/900, AG/M1

Operating instructions



Manufactured by:

AUTOGARD spol. s r.o.
Dornych 47, 617 00 Brno, CZ
tel.: +420 - 5 - 45 53 54 62 - 3, fax.: +420-5-45 53 54 65
e-mail: autogard@autogard.cz
<http://www.autogard.cz>

Introduction

Thank you for choosing our automatic road gate. All items in the Autogard production range are All items of company AUTOGARD are state in market after long term tests and hard-set at laboratory fitting in heavy industry operation.

Used materials and components applicated in fabrication are high quality and are during all manufacturing case conquest many checks and proofs.

Our road gates was designed for high power, long lifetime and no need of periodical adjustments.

Are manufacture according generally avowed engineering standards and in alive area agree to specified technical norms.

General futures

Automatic road gates AG/500, AG/900, AG/M1 are driven by electric motor along with high torsion moment and belt driven equally dimensioned gearbox. They are designed for intensive continual operation.

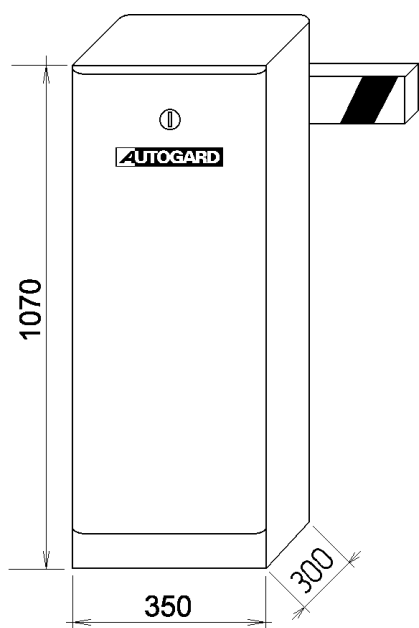
There is installed the control unit with microprocessor (AGN 2.0 / AGN 2.1).

The case is made from sheet iron flesh 2,5 mm (type AG/500) or alternatively 3 mm (type AG/900), with zinc and coated by pulverized polyester dye colour.

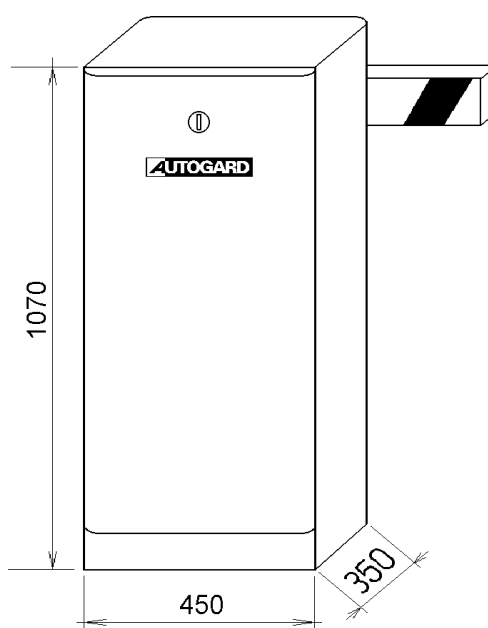
Technical parameters

	AG/500	AG/900	AG/M1
Motor	230 VAC 370 W	230 VAC 250 W	230 VAC 550 W
Boom length	3 - 5 m	6 - 9 m	1 - 3 m
Rise time	3 s	5 s	1 s
Dimensions	350 x 300 x 1070	450 x 350 x 1070	350 x 300 x 1070
Weight	95 kg	130 kg	95 kg
Control units	AGN 2.0 AGN 2.1	AGN 2.0 AGN 2.1	AGN 2.0 AGN 2.1
Closure	Automatic	Automatic	Automatic

