Instruction manual

ARC 2

ARC 2 Architecture Line

The Company for Stage Lighting and Projection

Contents

Status of August 2002 Page

Important !

The manual below shows the reference numbers in itemised drawings or the figures only in abbreviated form:

e.g. drawing 2/ position 10 = (fig.2/ 10)
or figure 6 = (fig.6)

Itemised drawings are on pages **10** and **11**

1) Scope of delivery

		Order Code.
1	HQI/ ARC 2, 2 kW architecture projector incl. 1 front condenser lens of your choice (G 503, G505/II)	
1	Test slide 18x 18 cm	12805
1	HQI 2000 W/ D/ S bulb	37601
1	TV-Spigot DIN 15560 Ø 28 mm	16201
5m	Ballast power cable.	12901
1	ARC 2 ballast with 5 m connecting cable incl. 5 pole. CEE- 0.15- 6/ 16 A plug	19215
1	Slide carrier	12516
1	Objective adapter	12042

2) Technical data

Voltage (L1, L2, N, PE, see circuit diagram p.8)		400 V/ 230 V/ 50 Hz
Output		2000 W
Amperage		7,5 A
Back-up fuse		16 A
Play suspended and standing max.		± 90°
Weight:	Projector	31 kg
	Ballast	33 kg
Bulb type		HQI 2000 W/ D/ S

3) Accessories

		Order Code.
Carousell – Slidechanger For 10 slides 18x18cm, Auto Mode, DMX-512 or analog controlable	AKD-10/18	12517
Mobile Mounting Base for ARC 2 (with horizontal adjustment)		12049
Outdoor Housing for ARC 2 with Slide Changer AKD-10/18		12048

Examples from our general projection accessories:

Plastic Filmholder for 18x18 cm Slide Film	12812
Cutting/Punching Machine for Filmslides	12811
Tempered Glass Plate 18x18 cm	12803
Set of Reprolux-Projection Dyes (16 colours in bottles of 35g)	32801

For more details, please contact our staff: phone:+(43 1) 521 08 0, mail: info@pani.com

4) Setting up projector

The connecting part for suspended and standing installation is the TV-Spigot DIN 15560/ ø 28mm. (fig.3/ 1)

4.1) Yoke adjustment.

When adapted to fit any existing accessory, the yoke (fig.3/ 3) can be fitted on to the projector in the proximity of the centre of gravity using one of the other two threads for mounting the yoke (fig.1/ *2*) .

4.2) Projector angle of inclination

Depending on the mounting position of the yoke, the projector can reach up to +/- 90° and more from the horizontal position by being tilted, so any desired angle position in space is accessable without any mirror!

5) Electrical connections

The projector is connected to the ballast with cable (fig.1/ 5) and plug (fig.4/ 6). The ballast is to be connected to a L1, L2, N, PE- 400 V/ 230 V/ 50 Hz power supply by connector cable (fig.5/ 7) and a 5-pole CEE 0.15- 6/ 16 A plug.

6) Front condenser lens (fig.2/ 8)

Two front condenser lenses are available:

For objectives f = 11 cm to f = 27 cm: G 503,	order no.: 12401
For objectives f = 33 cm and f = 40 cm: G 505/ II,	order no.: 12434

6.1) Fitting front condenser lens

After loosening the four screws (fig.2/ 9) and rotating the front condenser lens (fig.2/ 8), the lens can be removed. The lens is to be refitted in the reverse order.

7) Fitting accessories into front panel

There are three groups of four recesses arranged in a square (fig.2/ 11.1, 11.2, 11.3) in the front panel (fig.2/ 10) to receive accessories. After unscrewing the two corresponding knurled screws (fig.1/ 12), the accessory fitting adapters (e.g. (fig.6/ 29)) are slid into the recesses (fig.2/ 11.1, 11.2, 11.3), pushed downwards so that the accessory “engages”, then fix into place with the knurled screws (fig.1/ 12).

Important:
Always fully unscrew knurled screws (fig.1/ 12) when removing accessories to simplify any future fitting operations.

7.1) Fitting slide carrier and adjusting slide

The slide carrier (fig. 6) must be located in the recesses (fig.2/ 11.3). For adjusting the slide to given edges in case of oblique projections, open the knurled screws (fig. 6 / 32), turn the twisting plate and fix it in the desired angle position.
In the case of oblique projections it may be a problem to get an allover sharp projection. Following old optical rules you are able to adjust the projection by canting the slide out of the right angle. Therefore use the provided 4 knurled screws (fig.6 / 33). Try the effect until it fits. Depending on the focal length, the projection distance and the setting, it is possible to adjust angles up to more than 45° from the parallel standard projection.
Only the optical distorsion and the shifting of light intensity from the shortest to the highest distance of the projection have to be corrected in an other way.

7.2) Installing an objective in objective adapter (fig.7)

The objective is fitted into the objective adapter (fig.7) and fixed in place with four screws (fig.7/ 30).

7.2.1) Setting up objective in projector

Locate the objective adapter (fig.8) in the recesses (fig.2/ 11.2).

