

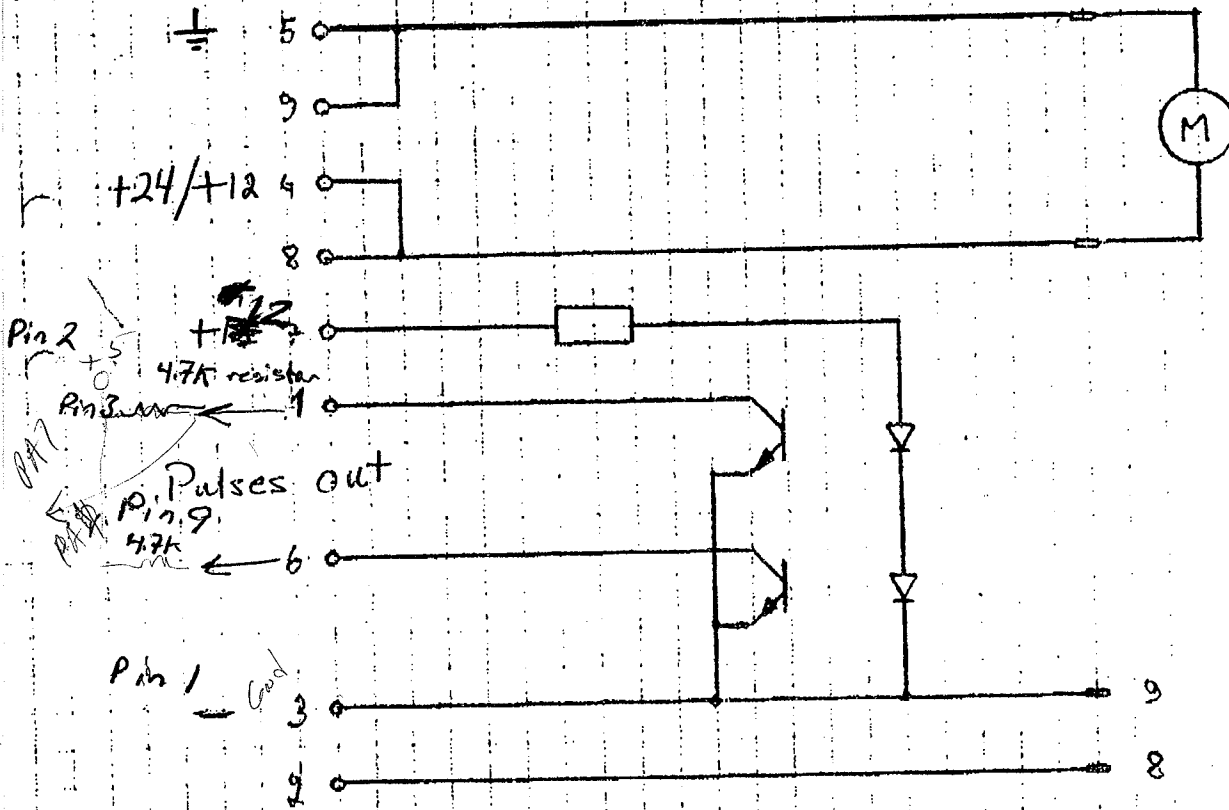
(2 #5 pulse out)

18 pulses per revolution -  
2 detectors out of phase -  
Total pulses =  $18 \times 2 \times 2 = 72$  PPR

Optical Encoder  
ALITEA AB

36

Motor kort  
 ALITEA AT 100284  
 Optical encoder



Pump Express/ALITEA AB  
 ADVANCED FLOW SYSTEMS LTD  
 4733 N. Kelso Ave  
 Chicago IL 60630  
 (773) 736-8441, FAX: (773) 736-8451

Pump Express/ALITEA AB  
 Advanced Flow Systems Ltd  
 4733 N. Kelso Ave  
 Chicago IL, 60630-4353  
 (773)736-8441, FAX: 8451

\*\*\*\*\*  
**PACKING LIST**  
 \* INVOICE \*  
 \*\*\*\*\*

Document Number: 001373

Document Date: 07/09/98

Page: 1

Sold UNIVERSITY OF MINNESOTA  
 To: ATTN: Accounts Payable  
 420 Delaware St SE Box195  
 Minneapolis MN  
 55455

Ship UNIVERSITY OF MINNESOTA  
 To: KE DOCK/Dr. Molina  
 425 E RIVER ROAD  
 MINNEAPOLIS MN  
 55455

Ship Via.: UPS  
 Ship Date: 07/09/98  
 Due Date.: 08/08/98  
 Terms.....: NET 30 DAYS