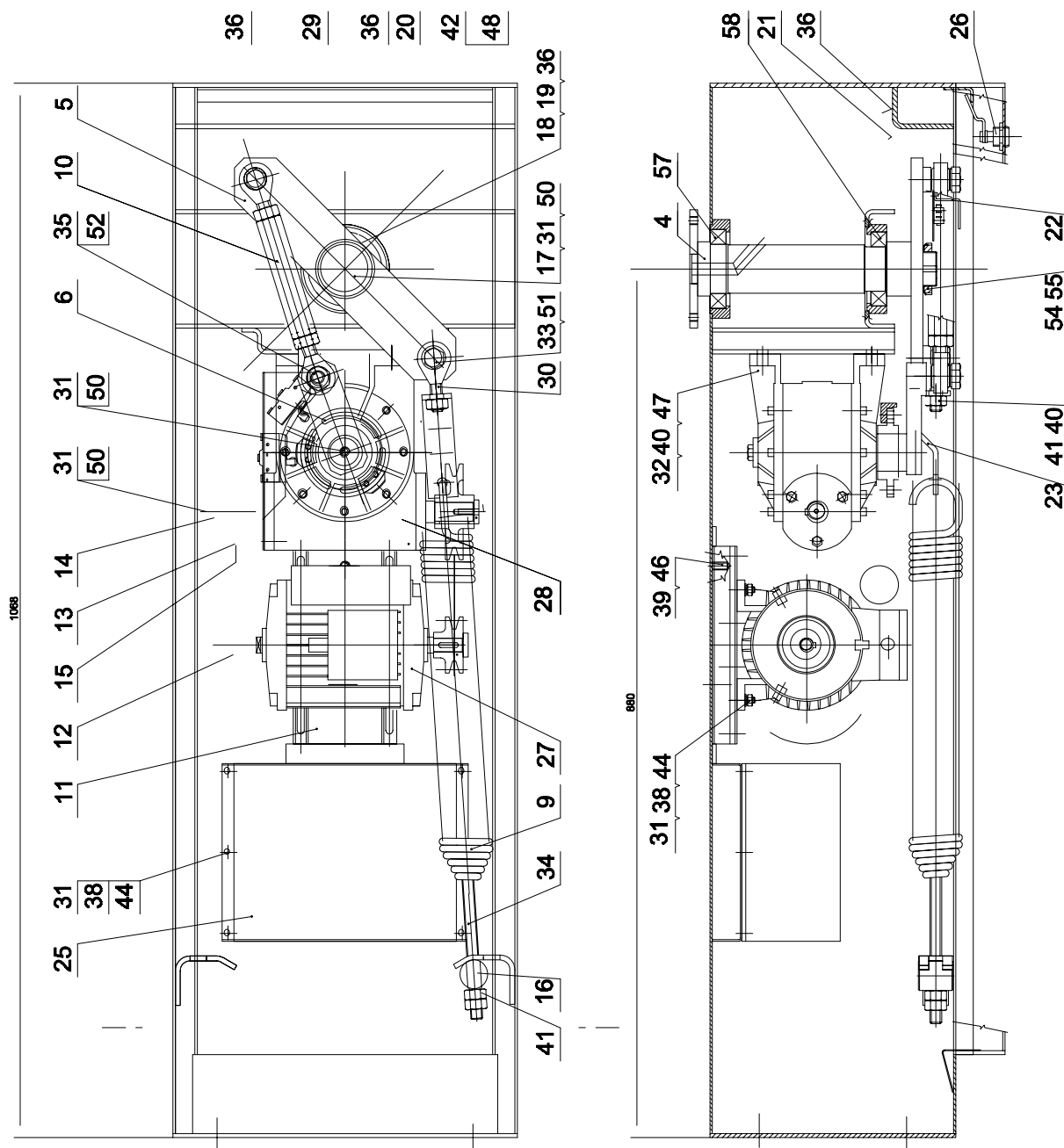
AG/500:



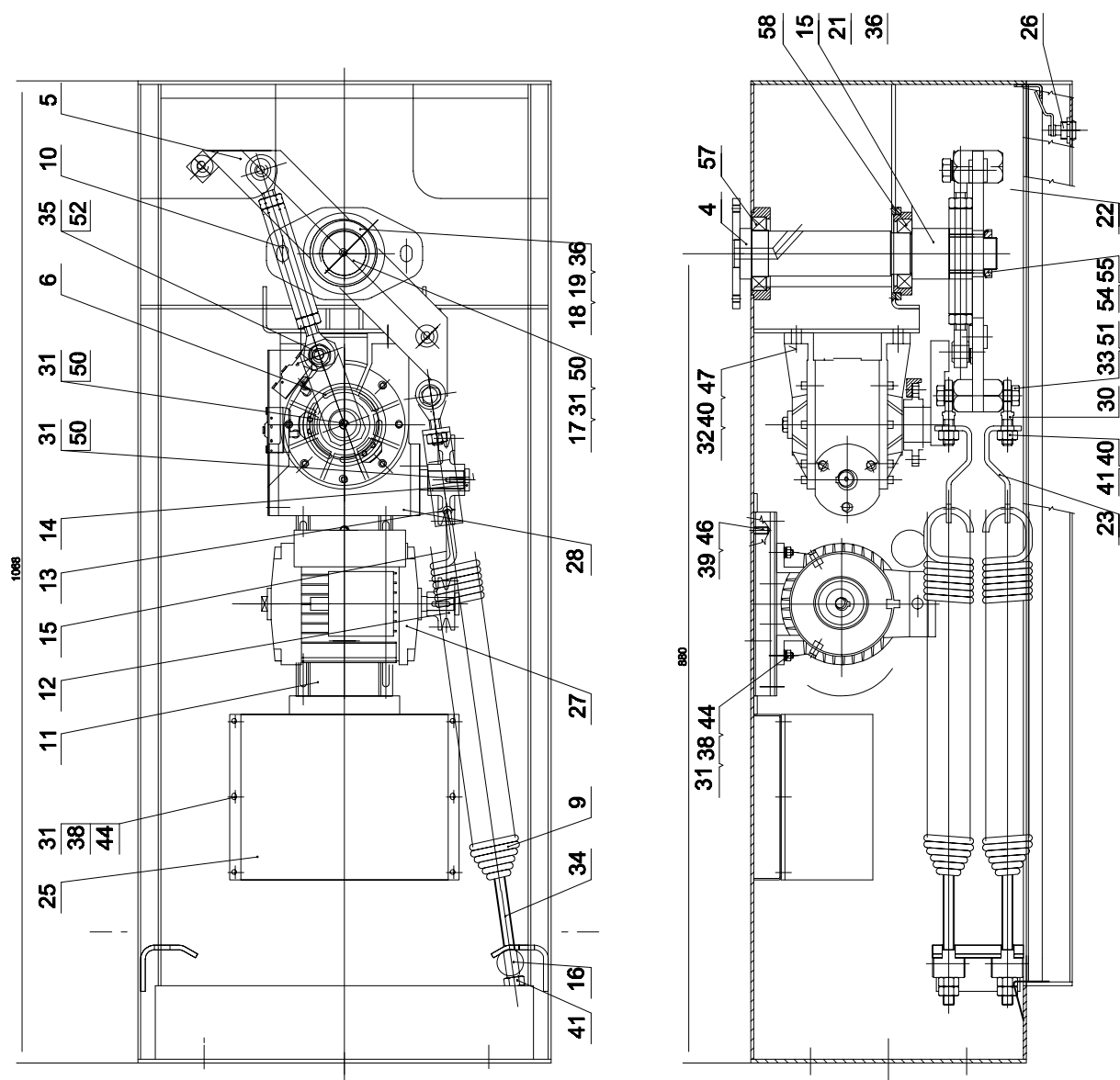
AG/900:



