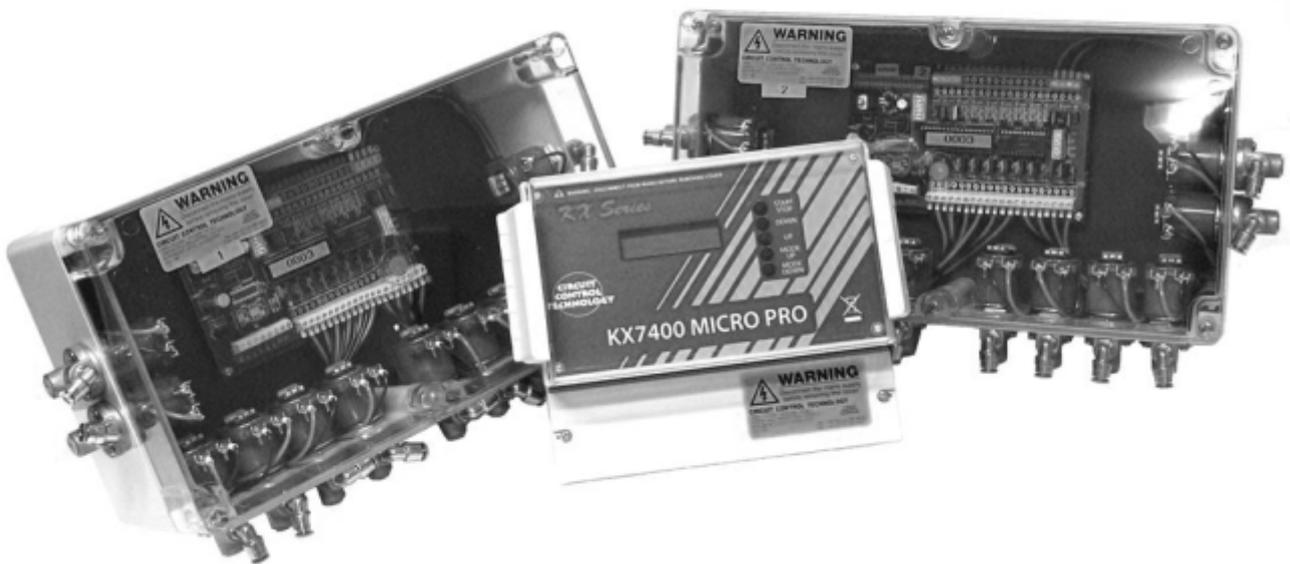




Product Data Sheet KX7400-V2

dust filter controls

MASTER CONTROLLER & DRONE



SYSTEM OVERVIEW

- *The **KX** range of dust extraction equipment is the most recent addition to our product range and we believe will set the standard by which all other systems are judged. Utilising the very latest in Micro-Processor technology, the **KX7400-V2 Series Master Controller** offers a unique range of features which not only offer greater reliability, but also, unparalleled ease of use, and a high level of system flexibility and tamper-proof system operation.*
- *The **KX** range is aimed primarily at airflow damped dust extraction systems and is designed to address the specific needs of these types of systems. The **KX7400-V2 Master Controller** itself, takes care of all aspects of system control. Using just five push buttons and the high resolution LCD Display, all aspects of system operation can be easily set up for optimal system performance. A tamper-proof version of the Master Controller is available.*

Circuit Control Technology

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 e-mail: sales@dustfiltercontrols.co.uk

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Drone specifications	17&18
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Features

ADVANCED MICRO-PROCESSOR CONTROL.

- Operating at over a million instructions per second the onboard micro-processor provides ease of use and a level of control which was virtually impossible with old plc or Cmos systems.

MODULAR SYSTEM DESIGN

- The KX range is totally modular and allows the Construction of Large or small scale systems simply by installing additional KX series drone units. Its high speed serial bus system allows the controller to be installed in any convenient location and remotely from the slave units.

ONBOARD EPROM MEMORY

- Ensures system settings are retained during power failure or disconnection of the Master Controller

EASY TO USE 5 BUTTON CONTROL

- **MODE UP:** Move forward through options
- **MODE DOWN:** Move backwards through options
- **START/STOP:** Run or halt the system
- **UP:** Increases values selected by mode
- **DOWN:** Decreases values selected by mode

HIGH RESOLUTION LCD DISPLAY

- Easily view and adjust system setup.
- Displays pressure readings in real time.
- Monitor system status

REAL TIME SYSTEM MONITORING

- Whilst the system is running, Differential Pressure and system status can be monitored in real time, this includes system errors which will be displayed on the LCD screen and activate an audible warning. (DP sensor and external sounder optional)
The Master Controller is also programmed to allow the addition of optional Flow Sensors and a System Pressure sensor, these enhance the operating system still further by allowing immediate warnings for either solenoid malfunction or excessively low system air pressure. This helps ensure that no system ailments can go un-noticed and that filters remain perfectly cleaned throughout.

SPECIALLY ENCODED SERIAL BUS

- The high speed serial bus to the drone units is specially encoded to ensure optimal performance and glitch free operation.

DAMPER HANDLING

- A special DAMPERS setting on the Master Controller allows the use of spring return or power return dampers. Damper operation is then handled by the controller.
For installations not requiring dampers, this option may be turned off.

BUILT-IN OUTPUT AMPLIFIERS AND POWER SUPPLY

- The unit has it's own internal power supply. Power output to solenoid valves is provided directly from the controller using the internal power amplifiers .

Features - contd.

HIGH/LOW PRESSURE ALARMS

- The KX7400-V2 has two relay outputs. These are activated when the differential pressure in the system reaches the user defined settings for a high alarm or low alarm situation.
- The relay outputs may be used to trigger any amount of external events and allow the system malfunction to be handled immediately and effectively. The dual relay system means that high and low pressure events may be handled differently and trigger a separate chain of events to warn of, and handle the situation.
- The units LCD display will carry a warning message if high or low pressure alarm levels are reached.

SEPARATE CLEANING CYCLE FOR SYSTEM FAN STOP

- A separately programmable cleaning cycle is provided for optimum filter performance. This operates whilst the main system fan is not running and can be set to operate for a set number of cycles. It can also be disabled by setting the number of cycles to 0.

4-20 MILLIAMP OUTPUT

- The unit features a 4-20mA output which may be used to send pressure information to other devices or system controllers. This feature enables the KX7400-V2 to communicate with any device that will accept this type of input and allow integration into virtually any application.



dust filter controls

Technical Specifications KX7400-G10

CONTROLLER:	Part Number KX7400-G10-V2.
INPUT SUPPLY:	24VDC \pm 10%.
INPUT FUSE:	F3 Axial 2 Amp (T) Time Lag.
INPUT CONNECTIONS:	5-Way 1.5mm 16 Amp side entry insulated terminal block which is marked: AC (power), 230, 115, Neut.
MAINS FAILURE:	In the event of mains failure, the unit will operate to specification as soon as the voltage level comes within the above limits.
OUTPUT VOLTAGE:	24V DC, regulation as input.
OUTPUT LOAD PER OUTLET:	36W continuous, 44W pulsed into solenoid valves.
BUS CONNECTIONS:	12 way 1.5mm 16 Amp side entry insulated terminal block which is marked: Bus Connector
OUTPUT LOAD PROTECTION:	2 Amp Axial (T) Time Lag fuse fitted on the board will cut off the supply to the outputs without damaging the board if a short circuit occurs (FUSE2).
24V DC CONNECTIONS:	A 2way 1.5mm 16 Amp side entry insulated terminal block marked: + - 24 V DC OUT
START UP SEQUENCE:	The unit is arranged so that it will always start at output 1.
PRESSURE SCALE:	0 - 700mmWG.
CONSTRUCTION:	Solid state microprocessor components mounted onto a double sided glass fibre P.C.B. with component mask.
INDICATION:	1-60 (or 200) LED's will flash as each output is energised in sequence.
AMBIENT TEMPERATURE AT BOARD SURFACE:	0 to +45 deg.C.
STORAGE TEMPERATURE:	-10 to +60 deg.C.

Technical Specifications KX7400-G10 - contd.

VIBRATION SPEC:

Not greater than BEAMA Group 2.

CONDUCTING MATERIALS:

Standard P.C.B's can be supplied with their surfaces coated with a layer of Parylene C, a material that is to MOD standard 59-47/4, and MIL-1-460C. This treatment reduces the risk of damage through moisture.

IDENTIFICATION:

Each P.C.B will be marked with it's own serial number together with it's KX part number.

MICRO-PRO SEQUENCER:

Hinge opening Polycarbonate box with clear LCD window.
Lower panel with 2 retaining screws houses terminals.
Size 250 x 160 x 90mm. Part number KX7400-V2

REVERSE JET DRONE:

A polycarbonate box with clear lid, PCB plate mounted, with pilot solenoid valves fitted into side wall, coils inside wired to PCB.
Size: 250 x 160 x 90mm. Part number ([specify between 1 -18] W) KX7403-RJ-E3-SE.

