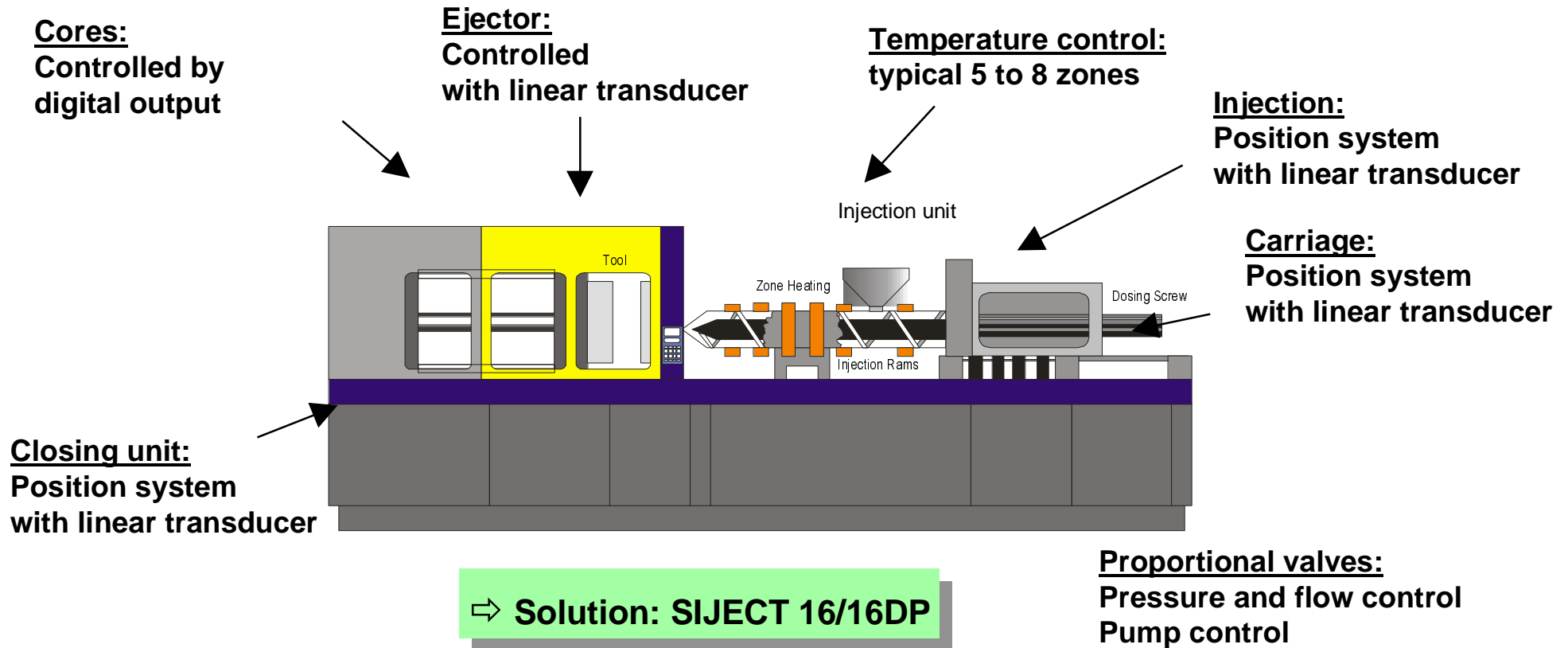


A&D MC PM1

SIJECT 16 / 16 DP
Technical Details
Product Series for
Injection Molding Control

Components of an Injection Molding Machine

→ typically controlled by micro controller

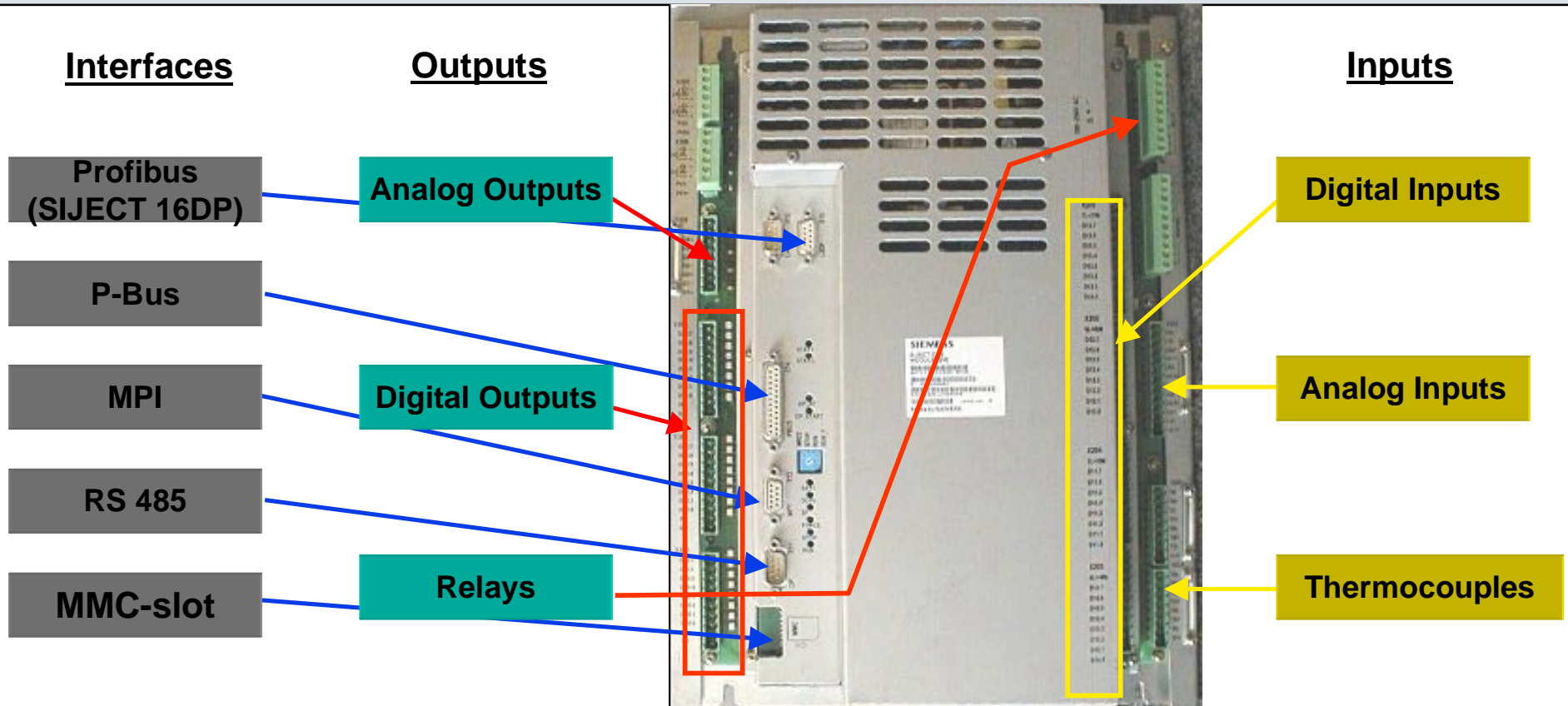


Contents



- Hardware CI board
- Technology Software
- Hardware HMI
- Fully Electric Injection Molding Machine

The structure illustration of CI



SIJECT, Hardware Features: CI Board



■ Digital Inputs

- all digital inputs optical isolated

■ Digital Outputs

- Short-circuit protection

■ Analog Inputs

- specified for Linear scales (1kOhm - 10 kOhm, 12 Bit)

■ Analog Outputs

- Prop. valve output (+/- 10V, 12 Bit)

or

- Prop. valve output with amplifier (+24 - 38V / 0,75 - 2A, 12 Bit)