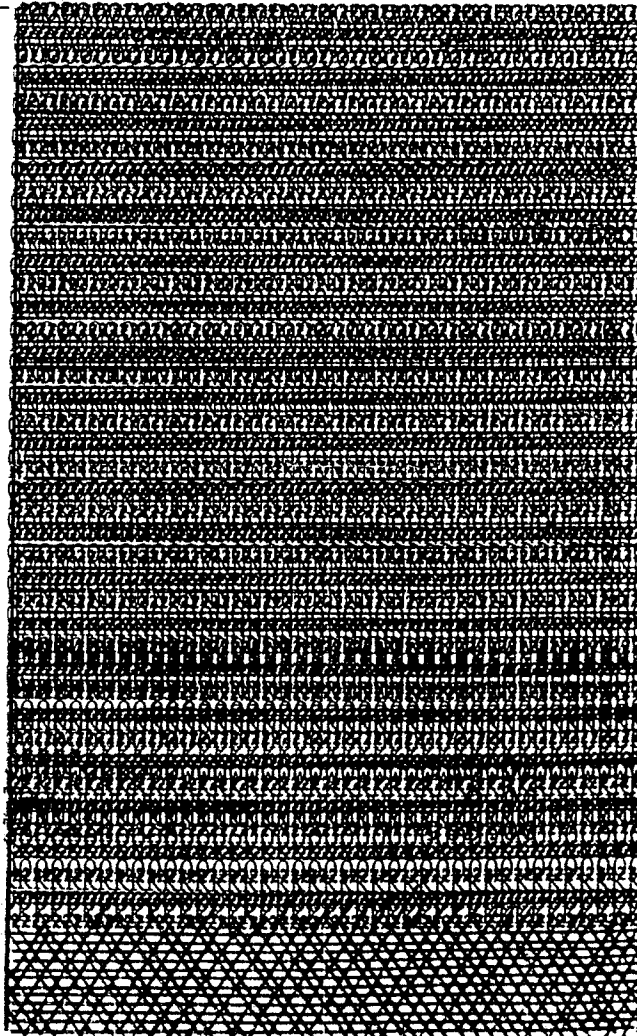
Cust I.D.....: 55455A  
 P.O. Number...: 647 F0069744  
 P.O. Date.....: 07/08/98  
 Job/Order No.:  
 Salesperson...: Hagen

Item I.D./Desc.	Ordered	Shipped	Unit	Price	Net	TX
720-076 // 12 VDC, 25 W, 5:1 (400 RPM). Optical Encoder, and 100-724 OEM Motor Controller with fuse on Input power cable and on motor cable.	1.00	1.00	EA			

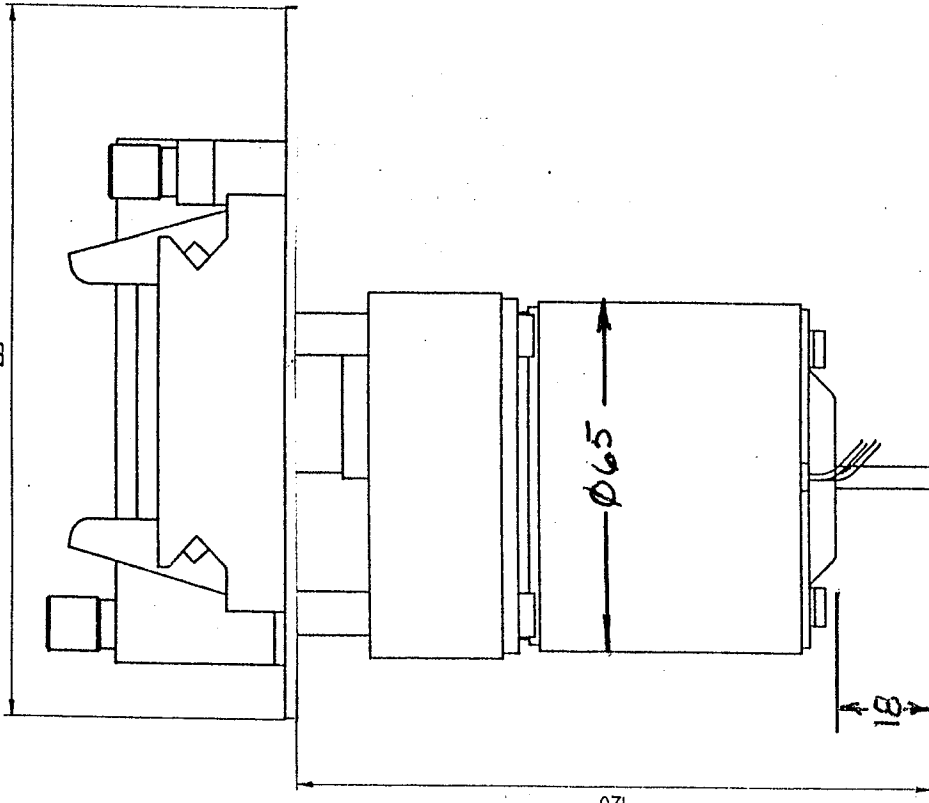
UPS BROWN

ITEM #1 DETAIL:

Pump.....\$598.00  
 Optical Encoder.....\$125.00  
 Motor Controller.....\$228.00



