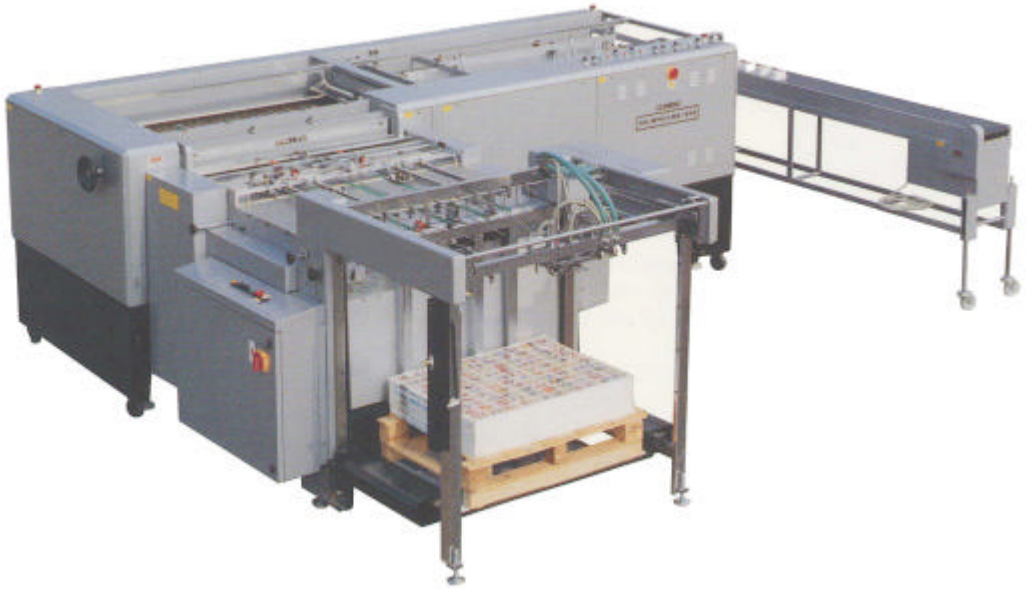
HMI Screen Instruction Manual

Slipstream



Rollem Patent Products Ltd

The Common
Ecclesfield
Sheffield
South Yorkshire
S35 9WN

ENGLAND

Tel: +44 (0) 114 246 8981
Fax: +44 (0) 114 246 5487

www.rollem.co.uk

Instruction Information Sheet

Machine:	Slipstream
Serial No:	……
Instructions Reference:	91P-1003
Issue Number:	03

Operator Competence

It is assumed throughout these instructions that the operator will be a competent one, having worked with similar machines for at least 2 years previously.

Training can be obtained from qualified Rollem staff upon request, it is recommended that operators attend a brief training session given by the Rollem installation and service engineer upon installation of the machine.

If in any doubt at all about the setting or operation of this machine – please contact Rollem for assistance.

Equipment Safety

General Safety

If you are unfamiliar with this equipment, read the manual thoroughly before proceeding.
If there is any doubt at any stage, do not proceed but seek clarification.

Before installing, maintaining, cleaning or removing any covers from a machine, switch off and isolate the machine either by disconnecting the plug from the socket, or ensuring that the isolator is switched off and has disconnected all the supply conductors (all lives and neutral).

There is no reason to work inside this equipment before it is correctly isolated.

Besides all procedures listed in this manual, reference must be made to local procedures for safe working practices, particularly the dangers of working with electricity.

Only competent persons trained on the equipment may service, maintain, repair or adjust the machine, or for any other reason remove any covers or part of the machines with a tool (a key is not a tool).

All Rollem manufactured machines are class 1 (to be earthed).

WARNING - THIS APPLIANCE MUST BE EARTHED

Although the machine has circuits at mains voltages and also at lower AC & DC voltages, the electrical safety and insulation of the machine are designed, constructed and are to be maintained at, the higher mains voltage.

- **If the machine is rated 13A:**

  The wires in the mains lead are coloured according to the following code:

Green-and-yellow:	**Earth**
Blue:	**Neutral**
Brown:	**Live**

  As the colours of the wires in the mains lead may not correspond with the coloured markings identifying the terminals in your plug/isolator unit, proceed as follows:

  The wire that is coloured green-and-yellow must be connected to the terminal in the plug that is marked with the letter E or by the earth symbol:

  or coloured green, or coloured green-and-yellow.

The wire that is coloured blue must be connected to the terminal that is marked with the letter N or coloured black.

The wire that is coloured brown must be connected to the terminal that is marked with the letter L or coloured red.

If the mains cord requires replacing, only cords supplied by Rollem must be used.

- **If the machine is single phase and rated above 13A:**

  The wires in the mains lead are coloured according to the following code:

Green-and-yellow:	**Earth**
Blue:	**Neutral**
Brown:	**Live**

  The machine must not be connected to the electricity supply via a 13A (BS 1363) plug and socket; the machine must only be connected to a suitable supply point rated greater than the machine and must only be connected by a suitably qualified person. As the colours of the wires in the mains lead may not correspond with the coloured markings identifying the terminals in the isolator unit, proceed as follows:

  The wire that is coloured green-and-yellow must be connected to the terminal, which is marked with the letter E, or by the earth symbol, or coloured green, or coloured green-and-yellow.

  The wire that is coloured blue must be connected to the terminal that is marked with the letter N or coloured black.

  The wire that is coloured brown must be connected to the terminal that is marked with the letter L or coloured red.

  If the mains cord requires replacing, only cords supplied by Rollem must be used.

- **If the machine is rated for 3-phase electricity supply:**

  The machine must be connected to a 3-phase electricity supply point, a 13A (BS 1363) plug and socket is not suitable. The machine must only be connected by a suitably qualified person. Note, wire colours for 3-phase supplies may vary; if there is any doubt, do not proceed but seek further clarification.

  If the mains cord requires replacing, only cords supplied by Rollem must be used.

  If the machine is rated differently from the above, reference must be made to Rollem before proceeding.

All machines must be connected to the mains electrical supply by either a suitable plug and socket (e.g. using a plug to BS4343 / EN60309-2), or by a suitable isolator unit, which can securely disconnect all supply conductors (all lives and neutral).

If left unattended for any time, the machines must be switched off and isolated.

Children must not operate Rollem machines.

Where machines are supplied for “bench use”, the machines must be sited on a work surface, capable of securely supporting them, avoiding positions where the legs or bases of the machines are near an edge and the machines could be inadvertently knocked and fall over; if there is any doubt, the machines must be bolted to a fixed, secure structure.

Attention must be paid to the recommended electrical safety maintenance procedure detailed within this manual.

The machines must not be used outdoors or in any situation where they are likely to be splashed or exposed to excessive damp.

When moving the machines, ensure that suitable facilities, or help, is available to lift or move the machines; particularly into or from awkward locations where overreaching may occur.

Do not block any of the ventilation holes on the equipment, either to the sides or on the top.

Safe Working Procedure (Electrical)

UNDER NO CIRCUMSTANCES MUST SERVICING WORK OF ANY NATURE BE CARRIED OUT WITHIN A LIVE MACHINE. THERE IS ABSOLUTELY NO REASON FOR ANY PERSON TO EITHER TOUCH INSIDE A LIVE MACHINE OR APPROACH THE VICINITY OF LIVE PARTS.

