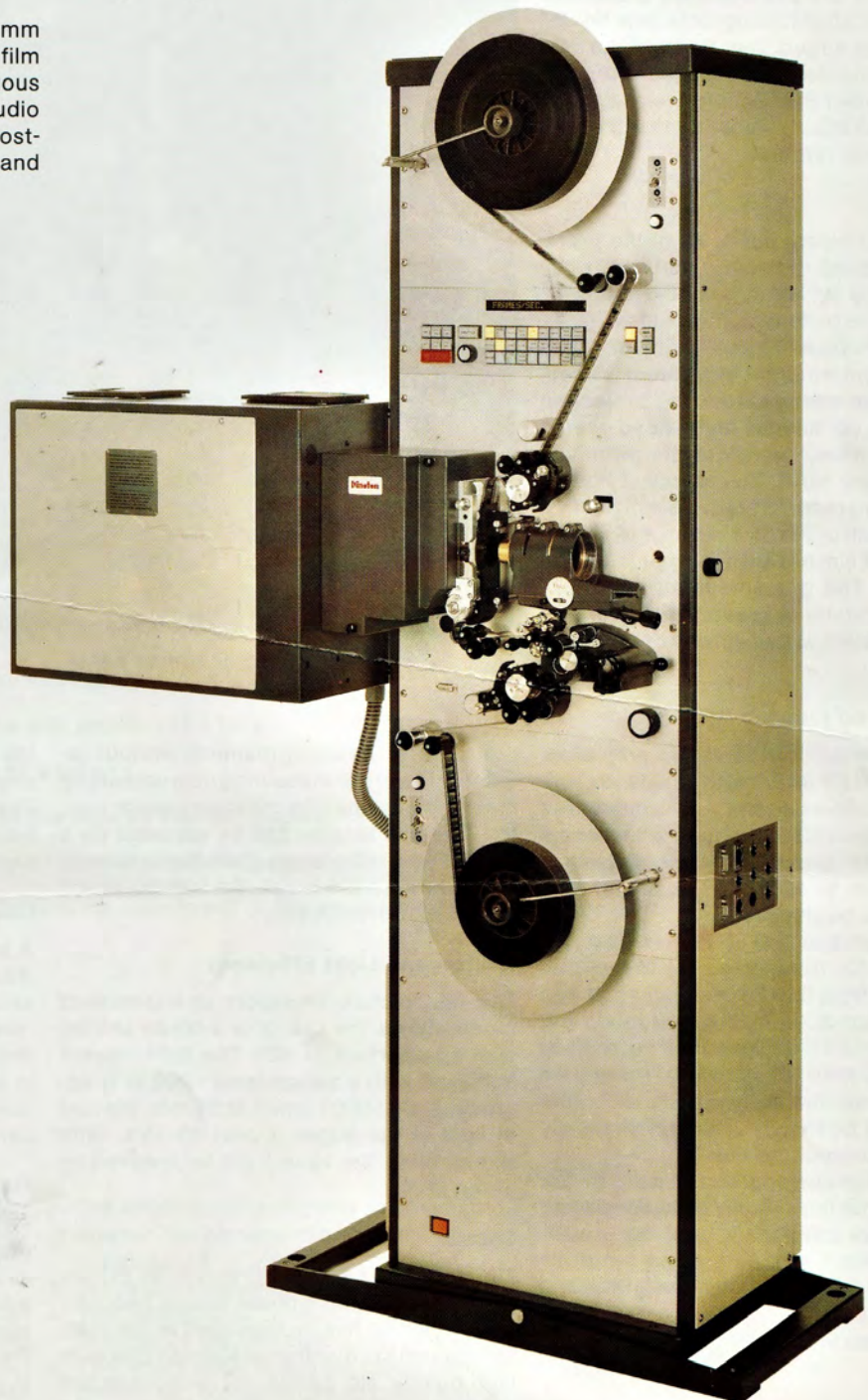




### Studio Projector FP 30 EC Studio Projector FP 38 EC

The studio projectors FP 30 EC for 35 mm film and FP 38 EC for 35 mm and 16 mm film are universally applicable for continuous use and are suitable for all aspects of studio application, such as preview, mixing, post-synchronizing, examination of prints and video scanning.



