Installation Manual

MiniKey
MKHP

Version 1.5

HSA SYSTEMS
A UNIQUE IMPRINT

Table of Contents

1 Introduction

Congratulations on your purchase. The MKHP printer is one of the most advanced, compact and user friendly inkjet controllers available .

This manual covers the technician's guide to installation of this product.

Before using the product, please red the manual carefully.

Please also refer to:

Manual	Content
User manual	Covers the usage of the controller.
Quick guide	Technician's guide to settings up this product.
Minidraw for HSAjet MiniTouch	Optional software for creating and uploading print jobs.
Remote Communication for the Mini series	Commands for ethernet and Rs232 connections

Features and performance

Features

· Text, barcode and graphical objects.
· Static , counter, date/time, shift codes and system content.
· Prompts.
· Real time printing.
· Data logging.
· Print queue.

Performance

· Number of pens: Up to 4 pens.
· Printing speed: 35 m/min at 600 dpi.
· Resolution: Up to 600 dpi.
· Print length: 2700mm.

Interface

· Touch screen
· Documented protocol for remote operation (Ethernet and RS232)
· External PC software for creation of print jobs

Hardware

· Quadrature encoder supported
· Power supply 85-240V include

2 Safety instructions

- The MKHP is a controller unit for inkjet printing. Only use this device for the intended use.
- Do not subject the controller to strong shocks or vibrations.
- Install the MKHP in the recommended installation environment only.
- Only use the MKHP with MKHP-type print heads. If the controller is used with a different type of print head, the print head will be destroyed.
- Only use the MKHP with the original power supply. Wrong voltage level will destroy the controller or cause it to malfunction.
- Connect power supply to input voltage 85-265 VAC.
- Follow the wiring instructions in the installation manual carefully. Wrong wiring could destroy the controller unit.
- To avoid electric shock, please do not change pen/cartridge with power on if the pen auto switch in the print head has been disabled.
- Shut down MKHP properly before turning off the power supply. Power loss during normal operation may result in memory card write failure and data loss.
- Do not clean controller with strong solvents.
- Do not let liquids get in touch with any electrical parts.
- The MKHP is only to be repaired by trained personnel.
- Turn off and disconnect the power before disassembling the controller.

3 Installation environment

Environment	Condition
Installation Area	Indoors
Ambient Temperature	10 - 40 degrees C
Humidity	95 % RH or less and free of condensation
Surrounding Area	Install in an area free from: • oil mist and dust • metal shavings, oil, water or other foreign materials • radioactive materials • combustible materials • harmful gases and liquids • excessive vibration • chlorides • direct sunlight • Open flames