This procedure must be read together with, and does not take the place of, local procedures and Health and Safety Policies.

Before any work commences, people in the vicinity, or likely to approach the machine must be warned that the machine is about to be serviced.

Due regard must be made to site regulations such as permission/permit to work rules.

The electrical supply must be switched off and isolated, either by removing a plug or switching an isolator unit to off and ensuring that the live(s) and neutral are disconnected.

Precautions must be taken to prevent the isolator being turned accidentally back on, either:

- lock it off with a personal padlock.
- instruct a person to prevent the equipment being reconnected.
- if the isolator or plug and socket are in visual sight, attach a notice/sign to the isolation point warning that the connection is not to be remade and keep a visual check to prevent any person approaching the isolation point.

Covers may now be removed.

Before going further, a test must be made to ensure that the machine is isolated from the electrical supply. Particular care must be taken if a switch on an isolator unit disconnects the machine.

If it is necessary to run the machine with a cover removed, suitable precautions must be made to prevent any person approaching the machine and being exposed to danger.

Never leave a machine unattended with covers removed or in an unsafe condition.

Hand held devices for making electrical tests, which rely on the human body to complete a test circuit (such as neon-type screwdrivers) are not to be used; devices with insulated test probes are particularly recommended. Follow this procedure:

- isolate the machine
- check the points to be tested

- reconnect the machine
- take the required readings
- isolate the machine

Every time a machine is serviced, the following minimum checks must be made as a matter of routine:

- Correct wiring of the mains cord into a plug or isolator unit.
- Physical inspection of the mains cord for damage.
- Physical check of the cord grips at both ends of the mains cord.
- Physical inspection of the earth bonding.
- Physical check of cables inside and outside the machine for discolouration/other signs of overheating or damage.
- Any sharp edges in accessible areas.
- The earth bond and insulation tests for any machine connected by a plug and socket, and where practical to machines connected by other means)

Routine Electrical Maintenance Procedure

This procedure covers the minimum tests required to be performed on ROLLEM equipment, to comply with the UK Electricity at Work Regulations 1989. The meaning of words and phrases used in this procedure is to be interpreted according to the definitions within the regulations.

As a minimum, the maintenance procedure should be carried out at least annually, but consideration must be given locally to more frequent maintenance programs if there is a likelihood of the machines becoming dangerous within an annual maintenance period.

Always do the tests in the correct order, if a machine does not pass a test, do not pass onto the next test without rectifying the reason for the failure (a fault indicates danger and the next test may not be safe), if a machine cannot be rectified to pass one of the tests, the machine must not be reconnected and must not be left in a state where it could be used.

BEFORE TESTING

- Check the operating voltage, current and power of the machine and the supply; compare all sources of information (test sheet, serial plate etc.) and correct if necessary.

- Check the environment for hazards: flammable vapours, dusts etc.

- Warn people that tests are about to be carried out, and ensure that precautions are taken to keep a 3m (10') safety area around the machine during the periods when the machine is energised.

- Disconnect any additional equipment from the machine.

- Ensure that the supply for the test equipment is properly earthed.

- Physically isolate the machine from the supply; either by unplugging or by disconnecting and removing the mains cord from its supply point.

- Ensure that the machine on/off switch is in its normal ON operating position.

PHYSICAL EXAMINATION

- Check equipment casing for signs of damage/loose parts that may give rise to a source of danger, e.g. a breakdown of insulation or user access to live parts.

- Check the mains plug (if fitted) for cracks or damage, open it up and check the terminals, fuse and fuse rating; check that the cord grip is effective in preventing the cord being pulled out, pushed in or twisted.

- Check the mains cord for damage to the insulation or other dangerous conditions such as kinking.

Portable Appliance Test

Carry out the Portable Appliance Test in accordance with the test equipment instructions.

Safe Working Procedures (Blades and Other Sharp Areas)

1. When handling any sharp items, for example slitting blades, suitable protection must be worn that will protect the hands and wrists from any risk of injury.

2. When removing or adjusting shaft assemblies, to avoid the risk of damage to the machine and the risk of personal injury, the shaft must be supported and must only be moved with the assistance of a suitably rated, approved and maintained mechanical hoist or equivalent.

Contents

Electrical Control Functions

Emergency Stop

The Slipstream emergency stop push buttons and guard switches control a safety circuit relay which when operated removes the power from all the Slipstream motors and power circuits.

The safety relay in the circuit checks that all motor and power contactors have returned back to their rest, de-energised, positions. Any fault in the safety circuit wiring or feedback loop will not allow the safety relay to reset.

The safety relay is reset by the operation of the green push button situated by the HMI. The HMI screen will change to the engineering screen each time the emergency stop is operated.

Machine Stop

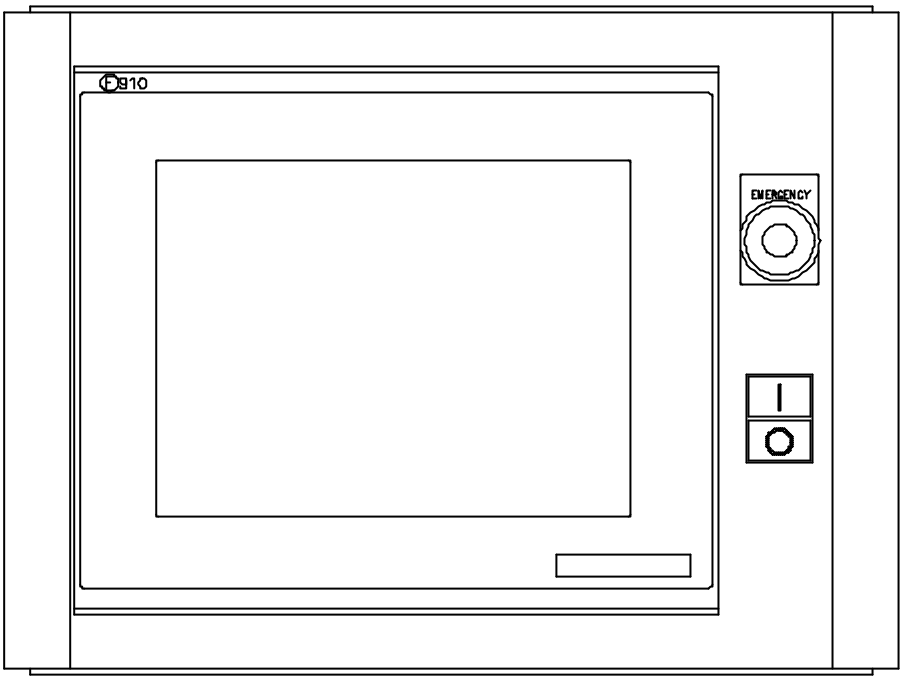
This is a red square push button, situated by the HMI display, which when operated stops the machine under normal operating conditions. This control does not operate the emergency stop circuit and leaves the power ‘on’ to the power and motor controllers.