- Direct electronic sprocket drive
- Constant film tension by micro-processor control
- Excellent picture stability
- High picture illumination
- Maximized shuttle speeds
- Automatic shuttling system
- Master and slave operation
- Control by computer systems
- Remote control



## Construction

The projector mechanism is housed in a robust 19" tubular steel rack with  $\pm 6^\circ$  adjustable pedestal. The solid mounting plates of the film motion mechanism, keyboard and of the take-up and supply reels are made of anodised duralumin and have a thickness of 8 mm.

All standard lamphouses of the Kinoton programme are suitable for this new projector type, so that xenon lamps from 700 W up to 1600 W, or higher if necessary, can be used. The electronic units and power supplies are accommodated in 19" Eurocard cages which are easily accessible for service.

The combined version FP 38 EC allows a quick and simple conversion from 35 mm to 16 mm and vice versa, as only the film guide assembly 16 mm has to be inserted into the film gate and the pre-adjusted projection lens with quickly exchangeable lens holder has to be exchanged. The design of the projectors permits also the subsequent conversion of the type FP 30 EC into the combined version FP 38 EC. A remote control panel is available upon request.

## Drive

The highly accurate pulldown of the precision intermittent drive sprocket is directly controlled by an electronically regulated DC motor. The picture pulldown in the intermittent mode takes 12 ms maximum. As no mechanical intermittent movement is used, an immediate change from the projection mode to the continuous high-speed or vice versa is possible. Therefore the switching times are very short. The sprocket has 32 teeth (35 mm) resp. 16 teeth (16 mm) so that at least 8 teeth of the 35 mm film and 4 teeth of the 16 mm film are always engaged in the perforation. This guarantees a perfect film guide and excellent reverse running characteristics even at bad splices or damaged perforation.

## Projection and Running Speeds

The new concept of the studio projectors FP 30 EC and FP 38 EC with constantly running shutter allows an absolutely flickerfree projection and video scanning in the whole range of the projection speeds from 1 frame/sec. up to 40 frames/sec. with constant picture brightness.

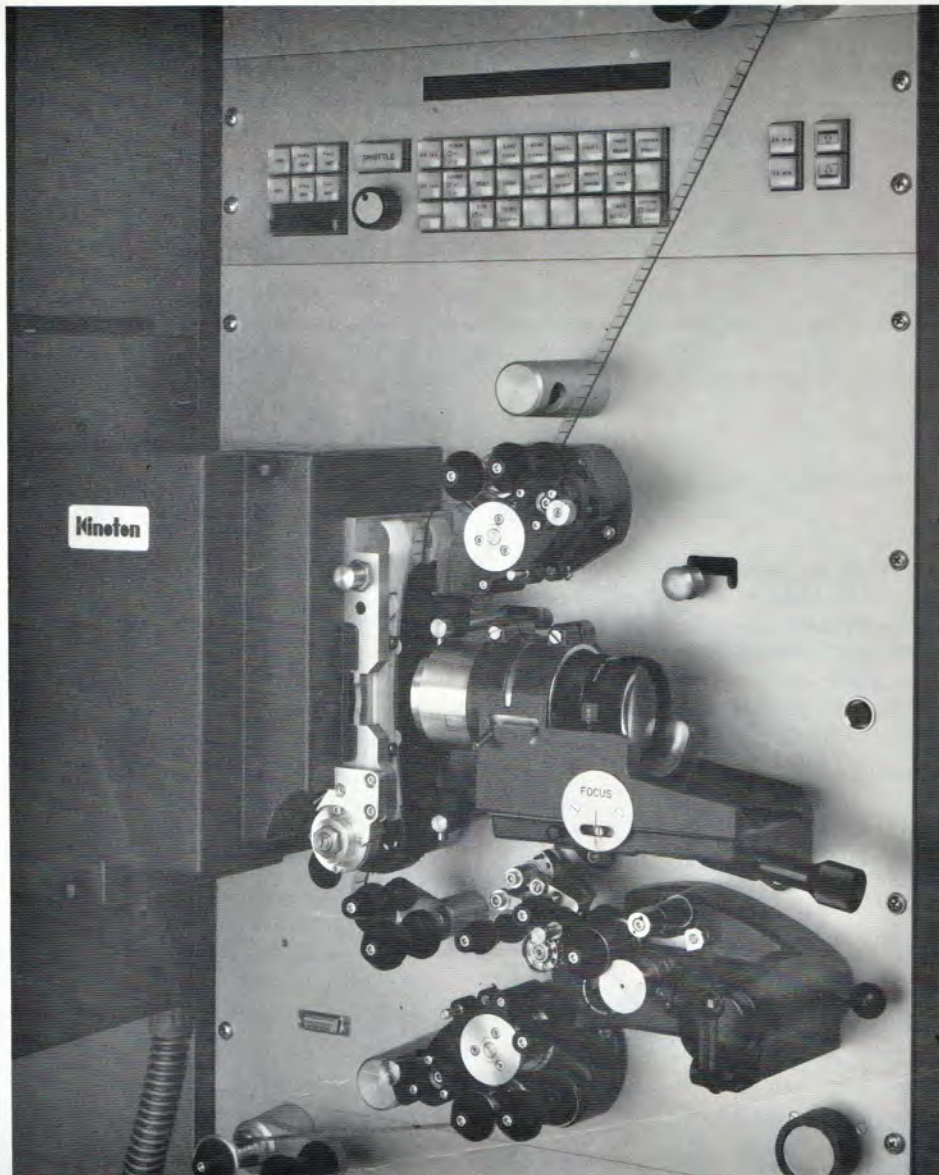
The maximum speed is 300 frames/sec. for 35 mm and 400 frames/sec. for 16 mm. The run-up time from 0 to 25 frames/sec. is less than 0.9 seconds, in high speed mode the maximum speed is achieved in 9 seconds at the most (35 mm). At speeds of more than 40 frames/sec. the pressure skates in the film gate will be slightly lifted automatically in order to protect the film.

