ELECTRIC PARISON PROGRAMMER

VERSION 5.2

OTOMOTİON®

OTOMOTİON SYSTEM ENGINEERING

Ziya Gökalp Mh. Seyit Onbaşı Cd. No:36/19
34490 Başakşehir / İSTANBUL
Phone: +90 212 671 80 57
www.otomotion.net

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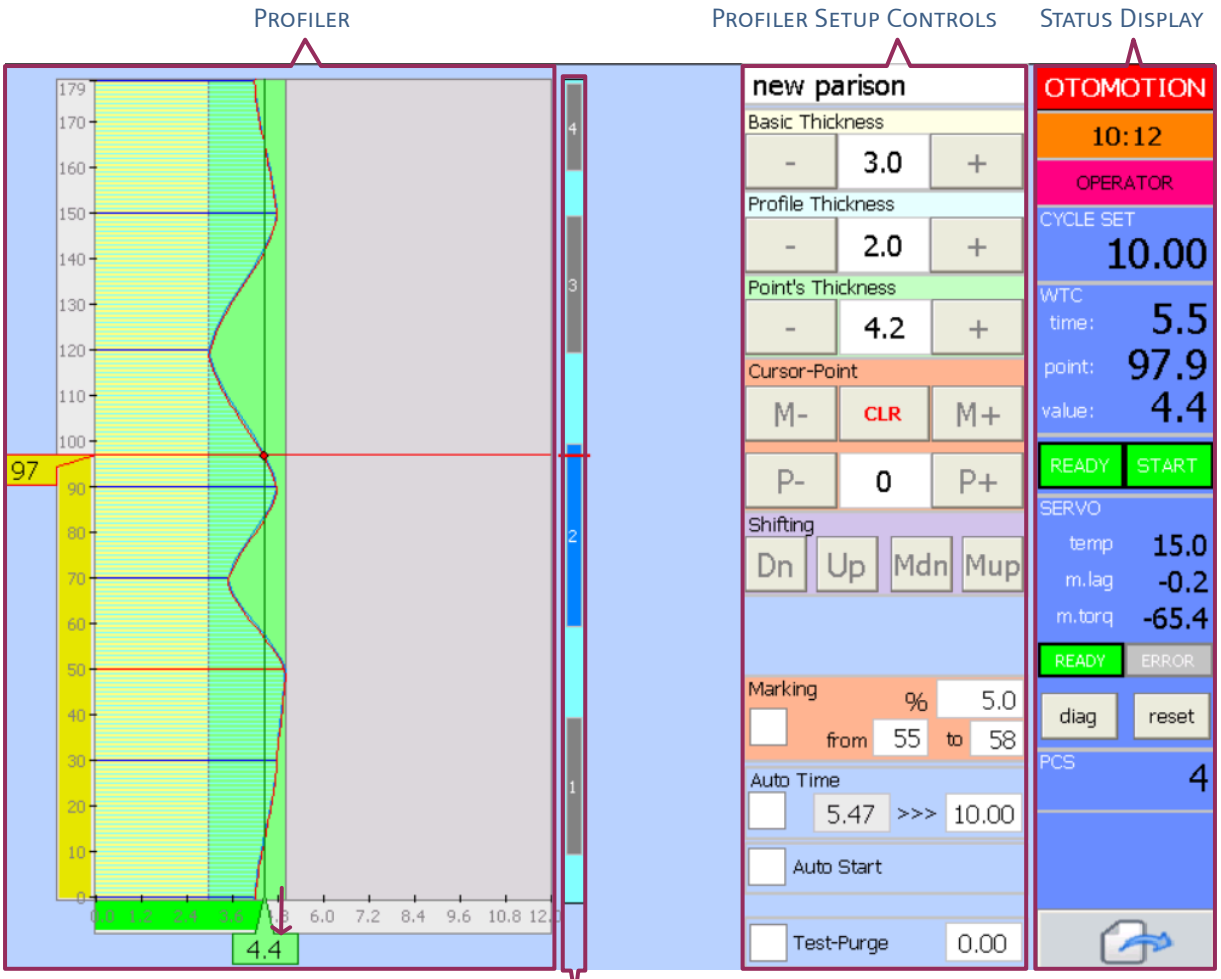
1.Parison Cockpit (Operator Level)



1.1 Status Display

→ Our company name, takes you to the Setup Page as you tap it .

→ Actual Time

→ Actual User Level Logged in, to change the user then tap it.

→ Parison set time, whole parison will be pushed out within this time

→ Actual parisoning time

→ Actual point corresponding to actual parisoning time.

→ Actual parison mold position corresponding to actual point.

→ Status of external READY and START signal. This signals expected from digital inputs;

READY: Expected when head temperatures all okay and any other conditions met that parison can safely work.

START : Parison starts by this trigger, for instance by cutting signal.m.lag : Parison starts by this trigger, for instance by cutting signal.

Status of SERVO SYSTEM.

temp: Servo Motor temperature **m.lag :** Latched maximum lag **m.torq:** Latched maximum torque during run. You can reset this latched values by tapping **reset** button underneath.

READY: Servo System all okay then it its GREEN. When Calibration mode active then it flashes.

ERROR : When Servo System has a problem then it its RED. Then you can go for detailed investigation by pressing **diag** button underneath and go to Diagnostic Page for servo system.

→ Actual parison quantity pushed out.

→ Parison Setup page where you select parison options and go Calibration.

→ Returns previous page or Main Setup page as default where you can select language, user, recipe etc.

1.2 Profiler Setup Controls

Running Recipe Name

1.2.1 Thickness Adjustment

You can adjust Basic Thickness, Profile Thickness, Point's Thickness by tapping + and – buttons or you can input directly on the keypad dialog by giving on value of it.

1.2.2 Point Selection

You can scroll and select the point by tapping P+ or P- or write directly number of the point on the keypad dialog by giving on value of it. In order to Interpolate between two points, this points will have Master property, This Master property can be given/removed by tapping ADD or CLR button to the point when the cursor on it. Also as soon as you change a Point's Thickness value, this point will be Master Point automatically. You can scroll and select the Master Point by tapping M+ or M- then change the Point's Thickness and also Master Point property easily.

1.2.3 Shifting

You can shift the whole profile up an down by tapping Up and Dn buttons, and shift a master point up and down by tapping Mup and Mdn by increment value of one.

As you change the profile, you can **download** or **cancel** those changes by those buttons.

1.2.4 Marking

You can also temprorarily manupulate the parison by giving from & to points and the mark thickness. Then you can force parison profile to mark thickness.

1.2.5 Auto Time

When this is ticked, the parison triggered by means of for instance knife cut, the time between sequential two trigger signals is calculated automatically and sets Parison Time otherwise Parison Time will be static parameter which user can change.

1.2.6 Parison Time

Parison profile synchronised to this time, It means that melt pushing out (o-Parison Time) calls for (o-MaxPoint) value.