8) Control panel on the projector

The service time counter (fig.3/ 17) is located on the back of the projector along with four 230 VAC sockets for accessories (fig.3/ 18)

9) Control panels on ballast

9.1) Top control panel (fig.4)

Top control panel on the ballast includes:
On-switch, green (fig.4/ 19)
Off-switch, red (fig.4/ 20): glows when the supply voltage is switched on
Code switch for DMX addresses (fig.4/ 21)
Termination switch (fig.4/ 22)
Timer switch (fig.4/23)
Control circuit fuse (fig.4/ 24): 10 AT
Timer (fig.4/ 25): see attached instructions
Main circuit breaker (fig.4/ 26): LSS 3 pole, 16 A

9.2) Side control panel (fig.5)

Connection cable to projector (fig.5/ 6)
Power supply cable (fig.5/ 7)
DMX input (fig.5/ 27)
DMX output (fig.5/ 28)

10) Operating modes

The projector can be operated in three modes:

10.1) Manually at ballast

On-switch (fig.4/ 19)
Off-switch (fig.4/ 20)

10.2) Remote ignition via DMX 512

DMX input (fig.5/ 27)
DMX output (fig.5/ 28)
DMX address coding (fig.4/ 21)
DMX termination (fig.4/ 22), if necessary

Important

For 10.1) and 10.2): switch off timer switch (fig.4/23)

10.3) Timer function

Put the timer switch in the on position (fig.4/ 23)
For timer (fig.4/ 25) see operating instructions in the Appendix of chapter 17 (pages 12-16)

11) Removing projector cover

Warning
Unplug projector before removing cover!

After removing the four allen screws - size 3 - (fig.1/ 15) the projector cover (fig.1/ 16) can be removed backwards from the projector.

11.1) Fitting HQI bulb

- Remove the earth cable from the reflector holder. Take out the reflector holder.
- After loosening the retaining leaf springs on the lamp holders, insert HMI bulb (seal facing the reflector).
- Tighten retaining leaf springs and replace reflector holder in the projector.
- Connect bulb and ignition cable and reattach earth.
- Fit lamp cover.

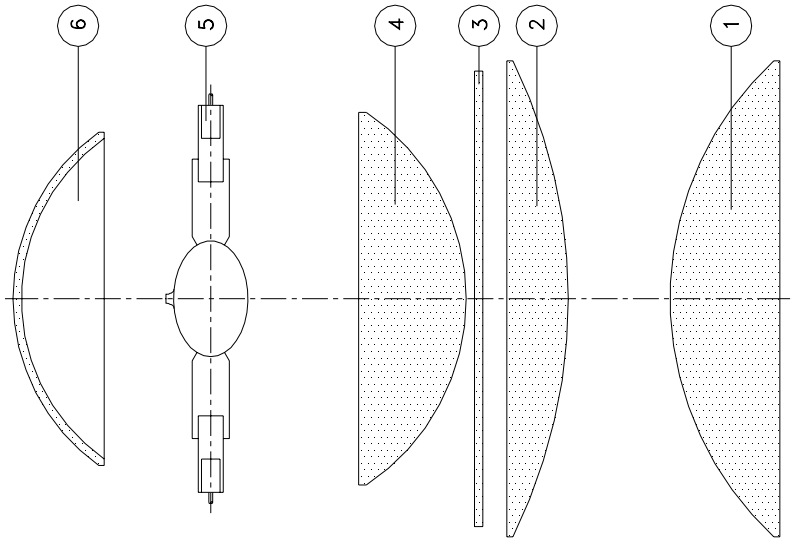
11.2) Cleaning the condenser

When the projector cover is opened, the three individual condenser elements can be removed for cleaning.

