

Metallisation

Thermal spray equipment and consumables



Equipment Specification

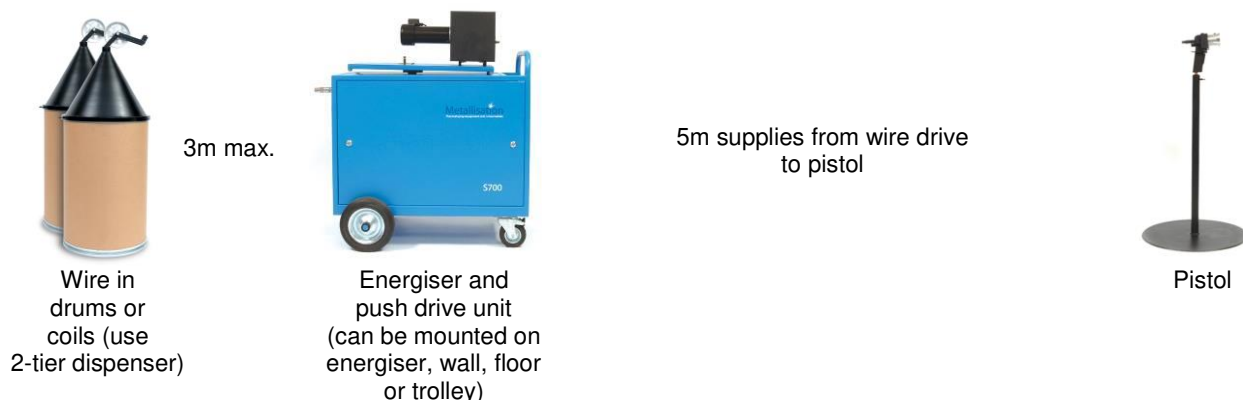
ARC701(16)-CL Arc Spray System

TYPICAL SYSTEM CONFIGURATIONS

Pictured below is a range of typical system configurations. Variations of these configurations may be possible. Contact Metallisation to discuss your specific application requirements.

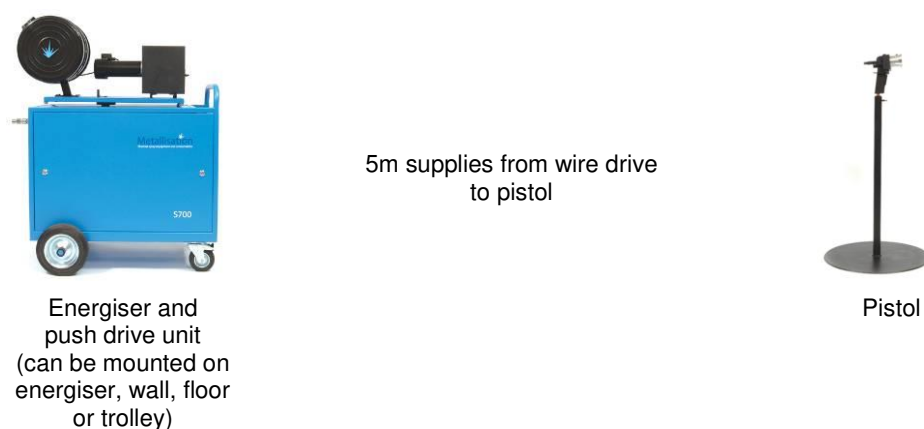
STANDARD CONFIGURATION – PUSH WITH WIRE IN DRUMS

Most commonly used for in-house anti-corrosion applications where drums can easily be handled.