1.2.7 Auto Start

This parameter is for test purpose, to start the parison by without a trigger signal.

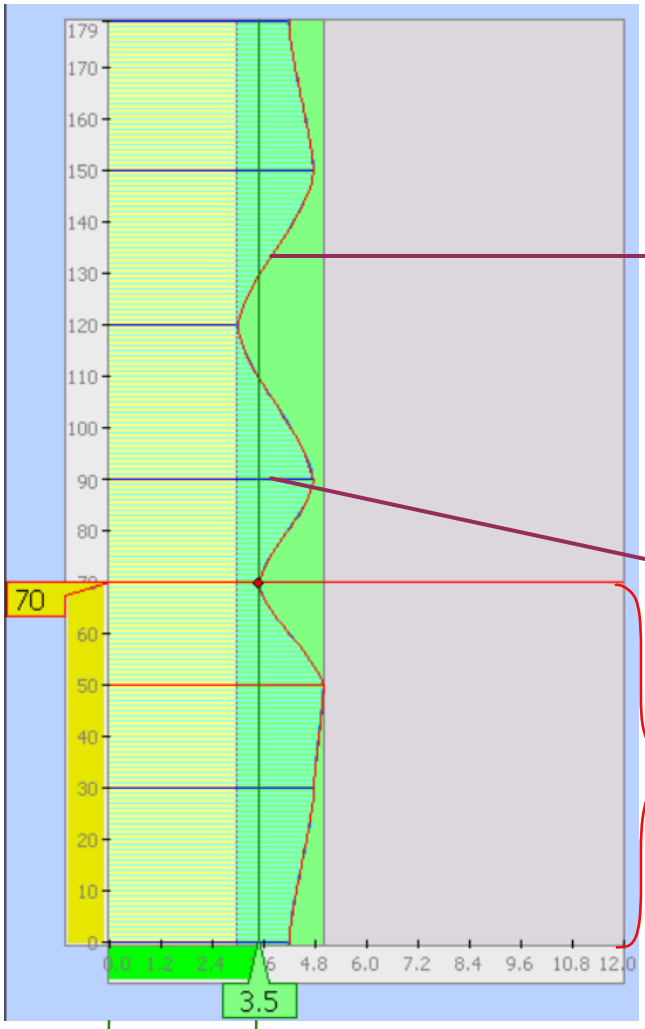
1.2.8 Test Purge

When you check this option, the parison goes to the position you input for maintenance purpose.

Please equalize min. and max. point thickness to obtain smooth transition (circular parison) otherwise returning from max. to min. point causes bump as much as difference of min-max. thickness. If you well adjust this then you can achive cutting parison by die.

1.3 Profiler

Profiler shows running and set parison that you have configured.



Red : Actual Parison Curve
Blue : Set Parison Curve

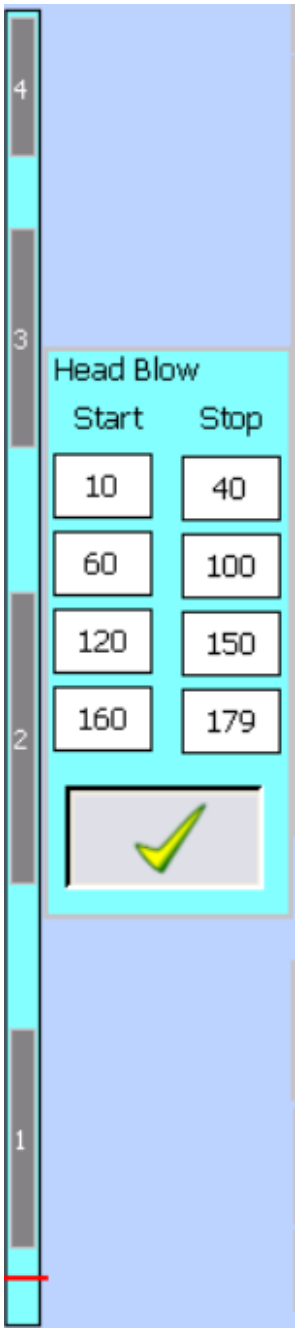
Blue Line : Master Point
Red Line : Selected Point

Actual Point & Elapsed Lenght(Point)

Actual Parison Thickness

1.4 Baloon Air

Baloon Air gives you a digital output to control baloon air inside the parison according to parison points.



Total 4 zones can be adjusted for giving air into parison.

Each zone's start and stop treshold needs to be defined, if one zone's start and stop treshold cover another then this zone is zone dominant to another

You can remove this option if you are not using at Parison Setup Page.

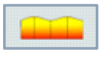
2. Main Setup

This menu can be reached on Parison page by tapping 

First of all, you can select your language which is comfortable for you, then user account should be set AUTHOR by giving Password: "12345" and then tapping. 

High level pasword is PROGRAMMER and it's Password: "649049", this user can change other users passwords. To do so, please log in as PROGRAMMER and set new pasword on

the dialog comes up by tapping . 

Now we can jump over PARISON page by tapping. 

3.WTC Setup Page (Technician User Level)

This menu can be reached on work page by tapping  in the parison page.

3.1 Interpolation Power

This parameter specifies interpolation power for the transition between master points (for linear transition set it to 1.0 but we recomend for smooth ∫ transition you set it to 0.75)

3.2 Value Change Step

This parameter specifies increasing or decreasing step of a value when you adjust Basic Thickness, Profile Thickness, Point's Thickness by tapping + and – buttons

3.3 AutoTime Tolerance Window

This parameter specifies a window percentage when calculating AutoTime between sequential triggers, newly Calculated AutoTime should be greater than Minus Percentage and less than Plus Percentage of just before calculated AutoTime, otherwise newly calculated AutoTime is dissmised, the old AutoTime still valid.

