



Melt Extruder Control Panel #2



This incorporates the [FACTS MINI](#) by [FACTS INC](#)
[Other systems](#) are available by facts.

The Facts Mini incorporates a Mitsubishi FX PLC
 4 analog ins and 2 analog outputs. The temperature controller
 is a [Resotec](#) unit with 10 thermocouple inputs and 10 Heat and
 Cool outputs of which only 7 are available for use. Go figure?
 May have something to do with the P.L.C. or the display panel which
 is also a [Resotec](#).

You can click the images to see a larger version.



Here you can see the power distribution contactors and the 10HP
 A.C. Closed Vector Drive by [IDM Controls](#). Which is a relabeled
[Yaskawa](#) Drive.

You can also see the Mitsubishi P.L.C. and Resotec unit.

You can click the images to see a larger version.



Here you see the nine Solid State Relays mounted on 3 large Heatsinks.
 7 Heat zones from the Mini system and 2 from independent Fuji PYX4
 Temperature controllers.

You can click the images to see a larger version.



This is the Resotec control OIT.

Supply list

Facts Inc.

P.L.C. with software.(includes Analog modules and Resotec unit
24VDC Power Supply.
Resotec OIT screen
70Amp current transformer

Automation Direct.

All Terminal Blocks, Fuse Blocks and Din Rail.
Wire Ferrules and lugs
Contactors

Allied Electronics.

Main power disconnect.
Circuit Breakers (Now available at Automation Direct)
Wire way and covers.
Heatsinks
Wire
Fuses

IDM Controls.

IDM G5+ 10HP Drive.
PG-X2 Feedback Card
Northstar 1024PPR Encoder
10HP Marathon Blue Max Vector Duty Motor.

Butler and Land.

Continental I/O SSR's

About this System

This control system was first electrically designed by me to get the basic electrical systems required after reviewing the documentation from Facts Inc.

I then drew up the first electrical prints using [Autocad 2000i](#). After that I laid out the panel, again using Autocad, with 1:1 scale drawings of the parts. This allows me to move things around and find the best fit and logical layout before any parts are even ordered or placed on the panels.

After the layout drawings are completed to my satisfaction I order the parts from my suppliers.

So What does it do and how does it work?

This controls a 9 temperature zone melt extruder.

The original Berlyn Extruder had all of its controls built into the extruder's body. This was quickly impossible to accomplish again with the new controls, which added many safety and operational features.

The original temperature controllers were old Dial type Barber Coleman types. They had horrible control resolution and repeatability. There were 3 Heat and cool zones and 3 extra heat zones which did not fill our process needs.

The choice was made to use the Facts Mini extrusion pack system and to add 2 extra independent temperature controllers to give us 9 total control zones.

Information about the Mini can be obtained [here](#). 

The drive system was updated to the 10HP A.C. Closed Loop Vector Drive from the original 5HP DC Drive which was running at greater than 90% on some products.

The 10HP Marathon motor was smaller in size than the 5HP D.C. This saved on extra weight that made it easier to move the extruder around.

The drive gets its run and speed reference signals from the P.L.C. The drive in turn sends its speed and load signals back to the P.L.C.

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By Len Averyt

Email: Techknowman@techknowman.com