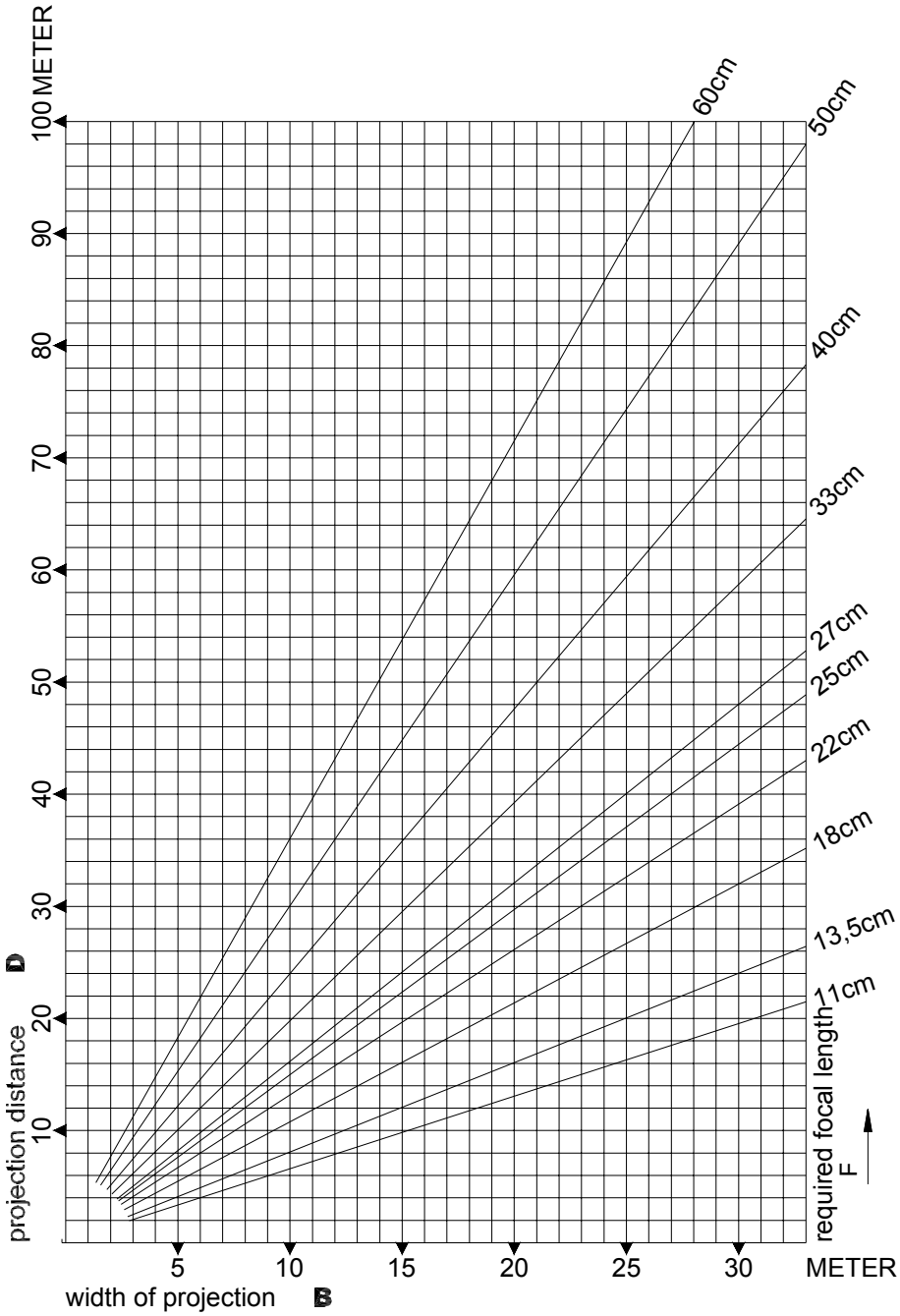
12) Condenser

Legend:

(1) Front Condenser Lens
(2) Middle Lens
(3) PANI – Universal Filter
(4) Plano-convex Lens lampside
(5) HQI 2000 – lamp
(6) Spherical cold mirror



13) Projection diagram for 0= 17cm



Projection formulas

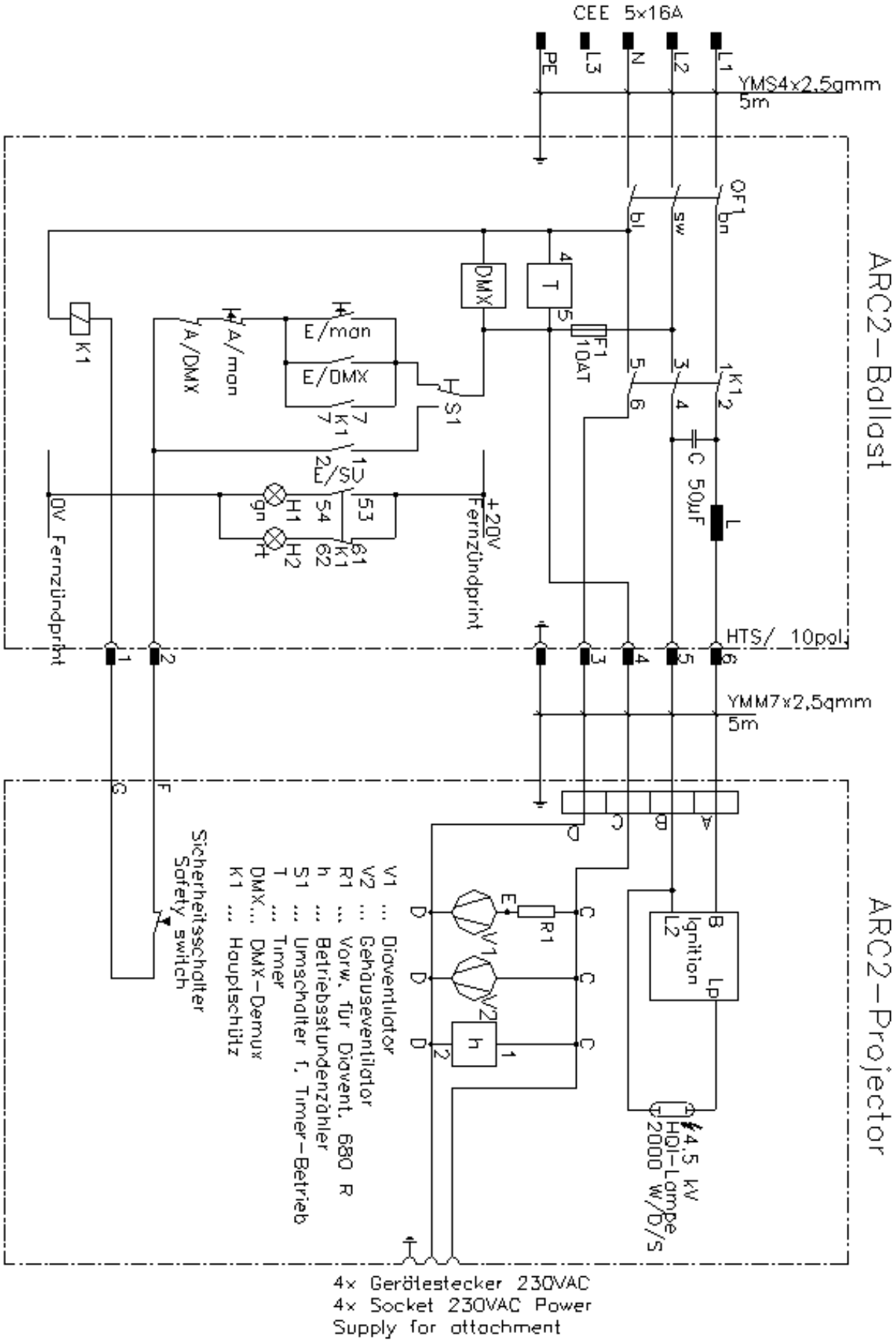
$$F = \frac{O \times D}{B + O} \quad \| \quad B = O \times \left(\frac{D}{F} - 1\right) \quad \| \quad D = F \times \left(\frac{B}{O} + 1\right) \quad \| \quad O = \frac{B \times F}{D - F}$$

F Required Focal Length in cm
B Picture Size
D Projection Distance (measured from the middle of the Objective Lens)
O Object Size