3.4 Baloon Air Enable

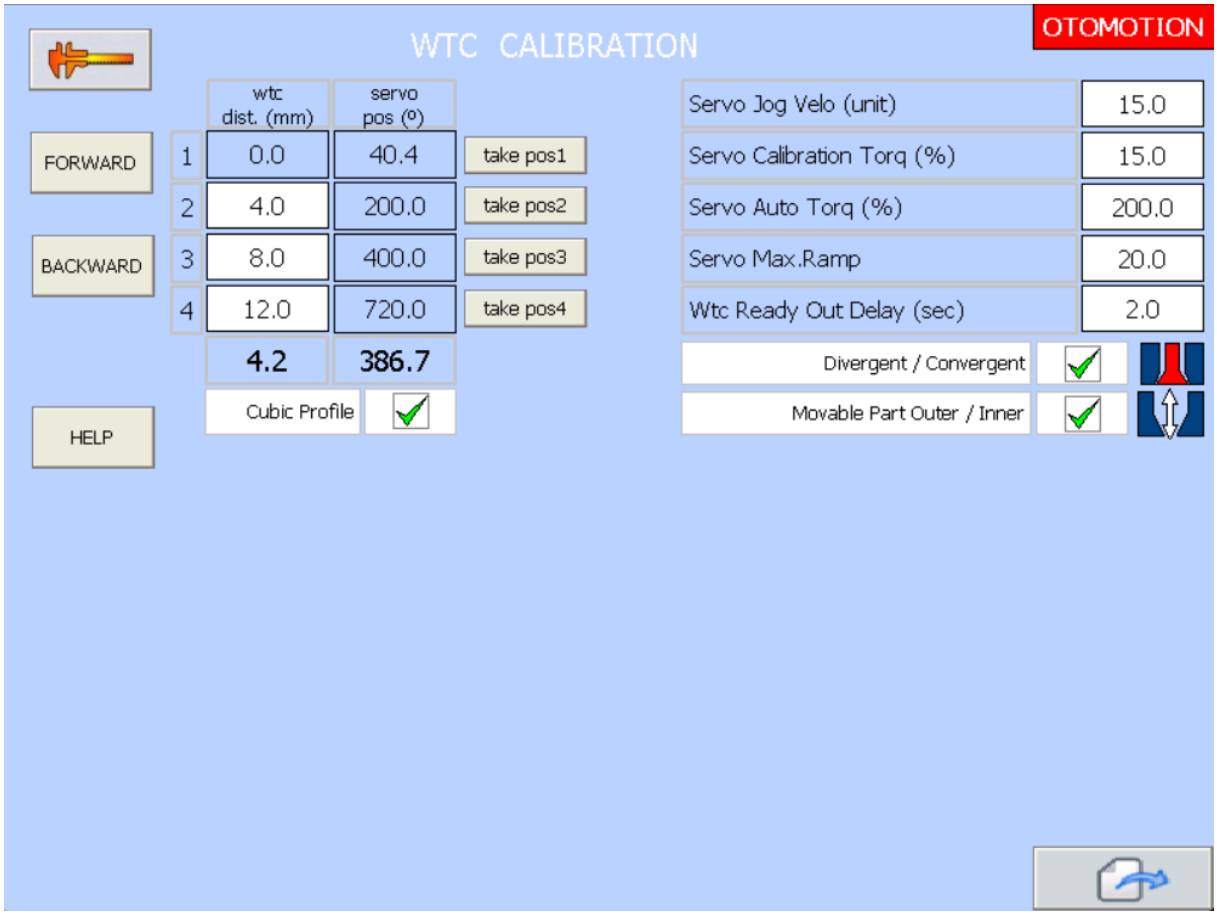
Parison tip is may closed by helping of a guillotine cut, then parison needs to be blowed slightly while flowing through the Die before going to mold, this option gives you a possibility control an air valve according to parison points in 4 zones by helping of a digital output.

3.5 Profile Can Have Base

When this is selected, Basic Thickness is static and not updated as profile changed. This way profile can have it's own offset thickness between Basic Thickness and Profile Thickness. Otherwise every change of profile, the minimum point of profile is calculated and assumed Basic Thickness so Basic Thickness refreshed.

4. WTC Calibration Page (Author User Level)

This menu can be reached by tapping  in the parison setup page.



Please tap message box if you red warnings and help.

Please consider Checked / UnChecked order while selecting an option.

4.1 Divergent / Convergent

Parison Die type needs to be selected according to your type. This parameter effects calibration minimum and maximum points automatically.

4.2 Movable Part Outer / Inner

Like wise Parison Die type this parameter also needs to be selected according to your movable part. This parameter effects calibration minimum and maximum points automatically too.

When you change this two parameters above then Calibration Procedure needs to be carried out.

4.3 Servo Jog Velocity

This defines the speed of jog forward/reverse while Calibration Mode active. This value consist of some multipliers and dividers for beeing user friendly . Increase or decrease this parameter which is comfortable for you.

4.4 Servo Calibration Torque

This defines the torque of the motor of jog forward/reverse while Calibration Mode active. This should be as low as possible not to harm mechanic in case of end of strok while calibration.

4.5 Servo Auto Torque

This defines the torque of the motor of running at normal duty. This could be maximum of overload capability of your servo motor&drive system.

4.6 Servo Max. Ramp

This defines the ramp of the motor of running at normal duty. It effects dynamism of the system. Please consider that if dynamism increases then mechanical wearing increases too.

4.7 WTC Ready Out Relay

Your extruder system may want an information if WTC is ready or not. This relay gives you this information.

4.8 WTC CALIBRATION

Calibration is necessary when any mechanical intervention occour or Divergent/Convergent or Movable Part Inner/Outer parameters has changed.

Cubic profile calculation will be checked until another better option developed.

Calibration is to be carried out following 4 steps. After Calibration Mode Activation by tapping. 

Let assume that your Full stroke is 12mm. Then every calibration step increases by 4.0mm.

1. Go to 0.0 Position (Fully Closed) mechanically by using BACKWARD/FORWARD button. Then tap **takepos** button to take actual servo position instead of writing it.

2. Go to 4.0 Position (%33 of Full Stroke) mechanically by using BACKWARD/FORWARD button. Then tap **takepos** button to take actual servo position instead of writing it.

3. Go to 8.0 Position (%66 of Full Stroke) mechanically by using BACKWARD/FORWARD button. Then tap **takepos** button to take actual servo position instead of writing it.

4. Go to 12.0 Position (%100 of Full Stroke) mechanically by using BACKWARD/FORWARD button. Then tap **takepos** button to take actual servo position instead of writing it.

When you change Full Stroke parameter above Parison Profiler will adapt itself to this parameter.

After finish 4 steps above then Calibration is Done.