The timing for opening and closing of the dowsers can be individually determined and stored via an additional option by presettable variables.

A heat filter inserts automatically into the light beam at projection speeds of less than 10 frames/sec.

## Reel Drive

The take-up and supply reels are driven by their own motors, the direction of rotation is reversible. A constant film tension is guaranteed



projector mechanism and operating panel

ranted at any winding diameter without additional feelers or measuring instruments by means of the specific microprocessor control. The film tension can be adjusted via a DIP switch in 50 p steps. If no film is threaded, or during a film break, the reel drives will switch off automatically.

## Shutter and Light Efficiency

The fast picture transport at intermittent mode allows the use of a 2-blade shutter with an aperture of  $60^\circ$ . The light current achieved with a xenon lamp 1600 W is approximately 5000 Lumen at 35 mm, the loss of light at the edges is only 10–15%. With 16 mm films, the values will be lowered by about 20%.

## Sound

The projectors FP 30 EC and FP 38 EC are equipped with an optical sound head for 35 mm, which has proven itself in the standard cinema projectors of Kinoton due to its high-quality slit optics, its wear-resistant solar cell (Dolby solar cell on demand) and

the quickly exchangeable, preadjusted exciter lamp.

The projector FP 38 EC can be additionally equipped or upgraded with a 16 mm optical and magnetic sound device.

## Display

A built-in counter with vacuum fluorescent display indicates alternately the frames per second, the frame number, the film position relative to the startmark in meters or feet, or the SMPTE time code.

In addition to this, in the case of a malfunction, the display will show error codes that can be helpful in troubleshooting.

## Function

An automatic chase mode to the synchronous point, the marking of takes and the automatic repetition of takes without any additional devices can be executed by the operation panel of the projector.

The framing ( $\pm \frac{1}{2}$  frame) is achieved electronically.