Machine Safety Reset

This is a green square push button, situated by the HMI display, which when operated resets the emergency stop safety relay and returns the HMI display from the engineering screen to the main screen.

Control Station Layouts

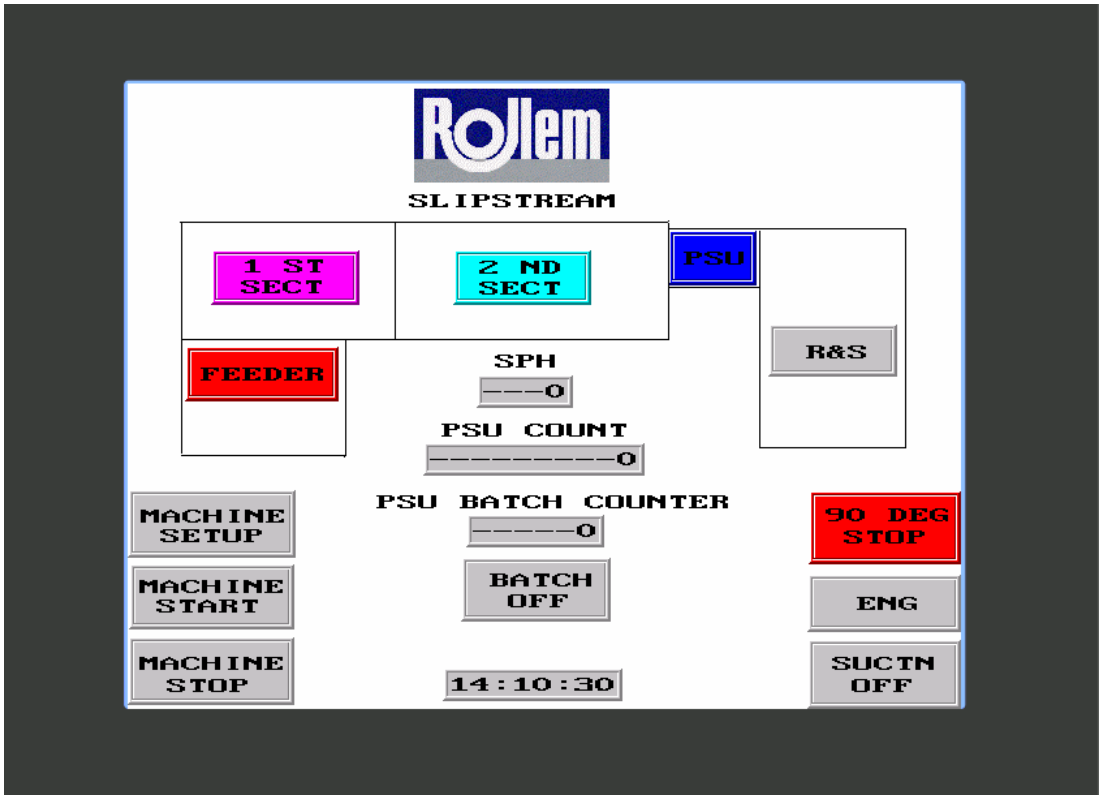
HMI Display Box



HMI Display Control Functions

1. Main Screen.
2. Feeder Screen.
3. 1st Section Screen.
4. 2nd Section Screen.
5. PSU Screen.
6. Engineering Screen.
7. ME / R&S Screen.
8. Machine Set-up Screen.

Main Screen



FEEDER

When pressed changes the display from the main screen to the feeder screen.

SECTION 1

When pressed changes the display from the main screen to the section 1 screen.

SECTION 2

When pressed changes the display from the main screen to the section *2* screen.

PSU

When pressed changes the display from the main screen to the PSU screen.

ME / R&S

When pressed changes the display from the main screen to the ME / R&S screen.

MACHINE SET-UP

When pressed changes the display from the main screen to the machine set-up screen screen.

MACHINE START

When pressed starts the whole machine, including feeder, in the following order:
PSU motor and control unit,
green belt motor,
collator motor,
2nd head motor,
90 degree motor,
feeder pump,
feeder drive
feeder clutch solenoid engaged.

MACHINE STOP

When pressed stops the whole machine, including feeder, in the following order:
feeder clutch solenoid disengaged,
feeder drive,
feeder pump,
90 degree motor,
2nd head motor,
collator motor,
green belt motor,
PSU motor and control unit.

SUCTION

When pressed in the OFF position energises the suction feed solenoid and the text on the button changes to ON. To turn the suction feed solenoid off press the button again, the text on the button now changes to OFF.

90 DEGREE STOP

When pressed stops the 90 degree motor and disengages the feeder clutch.

ENG

When pressed changes the display from the main screen to the engineering screen.

SPH

Indicates the speed of the machine in sheets per hour. Select the correct speed from the machine set-up screen.

PSU COUNTER

Counts the total number of packs delivered from the PSU.
Can be reset, see the PSU screen.

PSU BATCH COUNTER

This is a down counter, which is set by touching the actual counter on the screen. When pressed a dialogue box is displayed from which a batch number from 1 to 99999 can be entered. The batch number will only be accepted if the batch counter control button, below the counter, is turned off. This is indicated by the OFF-ON text on the button.

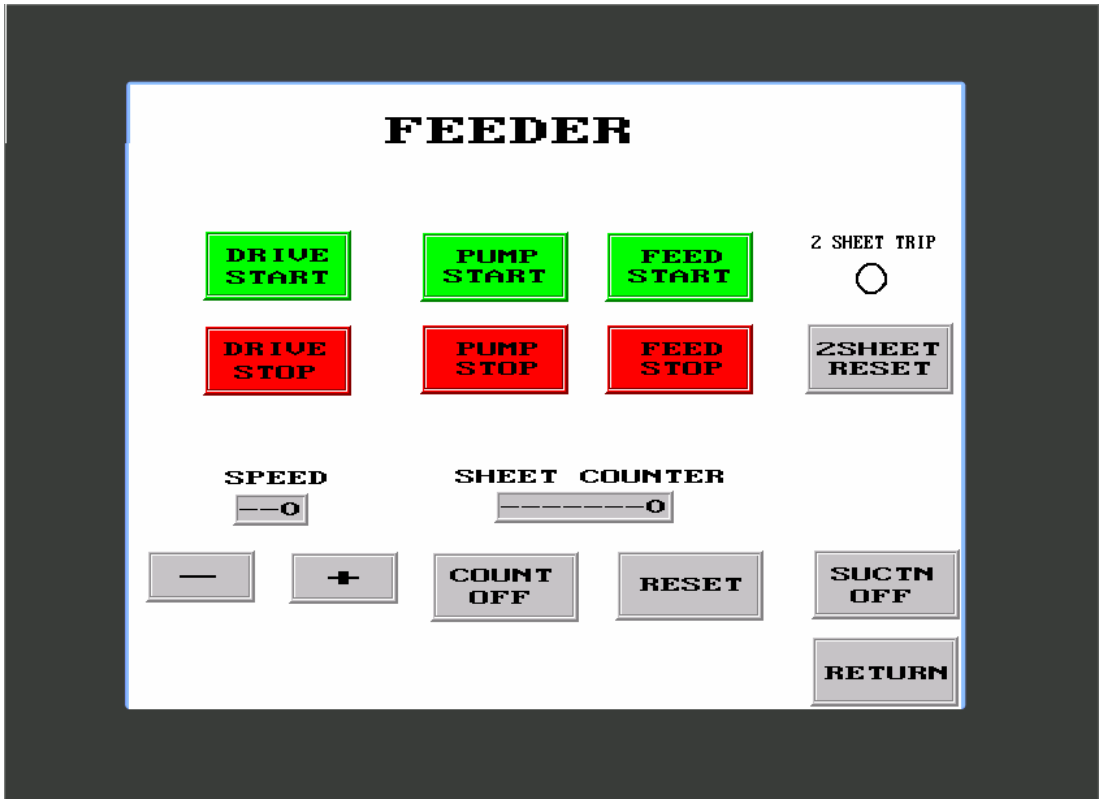
When the batch counter reaches a count of 3 it sends a trip signal to the feeder, which disengages the feeder clutch and starts the automatic stopping sequence.