Usable Format (O) =

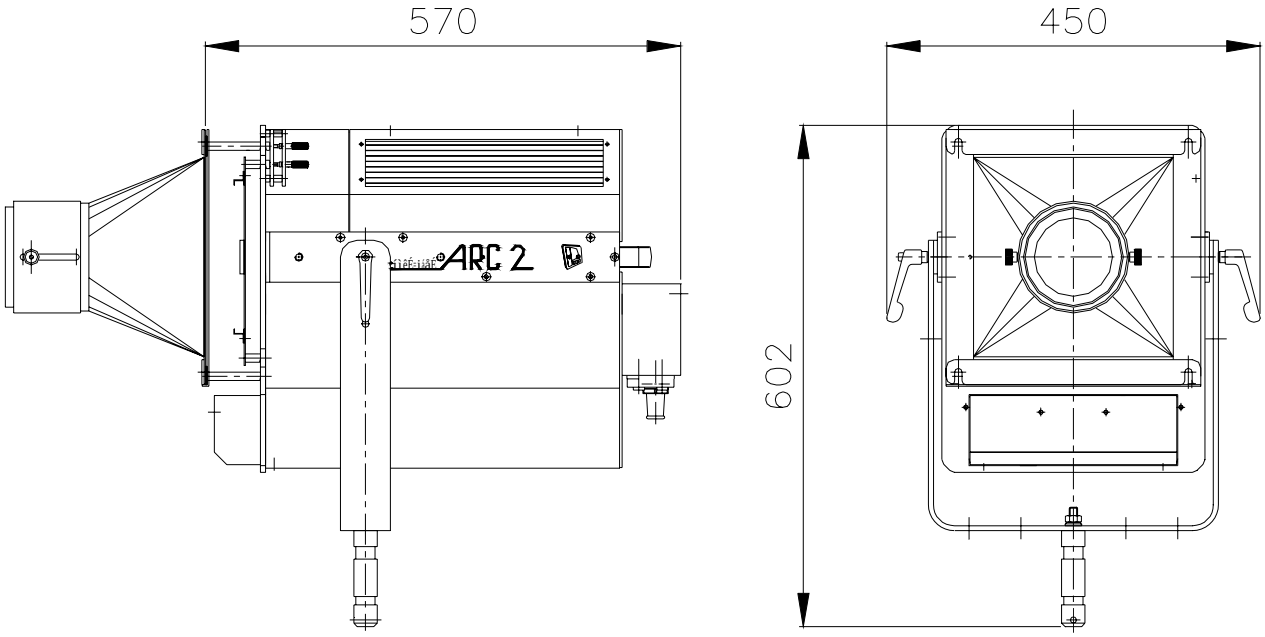
17 cm for Glass Slides
15.5cm for film frames