ENCLOSURE PROTECTION:

Dust and weatherproof to the International Protection Standard IP65.

ORDERING INFORMATION:

Order as a KX7400-G10-V2 Micro-Pro-Sequencer with a — qty of drones with or without DP sensors.

CCT reserve the right to change product design and specifications at any time and without prior notification.



dust filter controls

Technical Specifications KX7400-G15

CONTROLLER:	Part Number KX7400-G15-V2.
INPUT SUPPLY:	110 - 240 V +10% -15% @ 50/60HZ.
INPUT FUSES:	Fuse 2: 2 Amp 110 V HBC 20mm Fuse 3: 1 Amp 240 V HBC 20mm .
VALVE OUTPUT FUSE:	Fuse 1: 2 Amp 24 V (T) Time Lag.
INPUT CONNECTIONS:	5-Way 1.5mm 16 Amp side entry insulated terminal block which is marked: AC (power), 240, 110, Neut.
MAINS FAILURE:	In the event of mains failure, the unit will operate to specification as soon as the voltage level comes within the above limits.
OUTPUT VOLTAGE:	24V DC, regulated.
OUTPUT LOAD PER OUTLET:	36W continuous, 44W pulsed into solenoid valves.
BUS CONNECTIONS:	12 way 1.5mm 16 Amp side entry insulated terminal block which is marked: Bus Connector
OUTPUT LOAD PROTECTION:	2 Amp & 1 Amp HBC 20mm fuses fitted on the board will cut off the supply to the outputs without damaging the board if a short circuit occurs (FUSE2, FUSE3).
24V DC CONNECTIONS:	A 2way 1.5mm 16 Amp side entry insulated terminal block marked: + - 24 V DC OUT
START UP SEQUENCE:	The unit is arranged so that it will always start at output 1.
PRESSURE SCALE:	0 - 700mmWG.
CONSTRUCTION:	Solid state microprocessor components mounted onto a double sided glass fibre P.C.B. with component mask.
INDICATION:	1-60 (or 200) LED's will flash as each output is energised in sequence.
AMBIENT TEMPERATURE AT BOARD SURFACE:	0 to +45 deg.C.
STORAGE TEMPERATURE:	-10 to +60 deg.C.

Technical Specifications KX7400-G15 - contd.

VIBRATION SPEC:

Not greater than BEAMA Group 2.

CONDUCTING
MATERIALS:

Standard P.C.B's can be supplied with their surfaces coated with a layer of Parylene C, a material that is to MOD standard 59-47/4, and MIL-1-460C. This treatment reduces the risk of damage through moisture.

IDENTIFICATION:

Each P.C.B will be marked with it's own serial number together with it's KX part number.

MICRO-PRO
SEQUENCER:

Hinge opening Polycarbonate box with clear LCD window.
Lower panel with 2 retaining screws houses terminals.
Size 250 x 160 x 90mm. Part number KX7400-V2

REVERSE JET DRONE:

A polycarbonate box with clear lid, PCB plate mounted, with pilot solenoid valves fitted into side wall, coils inside wired to PCB.
Size: 250 x 160 x 90mm. Part number ([specify between 1 -18] W) KX7403-RJ-E3-SE.

ENCLOSURE
PROTECTION:

Dust and weatherproof to the International Protection Standard IP65.

ORDERING
INFORMATION:

Order as a KX7400-G15-V2 Micro-Pro-Sequencer with a — qty of drones with or without DP sensors.

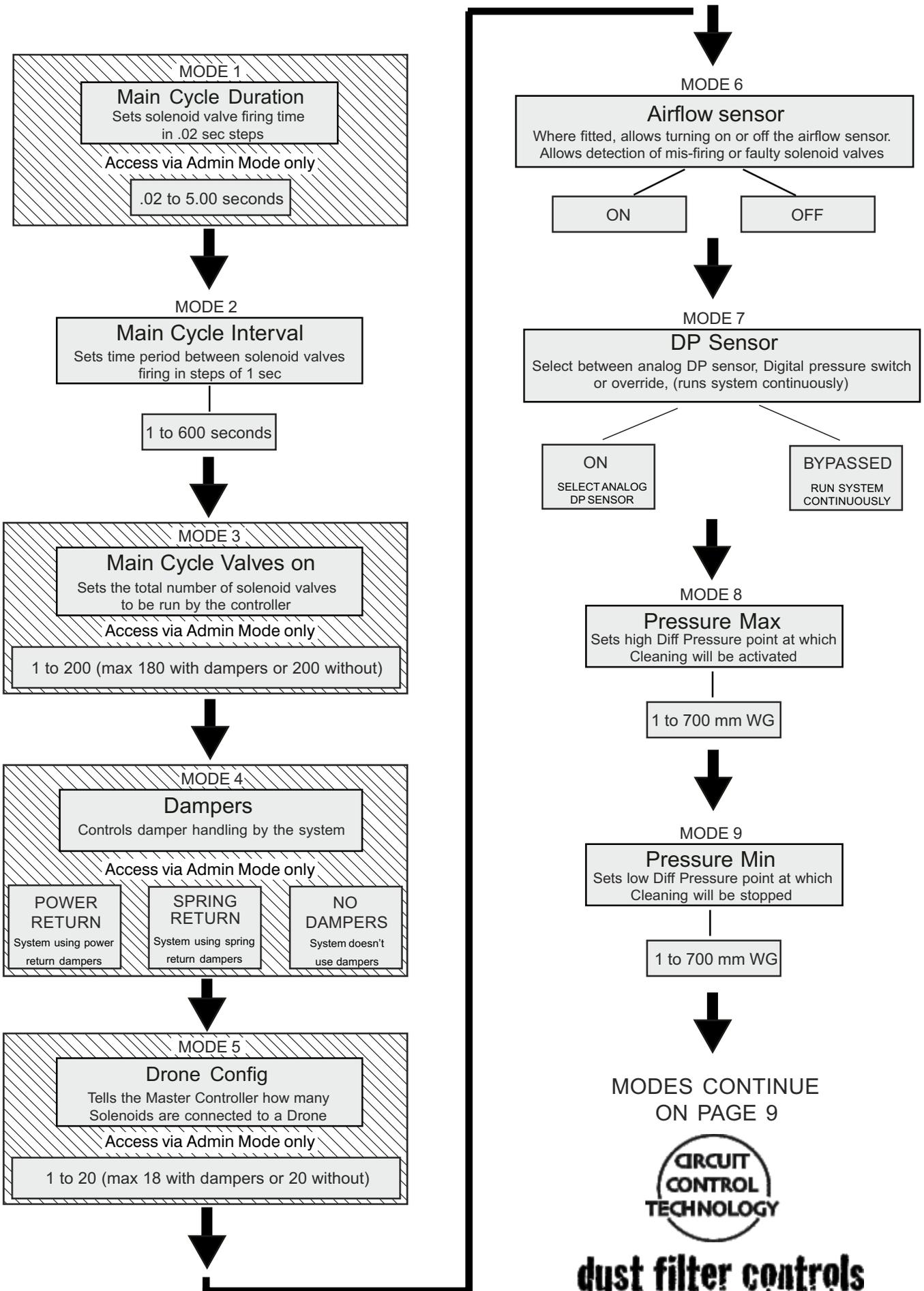
CCT reserve the right to change product design and specifications at any time and without prior notification.



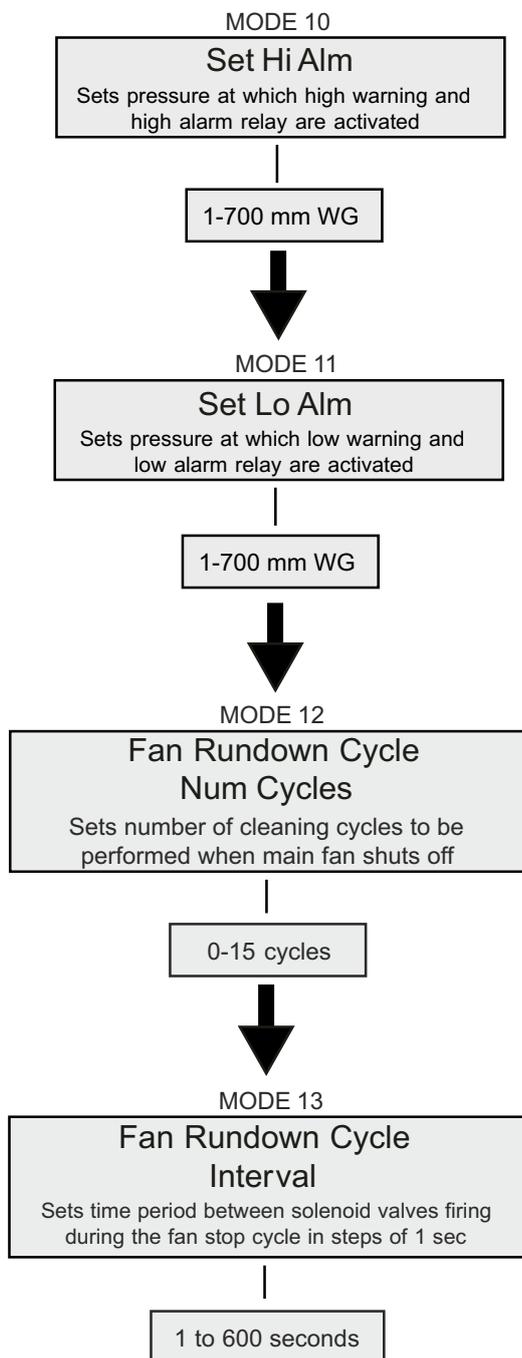
dust filter controls

Programmable features

The following is a flow chart of the programmable settings available on the KX7400-V2 Master Controller. The options available in each mode are explained in an easy to follow format.