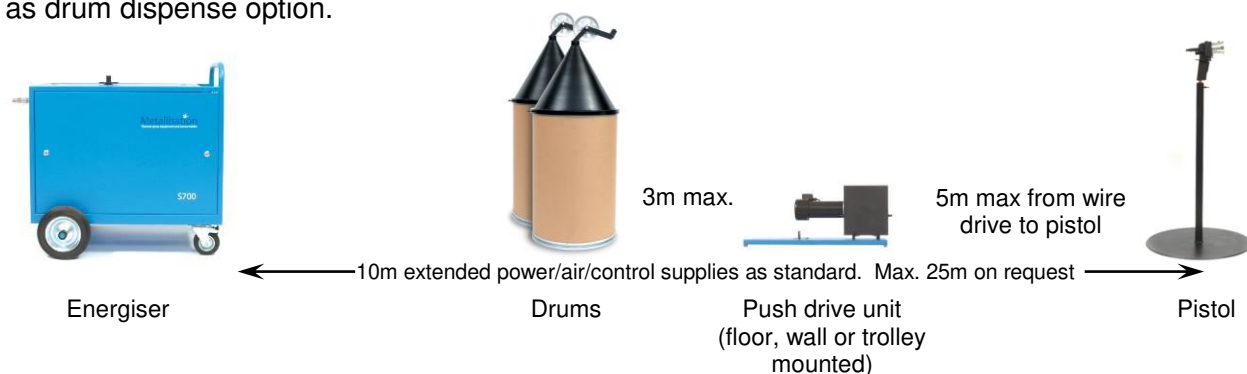
STANDARD CONFIGURATION – PUSH WITH WIRE ON MIG REELS

Most commonly used for on-site anti-corrosion where the handling of drums is not easy



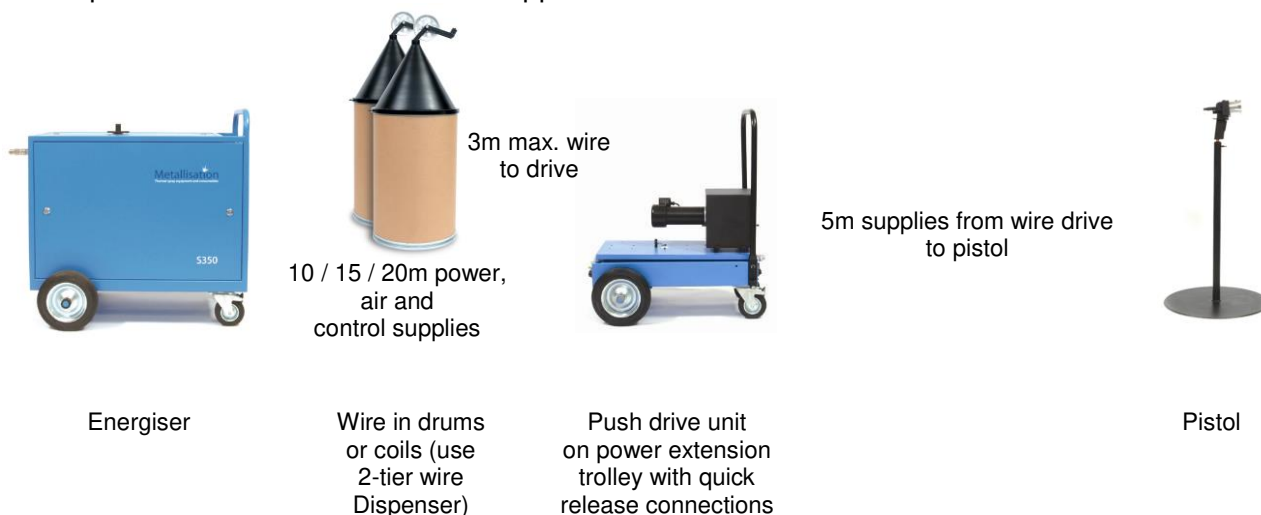
STANDARD CONFIGURATION – PUSH WITH EXTENDED POWER/AIR SUPPLIES

As 2 options above but with longer power / air / control supplies package. Enables the energiser to be located away from the spray area. Maximum distance from drive to pistol remains 5m. Pictured as drum dispense option.



EXTENDED CONFIGURATION – PUSH WITH WIRE IN DRUMS

Most commonly used in on-site applications where it is a benefit to site the energiser remotely from the spray area where access limitations may apply. Drums allow longer spraying times between wire changes. The use of the trolley allows easy movement of the drive unit around the site and local quick release connection of the supplies for maintenance.



EXTENDED CONFIGURATION – PUSH WITH WIRE ON MIG REELS

Most commonly used in on-site applications where it is a benefit to site the energiser remotely from the spray area where access limitations may apply. The use of the trolley allows easy movement of the drive unit around the site and local quick release connection of the supplies for maintenance.



INTRODUCTION

The following specification covers the standard range of ARC701(16)-CL Arcspray systems. For the specific offer, please refer to a detailed quotation and cross-reference the part numbers for each piece of equipment.

This specification includes a range of recently updated energisers. A number of product improvements have been added to the range based on proven design and latest technology. In summary:

- Digital meters are fitted (as on other proven Arc Spray Systems).
- The latest version of PLC is fitted ensuring long future proofing and support.
- New, digital air pressure switches are fitted (as on other proven Arc Spray Systems).
- New air pressure regulators are fitted ensuring long future proofing and support.
- MCB's are fitted to the incoming power supply as additional protection if the correct fusing is not fitted to the electrical supply.