4 Dimensions

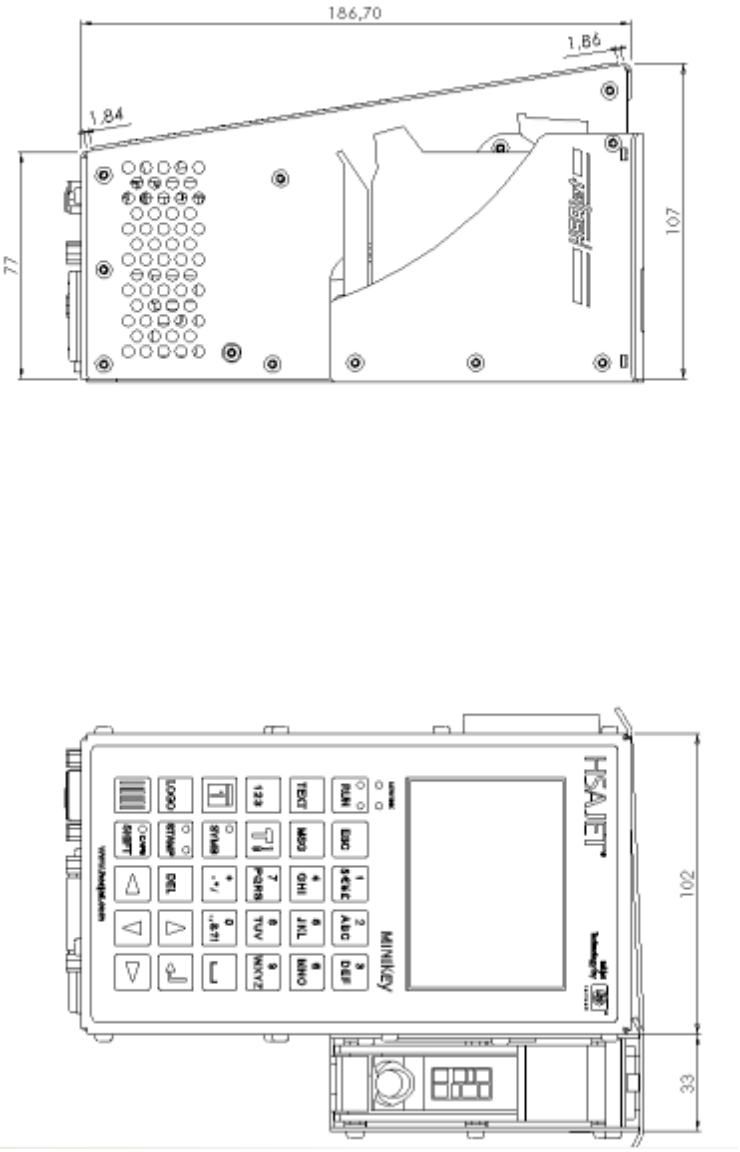


FIG 1 - Dimensions of a MKHP

5 Unpack the equipment

If you have ordered a Minikey MK-HP, you will receive the following parts.

	Controller unit
	Two 9 pen sub d connectors
	CD
	Menu overview
	USB key

If you ordered extra head(s), you will receive the following parts.

 **(Example side low)**	1 pen head or 2 pen head Various types available.
	Print cables (1x25p subd m/f)

The following parts are optional

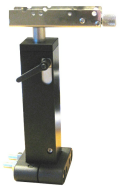
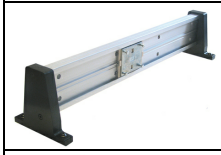
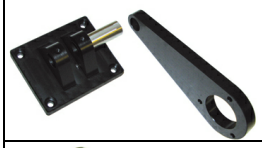
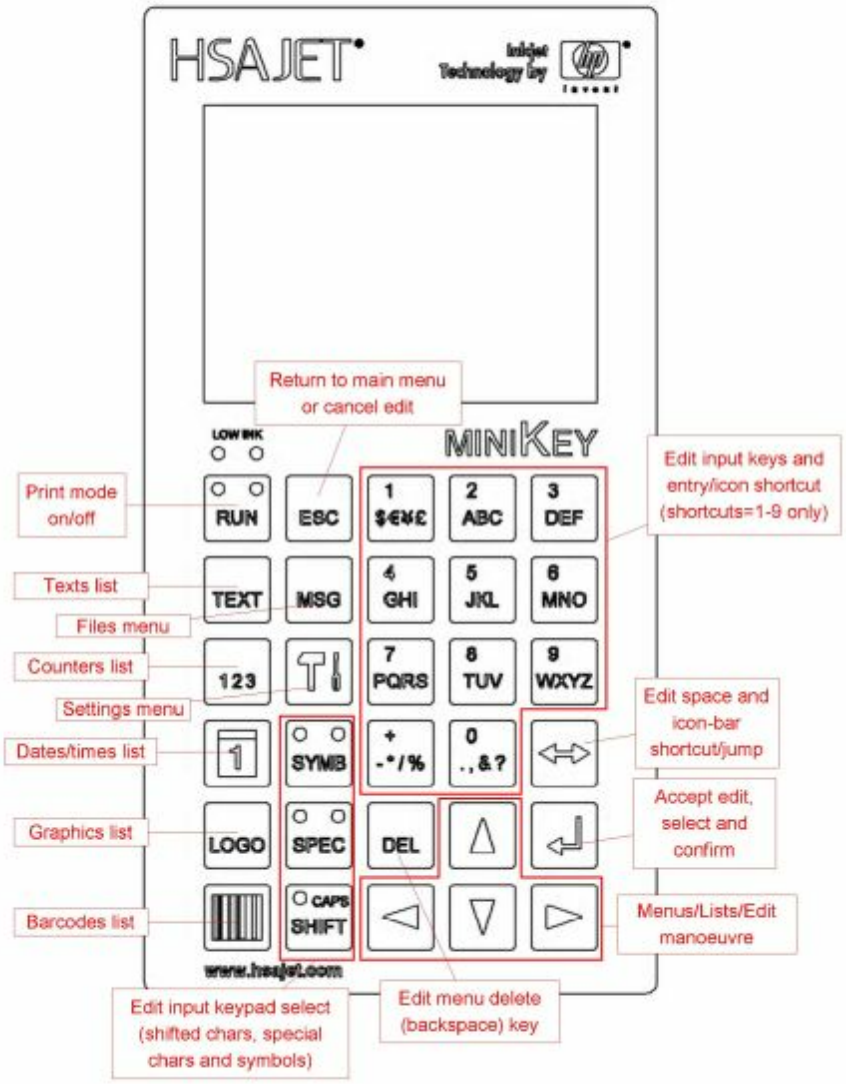
	Distributor box for HSAJET F-type printheads (HP)
	Telescope unit
	Bridge for HP-printheads w/2 slides
	Head mount for HP-printhead (for bridge)
	Sensor mount for bridge
	Encoder mount for bridge and encoder bracket
	Encoder. For accurate measurement of speed.
	Encoder wheel