Programmable features - contd.



IMPORTANT NOTES

- A) The total number of valves on the drones fired in sequence is governed by the number to be ran by the controller. For example, if each drone had 10 solenoid valves and there were 4 drones (giving a total of 40 solenoid valves), but only 38 valves is set to run by the controller; drones 1-3 will fire all 10 of its valves (30) and the last drone in sequence will fire the remaining 8 valves.

This will be the case for any number of valves to be fired.

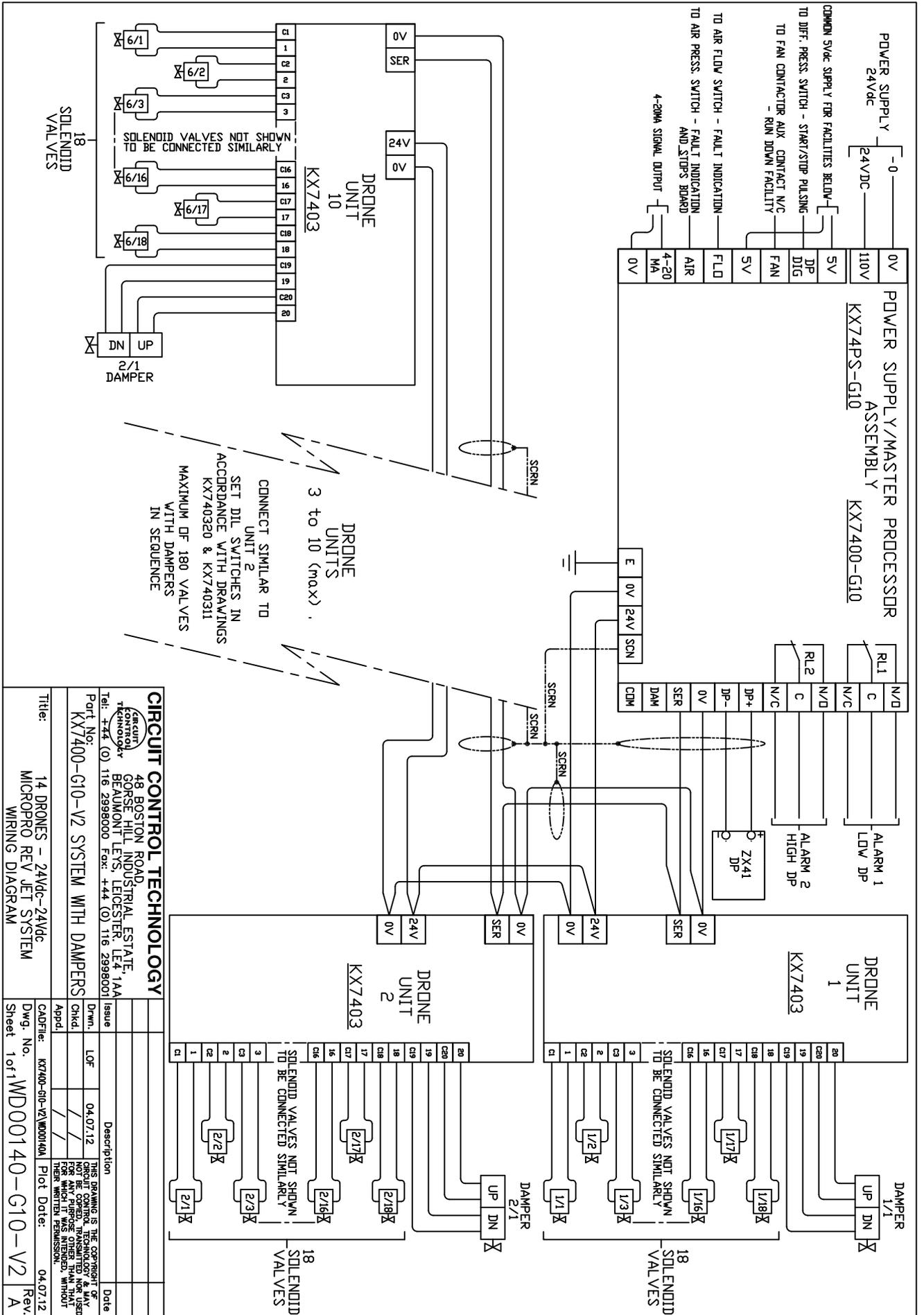
TECHNICAL SUPPORT

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Fax: +44 (0) 116 2998001



dust filter controls

G10 Wiring Diagram - With Dampers



CIRCUIT CONTROL TECHNOLOGY

48 BOSTON ROAD
GORSHTILL INDUSTRIAL ESTATE
LEICESTER, LE4 1AA
Tel: +44 (0) 116 2998000 Fax: +44 (0) 116 2998001

Part No: KX7400-G10-V2 SYSTEM WITH DAMPERS

Issue: 04.07.12

LOF: /

Chkd: /

Appd: /

CADFile: KX7400-G10-V2.WD00140A Plot Date: 04.07.12

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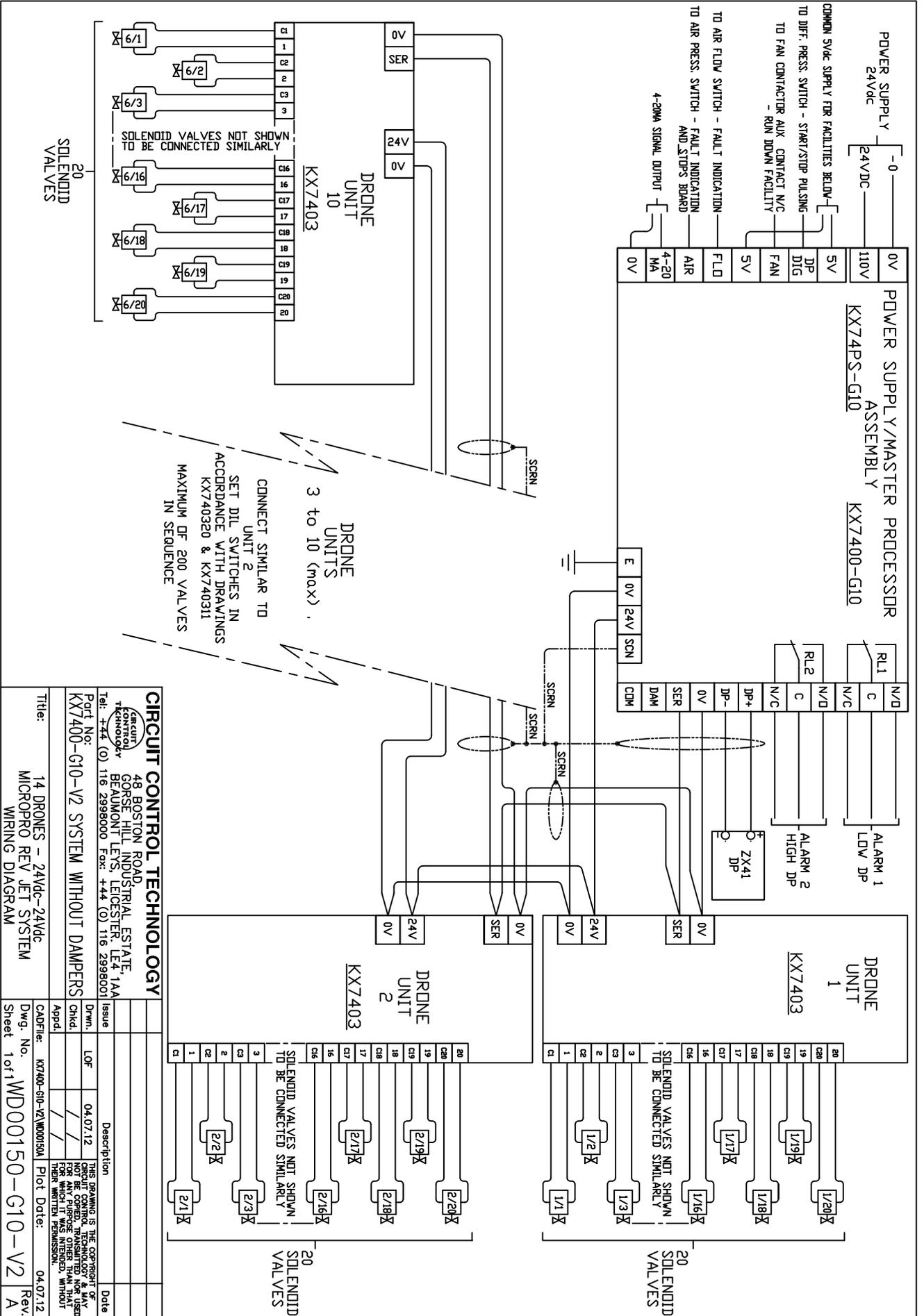
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Dwg. No. WD00140-G10-V2