Outlet journal of AG/500



Outlet journal of AG/900



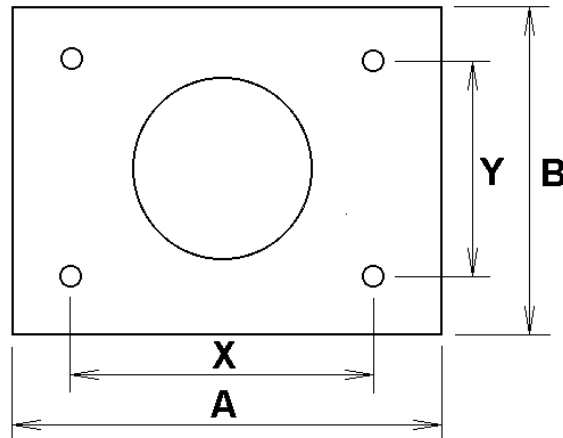
Foundation kit positioning

The road gate is installed on fast mounted (on the concrete base, welded to iron ground etc.) foundation kit, which include foundation plate and 4 long screws M12 along with females intended for the concreting. The gate base make no a less then 600 mm, power supply and signal cables brings cable guard, including the cable from car detector loop (like on the picture).

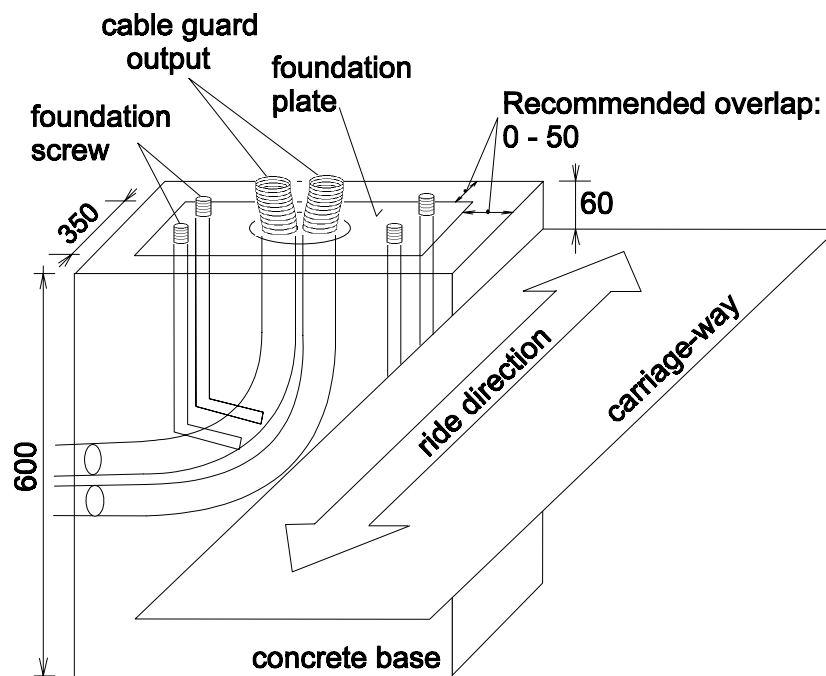
! WARNING ! Power supply alimentation have to include device enabling disconnecting of the cable in which the distance of disconnected contacts is on less than 3 mm.

Foundation plate:

[mm]	AG/500	AG/900
X	260	310
Y	150	170
A	350	450
B	310	350



Design of the concrete gate base with foundation kit:



Setting of gate and fixing of rod

Unpack gate lodge to right clear guy kit with from off-screw nuts and without gate doors, so that we need fully check the setting of the gate on the screws M12 and booting of all cables through the aperture at bottom gate. Then you use pads 12,5 mm and nuts M12, that fast screw all. The column of the gate must be fixed fast, because during working time there are the forces like 5kN. The rod we affix by means of competent holder (for profile or tube) with 4 screws M8 (imbus type) into fulcrum of the rod.

The length of the pull enclose a rod opening in the bulk 90° and is adjusted during producing. In case of emergency it is possible to change this dimension.

Earthing of road gate

After the fixing of the gate column we finish the earthing of metallic gate column. From the power supply cable 230V AC, like CYKY 3x1,5 we affix the line wire PE to earth screw located on the right side below.

Please verify the connecting of the motor PE clamp with herewith earth screw.