CLOCK

The clock indicates the local time. Like the batch counter it can be adjusted for the correct time zone by touching the display, which will then show a dialogue box from which adjustments can be made.

The main screen will be automatically returned to after a machine stop when the green machine safety reset button on the HMI is pressed.

Feeder Screen



DRIVE START

When pressed starts the feeder drive motor.

DRIVE STOP

When pressed stops the feeder drive motor.

SPEED

Indicates the speed setting of the feeder drive motor as a percentage.

PLUS +

When pressed increases the percentage speed range of the feeder drive motor.

MINUS –

When pressed decreases the percentage speed range of the feeder drive motor.

PUMP START

When pressed starts the feeder pump motor.

PUMP STOP

When pressed stops the feeder pump motor.

FEED START

When pressed engages the feeder clutch.

FEED STOP

When pressed disengages the feeder clutch.

2 SHEET TRIP

The circle changes from white to red when the feeder 2 sheet trip detector operates. Note: when the 2 sheet trip is detected the HMI display will automatically default to and hold the feeder screen, to be able to return to the main screen press the 2 sheet trip reset button.

2 SHEET TRIP RESET

When pressed resets the feeder 2 sheet trip indicators provided that the feeder 2 sheet detector has been cleared.

SHEET COUNTER

This is a count up counter and counts the number of sheets fed into the Slipstream.

COUNTER OFF/ON

This push button when pressed turns the sheet counter off and on. The state of the counter is indicated by the OFF-ON text on the button.

RESET

This push button when pressed resets the sheet counter to zero provided that the sheet counter has been selected into the OFF position.

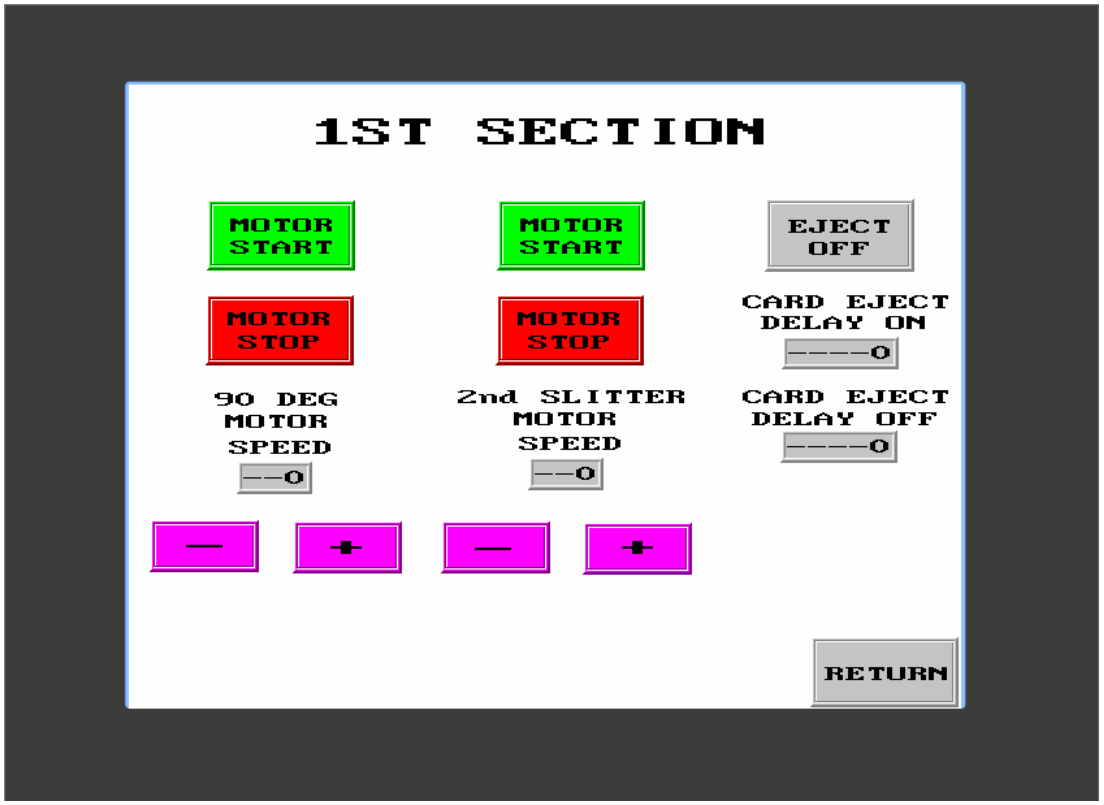
SUCTION

When pressed in the OFF position energises the suction feed solenoid and the text on the button changes to ON. To turn the suction feed solenoid off press the button again, the text on the button now changes to OFF.

RETURN

When pressed returns the display to the main screen.

Section 1 Screen



90 DEGREE MOTOR START

When pressed, starts the 90 degree motor.

90 DEGREE MOTOR STOP

When pressed, stops the 90 degree motor.

SPEED

Indicates the speed setting of the 90 degree motor as a percentage.

PLUS +

When pressed increases the percentage speed range of the 90 deg motor.

MINUS –

When pressed decreases the percentage speed range of the 90 deg motor.

2nd SLITTER MOTOR START

When pressed, starts the 2nd slitter motor.

2nd SLITTER MOTOR STOP

When pressed, stops the 2nd slitter motor.

SPEED

Indicates the speed setting of the 2nd slitter motor as a percentage.

PLUS +

When pressed increases the percentage speed range of the 2nd slitter motor.