Sheet 1 of 1

Rev. A

G10 Wiring Diagram - Without Dampers

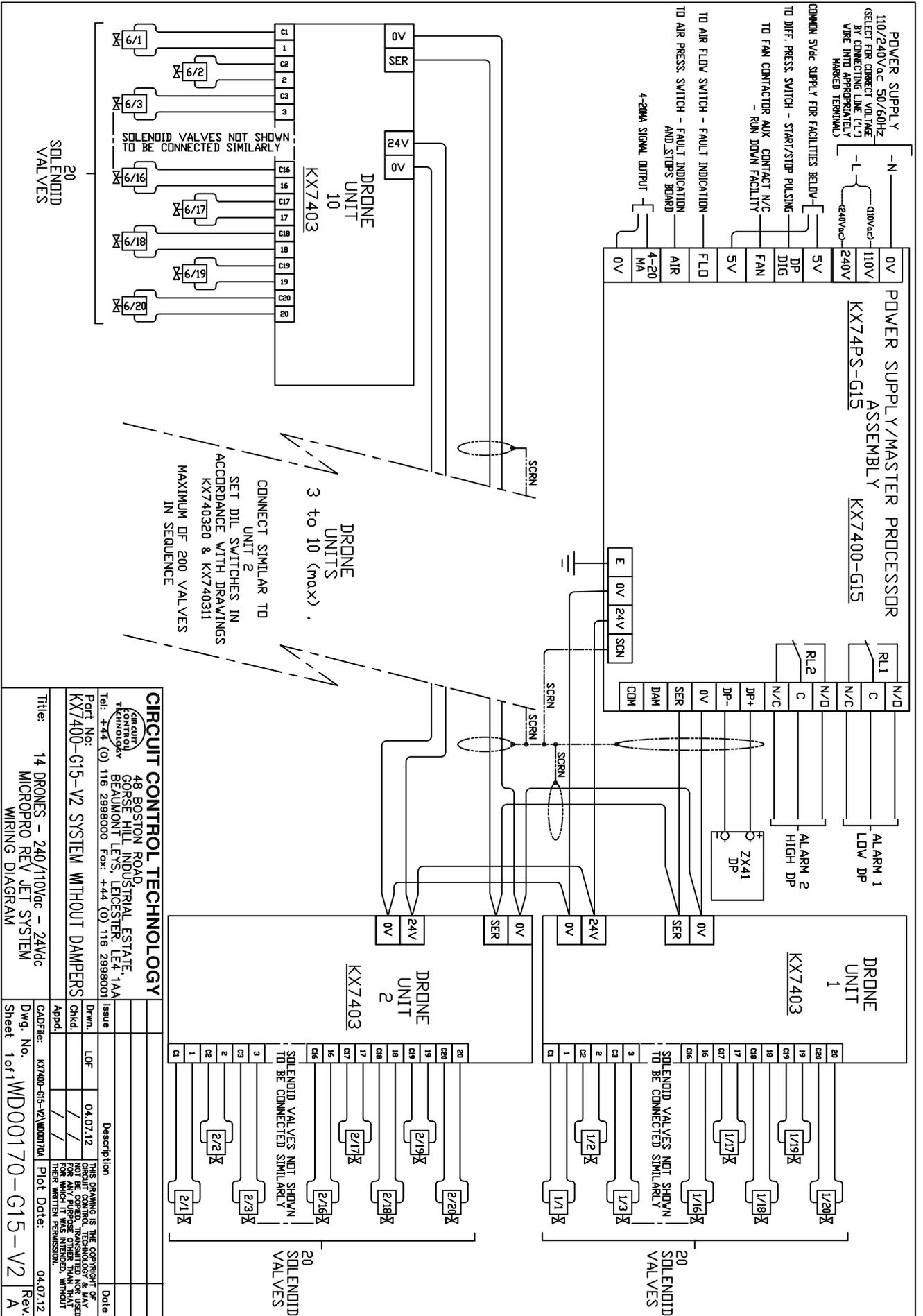


CIRCUIT CONTROL TECHNOLOGY

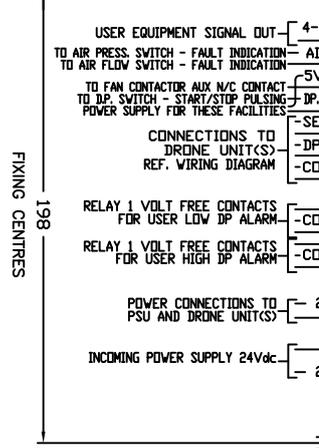
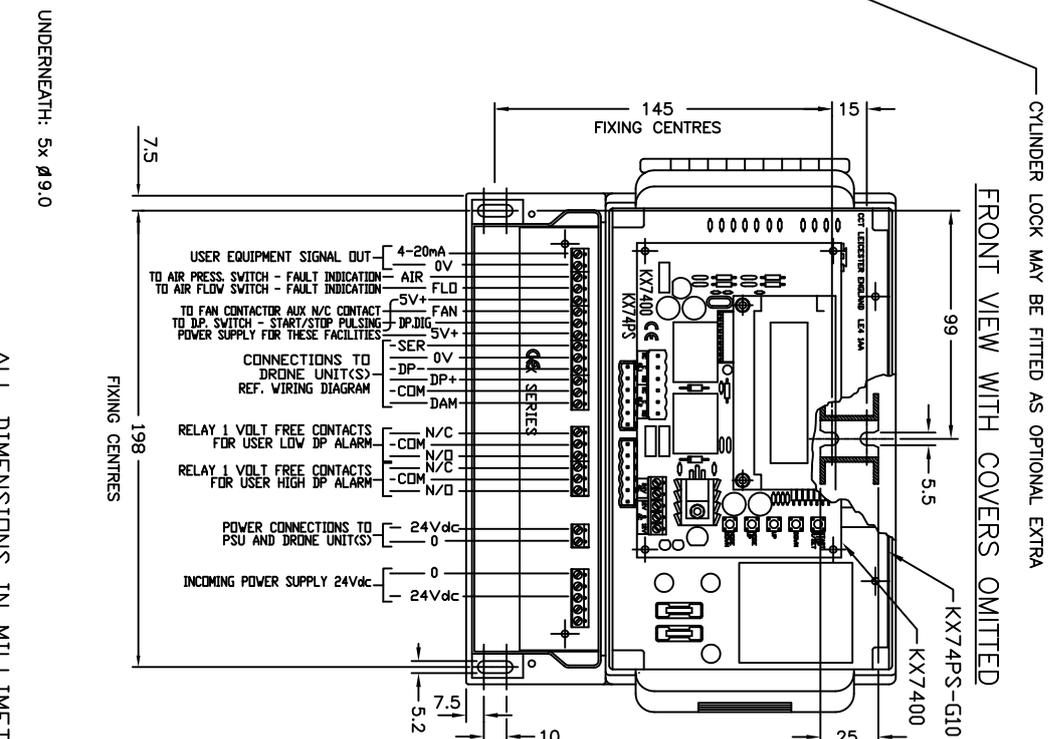
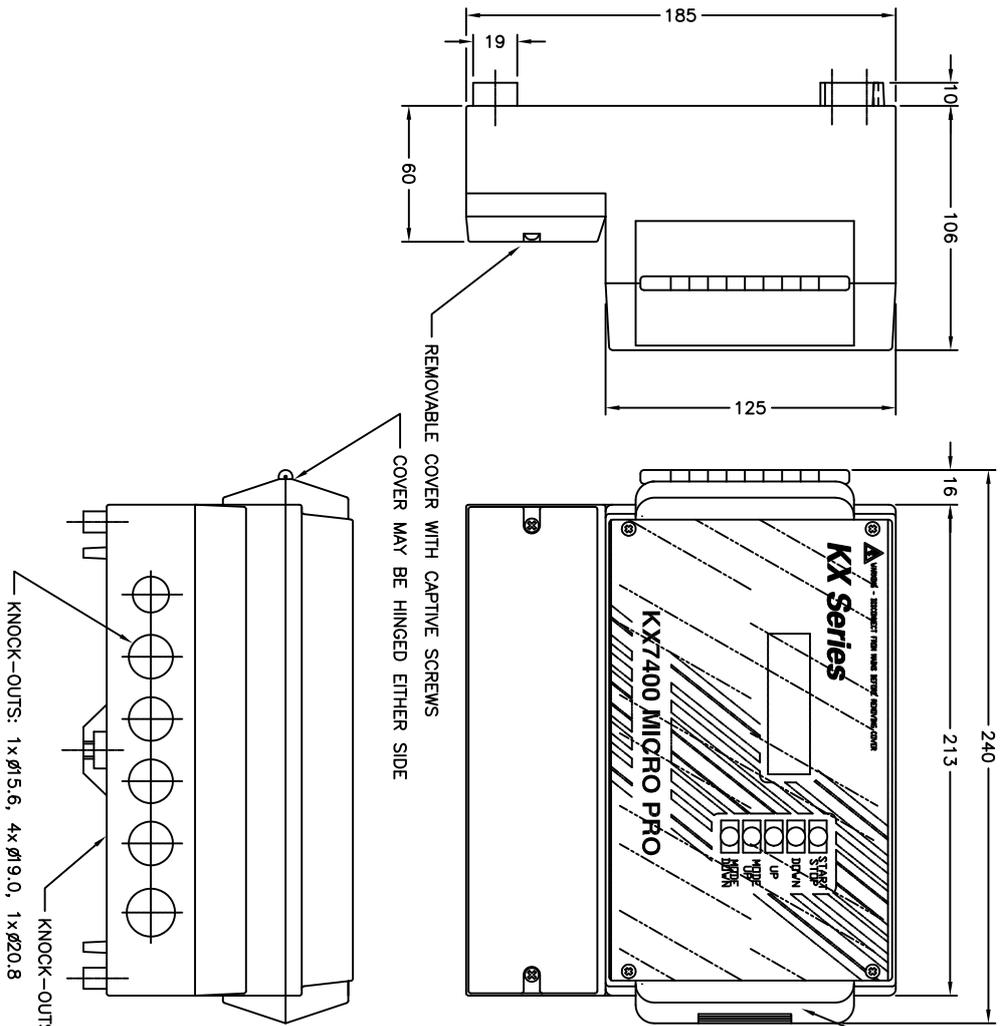
48 BOSTON ROAD
GORSE HILL INDUSTRIAL ESTATE
LEA 11A
BEADON TUNNERS, LEICESTER, LE4 1AA
Tel: +44 (0) 116 2998000 Fax: +44 (0) 116 2998001