	Photo Sensor, fibre and optic transmitter
	Sensor mount for base
	Ink cartridge

6 Keyboard



7 Connect the MKHP

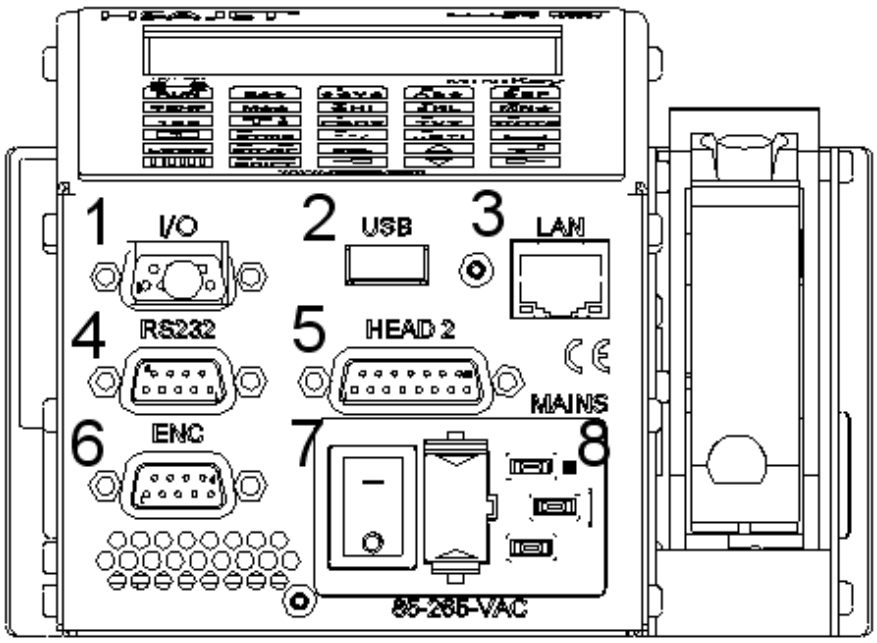


FIG 3 - Illustration of MKHP back panel

1. I/O - sensor connection (SUBD 9p, F).
2. USB connector.
3. LAN network connection (RJ45).
4. RS232 Serial connection (SUBD 9pF).
5. HEAD 2 connector, support for extra HEAD (2 pen).
6. Encoder connection (SUBD 9p F).
7. ON/OFF switch.
8. Mains power connections 85-265- VAC.

1. Insert pen into stall and lock it.
2. Connect optional heads here (If available) (6).
3. Connect the start sensor to I/O connector (If available) (3).
4. Connect a proper power plug to the power cable.
5. Connect the power cable to the mains connector (8).
6. Turn the controller ON (7).