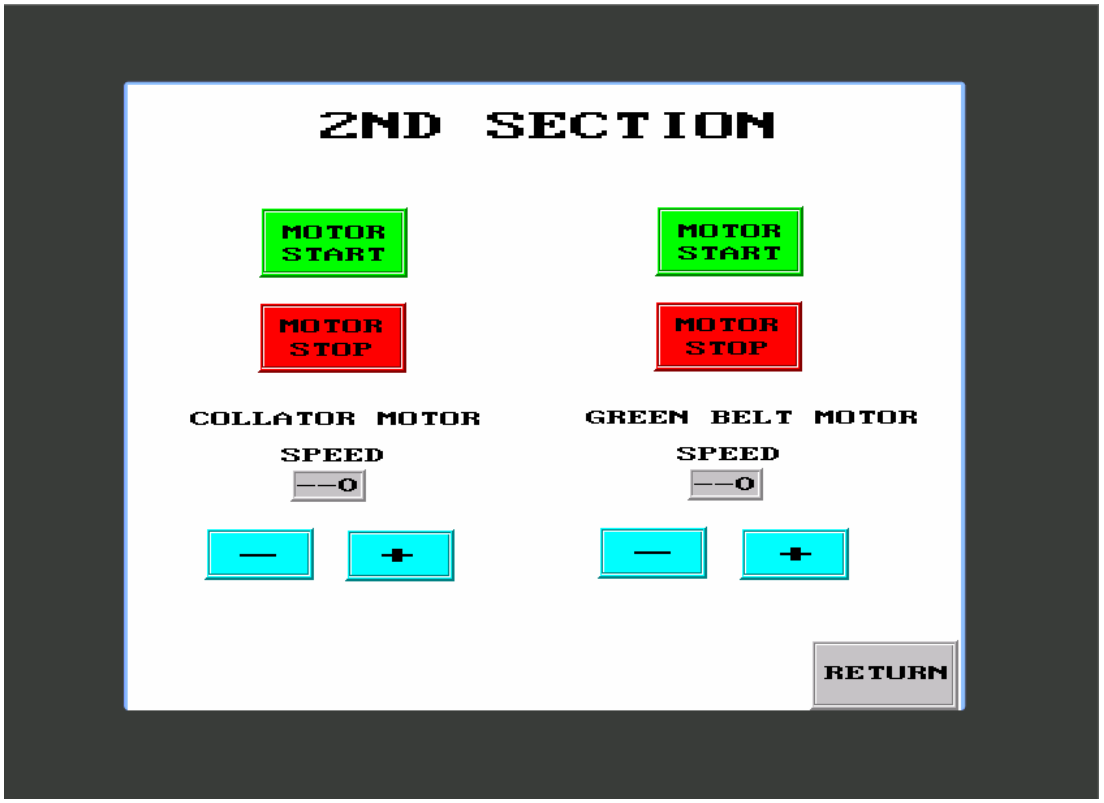
MINUS –

When pressed decreases the percentage speed range of the 2nd slitter motor.

RETURN

When pressed returns the display to the main screen.

Section 2 Screen



COLLATOR MOTOR START

When pressed starts the collator motor.

COLLATOR MOTOR STOP

When pressed stops the collator motor.

SPEED

Indicates the speed setting of the collator motor as a percentage.

PLUS +

When pressed increases the percentage speed range of the collator motor.

MINUS –

When pressed decreases the percentage speed range of the collator motor.

GREEN BELT MOTOR START

When pressed starts the green belt motor.

GREEN BELT MOTOR STOP

When pressed stops the green belt motor.

SPEED

Indicates the speed setting of the green belt motor as a percentage.

PLUS +

When pressed increases the percentage speed range of the green belt motor.

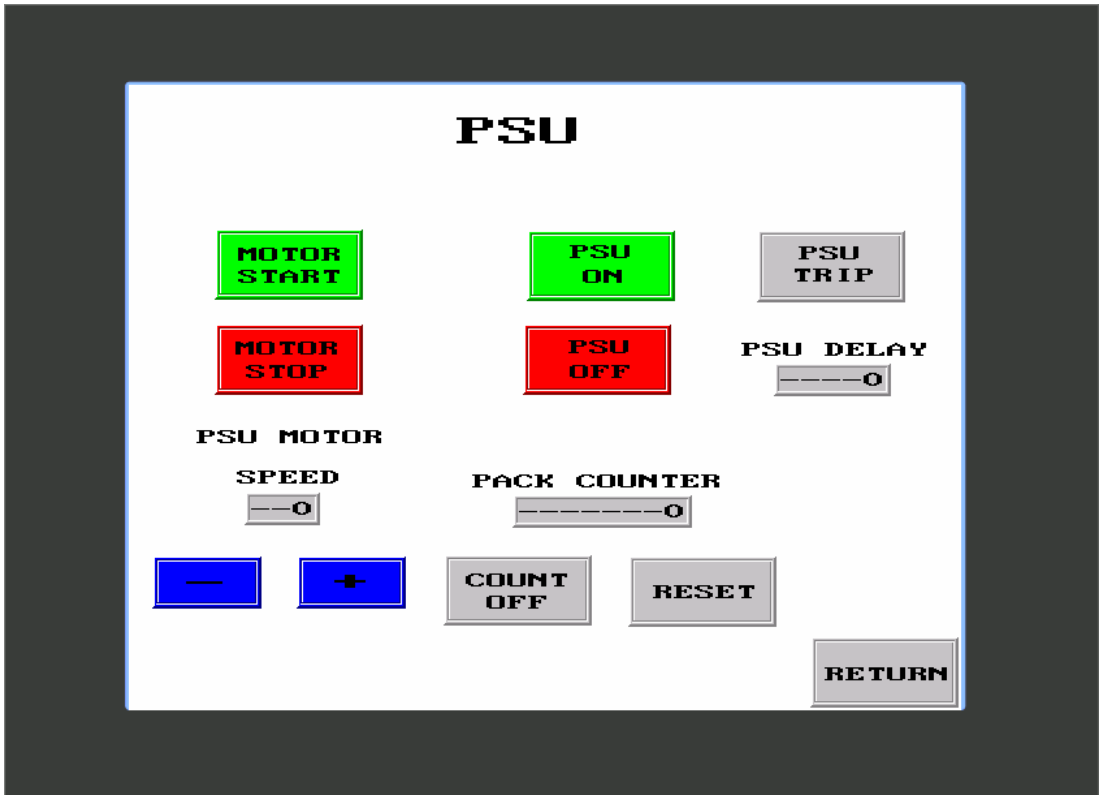
MINUS –

When pressed decreases the percentage speed range of the green belt motor.

RETURN

When pressed returns the display to the main screen.

PSU Screen



PSU MOTOR START

When pressed starts the PSU motor.

PSU MOTOR STOP

When pressed stops the PSU motor.

SPEED

Indicates the speed setting of the PSU motor as a percentage.

PLUS +

When pressed increases the percentage speed range of the PSU motor.

MINUS –

When pressed decreases the percentage speed range of the PSU motor.

PSU ON

When pressed, turns on the power to the PSU brake clutch control unit.

PSU OFF

When pressed, turns off the power to the PSU brake clutch control unit.

PSU TRIP

This button when pressed operates the PSU clutch and indexes the finger carriage on one position.

PSU COUNTER

This is a count up counter and counts the number of packs delivered from the Slipstream PSU.

PSU COUNTER ON/OFF

This push button when pressed turns the PSU counter off and on. The state of the counter is indicated by the OFF-ON text on the button.

COUNTER RESET

This push button when pressed resets the pack counter to zero provided that the pack counter has been selected into the OFF position.

