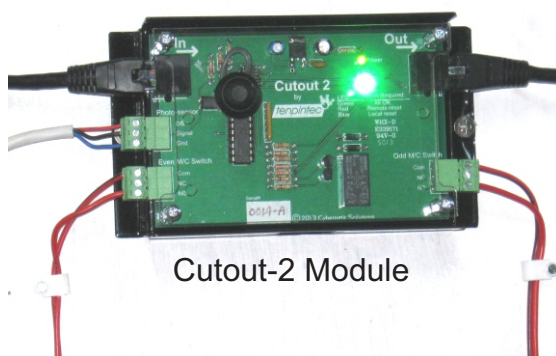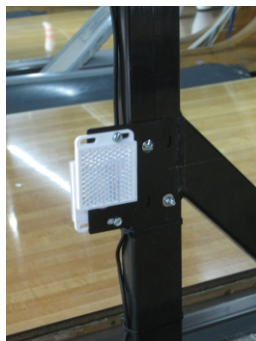# MachineMinder

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for AMF 82-70 XLi and 82-90XLi Pinspotters

MachineMinder is a system of components that link together to create a safer Pinspotter or Pinsetter machine.

Cutout-2 is the first stage towards compliance with AS4024.1-2006, the Australian Machine Safety Standard. This Standard is similar in most respects to other modern international standards for machine safety.

Cutout-2 Module

Operation and Procedure

During normal operation, the MachineMinder Cutout-2 status LED will show GREEN.

If the MachineMinder IR beam at the front of the machine pair is blocked, the MachineMinder Cutout-2 status LED will FLASH BLUE. This indicates E-Stop mode and will cause the Pinspotter chassis to sense an E-Stop condition. This will turn off the machine pair. This significantly increases safety but by itself will not ensure complete compliance with AS4024.1-2006, because mains power is still present in the machine.

Before attempting to restart the Pinspotter pair, check to see that the IR beam is no longer blocked and that the machines are safe. It is recommended that the MachineMinder Cutout-2 module is mounted on the curtain wall, so that the operator has a clear view of the front area of the machines when performing a reset.

Restarting the Pinspotter is a 3 STEP process:

1. Press the RESET button on the MachineMinder Cutout-2 module. The status LED should return to GREEN.

   Note: if all MachineMinder Cutout-2 modules have been subject to a global E-Stop (ie from a remote E-Stop button that will shut down all machines), the status LED will FLASH RED. Resetting the remote E-Stop button will reset all the MachineMinder modules to their normal (GREEN LED) condition.

2. Press the RESET button on the chassis.

3. Press the TRBL CLEAR button on the keypad. The machine pair will restart.

Monthly Testing Procedure
   1. All machines running
   2. Ensure Green LED is lit in all MachineMinder Cutout-2 modules
   3. Place a hand or other item to block the IR beam on each lane pair
   4. Ensure that pair of lanes turns off
   5. LCD on machine chassis will show ERROR
   6. Indicator in Cutout-2 Module should be FLASHING BLUE