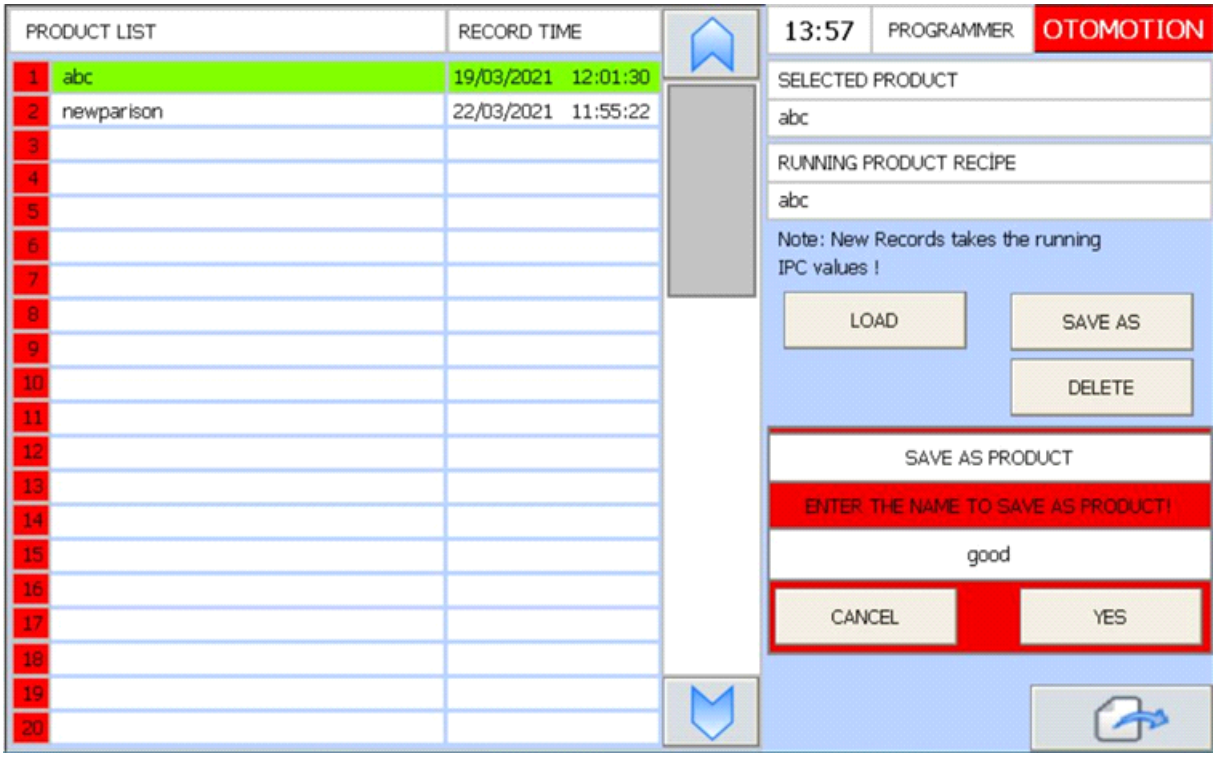
Do Not Forget To Deactivate Calibration Mode by tapping  button.

5. Recipe Page (Foreman User Level)

You can jump over RECIPE page by tapping  in the Main Setup Page.

5.1 Creating New Recipe Record

You can store well adjusted product settings in the recipe container folder for further call back. This operations can be carried out at the Recipe page.



New recipe record data keeps actual values running in the controller.

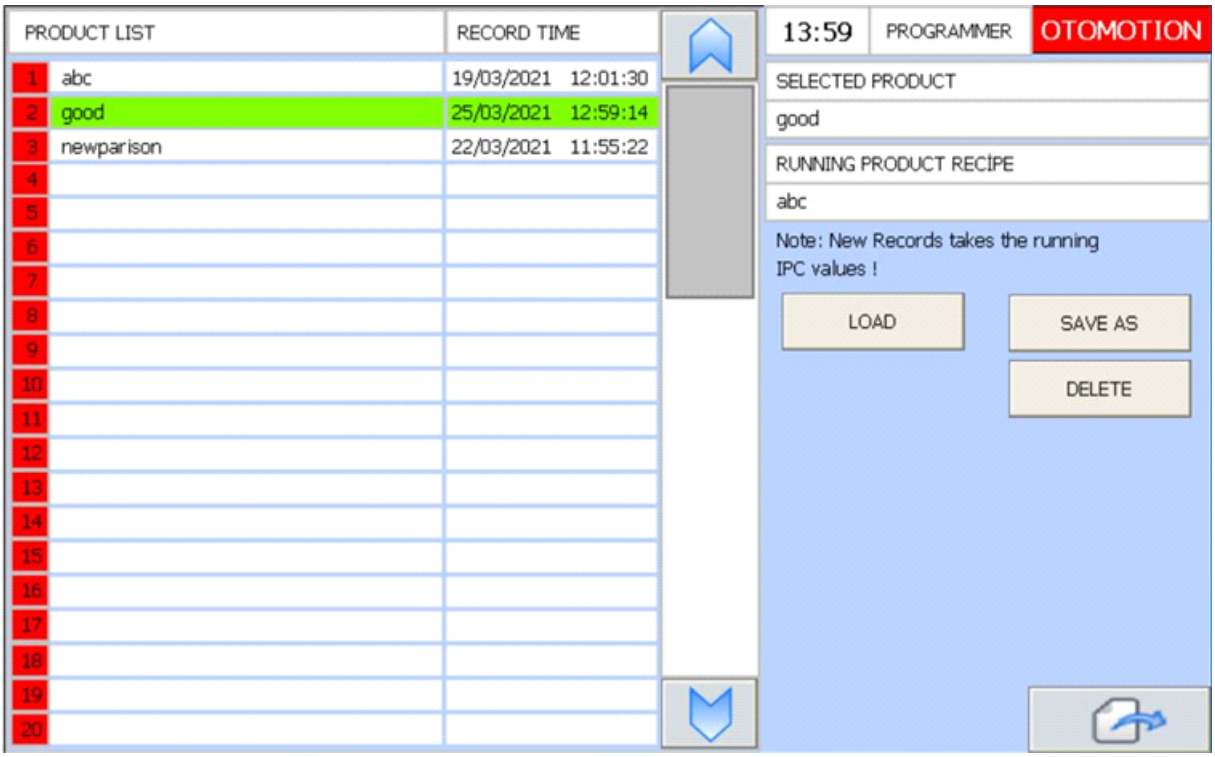
For a new product record, tap SAVE AS button, and give a name in the dialog and then tap the YES button.

Now your new product record has been created.

5.2 Loading Recipe Record for Run

Whenever you want to call a product record back then please select the record in the product list and tap on it to select and then tap LOAD button that is all you need to do.

5.3 Deleting A Recipe Record



You can delete a product record by the same way, please select the record to be deleted by tapping on it then tap DELETE button and tap YES button in the dialog come up.

Now your product record has been deleted from the product list.

6. Technical Specification

Electric Parison Controller	CP6706	C6015 + CP2912	C6015 + CP2915
CPU	Intel Atom® E3815	Intel Atom® E3815	Intel Atom® E3815
Size	7" Resitive Touch	12" Capacitive Touch	15" Capacitive Touch
Resolution	800x480	800x600	1024x768
Parison Points	128	180	200
Minimum PushOut Time	5 sec (option available for 3 sec)		
Interpolation Type	Infinite Polinomial		
Minimum Refresh Time	2000 µsec. (option available for 1000 µsec)		

Thank you for preferring Otomotion's Electric Parison Controller .

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Ziya Gökalp Mh. Seyit Onbaşı Cd. No:36 S Plaza Kat:10
34490 Başakşehir / İSTANBUL
Phone : +90 212 671 80 57
Fax : +90 212 671 80 58

!!! IMPORTANT NOTICE:

ALL NECESSARY CONNECTION MUST BE CARRIED OUT BY AN EXPERIENCED TECHNICIAN BEFORE GO TO CONTROLLER SETUP.

