TECHNICAL SPECIFICATION

Technology

High frequency low power electromagnetic coil system - monitored and controlled by a microprocessor system.

Frequency of Operation of Coil

Crystal controlled in the range 10 kHz to 1 MHz.

Multifrequency (optional) and single frequency units are available.

Product throughput speed

Selectable.

Normal

0.1 to 2.0 m /min / mm of aperture height
(8 to 160 ft / min / inch of aperture height)

Variable

0.05 to 2.5 m / min / mm of aperture height
(4 to 200 ft / min / inch of aperture height)

Fast

0.05 to 7.5 m / min / mm of aperture height
(4 to 600 ft / min / inch of aperture height)

Higher and lower speeds are available on request.

Power Input

Voltage	100 to 240 Volts A.C.. +10% / -15%
Power	100 VA *
Frequency	50 to 60 Hz.

For connection to TN (EN60950:1992) power distribution systems only. For connections to other power distribution systems please contact your supplier.

* Assumes no loads on the switched power outputs.

Internal Battery

Discharge time off	typical 6 months from power at temperature of 20^{O}C
Battery life	typical 5 years
Nominal voltage	3.6 Volts D.C.

Temperature Range

Operating	-10 °C to +45 °C (14 °F to 110 °F)
Storage	-10 °C to +50 °C (14 °F to 120 °F)

Humidity Range

Maximum relative humidity 93% for temperatures up to 45^{O}C.

Warm Up Time

Zero seconds at an ambient temperature of 20 °C

Environmental Protection

Painted version	IP66, NEMA 4
Stainless steel version	IP66, NEMA 4X

For more hostile environments a protective cover is available for the control panel.

To achieve the specified protection the module and power unit cover must be torqued down to 5 Nm (45 in.lbs), or 4.5 Nm (40 in.lbs) for the module if the environmental protection cover is used.

Sound Output

Less than 62 dBA at a distance of 1 m (without printer).

Switched Power Output

Switched by detector ON/OFF switch.

Switched live and neutral, non-switched earth. Not internally fused.

Maximum current	1 A

Reject Relay

Volt free changeover contacts that operate on the detection of metal.

Maximum power	500 W
Maximum current	3 A (non-inductive)
Maximum voltage	250 Volts A.C., or 30 Volts D.C. (non-inductive)

System Fault Relay (Optional)

Volt-free changeover contacts that operate when the Reject Confirmation Unit signals a reject fault.

Contact rating see **Reject Relay**.

Detect Signal

Operates on the detection of metal.

Output type	NPN open collector
Maximum voltage	35 Volts D.C.
Maximum current	100 mA

Fault/Detector Active Output

Output that operates if a fault occurs in the metal detector or the detector is inactive.

Output type	NPN open collector
Maximum voltage	35 Volts D.C.
Maximum current	100 mA

Q.A. Due/Overdue Output

Output that operates when a performance test becomes due or when a performance test becomes overdue.

Output type	NPN open collector
Maximum voltage	35 Volts D.C.
Maximum current	100 mA

Pack Sensor Requirements

Operating voltage	15 Volts D.C.
Operating current	30 mA maximum
Output type	NPN or PNP open collector (must be same as Speed Sensor)

Speed Sensor Requirements

Operating voltage	15 Volts D.C.
Operating current	30 mA maximum
Output type	NPN or PNP open collector (must be same as Pack Sensor)
Output pulse width	10 ms minimum
Output frequency	50 Hz maximum

Reject Confirmation Sensor Requirements

Operating voltage	15 Volts D.C.
Operating current	30 mA maximum
Output type	NPN or PNP open collector

RS232 Serial Communications

Two communication ports COM1 and COM2 are available from within the power unit enclosure.

Voltage levels as per RS232 standard, typically ± 9 volts.

Baud rate :	9600
Data bits :	1
Start bits :	1
Stop bits :	1
Parity bits :	1
Parity type	Odd

COM1 - 2 or 4 wire control for use with printer (Hardware handshaking is only possible with 4 wire control).

COM2 - 2 wire control for communications with metal detector.

Internal Counters

Reiect Counter

Counts reject relay operations, not the number of detections, or the number of rejects.

Counter range 0000 to 9999

This counter is resettable from the control panel.

Pack Counter

This counter requires that an external pack sensor be fitted.

Counter range 00000000 to 16,777,214

Maximum count rate 3000 packs/min at a pack/space ratio of 1:1.

This counter is resettable from the control panel.

*Note. When the maximum counter value is reached, the next increment will change the digits to *.*

Spherical Sensitivity

Dependent on aperture size, and frequency of operation, all sensitivity information is expressed in diameters of spherical samples.

Non spherical objects such as wires will exhibit an orientation effect, ie. they can be more easily detected in certain axis. If the diameter of the wire is less than the spherical sensitivity setting the sample may not be detected in all orientations.

Sensitivity Ratios

Dependent on frequency of coil system e.g. at 300 kHz

Non Ferrous x 1.1 to 1.3 Fe diameter (depending on the metal)

Stainless Steel x 1.2 to 1.5 Fe diameter (depending on type, most difficult to detect is type 316)

Sensitivity Gradient

Less than two diameters.

This is the difference in sensitivity measured at the centre of the aperture and the sensitivity at any other point in the aperture not closer than 10 mm to the surface.

Timer Ranges

Timer type **tm1**

Type: Simple reject timer.

Reject time has a range of 50 ms to 60 s.

Timer types **tm2** and **tm2G**

Type: Fixed speed delayed reject timers.

Reject time has a range of 50 ms to 60 s.

Delay time has a range of 50 ms to 60 s.
(0 ms delay time is also possible)

Timer types **tm3** and **tm3G**

Type: Variable speed delayed reject timers.

Signal shift with a range of 1 to 128 speed sensor pulses.

Reject shift/time with a range of 1 to 256 speed sensor pulses or 50 ms to 60 s.