   7. Push RESET button on Cutout-2 Module - indicator should turn GREEN
   8. Push RESET button on chassis
   9. Push TRBL CLEAR button on chassis (machines will restart)
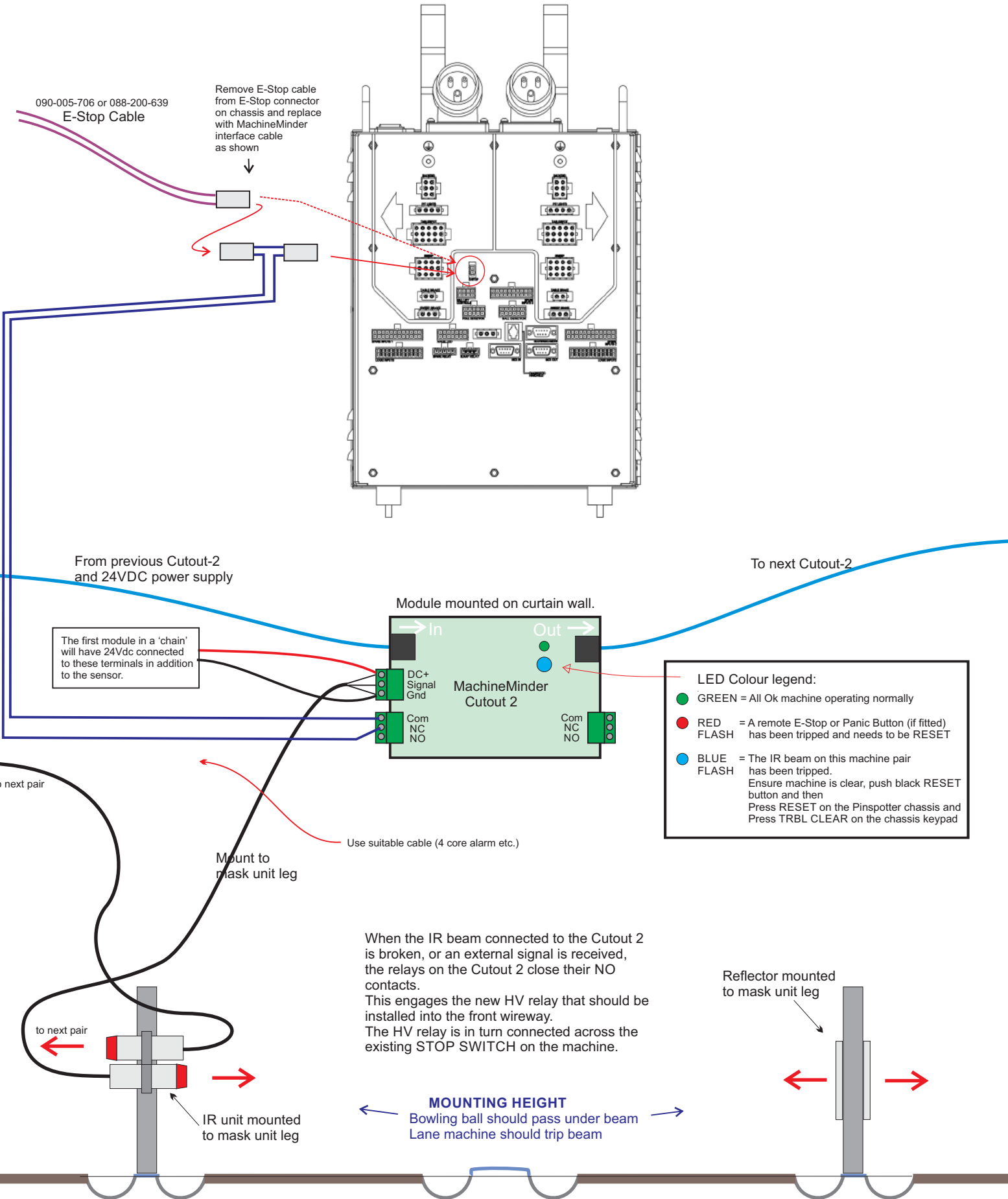10. Turn off machines as required

Monthly Inspection Procedure
   1. Check all IR beams for damage and alignment
   2. Check all IR reflectors for damage and alignment
   3.Check all cables and connectors for damage and security