ØB



5mm Dia  
TYP  
4 pieces  
Flat head

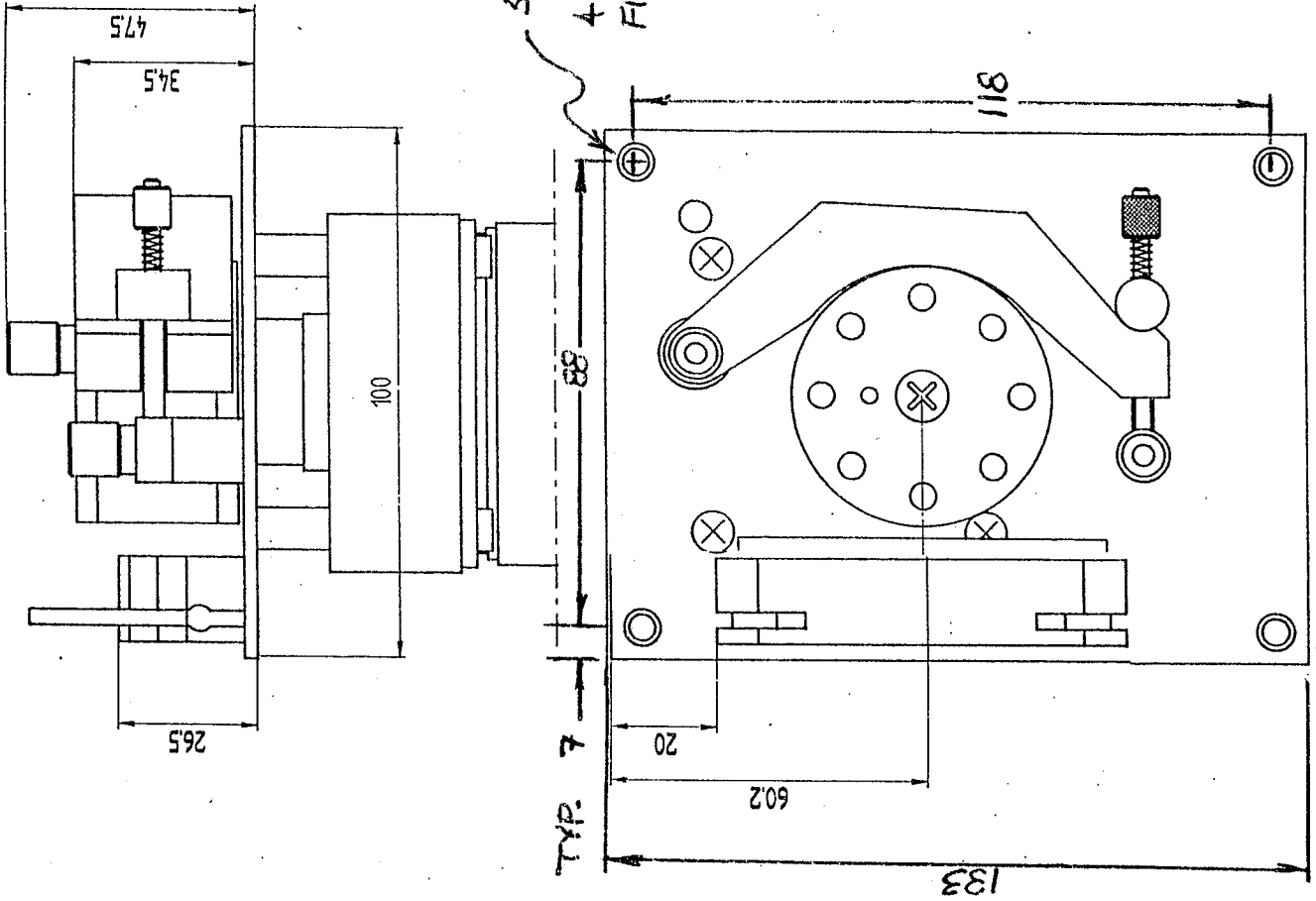


Diagram #2

Approvationen till detta dokument är och förbehålls för ALTEA AB. Innehålls och tekniska data kan komma att ändras utan vidare besked. Detta dokument är ett utdrag ur ALTEA AB:s tekniska dokumentation och ska inte användas som enskild teknisk lösning utan i samband med ALTEA AB:s tekniska support och service.

Delnr	Ant.	Benämning	Material	Modulär Anordning	Antn.
Konstr: AL	Ritad: mb	Kontroll: mb	Skick: mb	Skala: 1:1	Ersatt av:
					Förnamn: TZK
					Del: 9
					Riktning:

**ALTEA**

U1-OEM 30VDC 30W



# Series 720

## Heavy Duty Pumps—Higher Flows

These pumps are used when you need higher flow and/or pressure beyond the capability of the 710 Series. Standard models are available off-the-shelf or with modifications or you can have a pump designed to your specifications.

Pumps are available with continuous tubing clamps or terminated in fittings of your choice. Select a pump off-the-shelf or special shaft lengths, special materials, special motors can all be provided to put the ideal pump into your application and specifications. (See Fig. 2 for outline dimensions.)

Table B (ml/rev) X (rpm) = flow rate in ml/min

Tubing/Flow Specifications								
Tube wall - 1.6mm								
I.D.	1/50" 0.5mm	1/32" 0.8mm	1/16" 1.6mm	3/32" 2.4mm	1/8" 3.2mm	5/32" 4.0mm	3/6" 4.8mm	1/4" 6.4mm
ml/rev	0.04	0.07	0.25	0.52	0.93	1.2	1.8	3.0