14) Electrical schematic

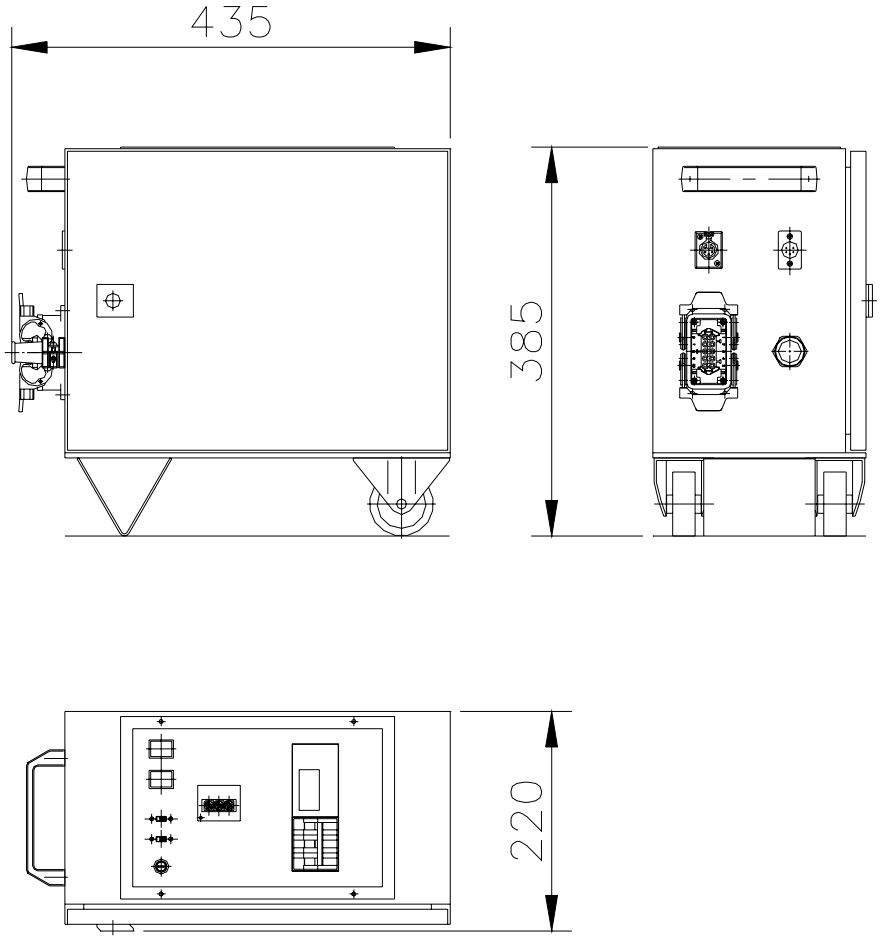


15) Dimension drawings

Architecture projector ARC 2 / HQI



Ballast



16) Itemised drawings

Figure 1
Projector - side projection

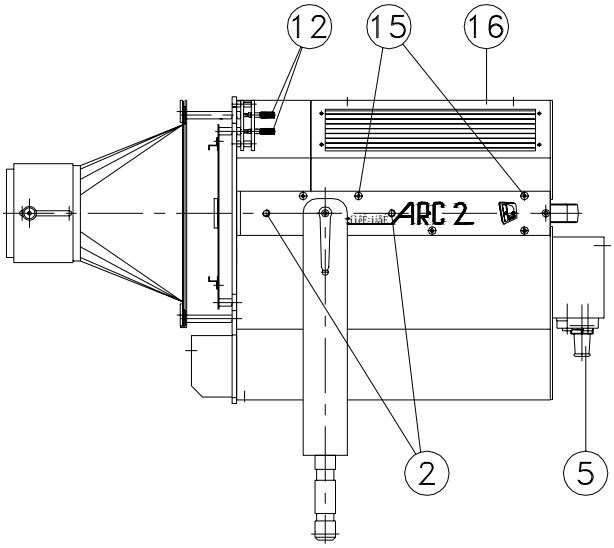


Figure 2
Projector - front projection

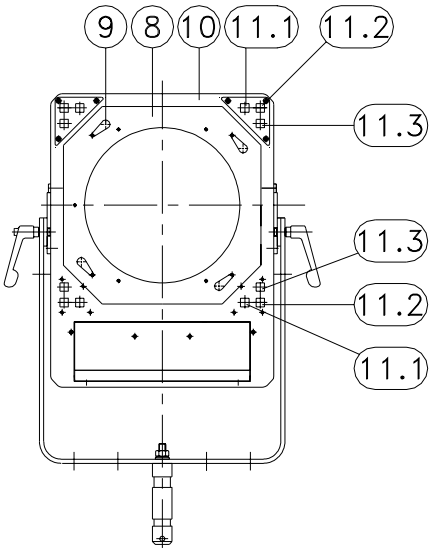


Figure 3
Projector - rear view

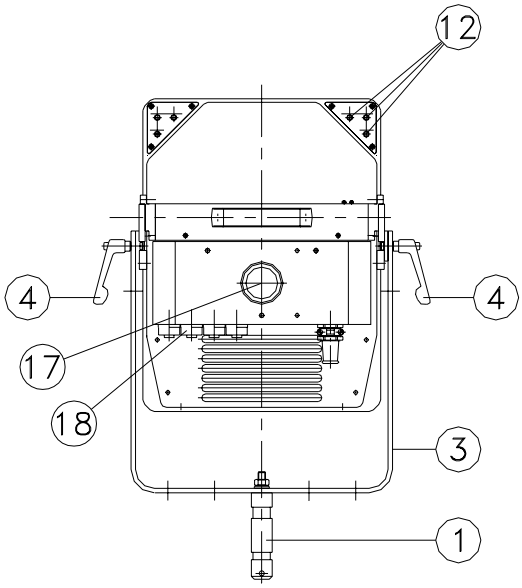


Figure 4
Ballast – top view

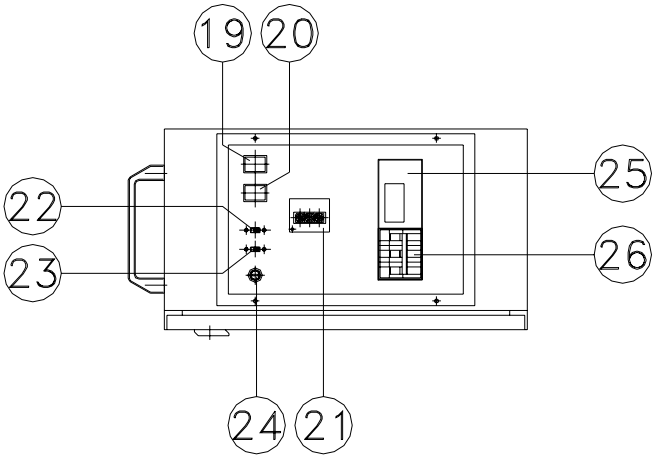


Figure 5
Ballast – side view

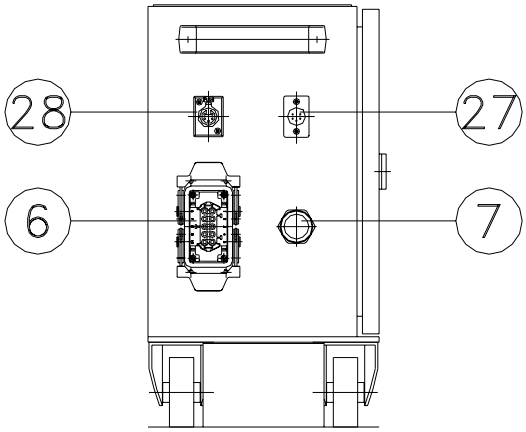


Figure 6
Slide carrier

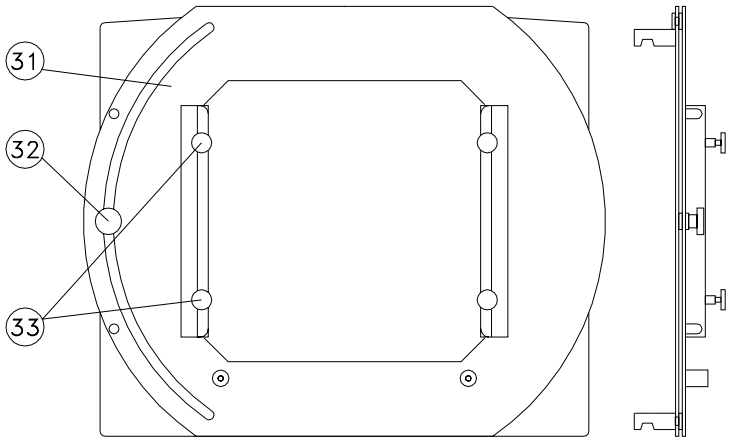


Figure 7
Objective carrier

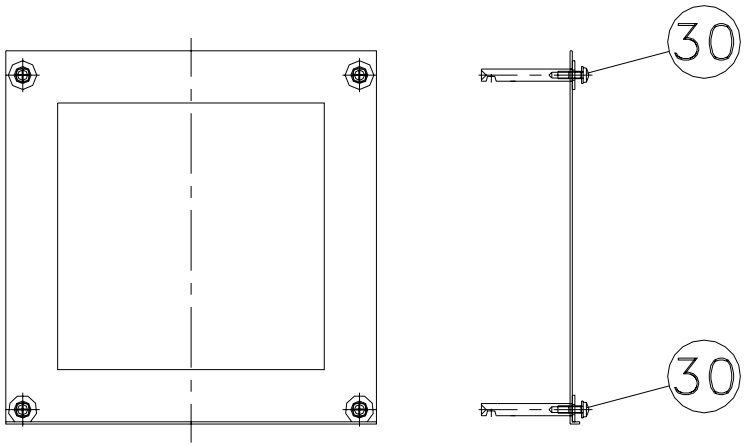
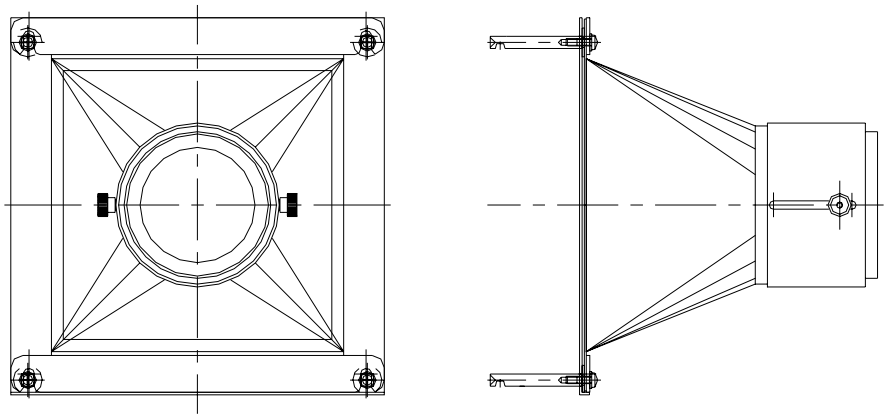
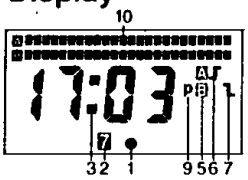


Figure 8
Objective carrier with objective

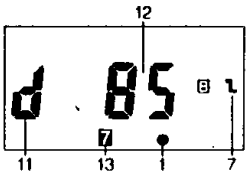


17) Appendix: Electronic Time Switch

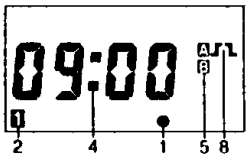
Display



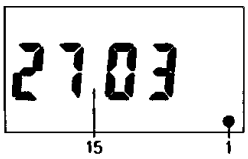
Mode AUTO



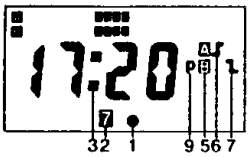
Duration holiday programme



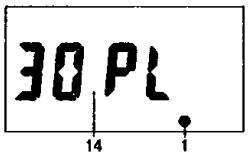
Switching function IMPULSE



Activate summertime change (Programme actual date)



Permanent OFF, manual override



Available storage lacations

Execution
Panel or wall mountin

1 Programming mode
2 Day of week
3 Actual time
4 Switching time
5 Channel(s)
6 Switch position ON
7 Switch position OFF
8 Switching function IMPULSE
9 Permanent OFF, manual override
10 Display of actual switching programme in hours
11 Holiday programme
12 Duration holiday programme (01–99 days)
13 Holiday programme starting day of week
14 Available storage locations
15 Day, month

Installation details