Length of rods, pulleys, springs

For different length and models of rods we need to apply specified springs (for right balancing of the rod) and pulleys which correspond with rod rise time (see the following table):

The rods from z Al profiles:

gate type	rod length [m]	Spring type		Pulley d [mm]
		Rod without accessories	Rod with accessories	
AG/M1	3	O	Z	75
AG/500	3	O	Z	75
	4	Z	M	100
	5	M	W	112,5
AG/900	6	Z + O	Z + Z	100

The rods from z Al tubes:

gate type	rod length [m]	Spring type		Pulley d [mm]
		Rod without accessories	Rod with accessories	
AG/M1	3	O	Z	75
AG/500	3	O	Z	75
	4	Z	M	100
	5	M	W	112,5
AG/900	6	M	W	100
	7	Z + Z	Z + M	112,5
	8	Z + M	M + M	150
	9	M + M	M + W	150

Description:

Z – green spring

O – orange spring

M – blue spring

W – white spring

The rod balancing with spring

After assembling of the gate is necessary check the balancing of the rod with the spring / springs choose by previous table. Every piece of make road gate is assembled for specified rod length, rise time, spring balancing.

As far as is used other length of the rod, than is specified on manufacture label, you need to read following instructions:

The spring balancing you can do with installed final length rod including all accessories, with spring / springs (according the table) disconnected pull between gearbox and lever. Let's verify the balancing of the rod with tensing or alternatively unfastening of the spring through spring bottom bolt. Balanced rod - spring system has in all moving area the easy running and there's no need to help with hand more then slightly.

After the spring balancing use the pull for connecting the gearbox to lever, check the place of 90° sector and feeze the safety nuts. These operations has grand amount at views of rod running fluency and mechanical stress limitation of all gate case deals.

Note: The verifying of spring balancing is necessary after every change of rod length, type of rod, adding of any accessories etc.

Setting of limit switches

The limit switches are check the run of the rod and guarantee switch-off the motor in last places of rod running. The limit switches are located on the console near the gearbox. Switching flags are attached with screws M5 (imbus type) on the bracket which is situated in outgoing gearbox axis.

Generally the limit switches guarantee 90° angle of rod running and coming of gearbox lever near the dead position, like with 180° angle of running. It means, that the rod has zero angle speed in last places of rod running. The system is designed in so far that the mechanical limits are not required.

Emergency opening

During using of road gate can arrive the situation, when is necessary open the gate alternatively (f.e. the power supply is aborted).



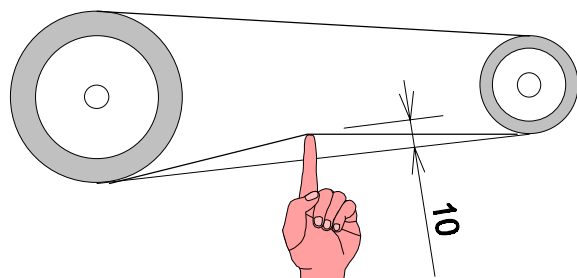
! WARNING ! Emergency opening or closing do only with shut-down power supply switch ! Harm hazard !

In this case you need apply the key on opposed motor site then pulley. There are the flats put on the key. With swinging of the key you can move with gate rod.

Periodical adjustment

Automatic road gate is designed and made as without service device. For permanent error free function we advice advise to execute these advances every three working months:

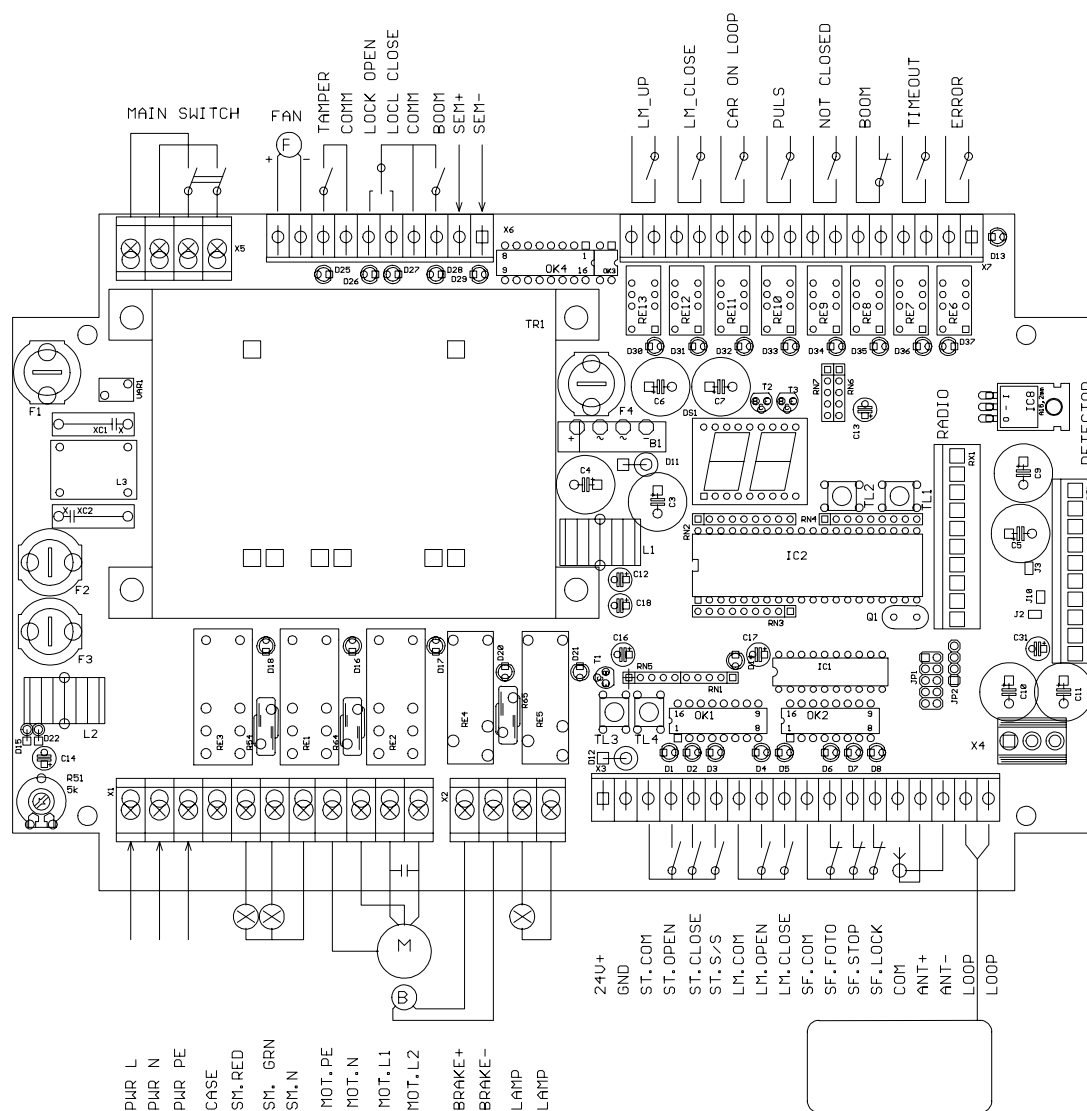
- 1) verify the earthing point - the screw, and in case of findings feeze the nut
- 2) verify visually of all threaded joints and in case of findings feeze all needed
- 3) apply the WD 40 alternatively alike on the functional area articulated bearing of the lever
- 4) verify the belt tension, whom the deflection must be amount 10 mm (like on the picture), in case of findings adjust the tension