SIJECT 16/16DP

CI board, Hardware and Interfaces



Input

Standard digital inputs: 31 / 31

High-speed digital input: 1
- Screw speed -

Analog inputs (linear scales): 4 / 4
- Position clamb unit -
- Position screw -
- Position ejector -
- Position carriage -

Thermocouple Channels: 6 / 8
- Sensor type: J or K -

Internal reference Temperature compensation: 1



Output

Digital outputs (Transistor): 24 / 24
- for solid state relays e.t.c -

Digital outputs (Relay): 8 / 8
- for motor Control e.t.c. -

Digital outputs (Relay): 8 / 8
- for Temperature actor
(Contractor, SSR)

Analog outputs: 2 / 4
- for proportional valve amplifier
or
proportional valve: 2 / 4 amplifier

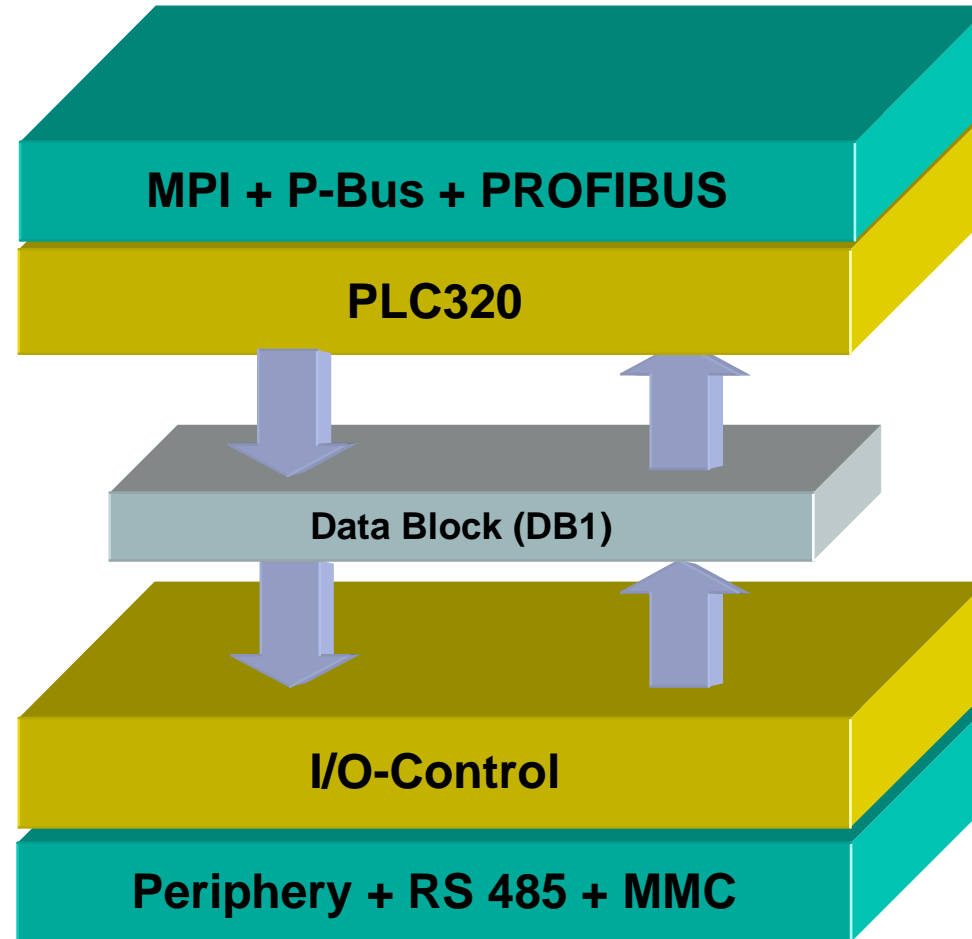
Interface

MPI
V24 (for OP 15)
P-Bus (for extension with S7-300)
Profibus (SIJECT 16 DP)
Multimedia Card (MMC)