Functionally, the spray system will operate in the same way as before.

The Metallisation Arc701-CL is a unique blend of ability and innovation. It brings together the proven performance of our Arc700 pistol plus the very latest technological advances. For instance, the 700A energiser still offers high spray rates for reduced spraying times over large areas but is now combined with closed loop current control. This enables the operator to set the spray current independent of wire type before starting the job, enabling easier setup and protection of the system from over-current. The control function is now controlled by a simple PLC which ensures improved reliability as less component parts are required. It also makes fault finding simple using a standard multimeter with the I/O for the PLC.

The S700(16)-PLC energiser features sealed electronics for excellent reliability in the harshest of spray environments. All new digital gauges offer both scale and numeric displays. They have high contrast and are easily visible in light or dark conditions even through shaded visors. The energiser has closed loop current control that allows the operator to set a chosen spray current before starting to spray. The system also protects itself from spraying over 500A, regardless of the operator input. The energiser is PLC controlled with a robust, industry standard PLC unit, dramatically reducing the electrical components and increasing reliability. The design also allows for multiple customer-specific packaging options for the wire drive and dispense. In one option, for example, the unit is neatly mounted on the energiser, leaving it free to swivel and follow the operator when spraying. Other options include floor or trolley mounting of the wire drive unit.

The drive unit is very robust, ensuring supreme reliability in the most arduous of site conditions. The lightweight, hand-held pistol incorporates proven Metallisation technology, including a unique, constant geometry (CG) head. This ensures smooth and consistent spray quality and minimal downtime when changing consumable spares.

Various packaging options, including an extended site trolley, allow the energiser to be sited up to 25m from the pistol spraying area. Alternatively, the drive unit can be mounted neatly on the energiser, leaving it free to swivel and follow the operator when spraying.

Safety: The equipment quoted will produce levels of noise, ultra violet light and dust that will require safety measures to be taken by those using the equipment. It may use pressurised gases. Careful consideration should also be given to the positioning of this equipment. It is the responsibility of the user to ensure that all appropriate measures are taken to ensure safe operation in accordance with local requirements. Metallisation will be pleased to advise as appropriate.

BENEFITS

NEW S700(16)-PLC ENERGISERS

- ✦ New for 2016, model (16) Energisers. See Energiser section of this specification for more details.
- ✦ Closed Loop Current Control – easy setup / reliable spray rate / over-current protection.
- ✦ Easy setup – set the spray current before starting to spray.
- ✦ Over-current limit protection – protects all parts of spray system from over-current, regardless of wire type.
- ✦ PLC control for improved reliability and ease of maintenance / fault finding with program supplied on a Micro SD Card in case the PLC needs reprogramming.
- ✦ E-stop integration to link from and / or to production equipment.
- ✦ Remote stop/start linking for control by production equipment.
- ✦ Large 'Site Capable' wheels and rigid handle offers excellent portability on site and in workshop.
- ✦ 700 Amp continuous operation at 100% duty cycle.
- ✦ Easy access energiser panels & external fuse bank for reduced Mean Time to Repair (MTTR).
- ✦ Sealed electrical control circuit - reduces dust ingress for added reliability.
- ✦ Clear digital displays and large controls give ease of operation.
- ✦ Integrated Arc current monitor - Stops pistol and supplies an output signal linked to production equipment if arc current stops i.e. due to wire out.
- ✦ 24v Safety relay circuit for external interlocks, extraction, acoustic, door locks etc.

GENERAL BENEFITS

- ✦ High throughputs of Zinc, Aluminium and Zinc / Aluminium 85/15 – reduces spraying time.
- ✦ 700 amps continuous operation – reduces spraying time.
- ✦ Lightweight pistol - reduces operator fatigue.
- ✦ DC motor drive sealed/lubed for life – greater reliability.
- ✦ Variable wire speed control – gives variable spray rates.
- ✦ Soft start for smooth start-ups - reduces electrical loading on components.
- ✦ Suitable for anticorrosion wires 2.3mm to 3.17mm (1/8").
- ✦ Easy to maintain, less than 3 minutes to change contact tubes and nozzles.
- ✦ Push system for a maximum length from dispenser to pistol of 8m (5m from pusher to pistol).
- ✦ Power and air supplies packages in 5m and 10m lengths as standard.
- ✦ Choice of coating textures.
- ✦ Low running costs as compared with gas systems.
- ✦ Steel reinforced conduits for extended service life.
- ✦ Quick release power, air and control couplings allow quick assembly / disassembly of package.