Customer	
Project Description	ELECTRIC PARISON MACHINE
Job Number	2024 / 1
Commission	OTOMOTİON SYSTEM ENGINEERING

Project Name	ELECTRIC PARISON MACHINE
Voltage / Power	3*400Vac / 3kVA
Type	MACHINE AUTOMATION
Responsible For Project	SEVKET BILGIC

Project Start Date	25.12.2024
Modification Date	17.01.2025

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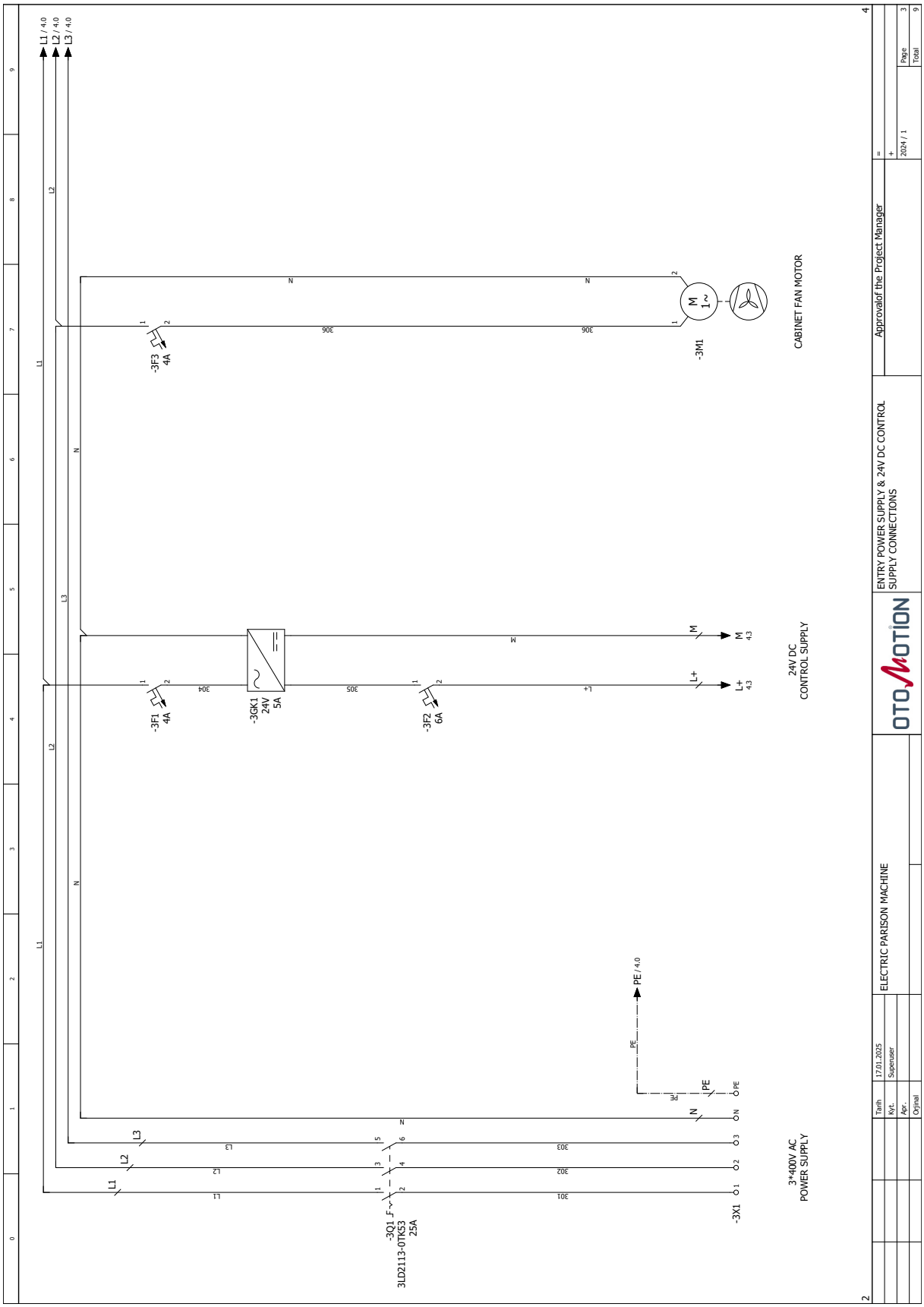
L1 / 4.0
L2 / 4.0
L3 / 4.0
-3F3 4A
-3M1
CABINET FAN MOTOR
-3F1 4A
-3GK1 24V 5A
-3F2 6A
M 4.3
L+ 4.3
24V DC CONTROL SUPPLY
PE / 4.0
-3Q1 F-> 3LD2113-0TK53 25A
-3X1
3*400V AC POWER SUPPLY
ELECTRIC PARISON MACHINE
ENTRY POWER SUPPLY & 24V DC CONTROL SUPPLY CONNECTIONS
Approvalof the Project Manager