### Specifications

**Flow Rate:** 0.07 to 960 ml/min, depending on RPM and tube size—see Table B

**Pressure:** 20 PSI continuous; 35 PSI intermittent, available up to 50 PSI.

**Temperature:** 170°F (fluid being pumped)  
110°F ambient

**Rollers:** 4

**Channels:** 1,2,3,4,6

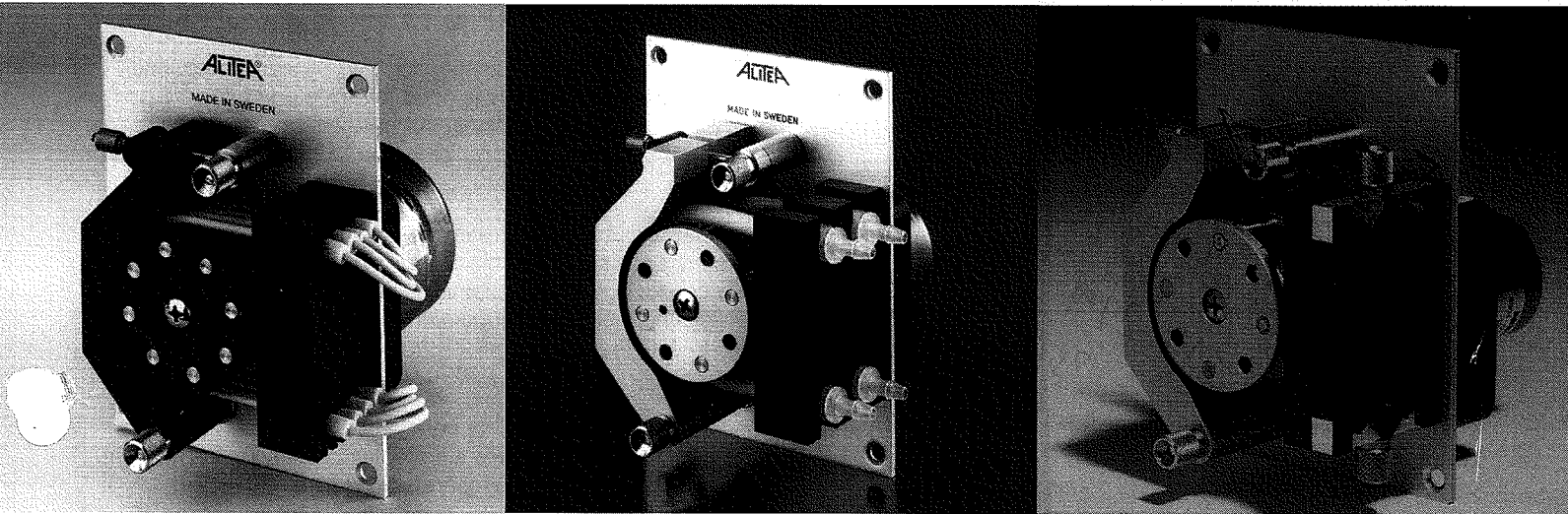
**Gearmotors RPM:** 1, 4, 5, 7, 9, 11, 14, 22, 26, 35, 37, 46, 56, 70, 90, 110, 140, 165, 200, 265, 400

**Motors:** 15 VDC/30 VDC-5W; 15 VDC-30W; 12/24 VDC-4W; Shaded Pole/Synchronous 115 VAC; Stepping 6V, 12V, 24V—unipolar/bipolar

**Running Current:** 250 mA

**Weight:** 2 lbs. 12 oz; with AC motor 4 lbs.

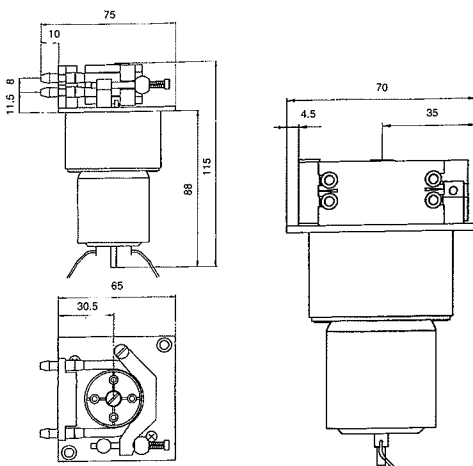
**Dimensions:** See figure 2



Front view of a 2 channel model with tubing terminated in Luer fittings.

### Series 710 Outline Dimensions

Figure 1

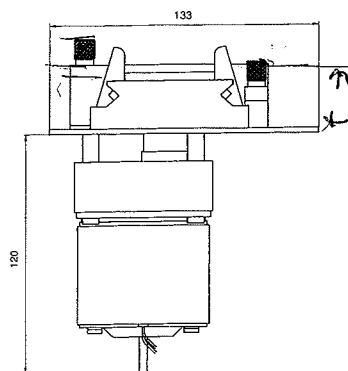


Dimensions in mm shown with 15VDC-5W gear motor.

### Series 720 Outline Dimensions

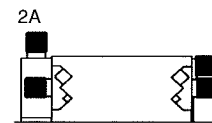
Figure 2

Special configurations are available which allow two (2) different size tubes in the same head. This is ideal for proportional pumping of two fluids or for reversing flow at a different rate without changing rpm.

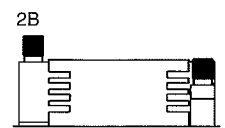


Dimensions in mm shown with 30VDC-30W gear motor

### Figure 3 Alternate Tube holder designs



2 channel for continuous tubing showing different tube sizes



4 channel for color coded tubing

Pump Express/ALITEA AB  
ADVANCED FLOW SYSTEMS LTD  
4733 N. Kelso Ave  
Chicago IL 60630  
Toll Free: 800-231-8602  
FAX: (773) 736-8451

## **PROFLEX PERISTALTIC PUMPS**

### Tube Loading Procedure

#### 1. Single channel pumps using spring loaded clamps.

A. Release the spring loaded Tension Arm holding the Pressure Shoe in place allowing the Pressure Shoe to be moved away. B. Push the Clamp arms (in the Tube Holder) outward so the tube can be removed. C. Install new tube by inserting in one of the Clamps, then around the Rotor and through the opposite Clamp. D. Stretch the tube slightly around the rotor to ensure there is minimum tube in the pump - this increases tube life. E. Finally push the Pressure Shoe against the tube (and Rotor) and latch it in place with the Tension arm.