Control unit AGN2.0 / AGN2.1

Barriers of mod. AG500 a AG900 AGM1 are delivered with control unit AGN2.0 / AGN2.1 on microprocessor basis which enable to adapt plug-in modules of radio receiver and loop detector.

Control unit AGN2.0 / AGN2.1– connection schema:



Fuses:

<i>fuse</i>	<i>Type</i>	<i>Value</i>
F1	T	0,5 A
F2	T	5 A
F3	F	1 A
F4	T	2 A

Description of AGN2.0 / AGN2.1 connectors :

Pin	Part	Signal
L	POWER	Power supply 230V AC – L wire
N		Power supply 230V AC – A wire
PE		Power supply 230V AC – PE wire
CASE	CASE	case
RED	SEMAPHORE	Traffic light pin – phase on signal STOP
GRN		Traffic light pin – phase on signal FREE
N		Traffic light pin - common
PE	MOTOR	Motor – PE wire
N		Motor - N wire
L1		Motor – phase in direction open
L2		Motor – phase in direction close
+	BRAKE	Motor brake 24V +
-		Motor brake 24V -
+	LAMP	Output for flashing lamp or lighting 24V AC
-		Output for flashing lamp or lighting 24V AC
+	24V	Output 24V DC for power supply of accesories,
GND		max 300 mA
COM	START	Common pin for control inputs
OPEN		Input of push-button „open“ (NO)
CLOSE		Input of push-button „close“ (NO)
S/S		Input of push-button „ step-step “ (NO)
COM	LIMIT	Common pin for control inputs
OPEN		Input of NC contact of limit switch upper position
CLOSE		Input of NC contact of limit switch low position
COM	SAFE	Common pin for control inputs
FOTO		Input of safety contact FOTO (blocks closing) (NC)
STOP		Input of safety contact STOP of push-button (blocks all move) (NC)
LOCK		input contact LOCK (NO) , the arm is blocked in open position
COM		Common pin for control inputs
ANT +	ANT	Input of antenna's central wire for plug-in receiver of radio control
ANT GND		Input of antenna's shell for plug-in receiver of radio control
LOOP	DET	Pins for connecting of inductive loop

Plug-in modules:

Connector	Module
MODUL RADIO	plug-in module of radio receiver – control the barrier following programmable parameters. Suitable for type MRS2E receiver. Suitable for loop detectors of PLD1 type (the loop conneted instead of antenna) for opening function.
MODUL DETECTOR	plug-in module of presence detector – closing of barrier + safety function Suitable for loop detectors of PLD1 type, see progr. parameter no. 01.

Top side of control unit – left part – Input signal

Pin	Part	Signal
MAIN SWITCH	POWER	Head power switch 230V AC
FAN	X6	fan 24V DC (for AG/M1)
TAMPER - COM		Tamper switch terminal (for checking of door opening)
LOCK OPEN		input for LOCK (NO), the arm is blocked in open position
LOCK CLOSE		input for LOCK (NO), the arm is blocked in close position
COMM		Common pin for safety inputs
BOOM		input for damage boom sensor
SEM +		input for external traffic light driving +24V
SEM-		input for external traffic light driving -24V

Top side of control unit – right part – Output signal (only AGN2.1 version)
(max. loading for each one is 24V / 0,3A !)

Pin	Part	Signal
LM_UP	X7	output of NO contact of limit switch upper position
LM_CLOSE		output of NO contact of limit switch low position
CAR ON LOOP		output for car detection (deactivated with some LOCK signal)
PULS		output signal impulse (0,5sec.) when the barrier is open and car is detected on the loop, (deactivated with some LOCK signal)
NOT CLOSED		output status signal when the boom is not in low position
BOOM		output signal when the barrier broken (NC contact)
TIMEOUT		output for "barrier obstructed
ERROR		output for Barrier Out Of Order (NC)

a) Start of control unit:

After connecting of power supply red LED in upper right corner is switched-on and in the line of LED behind the plug-in module relative LED according the activated inputs.