OTO MOTION
Tarih 17.01.2025
Kyt. Supervaser
Apr.
Orjinal
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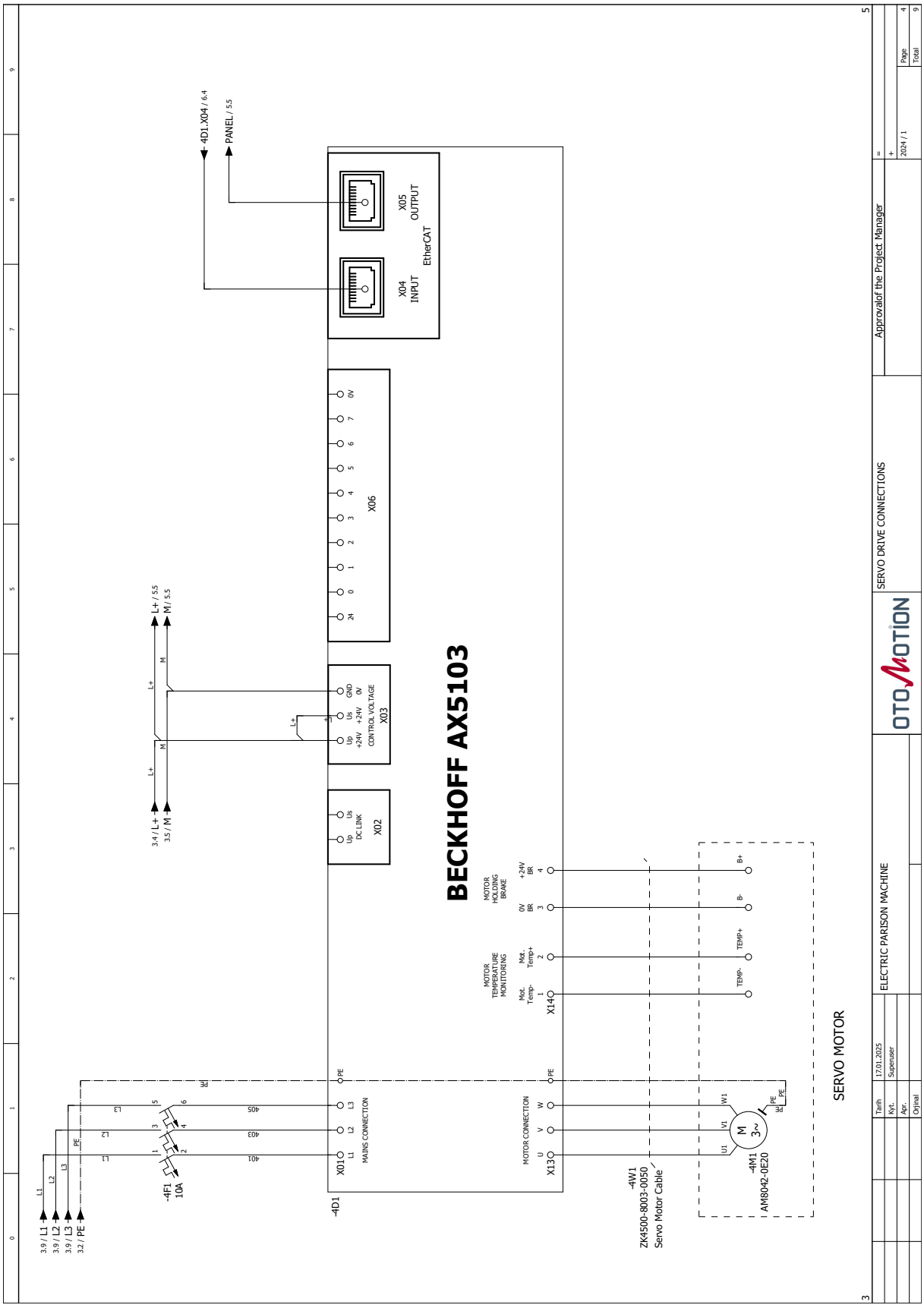
BECKHOFF AX5103
SERVO MOTOR
SERVO DRIVE CONNECTIONS
ELECTRIC PARISON MACHINE
OTOMOTION
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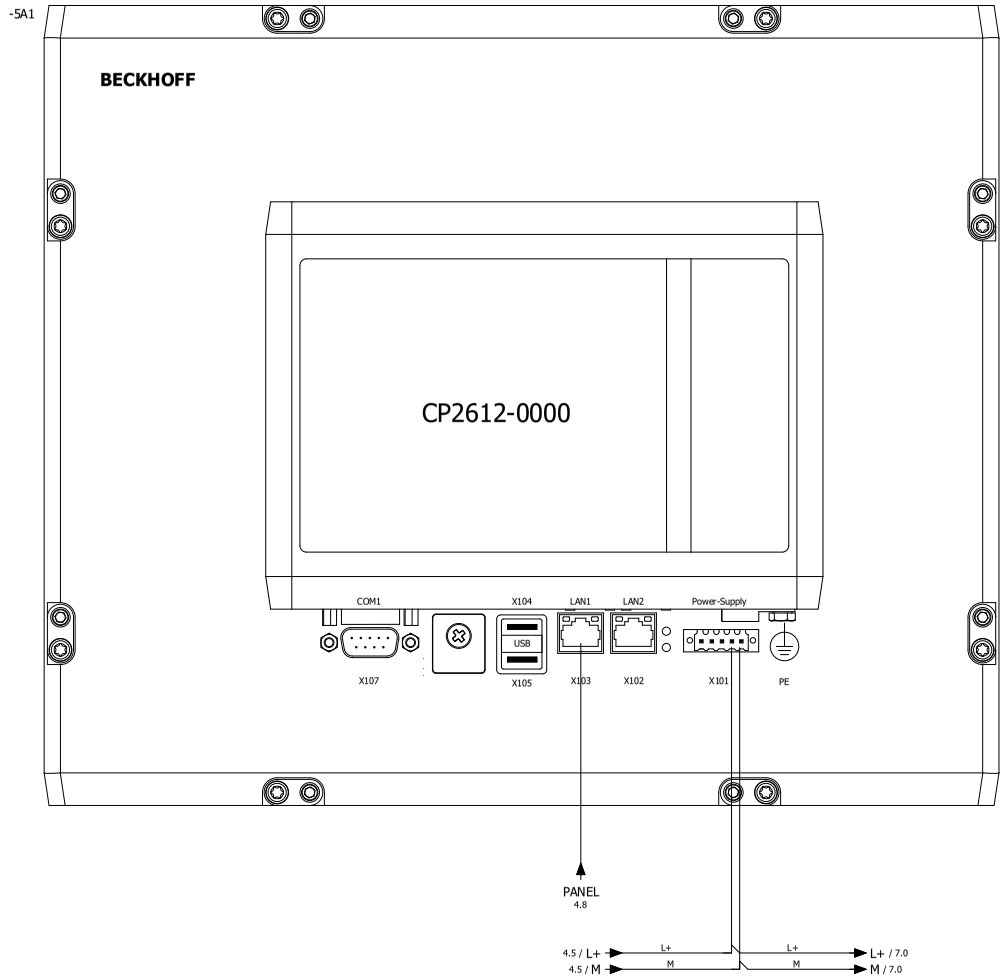
4D1.X04 / 6.4
PANEL / 5.5
X05 OUTPUT
EtherCAT
X04 INPUT
X06
X03 CONTROL VOLTAGE
X02 DC LINK
X01 MAINS CONNECTION
X14 MOTOR TEMPERATURE MONITORING
X13 MOTOR CONNECTION
MOTOR HOLDING BRAKE
3.9 / L1
3.9 / L2
3.9 / L3
3.2 / PE
-4F1 10A
3.4 / L+
3.5 / M
L+ / 5.5
M / 5.5
-4D1
-4W1 ZK4500-8003-0050 Servo Motor Cable
-4M1 AM8042-0E20
Tarih 17.01.2025
Kyk. Superuser
Apr.
Orjinal