#### 2. Dual channel pumps using barbed fittings.

A. Release the Spring loaded Tension Arm holding the Pressure Shoe in place allowing the Pressure Shoe to be moved away. B. Using a thumb or finger pry one of the fittings out of the slot in the Tube Holder. C. Then pry out the opposite end of the tube. Do this with both tubes. D. To install a new tube, insert fittings in both ends of tube. E. Push body of fitting into slot on Tube Holder then slightly stretch the tube around the rotor and push other fitting into slot on opposite side of the Tube Holder. F. Finally push the Pressure Shoe against the tube (and Rotor) and latch it in place with the Tension Arm.

### Occlusion Adjustment

#### 1. Simple Procedure.

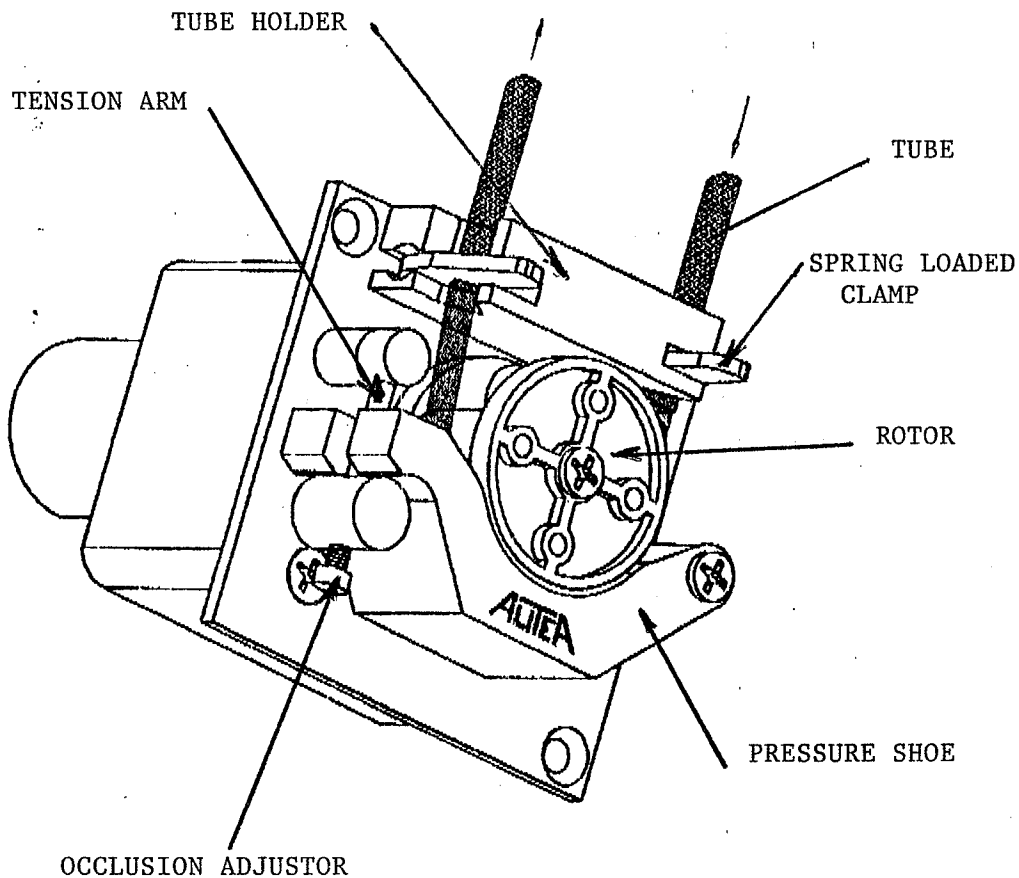
A. First tighten the Occlusion adjustor and run the pump until you have fluid coming out the outlet. B. loosen the Occlusion Adjustor until the fluid ceases to come out. C. Tighten the Occlusion Adjustor until the fluid begins to come out and then tighten one (1) more turn.

NOTE: The amount of pressure the pump can generate will depend on how tight the tube is being squeezed (occluded). If you need more pressure, tighten the Occlusion Adjustor more.

**CAUTION** the harder the tube is squeezed the lower the tube life.

## 2. Longer Procedure.

A. Loosen Occlusion Adjustor so tube is not squeezed. B. Insert inlet of clear tube in water. C. Turn pump on. D. Tighten Occlusion Adjustor until fluid begins to suck into tube steadily and continues up the tube. E. Tighten the Occlusion Adjustor one to one and a half turns more. F. See above note for more pressure.







**Pump Express/ALTEA AB**  
*Advanced Flow Systems Ltd*

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# QUOTE

1998-06-08

Quote Number:MN024

Dr. Ernesto Molina  
Dept Cardiovascular Surgery  
Fairview Medical Center  
University of Minnesota  
Box 182  
Minneapolis MN 55455

**Item 1: MODEL NUMBER: 720-076 Peristaltic Pump**  
See the brochure for details on the Jiffy Head and other features of PROflex peristaltic pumps.  
Pump will have four (4) SS rollers with ball bearings with Motor Controller.  
If you need output signal for feed-back control or readout of flow/RPM, pump includes an optical encoder on rear shaft of motor which gives 76 pulses per revolution.