The high density electronic circuit is protected against a wide range of external influences. Incorrect operation may occur if external influences exceed certain limits.

This influence will be reduced if the following points are observed:

1. Do not mount time switch near high inductive influences e.g. contactors, high current cables, magnetic valves, thyristor drives etc.
2. When switching inductive loads it is advisable to fit suppression i.e. varistor, RC network.
3. For larger loads it is generally preferable to interface the load with a contactor or power relay.

Connect to voltage and frequency according to type label only.

Caution: The installation and assembly of electrical equipment must be carried out only by a skilled person.

Programming advice

Make inputs step by step. The appropriate position in the display is flashing and can be changed by pressing the key [◆]. Head for next position by using key [▶], go backwards by using key [◀].

Inputs are finished when flashing is finished.

RED: flashing position in display.

Key functions

[⏲] Selection of programming modes

[CL] Cancelling of inputs in modes PR, ?, S/W.

[◆] In mode PR:
Change of flashing position.
In mode ?: After selection of required switching time EDIT function possible.

[▶] Head for required position (forwards).

[◀] Return to required position (backwards).
In mode PR:
Head for holiday programme ***d***.

[A] [B] Press for manual overrided ON or OFF in adequate channel. When keeping key depressed for 3 seconds, PERMANENT ON or OFF will be switched, **p** will be displayed. Programmed functions in adequate channel will be suppressed.

Cancel PERMANENT ON or OFF by a new 3-second press on adequate key, **p** will disappear. Channel switch goes into programmed position.