Part No:	KX7400-G10-V2 SYSTEM WITHOUT DAMPERS
Title:	14 DRONES - 24Vdc-24Vdc MICROPRO REV JET SYSTEM WIRING DIAGRAM
Dwg. No.:	WD00150-G10-V2
Sheet:	1 of 1
Date:	04.07.12
Appd.:	
CADFile:	KX7400-G10-V2.WD00150A
Plot Date:	04.07.12
Rev.:	A

G15 Wiring Diagram - Without Dampers



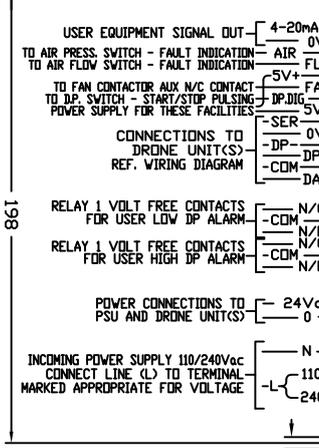
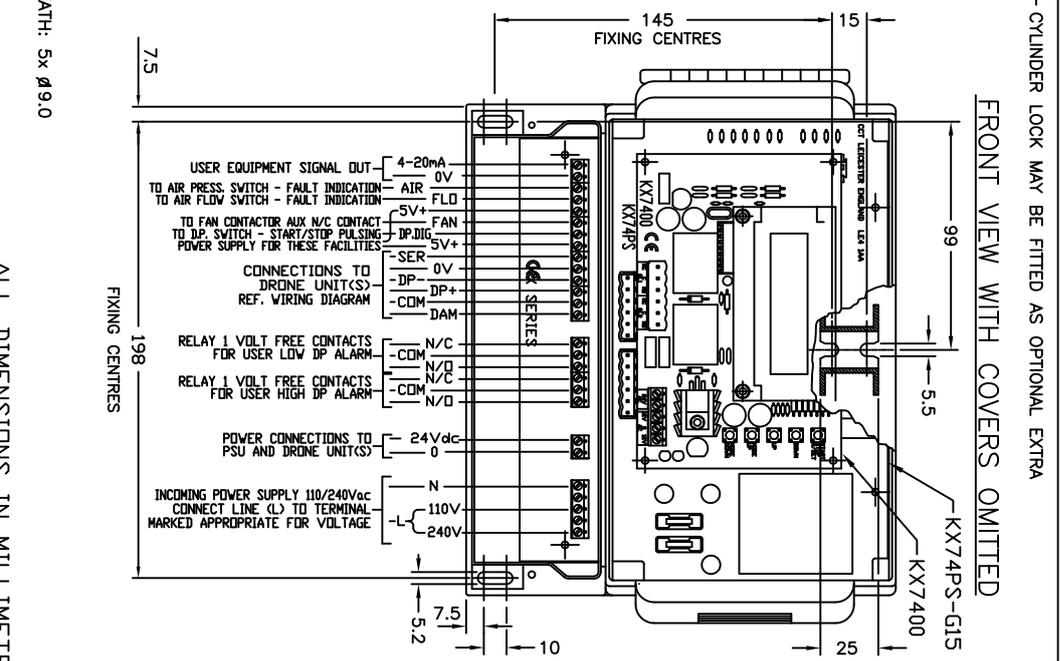
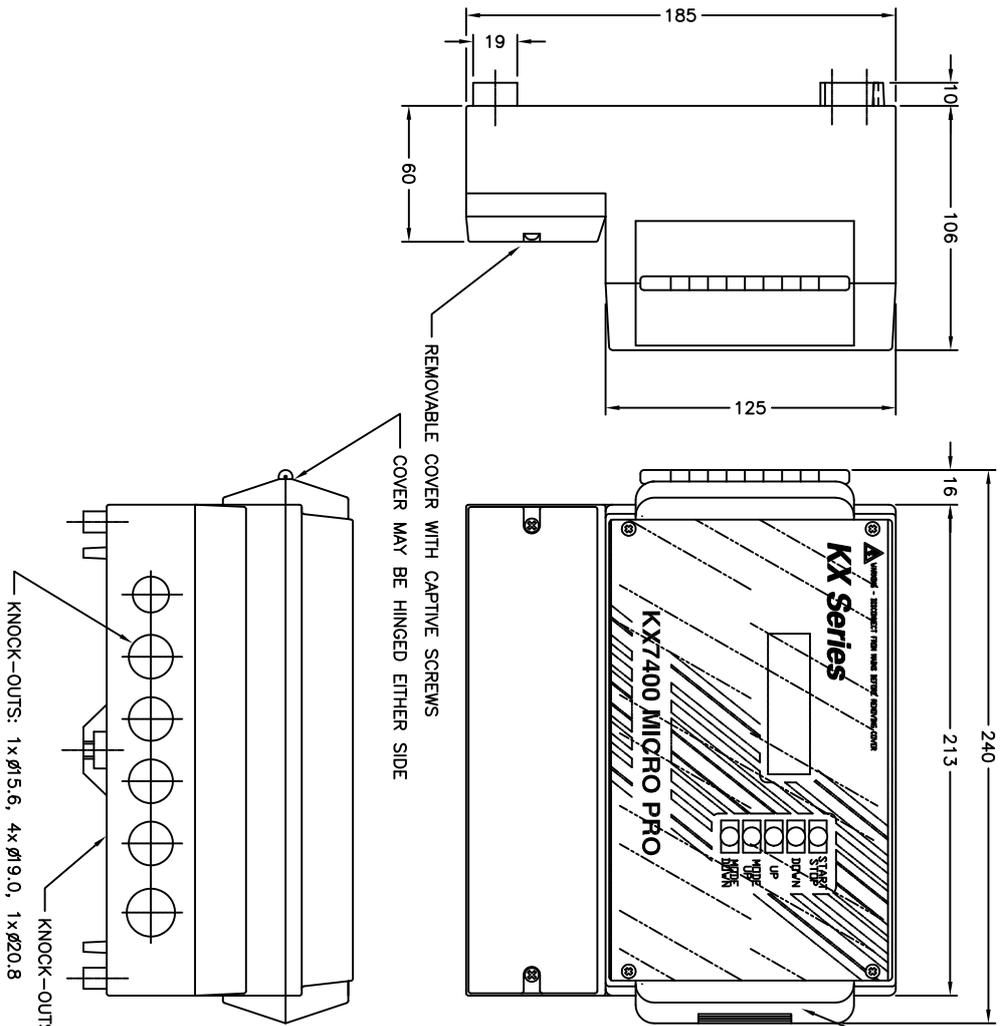
G10 Master Controller Diagram