Optional equipment

1. Connect the encoder to enc connector (If available) (5).
2. Connect to the local Area Network LAN (3).
3. Rs232 is for serial connections (If available) (4).

8 Multiple heads

You can order a MKHP with either 1, 2, 3 or 4 pen print capability.

With a 4 pen version you can print with the following combination of heads:

a) 1-pen HEAD (FIG 4).
b) 2-pen HEAD (FIG 5).
c) 1-pen HEAD and an optional 1pen HEAD (FIG 6).
d) 2 pen HEAD and an optional 1pen HEAD (FIG 7).
e) 1 pen HEAD and an optional 2pen HEAD (FIG 8).
f) 2 pen HEAD and an optional 2pen HEAD (FIG 9).

Extra head is connected to the MKHP using a 15p SubD cable.
The HEADS attached to the controller (1pen or 2pen) need no additional cable connection.

FIG 4 - MKHP with one 1pen HEAD

FIG 5 - MKHP with one two pen HEAD

+

FIG 6 – MKHP with one 1pen HEAD and an optional 1pen HEAD in addition

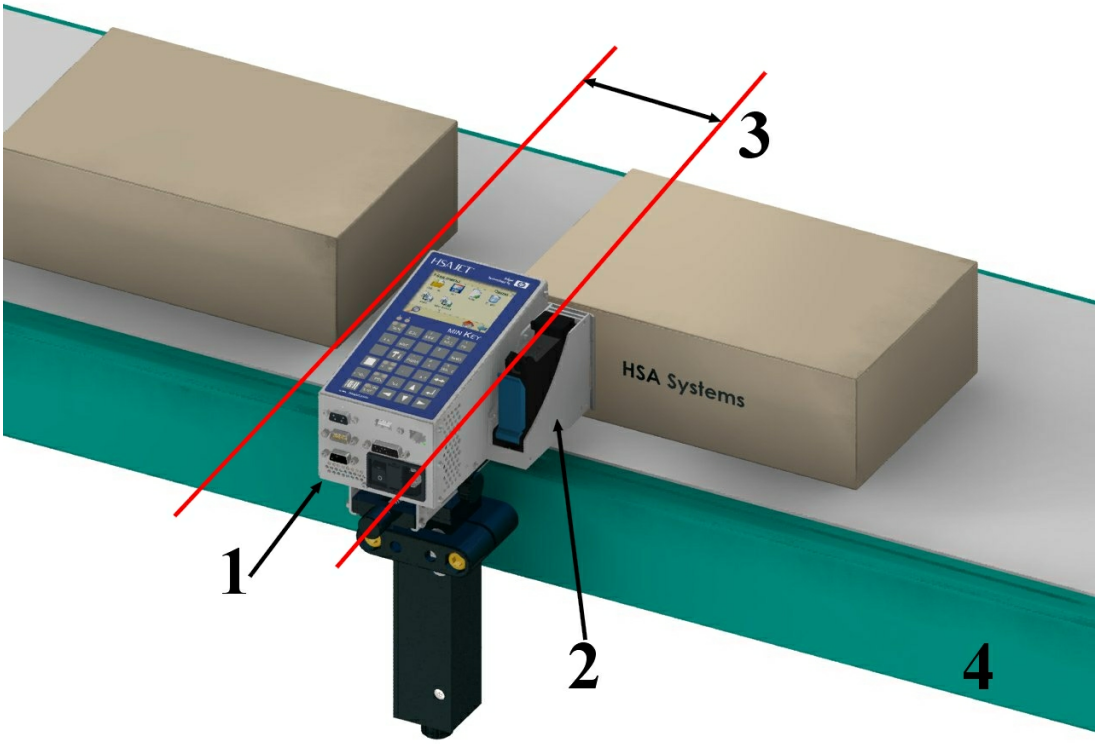
FIG 7 – MKHP with one two pen HEAD and an optional 1pen HEAD in addition

FIG 8 - MKHP with a one pen HEAD and an optional 2 pen head in addition

FIG 9- MKHP with a two pen HEAD and an optional 2 pen head in addition.

Various types of 1pen HEADS are available (SIDE-/ Top-down print, angled).