The operating panel on the projector has following functions:

FORWARD	forward running (intermittent) with pre-selected projection speed
REVERSE	reverse running (intermittent) with pre-selected projection speed
STEP FWD	single frame forward
STEP REV	single frame reverse
FAST FWD	forward running (intermittent) 40 frames/sec.
FAST REV	reverse running (intermittent) 40 frames/sec.
STOP	interruption of the running functions, standstill
SHUTTLE	continuous film running with selectable speed from 0-300 frames/sec. (35 mm) resp. 0-400 frames/sec. (16 mm), special functions see below
24 FPS	fixed adjusted pre-selection of the projection speed (other speeds are optional)
25 FPS	fixed adjusted pre-selection of the projection speed (other speeds are optional)
DOWSER	dowser open/closed manual
XENON ON/OFF	xenon lamp on - off
SOUND ON/OFF	projection with or without sound
LOOP	operation with film loop without reel drive
ZERO	projector runs automatically to the set zero mark
C/O	change-over from/to second projector
SYNC LOCK	projector adopts the actual synchronization point
LOCK	projector runs to the actual synchronization point in slave mode
RESET COUNTER	counter is set to zero
SYNC SOURCE 1	synchronization signal on plug 1
SYNC SOURCE 2	synchronization signal on plug 2
SHIFT+	input of a position shifting to the synchronization point in slave mode
SHIFT RESET	annulation of the position shifting
SHIFT-	input of a position shifting to the synchronization point in slave mode
SHIFT ENTER	projector runs to shifting position
TAKE BEGIN	input of the start position of a take
TAKE END	input of the end position of a take
TAKE REPEAT	repetition of a take
COUNTER SCROLL	selection of the desired counter display
CONTROL LOCAL/REMOTE	switching over from the operating panel on the projector to a remote control unit
ROTARY KNOB	continuously variable adjustment of the shuttle speed

#### Programmable Options for Individual Demands of the User

Additional selection functions can be called up and selected via a DIP switch on the processor p.c. board in shuttle mode in the display field of the projector:

1. At a speed of less than 40 frames/sec. in the shuttle mode, it can be switched over from continuous running to the intermittent running so that any desired projection speed from 0 up to 40 frames/sec. can be adjusted by means of the rotary knob.

2. The timing for opening and closing of the dowser can be determined by the preset variables.
3. The mains frequency can be determined.
4. The projection speeds of the push-buttons 24 fps and 25 fps can be varied.
5. The final speed in shuttle mode can be limited for compatibility to other equipment running in synchronization.

#### Interfaces

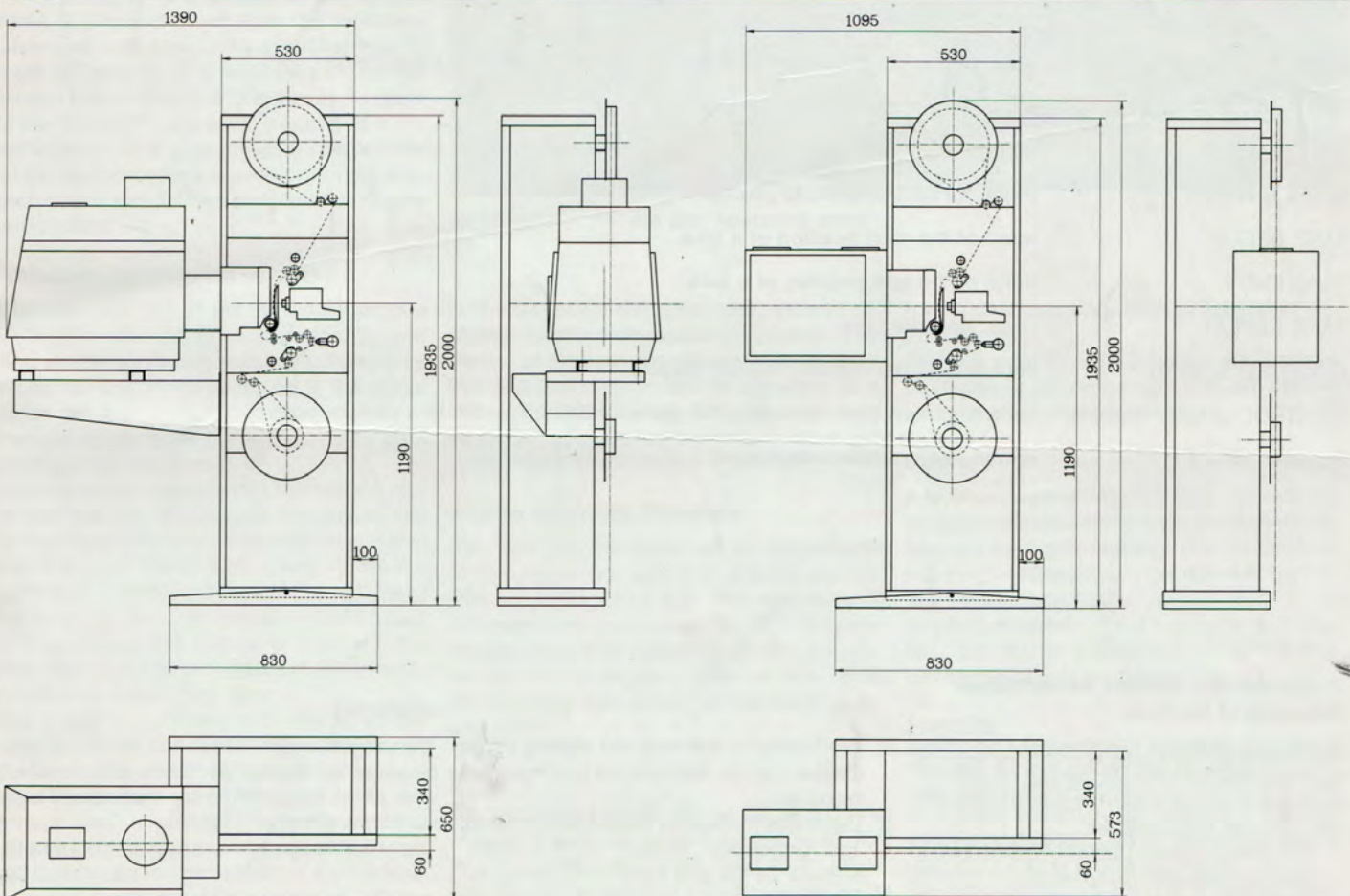
The projectors FP 30 EC and FP 38 EC can be used as Master or Slave and coupled with other equipments via biphasic TTL or via clock/direction signals.