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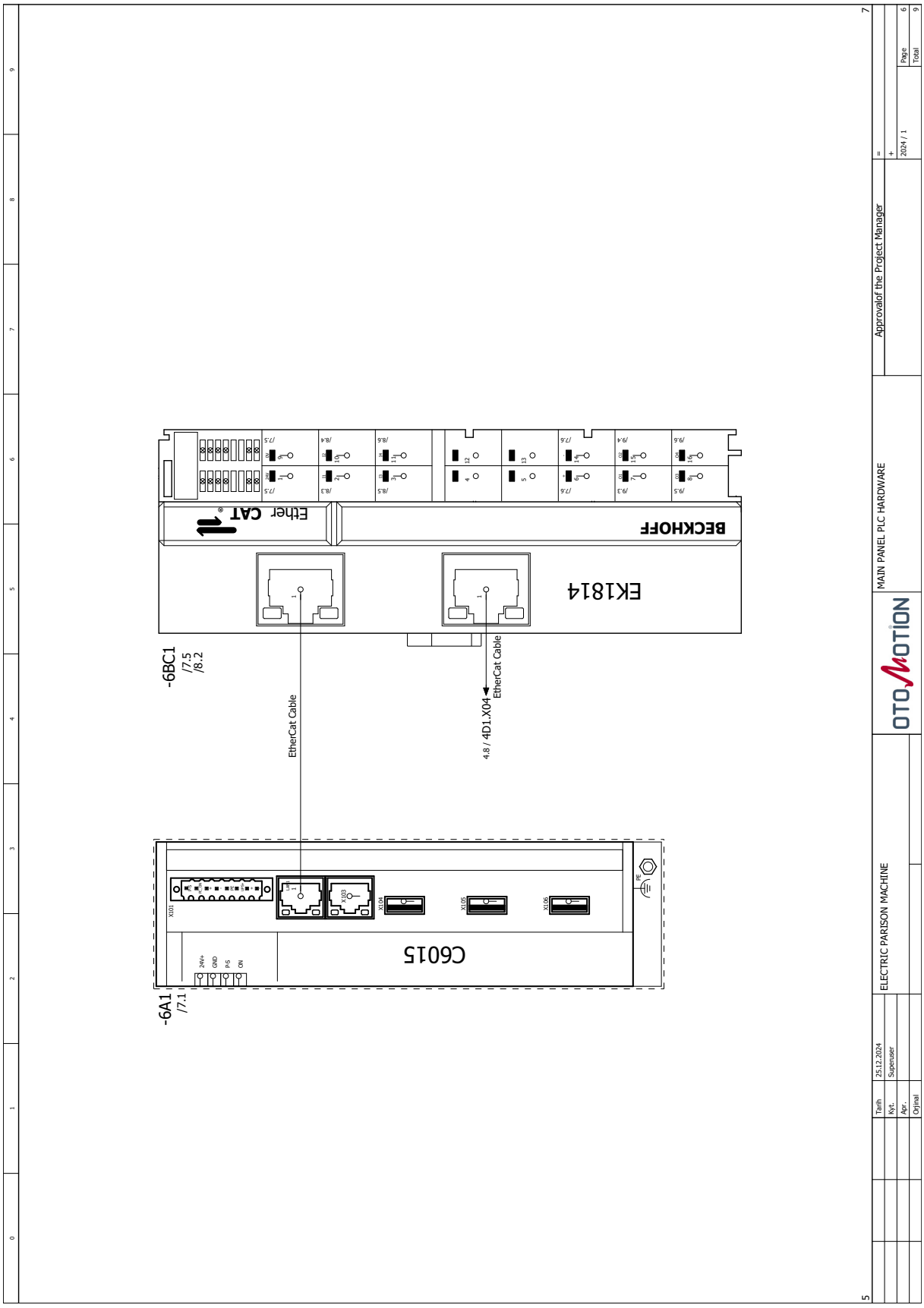
EK1814
BECKHOFF
EtherCAT
-6BC1
/7.5
/8.2
EtherCat Cable
EtherCat Cable
4.8 / 4D1.X04
C6015
-6A1
/7.1
MAIN PANEL PLC HARDWARE
ELECTRIC PARISON MACHINE
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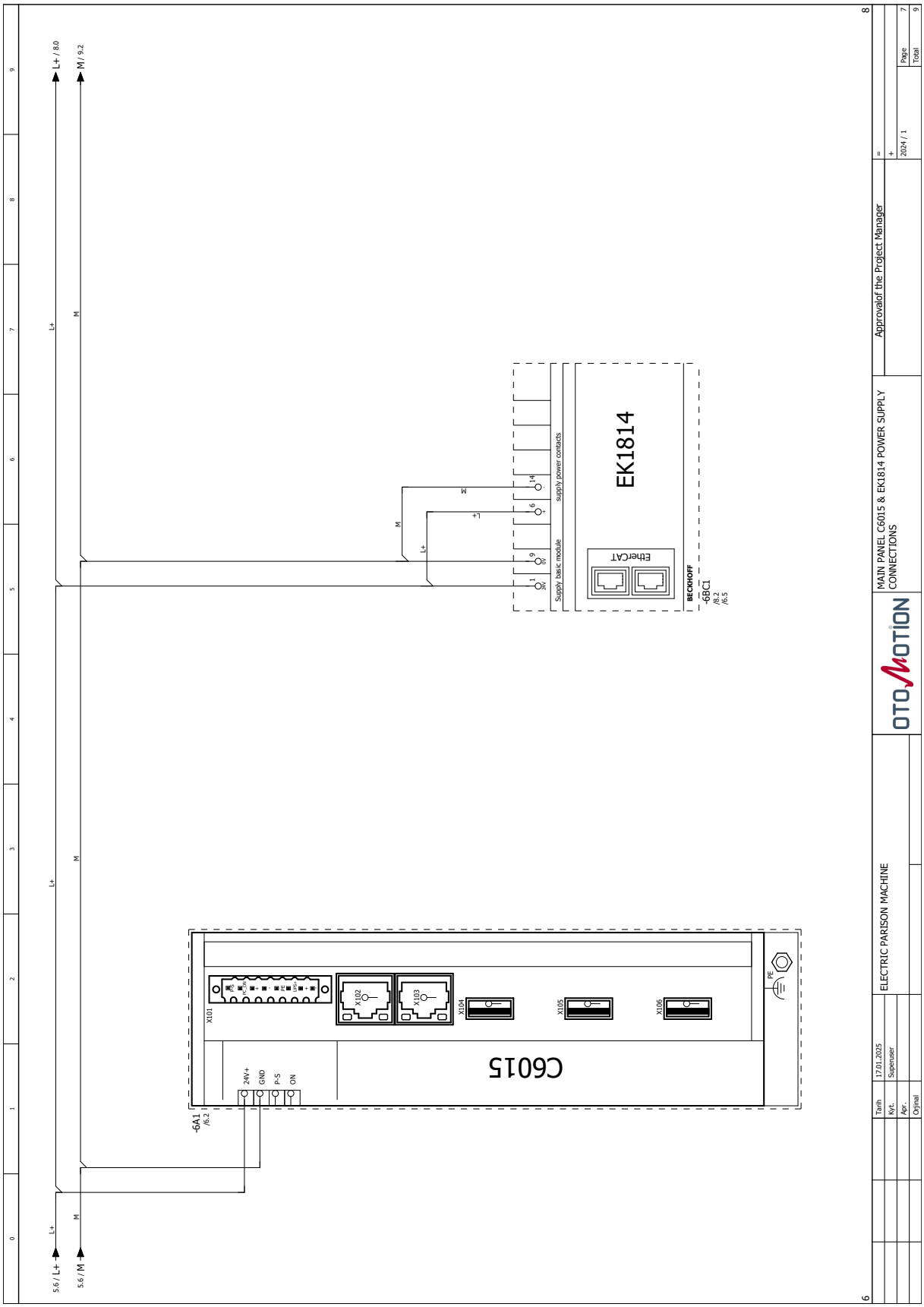
L+ / 8.0
M / 9.2
5.6 / L+
5.6 / M
EK1814
EtherCAT
BECKHOFF
-6BC1
/8.2
/6.5
Supply basic module
supply power contacts
C6015
X101
X102
X103
X104
X105
X106
24V+
GND
P-S
ON
