

DYNAMIC SERIES

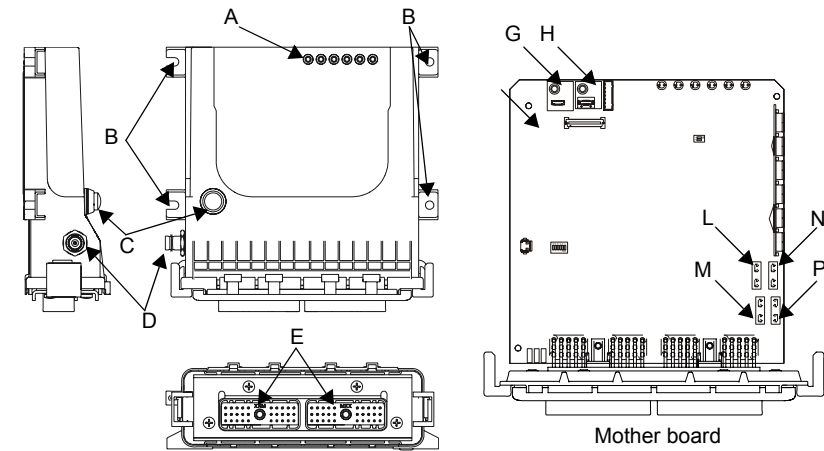
Part D: ARS receiving unit



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1 Description



A	LEDs	G	IDK (for address key)
B	mounting holes	H	DTK connector (for data memory)
C	TEACH pushbutton	L	fuse F4
D	antenna connector	M	fuse F5
E	plugs	N	fuse F3
		P	fuse F2

The receiving unit communicates with the machine through the outputs and their wiring and/or through a CAN network (of which it is a slave node). The STOP (STP_1 and STP_2) and SAFETY (SAF) outputs are some of the receiving unit's outputs.

2 Technical data

Power supply	8-30 V==
Antenna	dedicated
Rated current of outputs STP_1 and STP_2	7.5 A (30 V==)
Rated current of output SAF	7.5 A (30 V==)
Rated current of digital outputs	2 A (30 V==)
Rated current of analogue outputs (PWM)	2 A (30 V==)
Rated current of analogue outputs (voltage)	10 mA (28 V==)
Protection of power supply (fuse F3)	7.5 A (32 V==, autofuse)
Protection of STP1 (fuse F5)	7.5 A (32 V==, autofuse)
Protection of STP2 (fuse F2)	7.5 A (32 V==, autofuse)
Protection of SAF (fuse F4)	7.5 A (32 V==, autofuse)
Housing material	PBT (30% fg) and PA6 (30% fg)
Protection degree	IP65 (NEMA 4)
Dimensions	194 x 210 x 61 mm (7.7 x 8.3 x 2.4 In)
Weight	850 g (1.9 Lb)

3 Technical data sheet

The technical data sheet contains the wiring diagram showing the connection between the receiving unit and the machine.

It also contains the transmitting unit configuration and shows the matching between commands sent and machine functions/movements.

The technical data sheet must be filled in, checked and signed by the installer, who is responsible for a correct wiring.

The technical data sheet must be kept together with this manual (always keep a copy of this data sheet for administrative purposes).



The wiring of the receiving unit outputs must always reflect the wiring indicated in the technical data sheet.

4 Plates

The receiving unit has two plates.

Plate	Position	Content
radio remote control identification plate	On the casing of the receiving unit	Radio remote control serial number, bar code (S/N) and manufacturing year.
technical data plate	On the casing of the receiving unit	MODEL, TYPE and main receiving unit technical data, marking and possible radio remote control marks.

5 Light signals

The ARM receiving unit has six LEDs:

- POWER is green
- ALARM is red
- STATUS is blue
- RUN is green
- ERR is red
- SETUP is yellow.



1. POWER LED (green)

The POWER LED indicates the status of the receiving unit and of the radio link.

The POWER LED ...	Meaning
... is off	The receiving unit is switched off.
...blinks	Radio link has been built.
... is on	No radio link.

2. ALARM LED (red)

The ALARM LED warns about anomalies in the receiving unit.

The ALARM LED ...	Meaning
... is off	The receiving unit works correctly.
... blinks once	Error on the STOP outputs.
... blinks twice	Error on the SAFETY outputs.
... blinks three times	Error on the outputs corresponding to direction commands.
... is on	The receiving unit does not work correctly.

3. STATUS LED (blue)

The STATUS LED warns about anomalies on the outputs or on the power supply and indicates the reception of data from the transmitting unit.