The projector can be connected to a remote control via a V 24 interface or controlled by external computer systems.



## Technical Data

<b>Weights:</b>	185 kg net, 270 kg gross (without lamphouse)
<b>Mains connection:</b> <b>Mains frequency:</b> <b>Power consumption without light source:</b>	110 V / 120 V / 220 V / 240 V 50 Hz / 60 Hz 500 W
<b>Film disc capacity:</b> <b>Light Sources:</b>	600 m / 2000 ft. all standard lamphouses for xenon lamps as from 500 W
<b>Projection speeds:</b>	– single frame, – 24/25 fps, – other combinations on request – projection speeds continuously adjustable in shuttle mode 0–40 fps (forward and reverse)
<b>Video scanning:</b> <b>Shuttle speed 16 mm:</b> <b>Shuttle speed 35 mm:</b>	flicker free from 1–40 fps max. 400 fps max. 300 fps
<b>Start-up time 16 mm:</b> <b>Start-up time 35 mm:</b>	0–25 fps < 0.9 seconds, 0–400 fps < 12 seconds 0–25 fps < 0.9 seconds, 0–300 fps < 9 seconds
<b>Picture stability 35 mm:</b> <b>Picture stability 16 mm:</b>	vertical divergence max. 0.12%, horizontal divergence max. 0.15 % vertical divergence max. 0.2%, horizontal divergence max. 0.2 %
<b>Lens holder:</b> <b>Sound 35 mm:</b> <b>Exciter lamp:</b> <b>Sound 16 mm:</b>	70.6 mm $\varnothing$ COMOPT 6.5 V/1.48 A, preadjusted COMOPT / COMMAG
<b>Sync inputs:</b>	– 2 x 50 Hz biphasic TTL DIN 15573 part 2 – 2 x incremental impulse frequency (75 pulses/frame with clock and direction) – acc. to customer's specifications
<b>Sync outputs:</b>	– 2 x 50 Hz biphasic TTL DIN 15573 part 2 – 2 x incremental impulse frequency (75 pulses/frame with clock and direction) – acc. to customer's specifications
<b>Remote control:</b>	– in parallel via 2nd keyboard, – V 24, RS 232



Projector FP 38 EC with xenon lamphouse 4000 W

Projector FP 38 EC with xenon lamphouse 700/1600 W

Subject to change 1000/7.90

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