ARC700 PISTOL

Part No.	Description
ARC700-PISTL	Arcspray700/701 Pistol for 1/8" (3.17mm) anti-corrosion wires
ARC700-PL2.3	Arcspray700/701 Pistol for 2.3mm anti-corrosion wires



The Pistol has been designed to give consistent high throughputs of anti-corrosion materials with high coating quality. It is a lightweight, heavy-duty unit with robust but compact construction.

TECHNICAL OVERVIEW

- For spraying Anti-corrosion coatings on large surface areas in the spray shop and onsite environment.
- Simple to operate.
- CG (constant geometry) head ensuring smooth feed, repeatable wire alignment and no adjustment of contact tubes required.
- Lightweight pistol that reduces the operator fatigue.
- Closed arc for improved spray conditions and coating quality.
- 'Spreader' attachment on pistol gives the option to 'widen' the spray pattern to maximise coverage and help to provide an even coating.
- Different sized contact tubes, nozzle and air cap for different wire sizes.

TECHNICAL DATA

Description	Characteristics
Maximum Current	700 Amps
Weight	1.95 Kgs
Weight – at a held height of 1.2 M	6.3 Kgs – inc Cables and Hoses
Width	102mm
Length	229mm
Height	203mm

TYPICAL PERFORMANCE FIGURES FOR THE ARC700 PISTOL

Material	Wire Diameter	Throughput (kg/hr)	Coverage m ² /kg/100μ
Metallisation Wire 02E Zinc	2.3mm (600A)	62	0.82
	3.17mm (700A)	72	
Metallisation Wire 01E/17E/25E Aluminium & Alloys	2.3mm (700A)	21	2.88
	3.17mm (700A)		
Metallisation Wire 021E Zinc/Aluminium 85/15	2.3mm (500A)	45	1.00
	3.17mm (700A)	62	

Throughput is assumed to be independent of wire diameter. Preferred wire diameter shown in **bold**. All data provided is an approximation and is offered as guidance only as performance can vary depending on application and parameters.

TOOLKIT

Appropriate hand tools are supplied with the Arcspray system along with an operating manual.

SUPPLIES PACKAGE

Part No.	Description
SUP701E(16)-**M	ARC701, S700(16) **Mtr Supplies Package for 1/8" (3.17mm) - Electric Drive Systems
SUP701E(16)-**M23	ARC701, S700(16) **Mtr Supplies Package for 2.3mm - Electric Drive Systems

** 1/8" available in 5, 10 and 20m lengths. 2.3mm available in 5, 10, 15 and 20mm lengths.

SUP-EXT(16)**H	**M High Power Extension Trolley Supplies Package
SUP-AC-EXT(16)**H	**M High Power Extension Trolley Supplies Package for ACD Systems

** Available in 10, 15 and 20m lengths

STANDARD SUPPLIES PACKAGE INCLUDES



Power cables
2 off



Air hose
1 off



Wire conduits
2 off



Control cable
1 off

TECHNICAL OVERVIEW

- 5m, 10m and 20m supplies package available as standard.
- 5m package has all above parts at 5m length. 10m package has 10m power cables, 10m air hose, 10m control cable and 5m wire conduits. 20m package has 20m power cables, 20m air hose, 20m control cable and 5m wire conduits.
- Other length power, air and control packages are available on request.
- Supplied with all fittings appropriate to connect to 700 Pistol and S700(16) Energiser.
- Quick release power, air and control couplings allow quick assembly / disassembly of package.

10M EXTENSION SUPPLIES INCLUDES



Power cables
2 off



Air hose
1 off



Control cable
2 off

TECHNICAL OVERVIEW

- ✦ 10m Power Extension Trolley (PET) supplies package available as standard.
- ✦ Up to 20m available for certain applications (check with Metallisation).
- ✦ Quick release power, air and control couplings allow quick assembly / disassembly of package.

ENERGISER

Part No.	Description
S700(16)-PLC	S700(16) ARC701 Energizer with closed loop current control
S700FV(16)-PLC	S700(16) ARC701 Energizer with closed loop current control (200v-220v Fixed Voltage)
S700(16)-PLC-ACD	S700(16) ARC701 Energizer with closed loop current control for AC drive units
S700FV(16)-PLC-ACD	S700(16) ARC701 Energizer with closed loop current control for AC drive units (200v-220v Fixed Voltage)
PLC-E/STOP-K	Remote operation E-Stop kit for PLC energisers



The S700 Energiser has been specifically designed for those users who wish to spray large areas at high throughputs of anticorrosion materials.