9 Mechanical Setup



1 Install controller near conveyor

The controller must be installed at close proximity to the conveyor where it will be used. The controller and the stall must be connected with a cable no longer than 5 m.

2 Place Head on conveyor

Install the head on the conveyor so that the "sole" is as close to your media(box/paper) as possible. A distance of no more than 1mm is recommended. 0,5 mm is optimal. It is recommended to respect the following:

- The nozzles must be 90 degrees exactly in relation to the print direction. If the angle is not exactly 90 degrees, you will get slanted print and overlap 2, 3 or 4 pen heads.
- The head must be absolutely parallel to the media.

3 Setup sensor

Install the start sensor so it senses only the product start. You should have some distance from the sensor to the head, more distance if you run faster.

4 Connect encoder

The encoder is optional, but strongly recommended for accurate printing.

There are 2 types of encoder:

a. Encoder with hollow shaft.

Position the wheel so it is completely parallel with the conveyor.
Make sure the wheel is perfectly round.
The standard is an encoder with 5000 PPR (Pulse per round) and a wheel circumference of 200mm.

b. Encoder with shaft.

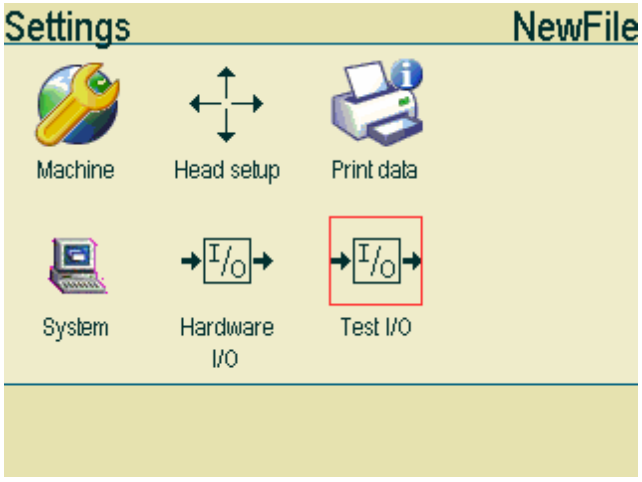
Encoder directly connected to the shaft of the conveyor.
The conveyors from HSA Systems have shaft encoders installed.

10 Test your hardware

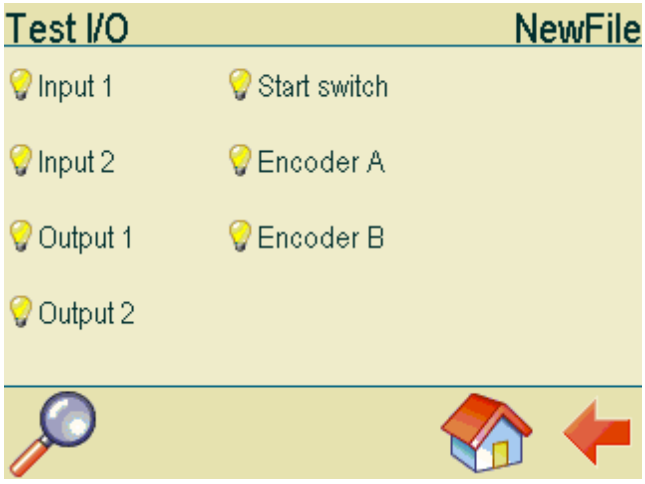
When setting up the MKHP printer, you can check that all the input/output channels and hardware connected to the controller is working as expected.

To test your hardware, press the settings button on the keyboard. 

Use the arrow buttons to select "Test I/O". Press accept to continue. 



In this screen you will find the start switch, the encoder plus the input and output channels.



When the signal is ON, the small bulb will light up.

Example:

Activate your start switch. If the controller receives a signal from the start switch, the light bulb will light up.

Start your conveyor.

If the controller receives a signal from the lightbulbs "encoder a" and "encoder b" will start flashing.

11 Support

For product support, please contact HSA SYSTEMS Customer Service department

HSA SYSTEMS CUSTOMER SERVICE DEPARTMENT

Phone: +45 66103401
Email: techsupport@hsasystems.com