ALL DIMENSIONS IN MILLIMETRES

Circuit Control Technology 48 BOSTON ROAD GORSE HILL INDUSTRIAL ESTATE, BEAUMONT LETS, LEICESTER, LE4 1AA Tel: +44 (0) 116 2996000 Fax: +44 (0) 116 2996001	
Part No:	KX7400-G10-V2/EB
Title:	24Vdc POWER SUPPLY/PROCESSOR ASSY MICROPRO BASE ASSY GENERAL ARRANGEMENT
Issue	
Drawn:	LOF
Chkd:	
Appd:	
CADFile:	KX07400-G10-V2A
Plot Date:	04.01.12
Date	
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Dwg. No.	KX74001-G10-V2
Sheet	of 1
Rev.	A

G15 Master Controller Diagram



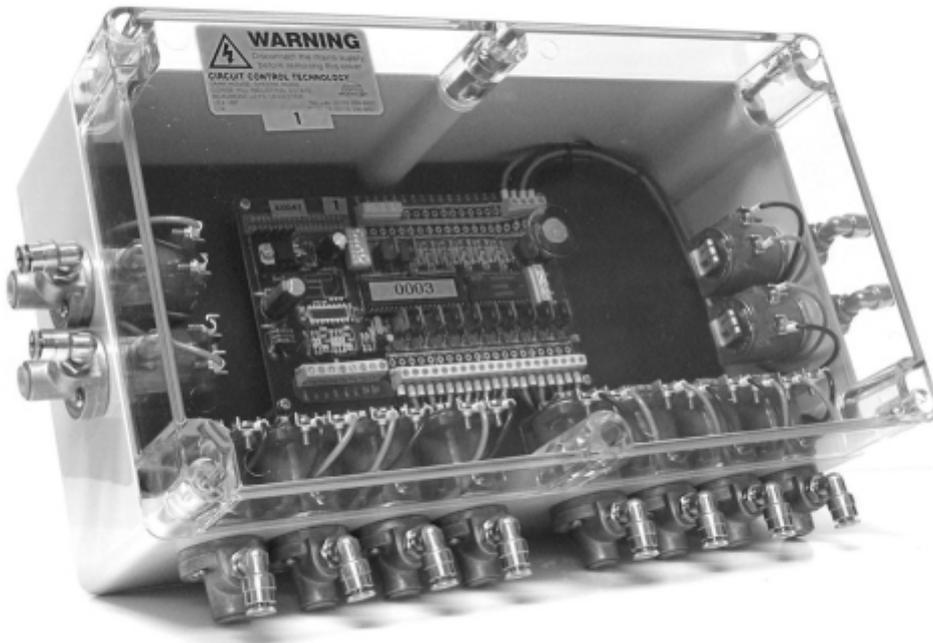
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Circuit Control Technology 48 BOSTON ROAD GORSE HILL INDUSTRIAL ESTATE, BEAUMONT LETS, LEICESTER, LE4 1AA Tel: +44 (0) 116 2996000 Fax: +44 (0) 116 2996001	
Part No:	KX7400-G15-V2/EB
Title:	240/110Vac POWER SUPPLY/PROCESSOR MICROPRO - BASE ASSY GENERAL ARRANGEMENT
Issue	
Drawn:	LOF
Chkd:	
Appd:	
Date:	04.07.12
Plot Date:	04.01.12
Sheet	of
Rev.	A



dust filter controls

Product Data Sheet KX Series DRONE UNIT



O V E R V I E W

- The KX 7400 Series Drone Unit is very much integral to the outstanding versatility of the KX series of Filter Control systems. This unit is the latest in our series of Drones and features the same advanced micro-processor as the master controller, this allows the unit to have many possible configurations and operate “intelligently” within the system. The Drones function is to respond to commands sent by the Master Controller and handle the final out-putting to the valve solenoids and dampers (where used). The Drone units are connected to the Master Controller via our specially encoded serial bus, this high speed communication system ensures glitch free operation.
- The most compelling reason for using the Drone system is installation flexibility, The Master Controller has to be installed to allow easy and convenient user access but the Drones can be installed completely remotely and anywhere they are required. In an effort to cater for all sizes of system, each Drone is configurable to output to 6,12,18 or 20 solenoids, so using up to the maximum of ten drones anything from 1 to 200 valve systems are possible.

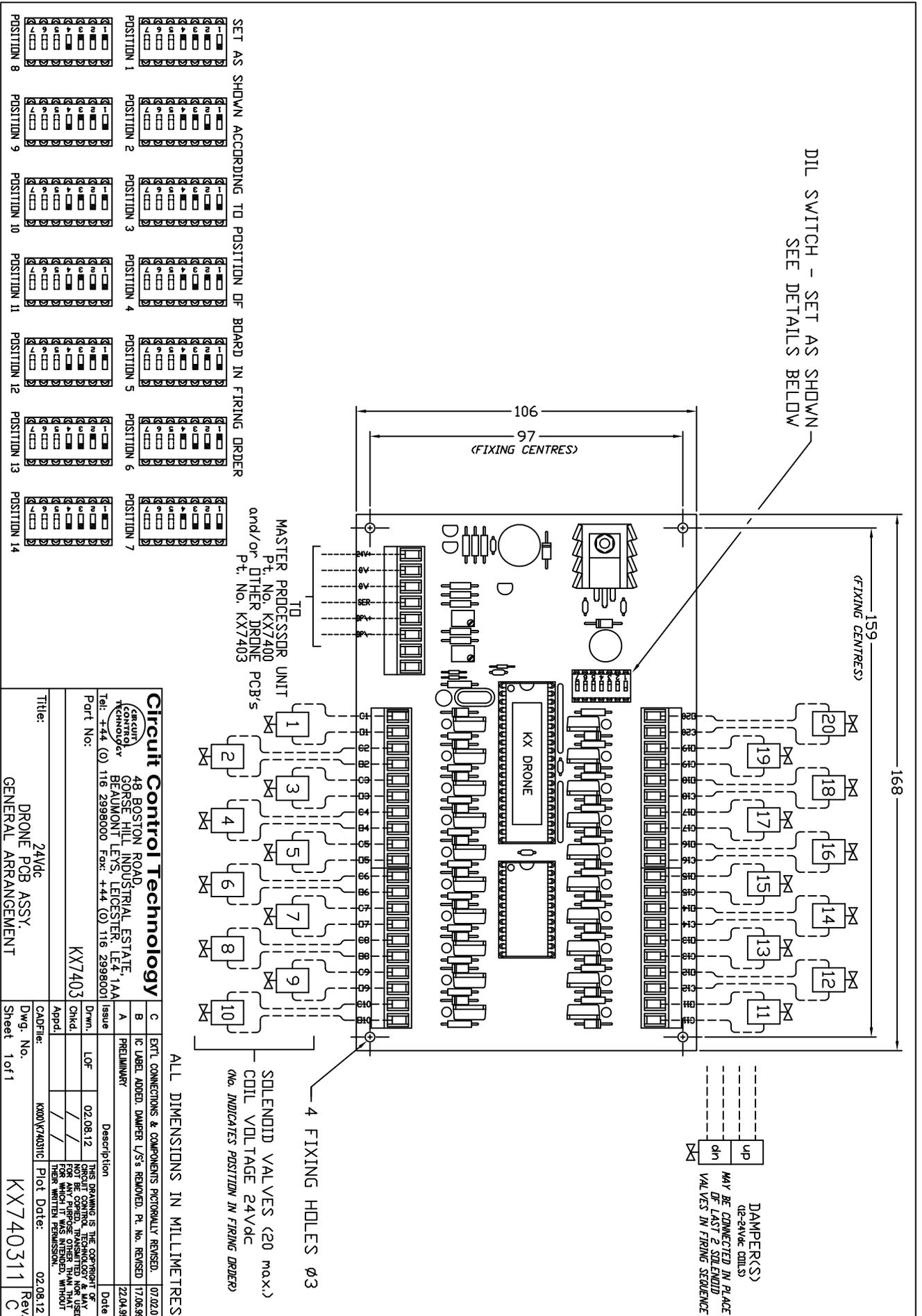
Technical Specifications - Without Differential Pressure Control