TECHNICAL OVERVIEW

- ✦ Closed Loop Current Control – easy setup / reliable spray rate / over-current protection.
- ✦ PLC control for improved reliability and ease of maintenance / fault finding.
- ✦ 700 amp continuous operation (100% duty cycle).
- ✦ Specifically designed to suit only Arc spraying.
- ✦ Large 'Site Capable' wheels and rigid handle offers portability on site and in workshop.
- ✦ New digital panel meters
 - Easy to read with scale and numerical display.
 - Higher accuracy than traditional gauges.
 - Warning alert status (ammeter turns red if overcurrent).
 - Wide viewing angle with high contrast for ease of viewing inside or out.
 - IP65 rated and Gorilla glass screens.
- ✦ Sealed electrical control circuit - reduces dust ingress for added reliability.
- ✦ Easy access energiser panels & external fuse bank for reduced Mean Time to Repair (MTTR). Shake-proof terminals minimise risk of loose control connections.
- ✦ Switched output voltage control.
- ✦ 220V/380V/415V input supply options available (hard wired).
- ✦ Remote operation E-stop kit allows energiser to be started/stopped remotely via a pendant or interfaced into an automation E-stop circuit. It comes with a plug that can be wired as required.

NEW FOR 2016 – (16) MODEL ENERGISERS

- ✦ Latest version of Siemens Logo PLC.
 - SD card allows easy program updates.
 - RJ45 communications available (see page 14 for more details).
- ✦ New air regulators with 'lock-off' potential.
- ✦ New digital air pressure switches with display for easy setting and diagnostics.
- ✦ New MCB's to provide additional electrical protection (used in-conjunction with customers own supply/fusing).

S700(16)-PLC ENERGISER SPECIFICATION

Description	Characteristics
Input Power Requirements	380/415V 50-60Hz 3 Phase
Fusing Required	55A/Phase (415V input)
Typical Power Consumption*	28 KVA @ 32v DC on Energiser
Duty	0-700 Amps @ 100% Duty Cycle
Output Voltage @ 440V supply voltage	0-50Vdc (nominal) Switched High/ Low & 1 – 5
Air Requirements	1.45m³/min @ 6bar (50cfm @ 90psi)
Weight	282 Kgs
Dimensions (W x L x H)	665mm x 900mm x 913mm

*The KVA is based on a standard supplies package length, note this will increase as the supply length increases.

WIRE DRIVE UNITS

Part No.	Description
ARC701EDRA32	Arcspray701 push electric drive unit for 1/8" (3.17mm) & 3mm wires
ARC701EDRA23	Arcspray701 push electric drive unit for 2.3mm wires
ARC701ACEDRA32	Arcspray701 push AC electric drive unit for 1/8" (3.17mm) & 3mm wires
ARC701ACEDRA23	Arcspray701 push AC electric drive unit for 2.3mm wires



TECHNICAL OVERVIEW

- New, up-rated drive system for improved reliability of wire drive.
- Electric DC Drive Motor, Thyristor Controlled, for smooth wire feed.
- Electric AC Drive Motor, Thyristor Controlled, for smooth wire feed.
- Push mechanism positively drives the wire to the pistol.
- Ease of loading and unloading of wires, using "Quick Fit" couplings on Conduits.
- Simple design for ease of maintenance
- Easily adjustable wire tensioners for a consistent feed of different wire sizes and materials.
- Different sized drive rollers for 2.3 and 3.17mm materials.

WIRE DISPENSE

WIRE DISPENSING CONES (PULLEY)

Part No.	Description
21252	Wire Dispensing Cones – variable position (2 required)
7144	PTFE Wire Conduits (Supplied by the meter)
6274/5	½" Clamp Pads for PTFE Tubing
2006-DSP	Wire Dispenser Support Plate



TECHNICAL OVERVIEW

The Metallisation wire dispensing cone offers the ability to conveniently dispense anti-corrosion wires from production packs (drums). The wire is neatly guided to a dispense point, then over the pulley to give a free passage of wire from the drum to pistol. Benefits include:

- ✔ Suitable for dispensing Zinc, Aluminium and Zinc/Aluminium wire
- ✔ Specifically designed to suit Arcspraying with each drum being individually insulated from each other.
- ✔ Variable position clamp assembly allows the clamp to be rotated to give the smoothest wire transfer path from the drum to the pistol.
- ✔ Drums available in 250 Kg for Zinc, 200kg for Zinc/Aluminium and 60Kg for Aluminium.
- ✔ Needs to be used with a wire drive unit (not included in the wire dispensing cone package) and drive support plate (shown above).