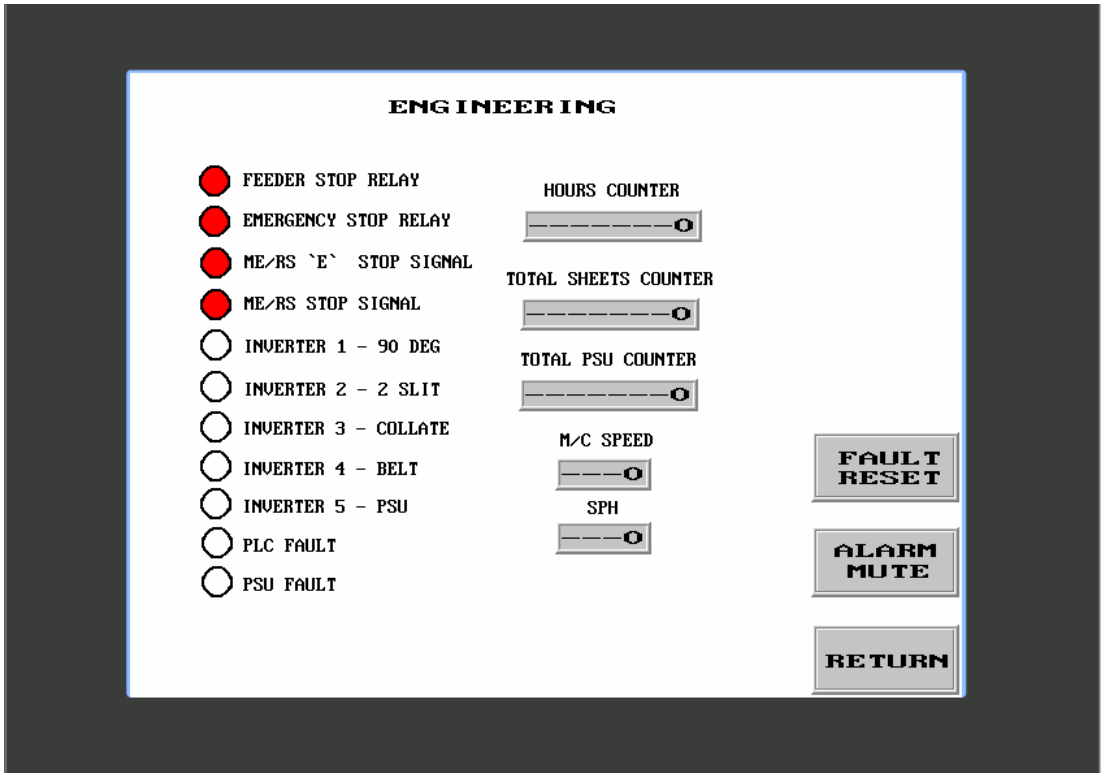
RETURN

When pressed returns the display to the main screen.

PSU DELAY

To adjust the delay on the finger carriage to suit the product being produced, touch the display and a dialogue box will appear. Enter a new value, lower to decrease delay and higher to increase delay, until the correct setting is reached.

Engineering Screen



FEEDER STOP RELAY

Indicates the condition of the feeder stop relay. When red it indicates that a feeder stop button has been operated.

EMERGENCY STOP RELAY

Indicated the condition of the emergency stop relay. When red it indicates the relay has not been reset.

ME / R&S STOP SIGNAL

Indicated the condition of the ME / R&S stop signal. When red it indicates the ME / R&S machine is not ready for operation.

INVERTER 1 – 90 DEGREE

Indicates a fault with the 90 degree motor inverter circuit.

INVERTER 2 – 2 SLIT

Indicates a fault with the 2nd slitter motor inverter circuit.

INVERTER 3 – COLLATE

Indicates a fault with the collator motor inverter circuit.

INVERTER 4 – BELT

Indicates a fault with the green belt motor inverter circuit.

INVERTER 5 – PSU

Indicates a fault with the PSU motor inverter circuit.

PLC FAULT

Indicates a fault with the PLC.

PSU FAULT

Indicates a fault with the PSU.

HOUR COUNTER

Indicates the number of whole hours that the machine has had power applied to it.

TOTAL SHEET COUNTER

Indicates the total number of sheets that have been fed into the Slipstream machine. This counter cannot be reset.

TOTAL PSU COUNTER

Indicates the total number of packs that have been delivered from the Slipstream machine. This counter cannot be reset.

MACHINE SPEED

Indicates the mechanical speed of the machine.

SPH

Indicates the sheets per hour speed of the machine.

FAULT RESET

Resets the fault indication of the Inverters and PLC.

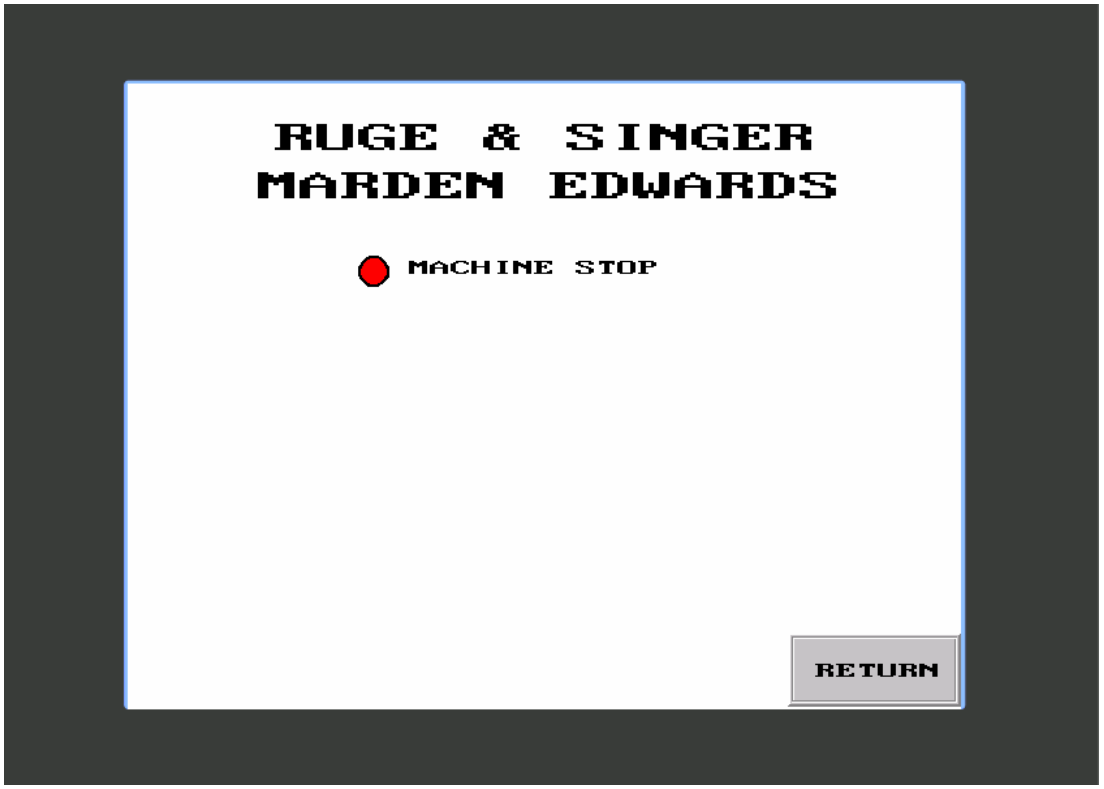
ALARM MUTE

Silences the fault alarm in the HMI box.