The STATUS LED ...	Meaning
... is off	No radio link.
... blinks slowly	Over-voltage on power supply.
... blinks fast	The receiving unit receives data from the transmitting unit.
... is on	Over-current in one of the PWM analogue outputs.

4. RUN LED (green)

The RUN LED indicates the status of the communication between the receiving unit and the CAN network Master node.

The RUN LED ...	Meaning
... is off	The receiving unit does not work as a CAN network node.
...blinks	The receiving unit does not send commands in the CAN network.
... is on	The receiving unit is working correctly as a node in the CAN network.

RUN LED signals reflect the guidelines of the CANopen®, standard, CiA recommendation 303-3.

5. ERR LED (red)

The ERR LED indicates the status of the CAN communication.

The ERR LED ...	Meaning
... is off	The CAN communication is working correctly.
...blinks	The CAN communication does not work correctly.
... is on	No CAN communication.

ERR LED signals reflect the guidelines of the CANopen® standard (CiA recommendation 303-3).

6. SETUP LED (yellow)

The SETUP LED shows the status of the data memory and of the address key, depending on the receiving unit's working status.

The SETUP LED ...	Meaning
... is off	The receiving unit works correctly.
... blinks once	Error on the address key.
... blinks twice	Error on the data memory.
... blinks three times	Within the REMOTE SETUP procedure, calibration of the values proportional outputs' rest position is being performed (see paragraph 6.2).
... blinks quickly three times	The receiving unit is saving data set with the REMOTE SETUP procedure (see chapter 6).
... blinks four times	Inversion of movement direction of the joysticks axes is being performed within the REMOTE SETUP procedure (see paragraph 6.3).
... blinks fast	Within the REMOTE SETUP procedure: - two or more analogue commands are being activated simultaneously or - restoration of factory settings is being performed (see paragraph 6.4)
... is on	Within the REMOTE SETUP procedure, calibration of maximum and minimum values of proportional outputs is being performed (see paragraph 6.1).

6 REMOTE SETUP procedure

Proportional outputs in the ARS receiving unit are factory set: values are given in the technical data sheet.

The REMOTE SETUP procedures is used to modify:

- maximum and minimum values of proportional outputs (see paragraph 6.1),
- values related to the rest position of proportional outputs (offset) (see paragraph 6.2),
- direction of movements of joystick's axis (see paragraph 6.3).

It is also possible to restore factory settings of proportional outputs (see paragraph 6.4).



The REMOTE SETUP procedure can only be performed by skilled and properly trained personnel.



During the REMOTE SETUP procedure, pay particular attention to the machine behaviour, as it moves as a response to acting on the actuators.

It is possible to restore factory settings at any time, if necessary (see paragraph 6.4).

6.1 Calibrating maximum and minimum values of proportional outputs

1. Start up the radio remote control.
2. Press the TEACH pushbutton in the receiving unit and do not release it until the SETUP LED illuminates.
3. Set the desired values as follows:
 - To set the maximum value, move the joystick to the maximum range of the semi-axis to be calibrated. Maintain the position and use the TEACH selector on the transmitting unit to set the desired value.
 - To set the minimum value, move the joystick slightly out of the rest position of the semi-axis to be calibrated. Maintain the position and use the TEACH selector on the transmitting unit to set the desired value.
 - After calibrating one joystick, press the STOP pushbutton to save calibrations. All calibrations are saved in the data memory.
 - To set other values, unlock the STOP pushbutton, press the START pushbutton and repeat actions described in point 3.
4. To leave the procedure, press the TEACH pushbutton on the receiving unit and do not release it until the SETUP LED switches off.



If the proportional outputs are activated by actuators that are not joysticks (i.e. potentiometer, switch), calibrate maximum and minimum values according to the abovementioned procedure.



If a speed selector is present on the transmitting unit, minimum and maximum values have to be calibrated for each of the selector positions.



If inputs are used in the receiving unit to select different speeds, calibration must be performed while these inputs are active.