by Cybernetic Solutions
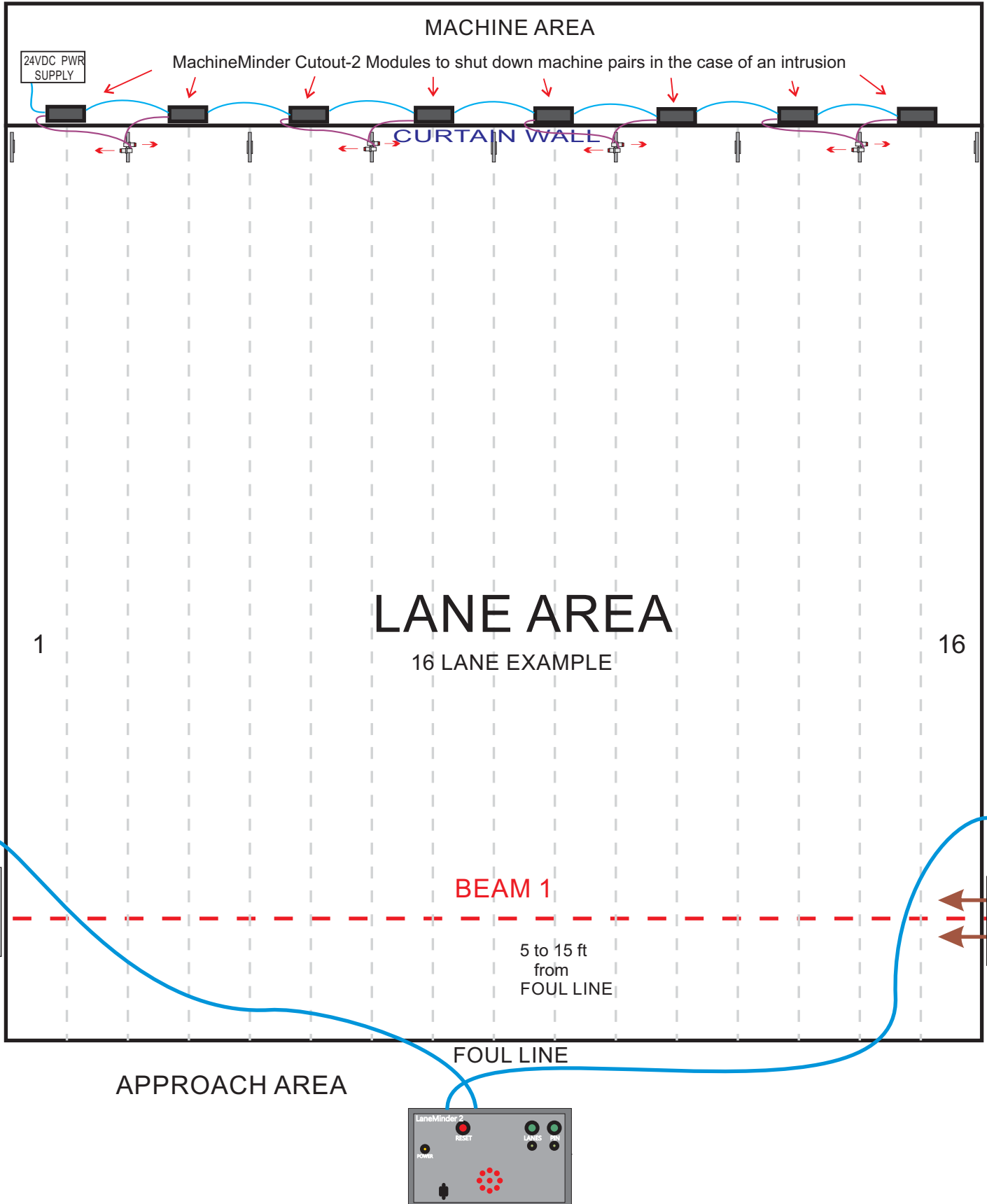
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for AMF 82-70 XLi and 82-90XLi Pinspotters

090-005-706 or 088-200-639
E-Stop Cable

Remove E-Stop cable
from E-Stop connector
on chassis and replace
with MachineMinder
interface cable
as shown

From previous Cutout-2
and 24VDC power supply

To next Cutout-2

Module mounted on curtain wall.

The first module in a 'chain'
will have 24Vdc connected
to these terminals in addition
to the sensor.

In   Out

DC+
Signal
Gnd

MachineMinder
Cutout 2

Com
NC
NO

Com
NC
NO

to next pair

Use suitable cable (4 core alarm etc.)

Mount to
mask unit leg

LED Colour legend:

GREEN = All Ok machine operating normally

RED
FLASH = A remote E-Stop or Panic Button (if fitted)
has been tripped and needs to be RESET

BLUE
FLASH = The IR beam on this machine pair
has been tripped.
Ensure machine is clear, push black RESET
button and then
Press RESET on the Pinspotter chassis and
Press TRBL CLEAR on the chassis keypad

When the IR beam connected to the Cutout 2
is broken, or an external signal is received,
the relays on the Cutout 2 close their NO
contacts.
This engages the new HV relay that should be
installed into the front wireway.
The HV relay is in turn connected across the
existing STOP SWITCH on the machine.

Reflector mounted
to mask unit leg

to next pair

IR unit mounted
to mask unit leg

MOUNTING HEIGHT
Bowling ball should pass under beam
Lane machine should trip beam

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MachineMinder Cutout-2 Modules mount to the curtain wall above and between each pair of machines.
The Modules are daisy-chained together with Cat-5 cables to supply 24VDC power, shut-down and reset signal.
Entering either machine of a pair from the front will break the IR beam and shut down that pair.
Note: Guards need to be in place to stop a person moving to the next pair of machines once behind the mask units.

MACHINE AREA

24VDC PWR SUPPLY

MachineMinder Cutout-2 Modules to shut down machine pairs in the case of an intrusion

CURTAIN WALL

LANE AREA

16 LANE EXAMPLE

1

16

BEAM 1

5 to 15 ft
from
FOUL LINE

Rx

Tx

FOUL LINE

APPROACH AREA

LaneMinder2
RESET
LANES PIN
POWER

LaneMinder2 Lane intrusion warning system
- not connected to MachineMinder safety system