**SPECIFICATIONS**

Flow Rate: Approximately 10-950 ml/min  
Motor: 12 VDC, 24 Watt (variable 1-12 Volts)  
Pump Speed: Approximately 10-400 rpm  
Channels: 1  
Tube: 6.4 mm I.D. X 1.6 mm wall

1 --- 49 .....\$598.00 ea  
Optical Encoder .....\$125.00 adder ea

**SPECIFICATIONS Motor Controller Model Number 105-823**

Motor: 12 VDC, 24 Watt (variable 1-12 Volts)  
Input: 12-18 VDC  
Output: 0 - 12 VDC  
Remote: All functions - speed via 4-20 mA,  
ON/OFF, and Reversing via "dry contacts".

You need digital/analog converter and software if you operate from a computer. Potentiometer included for manual control of speed.

1 --- 49.....\$228.00 ea, includes one fuse in the power input line and one fuse in the motor line.

**Please order all three components as one system #720-076.....TOTAL COST.....\$951.00**

Prices are firm for 90 days from quotation date.

Delivery: 4 weeks ARO.

Payment Terms: Net 30 days with open account, otherwise Visa/Mastercard or C.O.D.

FOB: Chicago, prepay and add UPS BROWN. RED, BLUE, Motor Freight shipped freight COD or your account.

Prepared by: Loren Hagen

## TECHNICAL DATA

Ordering Part Number	9904 120	13 111	13 311
Nominal Voltage	V	12	30
Nominal Torque	mNm	80	120
Nominal Speed	Rev /Min.	1800	2000
Input power	W	27	42
Speed, no load	Rev /Min.	2700	2900
Direction of Rotation		reversible	
E.M.F. at 3000 Rev/Min.	V	12,8	30,8
Torque Constant	Nm/A	$40,7 \times 10^{-3}$	$98 \times 10^{-3}$
Rotor Resistance Measure W/O Brushes	$\Omega$	1,8	7,8
Current at Nominal Voltage			
▪ at nominal torque	mA	2100	1300
▪ at no load	(max) mA	120	65
Starting Torque At Nominal Voltage Typ.	mNm	262	370
Rotor inductance	mH	1	5
Rotor Moment of Intertia	$\text{Kgm}^2 \cdot 10^{-6}$	21,4	21,4
Mechanical Time Constant of Motor	ms	24,5	17
Ambient Temperature Range			
▪ Operating	$^{\circ}\text{C}$	-10 + 60	
▪ Storage	$^{\circ}\text{C}$	-40 + 70	
Thermal Resistance Between Winding & Housing	Typ. $^{\circ}\text{K} / \text{W}$	2,6	
Temperature Coefficient of E.M.F.	% /K	-0,2	
Test Volt. (DC) Between Housing & Terminals: 1 Min.	V	500	
Bearings		Ball	
Mass	g	900	

\*Special Feature ..... Rear Spindle

# AIRPAX®

**NV AIRPAX SA**

Rue de la Bienvenue, 7-9 B-1070 Brussels, Belgium

TEL: +32-2-526 29 11 TLX: 20759 AirpaxB FAX: +32-2-526-29 99

## OEM MOTOR CONTROLLER

MODEL NUMBER: 105-822: Power in/out 15 Volt DC, 5 Watt  
 105-823: Power in/out 30 Volt DC, 30 Watt

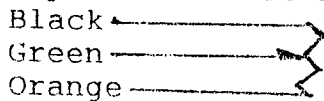
J1: Gray/Gray - Power input to board, DC ONLY (see above).

**CAUTION DO NOT APPLY 115 VAC TO (J1) THIS CONTROLLER.**

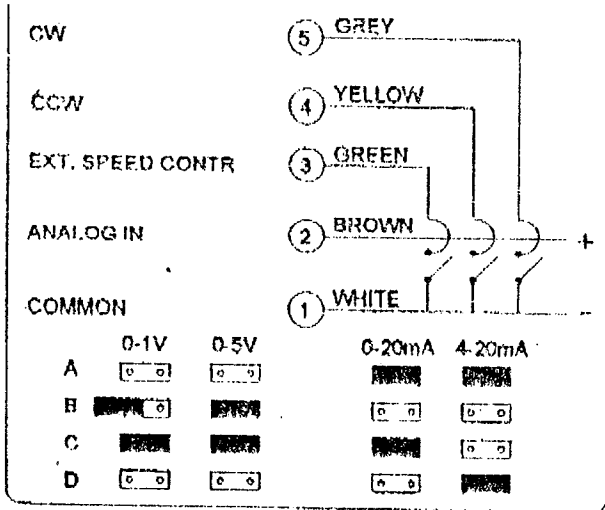
**CAUTION ATTACH THE OUTPUT SCR TO AN EXTERNAL HEAT SINK.**

J3: Red/Black - Power output to motor.

J4: 10K ohm potentiometer for manual speed control:

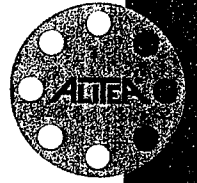


J7: Remote connector, see below for color code and hook-up.