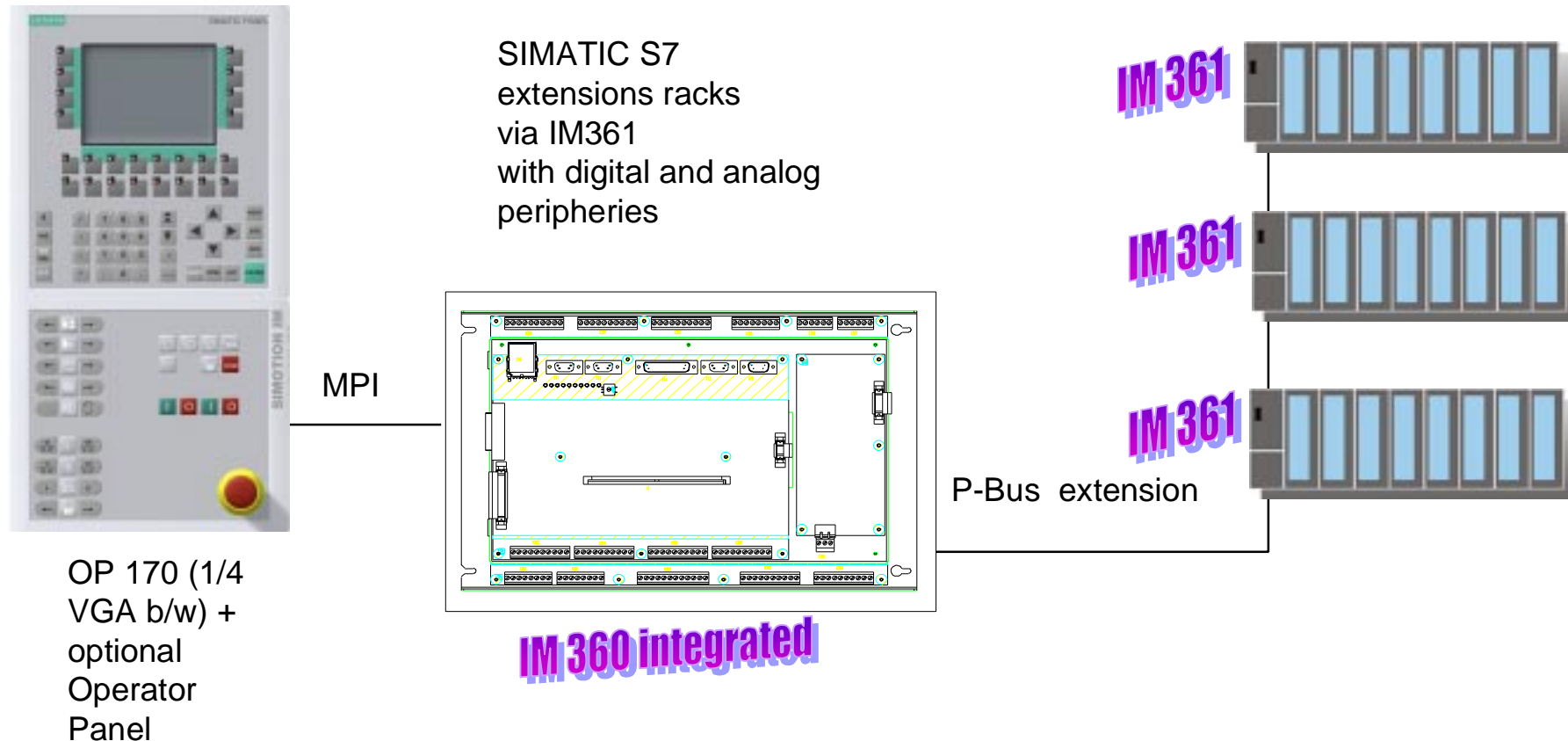
PLC-Modules

CI16: S7 CPU 314
CI 16 DP: S7 CPU 315 DP

SIJECT 16, structure of the CI board



Extension of 16DP with standard S7-300 peripherals



SIJECT with PROFIBUS DP

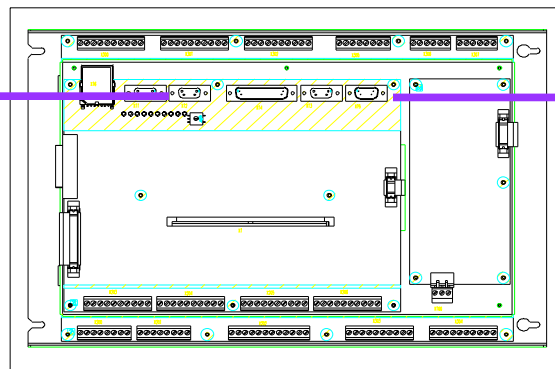


Master + Slave Configuration possible



TP 270/TP370 (10" color) + optional Operator Panel

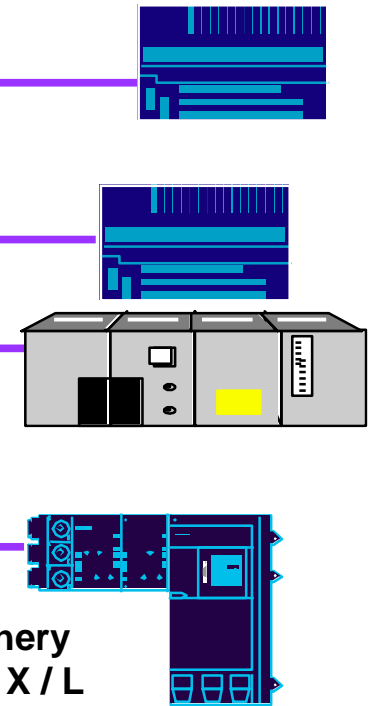
MPI



SIJECT - CI Board

Profibus DP

SIJECT Periphery
ET 200 S / M / X / L
Masterdrive
Simodrive
....