Operating modes

AUTO = Automatic. Display of day of week, switch status of channel(s). Display of programmed switching times in full hours. Manual overriding possible. (A), (B).

PR Input of switching commands according to week day(s), time and channels. Input of holiday-programme (***d***), 01–99 days

? Display of storing locations available. Read out of switching times, selected in sequence to channels (A, B), depending on execution. Changing of switching times, single cancellation of switching times.

◴ Input or change of actual day 1 (Mo) to 7 (Su) and actual time (4 digits).

S/W Display or new input of date (after RESET). Summertime changeover becomes activated (see page 14). If summertime changeover is not required, cancel actual date by pressing [CL].

After programming or changing of switching times or changing of actual time the channel switches go into programmed status when time switch is back in AUTO mode.

Starting

Before input of day/time make a RESET by pressing the point next to channel key B [◀].

Current day and time input

Operating mode: ◴
Example: Day 2 (Tu)
Time 14.30 h
Initial form: RESET

[Key]	Display	Input
[⏲] 3x	: 1 ● ◴	Operating mode
[▶] 1x	2 :	Day of week
[◆] 1x	2 0 :	Time
[◆] 1x	1 :	
[▶] 1x	10 :	
[◆] 4x	14 :	
[▶] 1x	14 : 0	
[◆] 3x	14 : 3	
[▶] 1x	14 : 30	
[▶] 1x	A B 14 : 30 A 1 B 1 2 ●	AUTO-(matic) mode
	AUTO	

Time correction

Operating mode: ◴
Example: Day 2 (Tu)
Change time from 14.35 h to 14.39 h
Initial form: AUTO

[Key]	Display	Input
[⏲] 3x	14 : 35 2 ● ◴	Operating mode
[◆] 1x	2	Day of week
[▶] 3x	14 : 35	Time
[◆] 4x	14 : 39	
[▶] 1x	A B 14 : 39 A 1 B 1 2 ●	AUTO mode
	AUTO	

Programming single function, single day of week

Operating mode: PR
Example: Day 3 (Wed.)
Time 19.00
Channel A ON
Initial form: AUTO

[Key]	Display	Input
[⏲] 1x	: A B 1 ● PR	Operating mode
[▶] 2x	: 3	Day of week
[◆] 1x	: 3 4	
[▶] 4x	0 : 3	Time
[◆] 1x	1 : 3	
[▶] 1x	10 : 3	
[◆] 9x	19 : 3	
[▶] 1x	19 : 0 3	
[▶] 1x	19 : 00 3	
[▶] 1x	19 : 00 3 A B	Channel
[◆] 1x	19 : 00 3 A B	
[▶] 1x	19 : 00 3 A B	
[▶] 1x	19 : 00 3 A B	Ready

After appr. 3 sec.:
: 1 A B

Continue with input of further times, choose other programming mode with [⏲] or return to AUTO.

Programming identical function and time for several days in one channel (Block programming)

Operating mode: PR

Example: Days 5 (Fri) and 6 (Sat)
Time 19.00
Channel A ON

Initial form: AUTO

[Key]	Display	Input
[⏲] 1x	: A B 1 ● PR	Operating mode
[▶] 4x	: 5 6 7	Days of week
[◆] 2x	: 5 6	
[▶] 1x	0 : 5 6	Time
[◆] 1x	1 : 5 6	
[▶] 1x	10 : 5 6	
[◆] 9x	19 : 5 6	
[▶] 1x	19 : 0 5 6	
[▶] 1x	19 : 00 5 6	
[▶] 1x	19 : 00 5 6 A B	Channel
[◆] 1x	19 : 00 5 6 A B	
[▶] 1x	19 : 00 5 6 A B	
[▶] 1x	19 : 00 5 6 A B	Ready

After appr. 3 sec.:

| : 1 A B |

Continue with input of further times, choose other programming mode with [⏲] or return to AUTO.

Programming IMPULSE

Operating mode: PR

Example: Day 1 (Mo)
Time 09.00
Channel A IMPULS

Initial form: AUTO

[Key]	Display	Input
[⏲] 1x	: A B 1 ● PR	Operating mode
[◆] 1x	: 1 2	Day of week
[▶] 6x	0 : 1	Time
[▶] 1x	00 : 1	
[◆] 9x	09 : 1	
[▶] 1x	09 : 0 1	
[▶] 1x	09 : 00 1	
[▶] 1x	09 : 00 1 A B	Channel
[◆] 1x	09 : 00 1 A B	
[◆] 1x	09 : 00 1 A B	
[◆] 1x	09 : 00 1 A B	
[▶] 1x	09 : 00 1 A B	
[▶] 1x	09 : 00 1 A B	Ready

After appr. 3 sec.:

| : 1 A B |

Continue with further functions, choose other programming mode with [⏲] or return to AUTO

Holiday programming (01–99 days) PERMANENT ON or OFF

Operating mode: PR

Example: 85 days
starting day 7 (Su) (coming)
Channel B, OFF (permanent)

Initial form: AUTO

[Key]	Display	Input
[⏲] 1x	: A B 1 ● PR	Operating mode
[◀] 1x	d	Holiday programme (in days)
[◆] 1x	d 1	
[▶] 6x	d 7	
[◆] 1x	d 0 7	
[◆] 8x	d 8 7	
[▶] 1x	d 80 7	
[◆] 5x	d 85 7	
[▶] 1x	d 85 7 A B	
[▶] 1x	A B	
[◆] 2x	A B	
[▶] 1x	: 1 A B	Ready

Continue with further functions, choose other programming mode with [⏲] or return to AUTO.

The normal programme in the selected channel will be suppressed during the holiday programme.