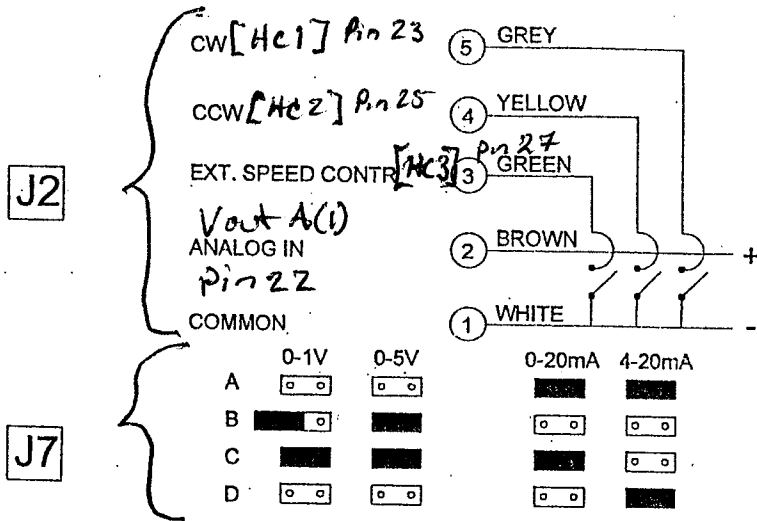
### Control scheme:

1.	Start:	Connect grey/white or yellow/white
2.	Stop:	Disconnect above
3.	CW Rotation:	Connect grey/white
4.	CCW Rotation:	Connect yellow/white
5.	Speed:	Connect green/white a. Brown is + input signal b. White is - input signal



## How to connect the 100724-B control board

Connector	Description
J1	Power 12-24 VDC or 12-18 VAC
J2	Remote cable
J4	Potentiometer 10 kΩ
J6	Motor cable
J7	12 VDC Motor (M): Connect pins 30 VDC Motor (M): Unconnect pins

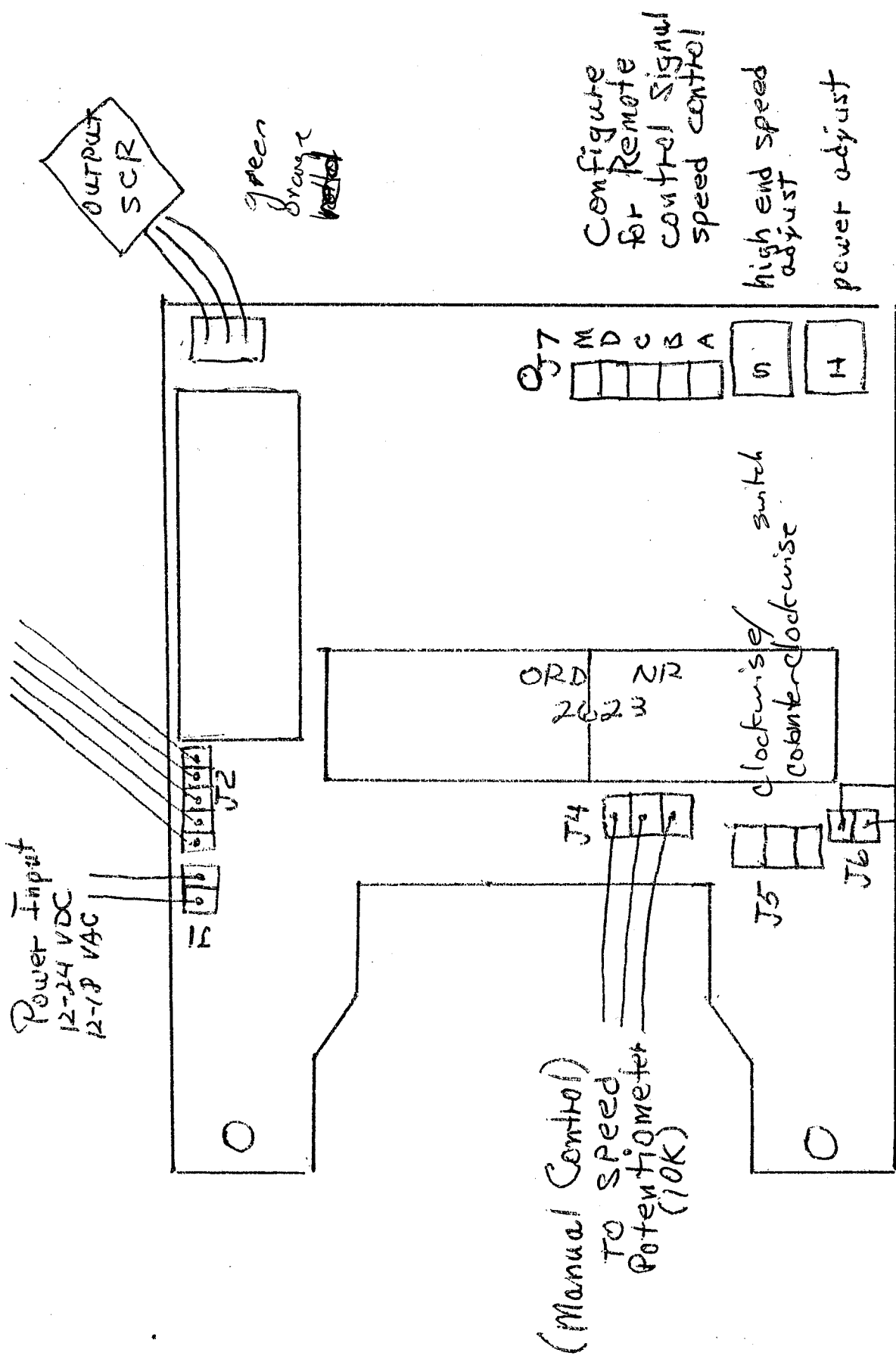


Connect Pin 31 to Pin 4

Darkened areas show location of shorting clips for the four (4) possible remote signals available.