CAUTION

6.2 Calibrating values related to the rest position of proportional outputs (offset)

1. Start up the radio remote control.
2. Press the TEACH pushbutton in the receiving unit and do not release it until the SETUP LED illuminates.
3. Enable and release the "TEACH +" of the corresponding switch on the transmitting unit and press and release the START pushbutton soon after.
4. Repeat actions described in point 3 until the SETUP LED on the receiving unit starts blinking three times.
5. Set the desired values as follows:
 - Move the joystick out of the rest position of the axis to be calibrated. Maintain the position and use the TEACH selector on the transmitting unit to set the desired value.
 - Press the STOP pushbutton to save the calibration. All calibrations are saved in the data memory.
 - To set other values, unlock the STOP pushbutton, press the START pushbutton and repeat actions described in point 5.
6. To leave the procedure, press the TEACH pushbutton on the receiving unit and do not release it until the SETUP LED switches off.



If the proportional outputs are activated by actuators that are not joysticks (i.e. potentiometer, switch), calibrate values related to the rest position according to the abovementioned procedure.

6.3 Inversion of movement direction of the joystick's axis

1. Start up the radio remote control.
2. Press the TEACH pushbutton in the receiving unit and do not release it until the SETUP LED illuminates.
3. Enable and release the "TEACH +" of the corresponding switch on the transmitting unit and press and release the START pushbutton soon after.
4. Repeat actions described in point 3 until the SETUP LED on the receiving unit starts blinking four times.
5. Set the desired values as follows:
 - Move the joystick out of the rest position of the axis to be inverted. Maintain this position and activate once the "TEACH +" command related to the corresponding switch on the transmitting unit.
 - Press the STOP pushbutton to save the calibration. All calibrations are saved in the data memory.
 - To invert other directions, unlock the STOP pushbutton, press the START pushbutton and repeat actions described in point 5.
6. To leave the procedure, press the TEACH pushbutton on the receiving unit and do not release it until the SETUP LED switches off.

6.4 Restoring factory settings

1. Ensure that the transmitting unit is switched off.
2. Power on the receiving unit.
3. Press the TEACH pushbutton in the receiving unit and do not release it until the SETUP LED illuminates.
4. Press the TEACH pushbutton on the receiving unit three times and do not release it at last pressure; the SETUP LED blinks fast: this indicates that factory settings are being restored.
5. Release the TEACH pushbutton on the receiving unit when the SETUP LED is steadily illuminated again.

If the TEACH pushbutton is released before the SETUP LED is steadily illuminated, factory settings of proportional outputs will not be restored.
6. To leave the procedure, press the TEACH pushbutton on the receiving unit and do not release it until the SETUP LED switches off.

7 Malfunction signalled by the receiving unit

Use the light signals on the receiving unit to identify the radio remote control malfunction.

If the problem persists after the suggested solution has been carried out, contact the support service of the machine manufacturer.

Signals	Possible reason	Solutions
The POWER LED is off.	The receiving unit is switched off.	Make sure that fuse F3 is intact. Correctly plug in the connecting plug and power on the receiving unit.
The POWER LED is on.	No radio link.	Bring the transmitting unit close to the receiving unit.
The ALARM LED blinks once.	Error on the STOP outputs.	Make sure that fuses F2 and F5 are intact. Correctly plug in the connecting plug. Make sure that the STOP outputs are wired correctly.
The ALARM LED blinks twice.	Error on the SAFETY output.	Make sure that fuse F4 is intact. Correctly plug in the connecting plug. Make sure that the SAFETY output is wired correctly.
The ALARM LED blinks three times.	Error on the outputs corresponding to direction commands.	Contact the support service of the machine manufacturer. Make sure that the outputs of direction commands are wired correctly.
The ALARM LED is on.	The receiving unit does not work correctly.	Contact the support service of the machine manufacturer.
The STATUS LED blinks slowly.	Over-voltage on power supply.	Make sure that the receiving unit power supply is within the voltage limits provided in the technical data.
The STATUS LED blinks fast and irregularly.	The receiving unit loses some data sent by the transmitting unit.	Bring the transmitting unit close to the receiving unit. If this signal persists, contact the support service of the machine manufacturer.
The STATUS LED is on.	Over-current in one of the PWM analogue outputs.	Contact the support service of the machine manufacturer.

Signals	Possible reason	Solutions
The RUN LED blinks.	The receiving unit does not send commands in the CAN network.	Contact the support service of the machine manufacturer.
The ERR LED blinks.	CAN communication error.	Contact the support service of the machine manufacturer.
The SETUP LED blinks once.	Error on the address key.	Contact the support service of the machine manufacturer.
The SETUP LED blinks twice.	Error on the data memory.	Contact the support service of the machine manufacturer.
The SETUP LED blinks quickly.	Two or more analogue commands are being activated simultaneously within the REMOTE SETUP procedure.	Check actuators on the transmitting unit and activate one single analogue command.