TWO TIER WIRE DISPENSER

Part No.	Description
2006-2T	2-Tier Wire Stand - Without Wire Straighteners
5006A	Wire Straightener (Arc) Pair

TECHNICAL OVERVIEW

- ✔ Suitable for dispensing raw materials that are only available in coil form.
- ✔ Can fit MIG reels to centre core.
- ✔ Includes 6m of conduit to feed to the drive unit and clamp pads.
- ✔ Specifically designed to suit Arcspraying with each coil being individually insulated.
- ✔ Variable brake tension to ensure wire does not uncoil.
- ✔ Designed to ensure a smooth wire feed to the pistol.
- ✔ Rigid construction.
- ✔ Lower tier swings out for ease of loading and unloading of the coils.
- ✔ Castors fitted to the bottom of the dispenser allowing excellent manoeuvrability.
- ✔ Optional wire straightener can be supplied for use with stiff wires (typically 2.3mm engineering wires).



MIG REEL WIRE DISPENSER

Part No.	Description
2006-MIG	Wire Dispenser for MIG Reels



TECHNICAL OVERVIEW

- ✔ Specifically designed to suit Arcspraying with the MIG reels being individually insulated from each other.
- ✔ Brake tension to ensure wire does not uncoil.
- ✔ MIG reel dust cover to ensure more consistent spraying.
- ✔ All common anti-corrosion materials available on MIG reels.
- ✔ Designed to ensure a smooth wire feed to the pistol.

NON POWERED EXTENSION TROLLEY

Part No.	Description
2006-NPET	Non Powered Extension Trolley



TECHNICAL OVERVIEW

- Allows movement of the drive unit and wire dispense around the site independently of the energiser.
- Braked castors.

POWER EXTENSION TROLLEY

Part No.	Description
2006-PETH	High power extension trolley for ARC170/701 systems



TECHNICAL OVERVIEW

- As above but designed to allow the energiser to be sited further away from the spray job, offering greater access to the work area and protecting the energiser from the harsh site environment.
- Quick release power, air and control couplings to allow quick assembly / disassembly of the spraying system.

OPTIONS

CONVERSION KITS

Part No.	Description
ARC701-2.3CK	Arc701 3.17mm (1/8") to 2.3mm Conversion Kit
ARC701-1/8CK	Arc701 2.3mm to 3.17mm (1/8") Conversion Kit

TECHNICAL OVERVIEW

- Conversion kits include all required drive rollers, nozzle, aircap, contact tubes and wire conduits to convert the system from 1 wire size to the other.

REMOTE OPERATION AND PENDANTS

Part No.	Description
PLC-REMOTE	Remote operation plug & cable for PLC energisers (E-Stop kit reqd if not fitted.)
PLC-REMOTE-K	Remote operation plug & cable for PLC energisers + E-Stop kit
PLC-PENDANT	Remote operation pendant for PLC energisers (E-Stop kit reqd if not fitted)
PLC-PENDANT-K	Remote operation pendant for PLC energisers + E-Stop kit



Also comes with 10m control cable to connect to energiser (can be longer on request).

TECHNICAL OVERVIEW

- The 'REMOTE' items consist of a 10m cable and pre-wired plug to connect to the energiser. The other end is free to allow connection to customer automation/robot etc. Feedback of when the system is spraying is not given with this setup.
- The 'PENDANT' consist of a remote operation pendant to start/stop the system and also have an E-stop button for safe operation
- Allows remote operation of the system for when pistol is mounted to a robot or manipulator.
- Connects into energiser in a dedicated socket on the rear of the energiser. If remote connection is made, the pistol cannot be operated from the pistol buttons.
- The 'PENDANT' consists of a remote operation pendant to start/stop the system and also has an E-stop button for safe operation.
- Allows remote operation of the system for when pistol is mounted to a robot or manipulator.
- Connects into energiser in a dedicated socket on the rear of the energiser. If remote connection is made, the pistol cannot be operated from the pistol buttons.

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