Then the system is in a **standard status**, lines on display are blinking. It means the barrier will work normally.

Standard function:

In case the boom is in closed position the control unit waits for command OPEN - UP. This can be made by following kinds : Push-button UP, Push-button Step-Step or by radio transmitter. If during the opening an opposite command is given the boom stops for ca.1s and then starts to move the opposite way. During the closing cycle inputs FOTO and DET are tested. If they are active, the boom again stops and starts to move contrary. Input STOP blocks all moves.

b) new setting of control unit:

By simultaneous pressing of both programming buttons you can entry to the programming modus. Number of programmable function is displayed on. This number can be changed with the help of programming keys UP and DW. Choose number of function, you want to change. By simultaneous pressing of both programming keys you can entry to the parameters settings of this function. Values can be changed again with programming keys UP and DW following the table of programmable functions. After setting of required values they are saved by simultaneous pressing of both keys and control unit returns to standard status (lines are blinking). When changing other parameters repeat the same way.

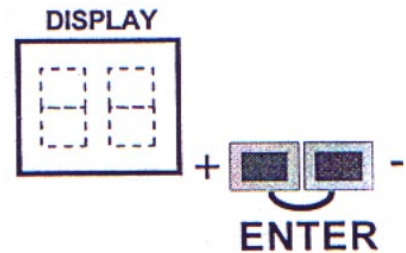
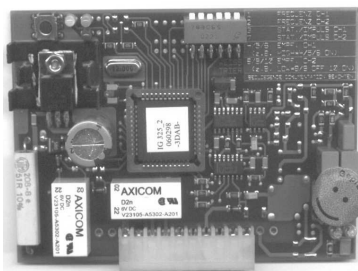


Table of programmable functions:

Function – number of item	Description of function	Values	Pre-setted
01	DETECTOR – Choice of PLD1 plug-in loop detector function Not used (00), Safety (01), safety+closing (02)	00 - 02	01
02	RADIO1 – Relay A has following functions (for MRS2E): Open (00), step-step (01), or with the help of plug-in loop detector LPD1 ((the loop connected instead of antenna) to open the barrier (02)	00 - 02	00
03	RADIO2 – Choice of relay B function of plug-in receiver MRS2E Switched-off(00), or „closing“ (01)	00 - 01	00
04	LAMP – Choice of function of blinking lamp or warning lamp Blinking only during the movement (00), or blinking full time(01)	00 - 01	00
05	FOTO – memory of closing pulse during break of input FOTO. Control unit disregards closing command during break of input (00), closing command is memorised and after performed (01).	00 - 01	01
06	TIMER – setting of automatic reclosure time after opening Reclosure is switched-off (00), reclosure is activated, setted value corresponds to the time of reclosure (01 – 99)	00 - 99	00
07	DELAY – delay of start of closing after receiving command close (pre-blinking of flashing light) time of delay is setted in sec. (00 – 99).	00 - 99	00
08	Choice of time of switching traffic light on STOP Traffic light is switched by activation of any safety inputs (when the car is nearby the barrier)(00), traffic light is switched by command (01), external driving of traffic light through the input SEM (02)	00 - 02	00
09	Choice of arm movement concerning the FOTO or loop detector safety device activation Stop the boom and rise (00), Stop the boom and finish the movement when the safety signal falls (01), Stop the boom and finish the movement with delay 2 sec. when the safety signal falls (02)	00 - 02	00
10	Stop on obstacle – if the boom bump on an obstacle motor will stop. Function is deactivated (00), function is activ, the time of reaction is setted (01 – 20).	00 - 20	00
11	Blocking of closing with input OPEN – If the contact on input OPEN is switched-on, boom cannot be closed. Function is deactivated (00) , or activated (01)	00 - 01	00
12	Reset of automatic reclosure time – New start of reclosure time when opening signal is given during the reclosure time is activ (01). Continue of reclosure time regardless to new opening signal during the reclosure is activ (00).	00 - 01	
13	Multiply of automatic reclosure time – In case the time of automatic reclosure set in Item 8 is not sufficient, there is a possibility to multiply it 10 times. Resulting time is when the value set in Item no. 8 multiplied by the value of this function (01 – 10).	00 - 10	
14	Setting of barrier model (only for full version of control unit) AGM1 (00), AG500 (01), AG900 (02)	00 - 02	00

Loop detector PLD1 – 1-channel plug-in model



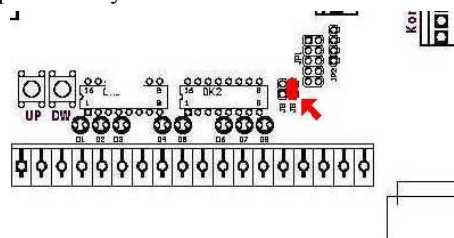
For safety functions and automatic closing the barrier after leaving the loop insert plug-in loop detector module to socket "**detector**".

The safety loop connect to **LOOP** pins.

The head function of plug-in loop detector you can set with function no. **01** (as you require) and **09** (to value 02) in setup menu of AGN1.1 control unit.