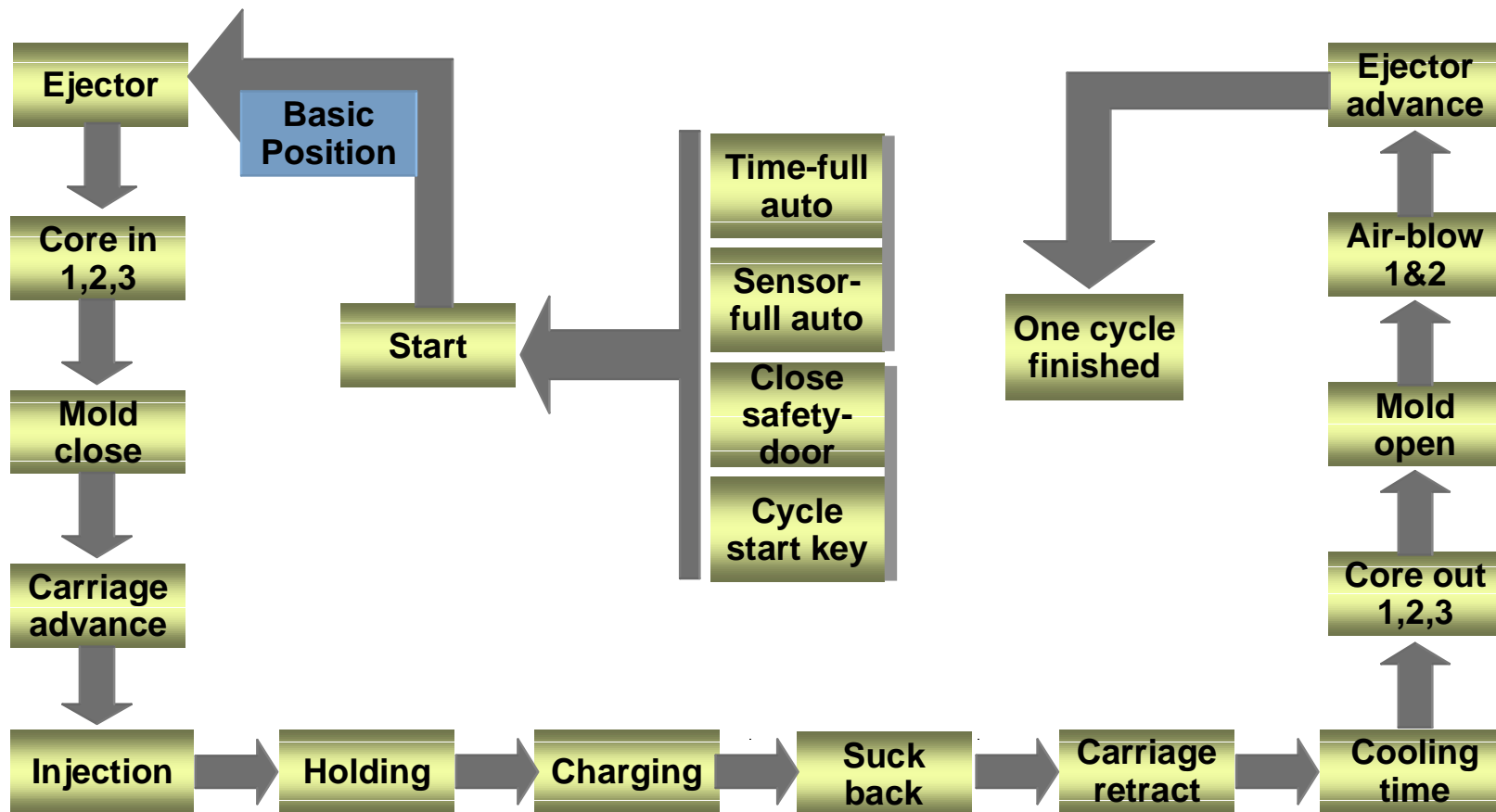


Contents



- Hardware CI board
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- Hardware HMI
- Fully Electric Injection Molding Machine

Open Loop - Program Structure



Open Loop



I / O - Function

- 4 Analog Input Scale with Reference Point
- 2 direct output function with scaling factor and time ramp
- display of screw rotation

Technology - Function

- Open Loop - Controller
- 4 Step Profiles for Injection, Hold Pressure
- 2 Step Profiles for Charging, Back Pressure
- 3 Step Profile for Clamp Movement, 2 Step Profile for Ejector
- “Cut Off” Switch Logic with Time or Position
- 3 Core, 2 Air-Blow and Carriage-Functions

Temperature Control Functions

- 8 Channel
- P-Controller
- Monitoring for Wire Break and Tolerances

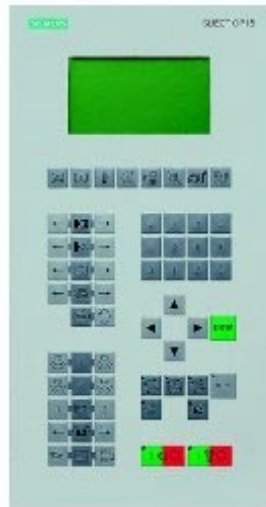


Contents



- Hardware CI board
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- Hardware HMI
- Fully Electric Injection Molding Machine