RETURN

When pressed returns the display to the main screen.

ME / R&S Screen



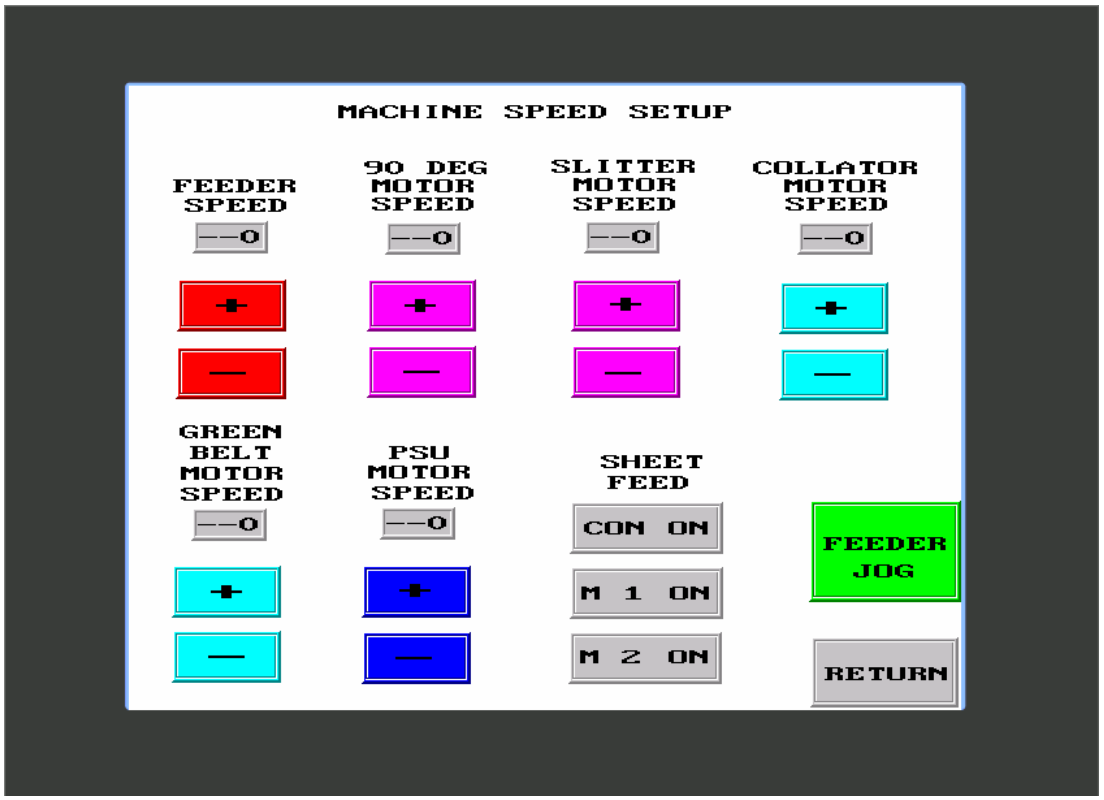
MACHINE STOP

Indicated the condition of the ME / R&S stop signal. When red it indicates the ME / R&S machine is not ready for operation.

RETURN

When pressed returns the display to the main screen.

Machine Set-up Screen



FEEDER SPEED

Indicates the speed setting of the feeder drive motor as a percentage.

PLUS +

When pressed increases the percentage speed range of the feeder drive motor.

MINUS –

When pressed decreases the percentage speed range of the feeder drive motor.

90 DEGREE MOTOR SPEED

Indicates the speed setting of the 90 degree motor as a percentage.

PLUS +

When pressed increases the percentage speed range of the 90 degree motor.

MINUS –

When pressed decreases the percentage speed range of the 90 degree motor.

SLITTER MOTOR SPEED

Indicates the speed setting of the 2nd slitter motor as a percentage.

PLUS +

When pressed increases the percentage speed range of the 2nd slitter motor.

MINUS –

When pressed decreases the percentage speed range of the 2nd slitter motor.

COLLATOR MOTOR SPEED

Indicates the speed setting of the collator motor as a percentage.

PLUS +

When pressed increases the percentage speed range of the collator motor.

MINUS –

When pressed decreases the percentage speed range of the collator motor.

GREEN BELT MOTOR SPEED

Indicates the speed setting of the green belt motor as a percentage.

PLUS +

When pressed increases the percentage speed range of the green belt motor.

MINUS –

When pressed decreases the percentage speed range of the green belt motor.

PSU MOTOR SPEED

Indicates the speed setting of the PSU motor as a percentage.

PLUS +

When pressed increases the percentage speed range of the PSU motor.

MINUS –

When pressed decreases the percentage speed range of the PSU motor.

SHEET FEED

To indicate the correct sheet speed it is necessary to select the sheet feed that the feeder has been set to i.e.: continuous, miss 1 or miss 2. The button selected will be indicated by the ON text at the side.

FEEDER JOG

When this button is pressed the feeder drive motor can be operated, but only after the drive alarm has sounded, 3 seconds. If the period between presses of the button exceeds 5 seconds the drive alarm will resound. The speed of the jog feature is not adjustable.

RETURN

When pressed returns the display to the main screen.

Description of System Operation

Safety and Power Isolation.

The feeder isolator is the main power isolator and should always be turned 'off' for maximum safety if any setting or maintenance work is being carried out on the machines.

Each electrical control panel is fitted with a mains power isolator, which isolates the local three-phase power when turned off.

Wiring in orange cable indicates that the control circuit wiring, 24V ac, from the feeder or other machinery could be alive and should not be touched.

Each power, motor and control circuit is protected by its own circuit breaker. In the event of a circuit breaker tripping have the circuit checked by a qualified engineer before resetting it.

Emergency Stops and Guards.

The Slipstream stop buttons and guard switches are wired in series around the machine, to and from an emergency stop safety relay. When the power is first turned 'on' the control system will power up but the mains power will not be applied to the motor inverters due to the emergency stop contactor not being energised. To energise the contactor the emergency stop safety relay must also be energised.

Ensure that all the machine guards are closed and that all the emergency stop buttons have been reset, including the feeder. Now press the square green reset button situated on the HMI display box. The safety relay should now energise and operate the emergency stop contactor and motor contactors.

If the safety relay will not reset when the reset button is operated, press and release the emergency stop button on the HMI display box and press the reset button again.

Machine Stop.

This is a red square push button, situated by the HMI display, which when operated stops the machine under normal operating conditions. This control does not operate the emergency stop circuit and leaves the power 'on' to the power and motor circuits.

HMI Display

The HMI display is the “Human Machine Interface” which allows the operator to receive information on productivity, the machine status and to change certain parameters of the machine from one operating position.