Change DIP switch (on AGN1.1 control unit)

according to the picture (the arrow on the picture helps you).



If you want to use plug-in loop detector for opening the barrier, insert plug-in loop detector to socket "**radio**". The loop connect to **ANT** pins. This type of function requires setting of function no. **02** to value 02.

You can also apply two plug-in loop detectors in control unit (first for opening, second for safety function and closing), but the distance between opening and safety/closing loop must be more than 2 meters.

Setup ! After each device setting, a readjustment has to be made by pressing the reset key.

Dip switch 1,2

Frequency setting - with the frequency switches, several operation frequencies per channel can be set in order to avoid couplings by nearby loops.

Two or more detectors may not operate at the same frequency.

Frequency high	S1 - left	S2 - left (delivery status:high)
	right	left
	left	right
Frequency low	right	right

Dip switch 3

Holding time (only relay A) - static (presence) - (S3 - on) or pulse 100 ms (S3 - off).

Dip switch 4,5,6

Sensitivity of the loop

DIP4	DIP5	DIP6	Function
on	on	on	Sensitivity high
on	on	off	
on	off	on	
on	off	off	Sensitivity med
off	on	on	
off	on	off	
off	off	on	Sensitivity low
off	off	off	DIP3 off - relay released - test operation
off	off	off	DIP3 on - relay picked-up - test operation

Status LEDs

Detect - green LED – the switching status "Loop Covered" is signalled by shining of the green LED.

Error - red LED – A loop failure through loop short-circuit, disconnection or loop inductivity beyond a permissible range is displayed by shining of the red LED.

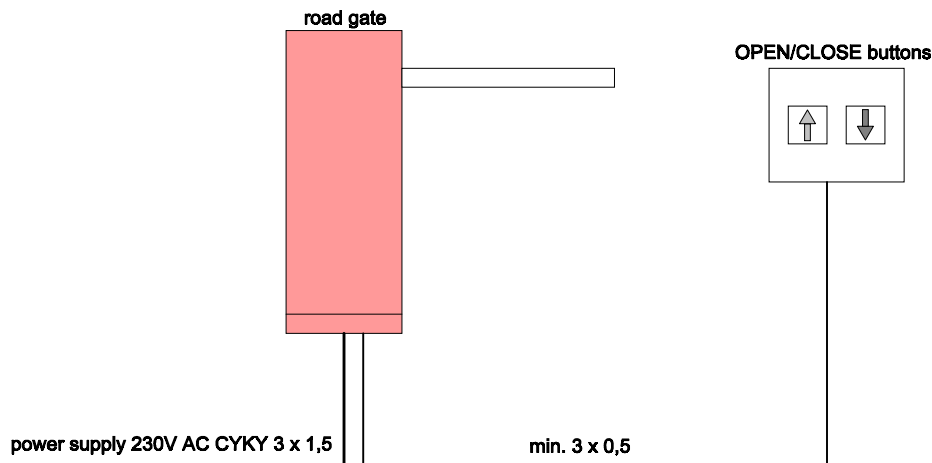
Power - yellow LED – during the adjustment, the yellow LED is blinking for a few second. The yellow LED will shine permanently after the adjustment.

! No vehicle may be on the loop during the adjustment phase, since it will then not be detected any more.

! After each device setting, a readjustment has to be made by pressing the reset key.

Wiring diagram

The road gate we can control with all means. For example we can use double button OPEN/CLOSE which requires cabling, like on the next wiring diagram.



Another eventual means for driving are here:

- radio control
- inductive car detector
- access system with magnetic cards, contact keys and proximity tags and cards
- access system for public cash parking

Accessories to request

- ✓ inductive car detector
- ✓ safety photocell
- ✓ pneumatic skirting
- ✓ flash light
- ✓ rod flash light
- ✓ radio control
- ✓ sign STOP
- ✓ full or half size banisters on the rod
- ✓ articulated rod
- ✓ compact or free bracket of the rod
- ✓ access systems

Required recycling of gate components in reason the statute 238 / 91 Sb.

The road gate which is intended for liquidation is necessary to demount and separate components sort in accordance with material origin (several type of metal, plastic).

All sorted materials you can store on the places intended for save the planet.

The EC – Declaration of the Conformity

1) We

AUTOGARD spol. s r.o.
Dornych 47
617 00 Brno - CZ
Ident. No.: 49446053

declare herewith

that the below mentioned product on the basis of its conception and construction as well as the versions launched by us fulfils the relevant basic safety requirements of the European directives. In the case of a modification of the product not agreed upon by us this declaration loses its validity.

Identification:	The Automatic Bar
Model series:	AG500; AG900; AGM1
Technical parameters:	230 V / 50 Hz 370 W/ 250 W/ 550 W
Manufacturer, Point of producing:	AUTOGARD spol. s r.o., Dornych 47, 617 00 Brno - CZ

The description and using: The automatic bar is determined for the regulation of the entry and departure of the cars to/from a dedicated area.

The relevant decrees of the government / the European directives:

The Decree of the Government No. 168/1997 Coll. as amended (the Directive of the European Council 93/68/EEC),

The Decree of the Government No. 169/1997 Coll. as amended (the Directive of the European Council 93/68/EEC),

The Decree of the Government No. 170/1997 Coll. as amended (the Directive of the European Council 98/37/EEC).