Activate changeover to/from summertime (daylight saving)

according to Central European Regulations

Example: Programme current date, 02.04.97

Initial form: AUTO

[Key]	Display	Input
[⏲] 4x	0 ● S/W	Operating mode
[▶] 1x	01	Current date
[◆] 1x	02	
[▶] 1x	02 0	
[▶] 1x	02 01	
[◆] 3x	02 04	
[▶] 1x	9	
[▶] 1x	90	
[◆] 7x	97	
[▶] 1x	AUTO	AUTO mode

The time changeover is executed automatically according to the "Central European Regulations" from 30.05.94 on the last Sunday in March and October.

Reading out of switching functions

Operating mode: ?

Example: The inputs in this manual

Initial form: AUTO

[Key]	Display	Input
[⏲] 2x	27 PL ? 09 : 00 1 A ⌐ ⌊ 19 : 00 3 A ⌐ 19 : 00 5 6 A ⌐ d 85 7 B ⌊ *	Operating mode Number of available storage locations Read out

After reading out the last switching command, the storage locations available are displayed.

For reading out backwards use key [◀].

Reading out in sequence of channel A...B.

* The holiday programme **d** does not occupy a storage location.

Changing of switching times

Operating mode: ?

Example: Functions programmed in this manual.

Change day 3 (We) to 1...7 (daily)

Initial form: AUTO

[Key]	Display	Input
[⏲] 2x	27 PL ?	Operating mode
[▶] 1x	09 : 00 1 A ⌐ ⌊	Read out
[▶] 1x	19 : 00 3 A ⌐	Day of week
[◆] 1x*	19 : 00 1 3 A ⌐	
[◆] 1x	19 : 00 1 2 3 A ⌐	
[◆] 1x	19 : 00 1 2 3 A ⌐	
[▶] 1x	19 : 00 1 2 3 4 A ⌐	
[◆] 1x	19 : 00 1 2 3 4 5 A ⌐	
[◆] 1x	19 : 00 1 2 3 4 5 6 A ⌐	
[◆] 1x	19 : 00 1 2 3 4 5 6 7 A ⌐	
[◆] 1x	19 : 00 1 2 3 4 5 6 7 A ⌐	
[▶] 6x	19 : 00 1 2 3 4 5 6 7 A ⌐	

[▶] 1x Display next command forwards
[◀] 1x Display previous command backwards

* Start of EDIT funcion

Clearing of single commands

Operating mode: ?

Example: Clearing of one command listed page 15 (Read out)

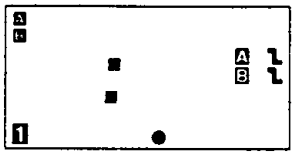
Initial form: ?

[Key]	Display	Input
	27 PL ?	Operating mode
[▶] 1x	09 : 00 1 A ⌐ ⌊	
[▶] 1x	19 : 00 1 ... 7 A ⌐	
[▶] 1x	19 : 00 5 6 A ⌐	Clear
[CL] 1x	-- : --	
[▶] 1x	d 85 7 B ⌊	
[▶] 1x	28 PL ?	Number of available storage locations

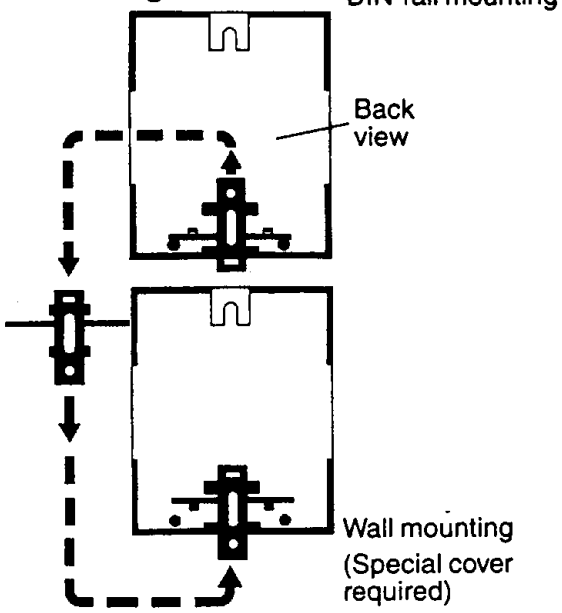
After the last switching command is displayed, the storage locations available will be displayed.

Reset– for new start

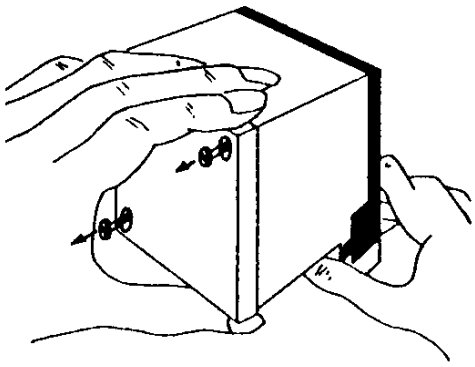
In the case of interference a RESET might become necessary. Press mark next to channel key B [◀]. Microprocessor and all inputs become neutralized. For new programming see page 8.



Mounting advice

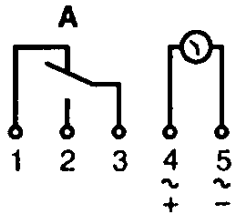


Mounting of panel-wall execution

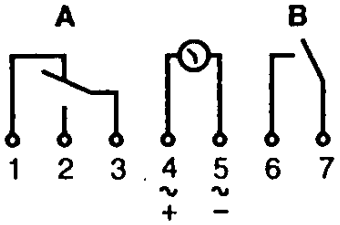


Wiring diagram for panel-wall execution

1 channel



2 channels



Wiring diagram for DIN-rail execution