DRONE UNIT:	Part Number KX7403 (1 - 20way).
INPUT SUPPLY:	24V DC from KX7400 Master Controller.
INPUT CONNECTIONS:	8-Way 1.5mm 16 Amp side entry insulated terminal block which is marked: AC (power), 230, 115, Neut, Earth.
MAINS FAILURE:	In the event of mains failure, the unit will operate to specification as soon as the voltage level comes within the above limits.
OUTPUT VOLTAGE:	24V DC, regulation as input.
OUTPUT LOAD PER OUTLET:	36W continuous, 44W pulsed into solenoid valves.
OUTPUT CONNECTIONS:	1.5mm 16 Amp side entry insulated terminal block
CONSTRUCTION:	Solid state microprocessor components mounted onto a double sided glass fibre P.C.B. with component mask.
INDICATION:	LED's will flash as each output is energised in sequence.
AMBIENT TEMPERATURE AT BOARD SURFACE:	0 to +45 deg.C.
STORAGE TEMPERATURE:	-0 to +60 deg.C.
VIBRATION SPEC:	Not greater than BEAMA Group 2.
CONDUCTING MATERIALS:	Standard P.C.B's can be supplied with their surfaces coated with a layer of Parylene C, a material that is to MOD standard 59-47/4, and MIL-1-460C. This treatment reduces the risk of damage through moisture.
IDENTIFICATION:	Each P.C.B will be marked with it's own serial number together with it's KX part number.
REVERSE JET DRONE:	A polycarbonate box with clear lid, PCB plate mounted, with pilot solenoid valves fitted into side wall, coils inside wired to PCB. Size: 250 x 160 x 90mm. Part number KX7403-R3-E3
ENCLOSURE PROTECTION:	Dust and weatherproof to the International Protection Standard IP65.
ORDERING INFORMATION:	Order as a KX7403 Drone Unit(s)

Technical Specifications - With Differential Pressure Control

DRONE UNIT:	Part Number KX7403 (1 - 20way).
INPUT SUPPLY:	24V DC from KX7400 Master Controller.
INPUT CONNECTIONS:	8-Way 1.5mm 16 Amp side entry insulated terminal block which is marked: AC (power), 230, 115, Neut, Earth.
MAINS FAILURE:	In the event of mains failure, the unit will operate to specification as soon as the voltage level comes within the above limits.
OUTPUT VOLTAGE:	24V DC, regulation as input.
OUTPUT LOAD PER OUTLET:	36W continuous, 44W pulsed into solenoid valves.
OUTPUT CONNECTIONS:	1.5mm 16 Amp side entry insulated terminal block
CONSTRUCTION:	Solid state microprocessor components mounted onto a double sided glass fibre P.C.B. with component mask.
INDICATION:	LED's will flash as each output is energised in sequence.
AMBIENT TEMPERATURE AT BOARD SURFACE:	0 to +45 deg.C.
STORAGE TEMPERATURE:	-10 to +60 deg.C.
VIBRATION SPEC:	Not greater than BEAMA Group 2.
CONDUCTING MATERIALS:	Standard P.C.B's can be supplied with their surfaces coated with a layer of Parylene C, a material that is to MOD standard 59-47/4, and MIL-1-460C. This treatment reduces the risk of damage through moisture.
IDENTIFICATION:	Each P.C.B will be marked with it's own serial number together with it's KX part number.
REVERSE JET DRONE:	A polycarbonate box with clear lid, PCB plate mounted, with pilot solenoid valves fitted into side wall, coils inside wired to PCB. Size: 250 x 160 x 90mm. Part number KX7403-R3-E3
ENCLOSURE PROTECTION:	Dust and weatherproof to the International Protection Standard IP65.
ORDERING INFORMATION:	Order as a KX7403 Drone Unit(s) complete with ZX41/28 (specification and product manual for ZX41 available on request)

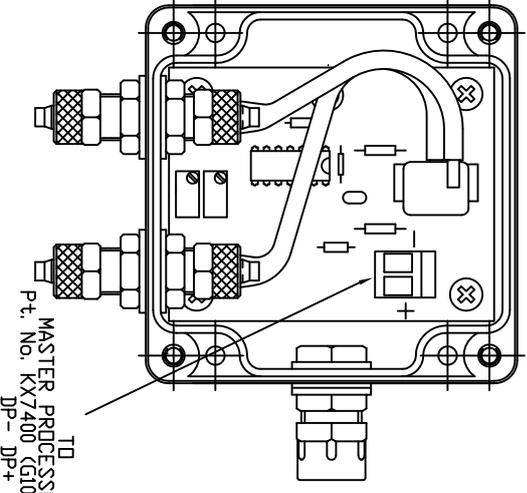
Drone PCB General Arrangement



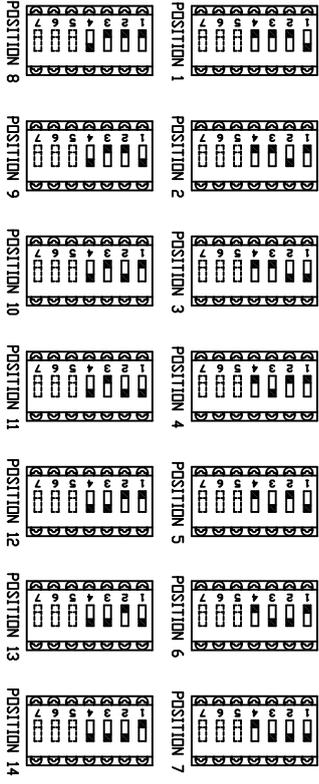
Drone PCB General Arrangement c/w ZX41/28

DIL SWITCH - SET AS SHOWN -
SEE DETAILS BELOW

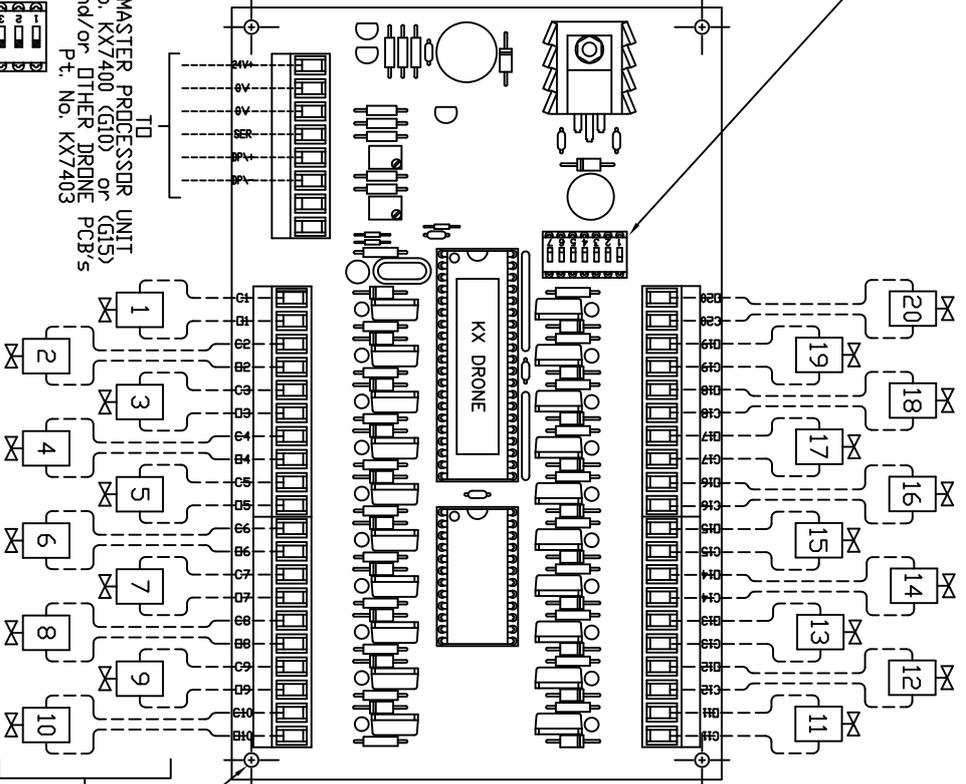
PART NO. ZX41/28



SET AS SHOWN ACCORDING TO POSITION OF BOARD IN FIRING ORDER



MASTER PROCESSOR UNIT
Pt. No. KX7400 (G10) or (G15)
and/or OTHER DRONE PCB's
Pt. No. KX7403