The applied harmonised standards, national standards and technical specifications:

ČSN EN 60204-1:2000 (EN 60204-1:1997), ČSN EN 61000-6-3:2002 (EN 61000-6-3:2001),
 ČSN EN 61000-6-1:2002 (EN 61000-6-1:2001), ČSN EN 292-1:2000 (EN 292-1:1991),
 ČSN EN 292-2+A1:2000 (EN 292-2+A1:1995)

Under conditions of common and determined using the product is safe.

The manufacturer has taken precautions for ensuring of the conformity of all launched products with the technical documentation and wit the requirements of the technical standards mentioned above.

²⁾ The appreciation of the conformity was carried out in the co-operation with the ITI TÜV s.r.o., Modřanská 98, 147 00 Praha 4 – Czech Republic, Ident.No: 63987121 – The Product Certification Body.

The certificate No. 99/03/07/02/0 was issued, from 10.6.2003, valid till: 30.6.2006.

Brno, 12.6.2003
Place of issue, date

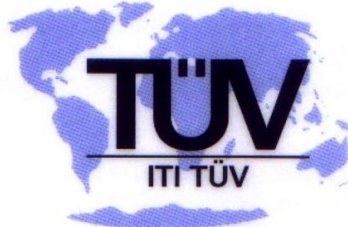
Ing. Martin SKOUMAL
Name and function of the
responsible person

.....
Signature

¹⁾ The accredited person cooperative on appreciation of the conformity.

Certificate

TYPE CERTIFICATE



Registration Number 99/03/07/02/0

issued for the producer:

AUTOGARD spol. s r.o.**Dornych 47****CZ - 617 00 Brno**

for the product:

The Automatic Bar**AG500; AG900; AGM1**

Identification:

Model series:

Point of producing:

AUTOGARD spol. s r.o.**Dornych 47****617 00 Brno - CZ**

at which the evaluation, certification and audit of the system quality were carried out intent on the elements ensuring the next product conformity in accordance with the certification system of the ITI TÜV according to ČSN EN 45011:1998, whose results are given in the Assessment Report No 0539/90/03/BT/IZ/S, from 23.5.2003.

The mentioned product type fulfils the applicable requirements of following regulations/ normative documents, which have underlain for its evaluation:

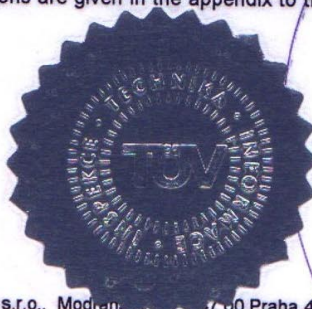
Law No. 22/1997 of digest as amended,

The Decree of the government No. 168/1997 Coll. as amended, the Decree of the Government No. 169/1997 Coll. as amended, the Decree of the Government No. 170/1997 Coll. as amended, ČSN EN 60204-1:2000, ČSN EN 61000-6-3:2002, ČSN EN 61000-6-1:2002, ČSN EN 292-1:2000, ČSN EN 292-2+A1:2000

This certificate is valid till: **30.6.2006**

Details and validity conditions are given in the appendix to this certificate, which is its integral part and contains 1 page.

Prague, 2003-06-10



Ing. Ivo Dršťák
Manager of the certification
body

ITI TÜV s.r.o., Modřanská 7, 602 00 Praha 4 - ČR IČ: 63987121
Municipal court in Prague, section C, enclosure No. 38432, entry date: 20.7.1995
Product Certification Body

F-Q-028/38/5 (99 03 aj)

Appendix to the certificate No. 99/03/07/02/0

1. The product sample was applied for the evaluation and certification on 3.3.2003.
2. The certificate was issued on the technical basis of the manufacturer:
 - The requisition for the certification
 - The contract of the inspection activity of the certified product („of the supervision“)
3. The audit of quality system was carried out at the manufacturer with orientation to the elements ensuring the conformity of the products with certification requirements. The results are given in the Part Inspection Report of the ITI TÜV.
4. Detailed technical data characterising the product type/sample:

The representative of the AG500
model series:
Technical parameters: 230 V/ 50 Hz; 370 W, arm length 5 m
dimensions 350 x 300 x 1070 mm, weight 95 kg
The control unit: AGN 1.1A
5. List of important parts of the technical documentation:
 - The producing drawing documentation
 - The documents of the purchased components of the product
 - The using manual for the automatic bars AG500, AG900, AGM1, made out by the manufacturer – AUTOGARD spol. s r.o., Brno
 - The Inspection Report No. 0121/40/03/BT/IZ/E, from 4.4.2003, made out by the ITI TÜV s.r.o., branch office Plzeň
6. Validity conditions
 - This Certificate is valid only for its holder and for the products and production places given here.
 - The transmission of this certificate to third parties is inadmissible as well as its using by them.
 - Any changes of product compared to certified product have to be announced to the ITI TÜV without delay. This circumstance may cause dependence of this certificate on an additional conformity evaluation.
 - ITI TÜV performs the supervision over the regular functioning of the quality system on the basis of the concluded contract of inspection activity on schedule once yearly
 - This certificates it valid for 3 years from the date of its issue and can be renewed on demand.
 - This certificate can be copied only in all including all annexes.
 - The right to use trademark ITI TÜV was established to this certificate.
 - The certificate holder undertakes to keep files about all eventually complaints concerned the conformity of the product with the requirements of regulations and directives and to release this files to the certification body ITI TÜV.
 - The not mentioned details (advertising, using of trademark and certificates) are regulated by the General conditions for product certification in the actual version.



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