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MAIN PANEL C6015 & EK1814 POWER SUPPLY CONNECTIONS
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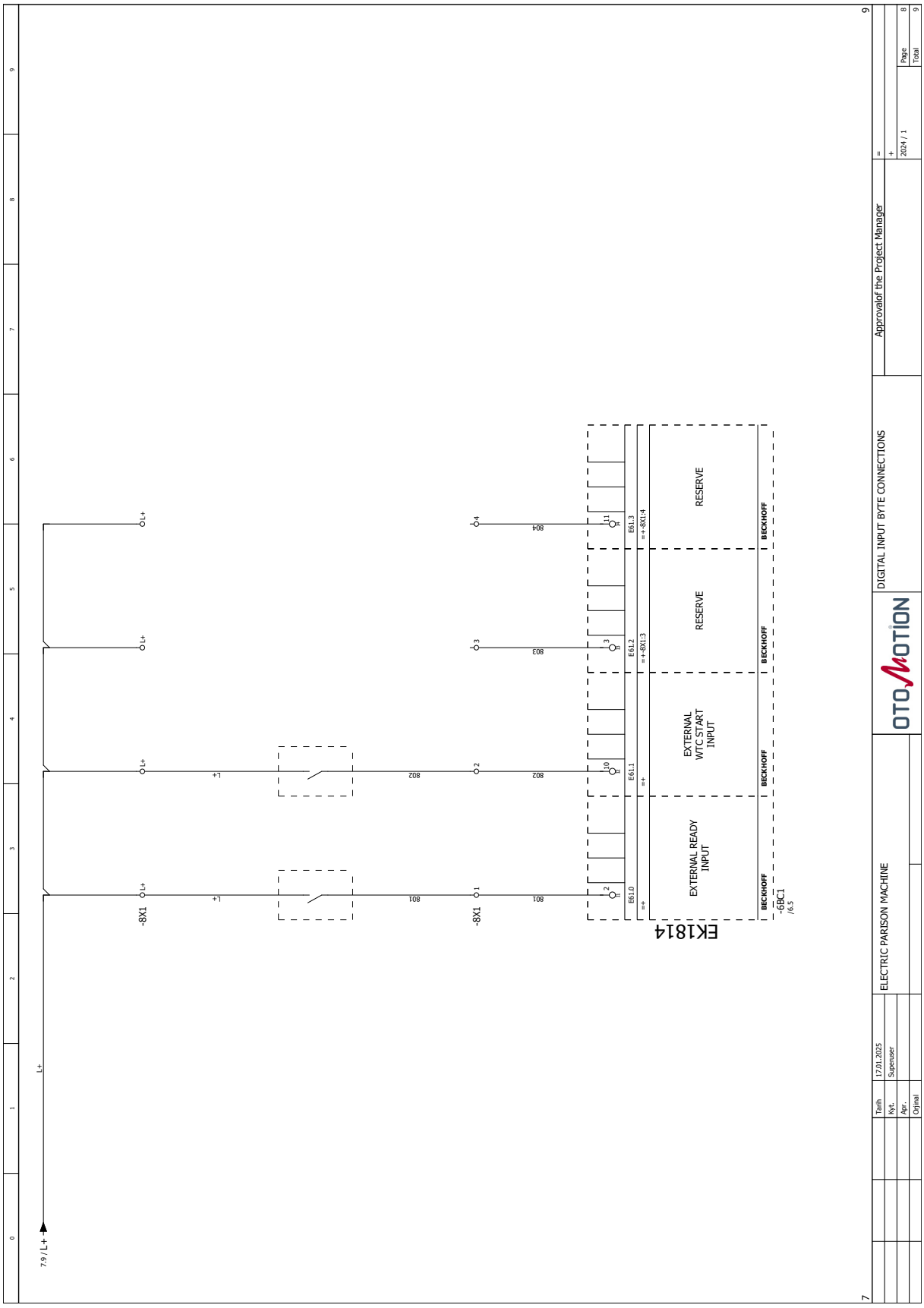
DIGITAL INPUT BYTE CONNECTIONS
OTOMOTION
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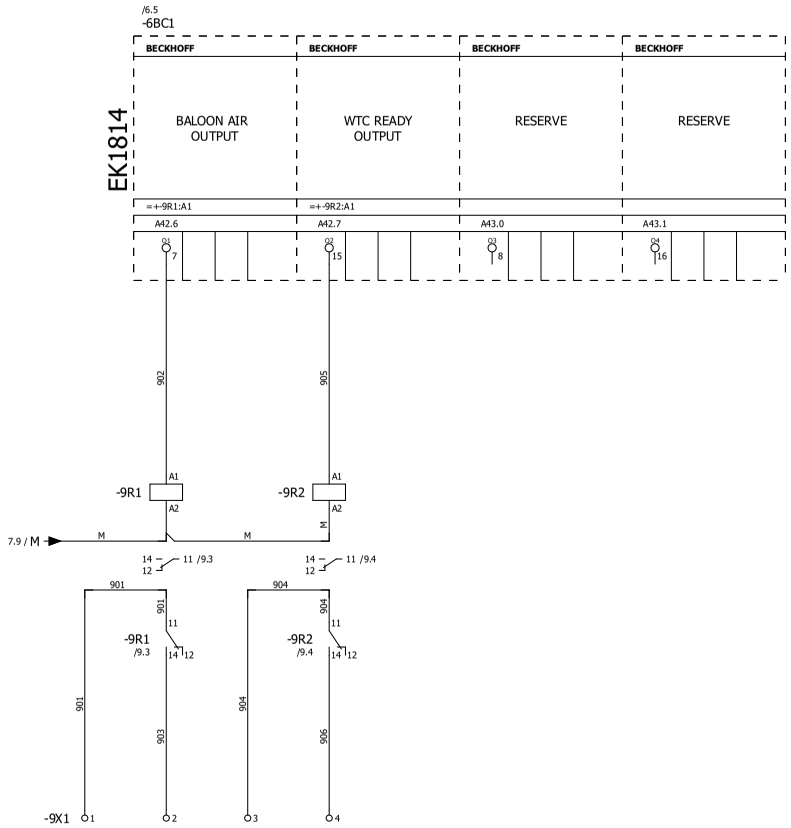
EXTERNAL READY INPUT
EXTERNAL WTC START INPUT
RESERVE
RESERVE
RESERVE
EK1814
BECKHOFF
-6BC1
-8X1
L+
801
802
803
804
E61.0
E61.1
E61.2
E61.3



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