The HMI consists of an LCD colour display fitted with a touch sensitive overlay. The display is fitted with a backlight that will go out after a time delay from the last operation of the touch screen. The display will appear blank; this is to prolong the life of the backlight when not being used. If the display is blank the first touch of the screen will turn the light ‘on’ and the next touch will operate the desired function.

The display is connected to the PLC “Programmable Logic Controller” via a RS-422 data cable.

The display has been programmed with eight screens as shown in section 3. The control functions for each screen are detailed in section 4.

The touch screen must not be operated with any hard or pointed objects as this could damage the membrane.

Main Screen

The main screen is displayed at power ‘on’ and after an emergency stop when the green reset safety button is operated. From this screen each of the machine section controls can be accessed.

The machine can be automatically started and stopped from this screen.

Feeder

From the feeder screen the feeder drive motor can be started, stopped and jogged.

When the jog control is selected, from the HMI machine set-up screen, the drive alarm sounds for 3 seconds, after this period the machine will turn at a fixed slow speed whilst the button is pressed. If the button is released or the delay between jogs is greater than 5 seconds the alarm will resound next time it is operated.

When the drive start button is operated the drive alarm will sound for 3 second after which the motor gently ramps up to the % speed set on the HMI. The drive will be stopped by operation of the drive stop button.

The drive will be started and stopped automatically on the operation of the machine start and machine stop buttons located on the HMI main screen.

The drive % speed can be adjusted on the feeder and machine set-up screens.

The feeder pump can be started and stopped from the controls on the feeder screen.

The feeder clutch can be engaged and disengaged by the feed start and feed stop buttons on the feeder screen. The clutch will be engaged and disengaged automatically on the operation of the machine start and machine stop buttons located on the main screen. The clutch will also be disengaged by the operation of the 90 deg stop button on the main screen and a stop signal from the ME / R&S machine.

The sheet pick-up suction control can be turned off and on by operation of the button on the main and feeder screens.

If the feeder trips due to a 2-sheet trip the HMI display should default to the feeder screen to indicate to the operator the problem. The 2-sheet circular indicator changes colour to red. Reset the 2-sheet, when the sheets have been cleared, by pressing the 2-sheet reset button on the feeder screen.

Note: Always press the 2-sheet reset on the HMI feeder screen to return to the main screen.

There are two sheet counters, one is a total counter on the engineering screen - which cannot be reset, the other is a production counter located on the feeder screen - which can be reset. The production counter can be turned off and on by the switch on the feeder screen. It can also be reset by the reset button on the feeder screen but only if the counter has been turned off.

1st Section.

The 90 deg and 2nd slitter motor controls are both located on the 1st section screen, which is accessed from the main screen.

When either motor start button is operated the Slipstream alarms (front and rear) will sound for 3 seconds, after which the motors will ramp up to the % speed set on the HMI. Either motor will be stopped by operation of its stop button.

Both motors will be started and stopped automatically on the operation of the machine start and machine stop buttons located on the HMI main screen.

The drive % speed can be adjusted on the 1st section and machine set-up screens.

The 90 deg motor will also be stopped by operation of the 90 degree stop button on the main screen and by a stop signal from the ME / R&S machine.

2nd Section

The collator and green belt motor controls are both located on the 2nd section screen, which is accessed from the main screen.

When either motor start button is operated the Slipstream alarms (front and rear) will sound for 3 seconds, after which the motors will ramp up to the % speed set on the HMI. Either motor will be stopped by operation of its stop button.

Both motors will be started and stopped automatically on the operation of the machine start and machine stop buttons located on the HMI main screen.

The drive % speed can be adjusted on the 2nd section and machine set-up screens.

PSU Section

The PSU motor and control unit controls are both located on the PSU screen, which is accessed from the main screen.

When the PSU motor start button is operated the Slipstream alarms (front and rear) will sound for 3 seconds, after which the motor ramps up to the % speed set on the HMI. The motor will be stopped by the operation of the PSU motor stop button.

The drive will be started and stopped automatically on the operation of the machine start and machine stop buttons located on the HMI main screen.

The drive % speed can be adjusted on the PSU and machine set-up screens.

The PSU motor will also be stopped by a stop signal from the ME / R&S machine.

There are two pack counters, one is a total counter on the engineering screen - which cannot be reset, the other is a production counter located on the PSU screen - which can be reset. The production counter can be turned off and on by the switch on the PSU screen. It can also be reset by the reset button on the PSU screen but only if the counter has been turned off.

There is also a pack batch counter, located on the PSU screen, which can be set to the required batch production run. In order to set a value the counter must first be turned off. Touch the counter symbol on the screen and a dialogue box will appear from which the required value can be entered. When turned 'on' the counter will count down. When the counter reaches a value of 3 a signal is sent to trip out the feeder clutch and operate the automatic stop sequence.

The packs are counted by the operation of the PSU unit.

If any packs still remain within the PSU these can be ejected by using the PSU trip button on the PSU screen or the trip button on the PSU local control station.

Machine Speed Set-up

The machine speed set-up screen has been provided to enable the operator to set the speeds of each section easily. The % speed value controls are a copy of the individual speed controls on each screen and any value entered will be identical on both.

The indicated speed of the machine in Sheets Per Hour is shown on the main screen and the engineering screen. This can be set to the sheets being fed from the feeder on the set-up screen. For continuous feed press the "con" button, or press the "miss 1" (M 1 ON) or "miss 2" (M 2 ON) button as required.

Engineering and Faults

To assist with problem solving and preventative maintenance the engineering screen gives the operator/engineer a basic guidance of where to look.

Under normal operating conditions with all systems healthy the round fault indicators will be white. When a change in condition or a fault is detected the indicator will turn red.

If a fault condition is detected for either an inverter or the PLC the Slipstream will be stopped, the fault signal retained, the fault alarm on the HMI box sounds and the screen automatically changes to the engineering screen to show the operator where a problem has been detected. The alarm can be silenced by pressing the “alarm mute“ button on the engineering screen. The fault indicated must be reset before it can be restarted.

Three non reset-able counters, hours, sheets and packs are shown on the engineering screen to provide preventative maintenance information for the engineering personnel and production information if required.

The hours counter counts the number of whole hours that the machine has had power applied to it.

Troubleshooting

The information listed below is only a guide to problems or faults that may be encountered.

Problem.	Remedy / Cure
The emergency stop safety relay will not energise.	Check that all stop buttons have been reset. Check that all guards are closed correctly. Have the feedback loop circuit check by an engineer. Check that the reset relay is working correctly.
The HMI display will not work.	Check that the display power circuit breaker has not tripped. Check that the data cable is connected correctly.
The PLC is not working.	Check that the PLC power circuit breaker has not tripped. Check that the power ‘on’ led and ‘run’ led are lit. Check the PLC 24V dc supply is available, check for wiring or component short circuits if not.
Feeder drive will not start.	Check that the emergency stop circuit is reset. Check that the drive alarm sounds and that the drive contactor energises. Check that the drive enable relay has energised. Check that the drive circuit breaker has not tripped. Check that the analogue speed voltage signal 0 – 10V is being received.
Feeder pump will not start.	Check the start and stop push buttons. Check that the pump overload has not tripped.