Pump Express/ALITEA AB  
 ADVANCED FLOW SYSTEMS LTD  
 4733 N. Kelso Ave  
 Chicago IL 60630  
 (773) 736-8441, FAX: (773) 736-8451

# Remote Control Cable

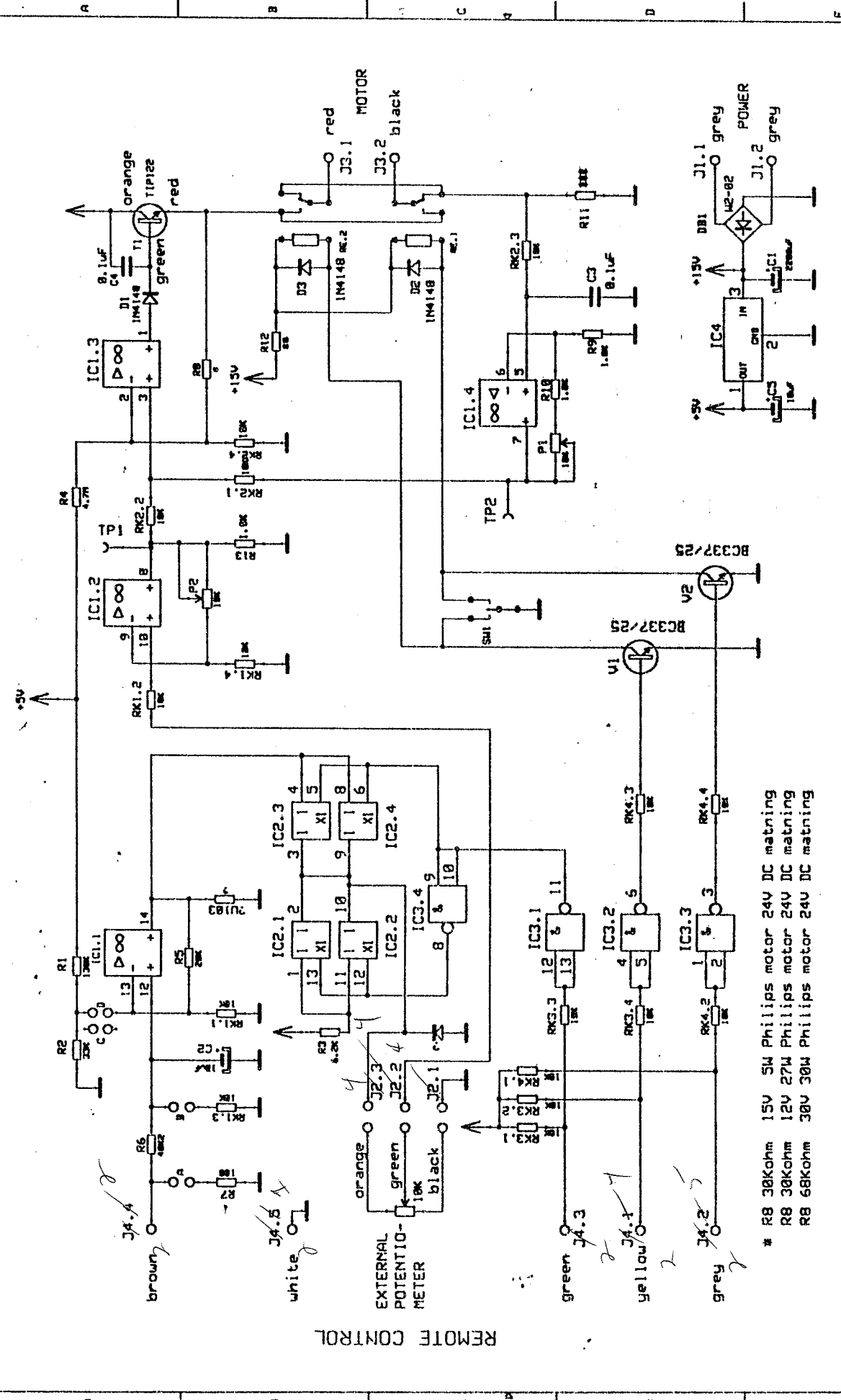


Pump Express/ALITEA AB  
 ADVANCED FLOW SYSTEMS LTD  
 4733 N. Kelso Ave  
 Chicago IL 60630

Motor Controller  
 TU 1007 4-B

Configure for Remote control signal speed control  
 high end speed adjust  
 power adjust

3 18 25 30 35



REMOTE CONTROL

- \* R8 30kohm 15V 5W Philips motor 24V DC matning
- R8 30kohm 12V 27W Philips motor 24V DC matning
- R8 68kohm 30V 30W Philips motor 24V DC matning
  
- \*\*\* R11 0.47ohm 15V 5W Philips motor 24V DC matning
- R11 0.10ohm 12V 27W Philips motor 24V DC matning
- R11 0.22ohm 30V 30W Philips motor 24V DC matning
  
- \*\* R12 150ohm 24V DC matning
- R12 0ohm 15V DC matning
- R12 150ohm 15V AC matning

Design	Drawn	Checked	Approved	Released	Assembled	Tested	Accepted
Description				Included in			
ALITEA SX-MINI				Release ECD			
ALITEA 100 724B				Replaces			
				Design no.			
				Drawing no.			
				A100 724B			