ALL DIMENSIONS IN MILLIMETRES

Circuit Control Technology

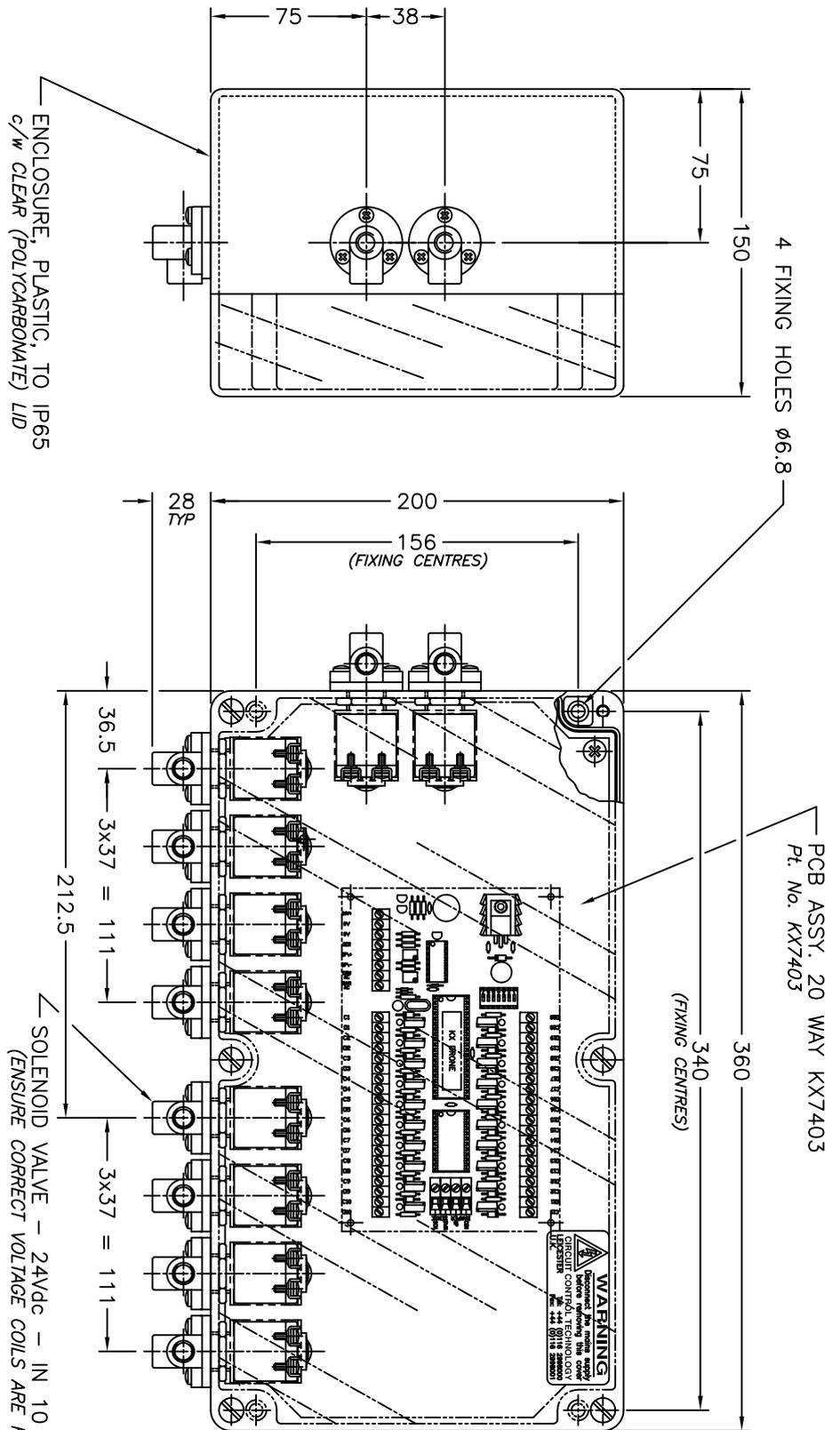
48 BOSTON ROAD
GORSE HILL INDUSTRIAL ESTATE
TECHNOLOGY BRAUNTON LENTS, LEICESTER, LE4 1AA
Tel: +44 (0) 116 2996000 Fax: +44 (0) 116 2996001

Part No: KX7403 + ZX41/28

Title: DRONE PCB C/W ZX41 ASSY.
GENERAL ARRANGEMENT

A		PRELIMINARY		Date
Issue	Description	02.08.12		02.08.12
Dwn.	LOF	02.08.12		
Chkd.				
Appd.				
CADFile:	KX00740320A	Plot Date:	02.08.12	
Dwg. No.	KX740320	Rev.	A	
Sheet 1 of 1				

Drone Reverse Jet Station

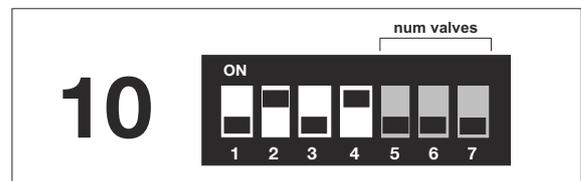
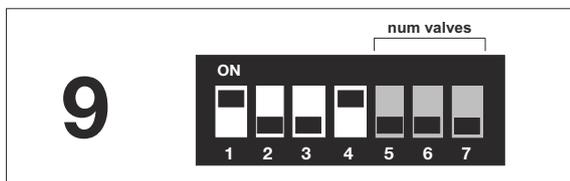
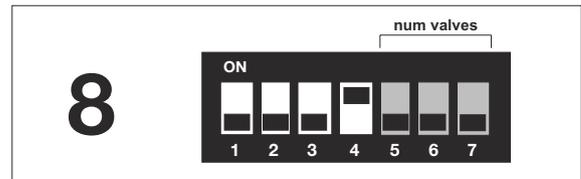
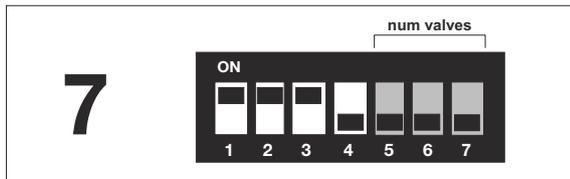
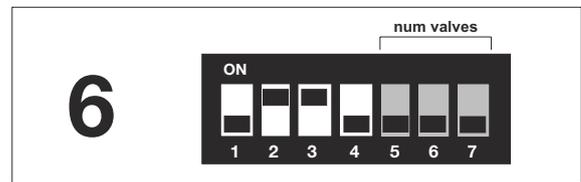
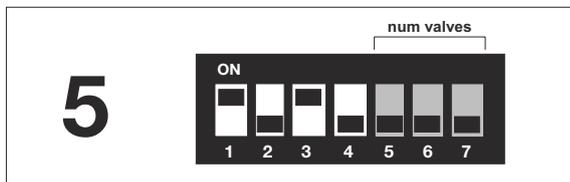
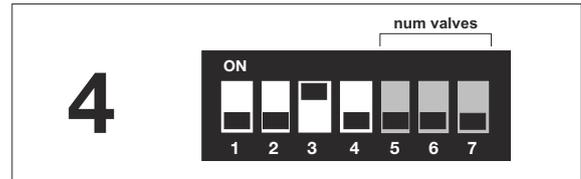
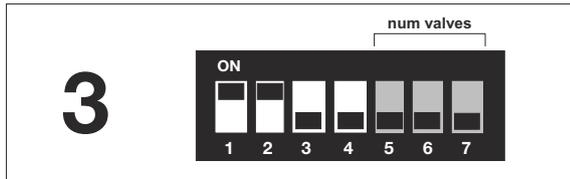
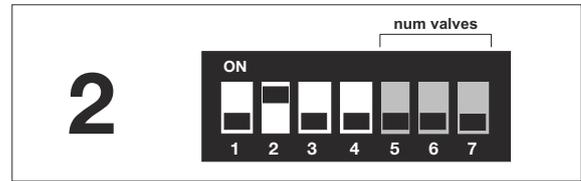
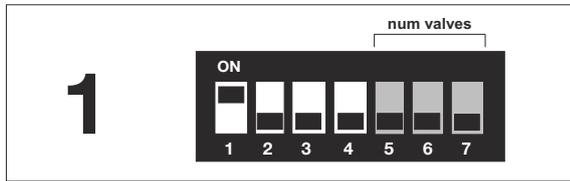


SOLENOID VALVE - 24Vdc - IN 10 POSITIONS
(ENSURE CORRECT VOLTAGE COILS ARE FITTED)
OPTIONALLY SUPPLIED WITH:-
6mm RAPID FITTING SWIVEL ELBOWS Pt. No. S6520 6-1/8"

CIRCUIT CONTROL TECHNOLOGY		48 BOSTON ROAD GORSFIELD INDUSTRIAL ESTATE BEAUMONT LENS, LEICESTER, LE4 1AA Tel: +44 (0) 116 2998000 Fax: +44 (0) 116 2998001	
Part No:	10W KX7403-R3-E3	Issue:	A
Title:	10 Valves KX7403-DRONE REV JET STATION GENERAL ARRANGEMENT	Description:	PRELIMINARY
Dwg. No.:	RJ74030100000	Date:	16.06.99
Sheet:	1 of 1	Appd.:	
Rev.:	B	Plot Date:	16.06.99

DIP Switch Set-up Sheet

BOARD NUMBER (system chain position)



DRONE VALVE OUTPUTS (all drones should have the same number of valves)



dust filter controls