Operator Panels for SIJECT



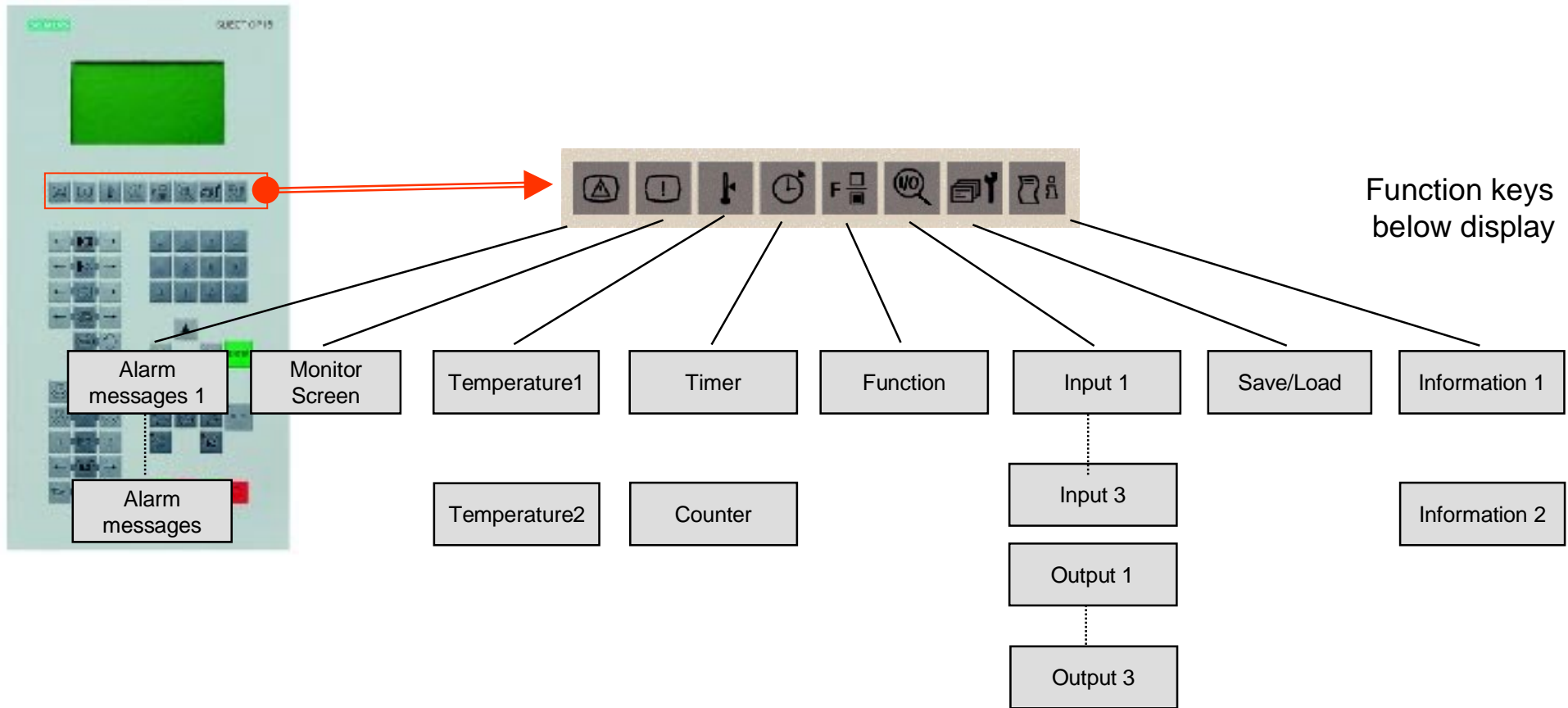
under preparation



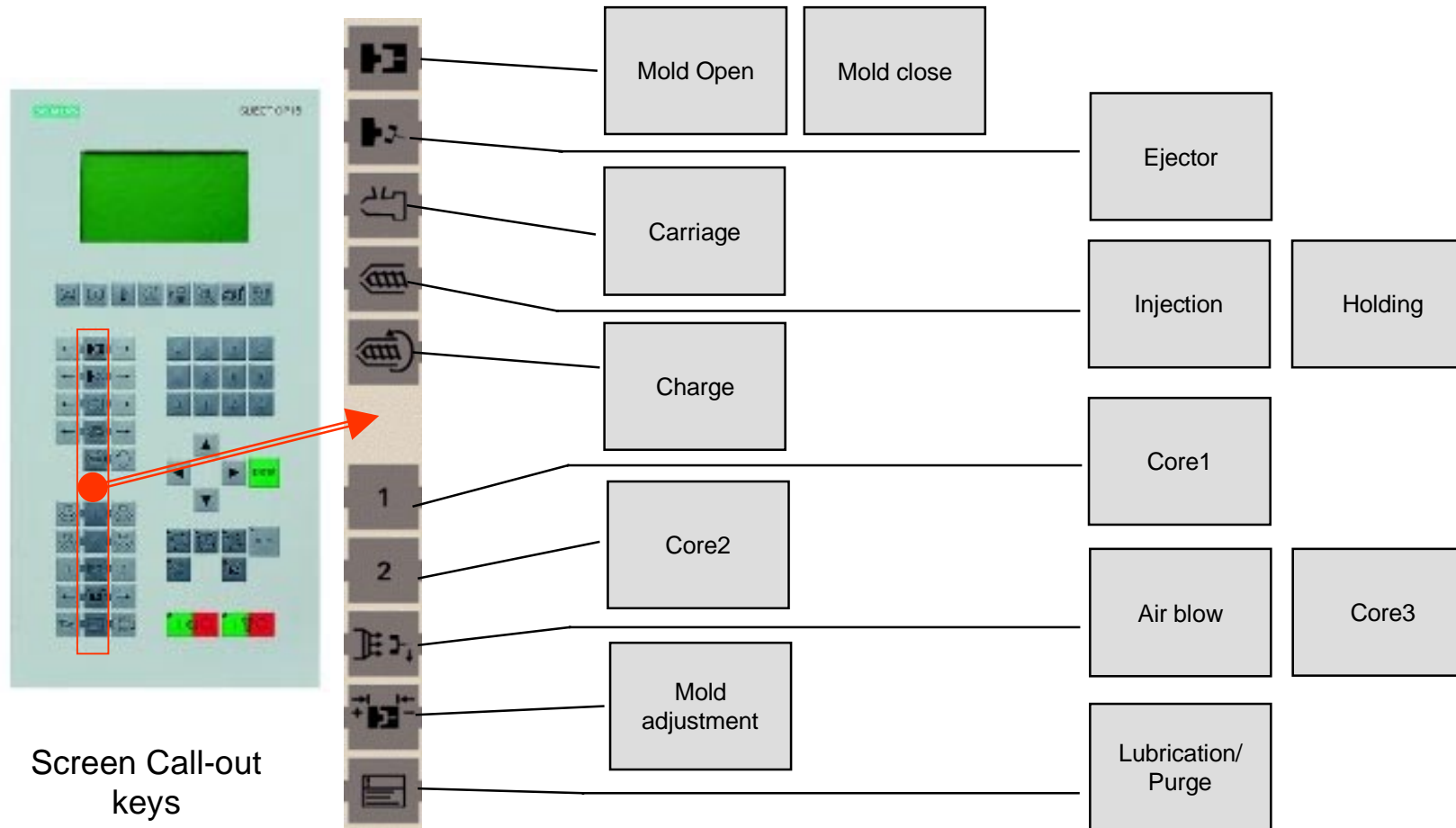
under preparation

- OP15 (240 x 128 dots LCD, 16 lines with 30 Latin Characters, 8 lines of 15 Chinese Characters, 64 Keys) fixed screens, only for “Open loop”
- OP 170 (1/4 VGA, b/w) with ProToolLite (Injection Molding Standard HMI/light) / optional with MSTT
- TP 270/370 (10” VGA, color) with ProToolPro (Injection Molding Standard HMI) + MSTT with Jog Shuttle

Menu tree of OP15 (function keys)



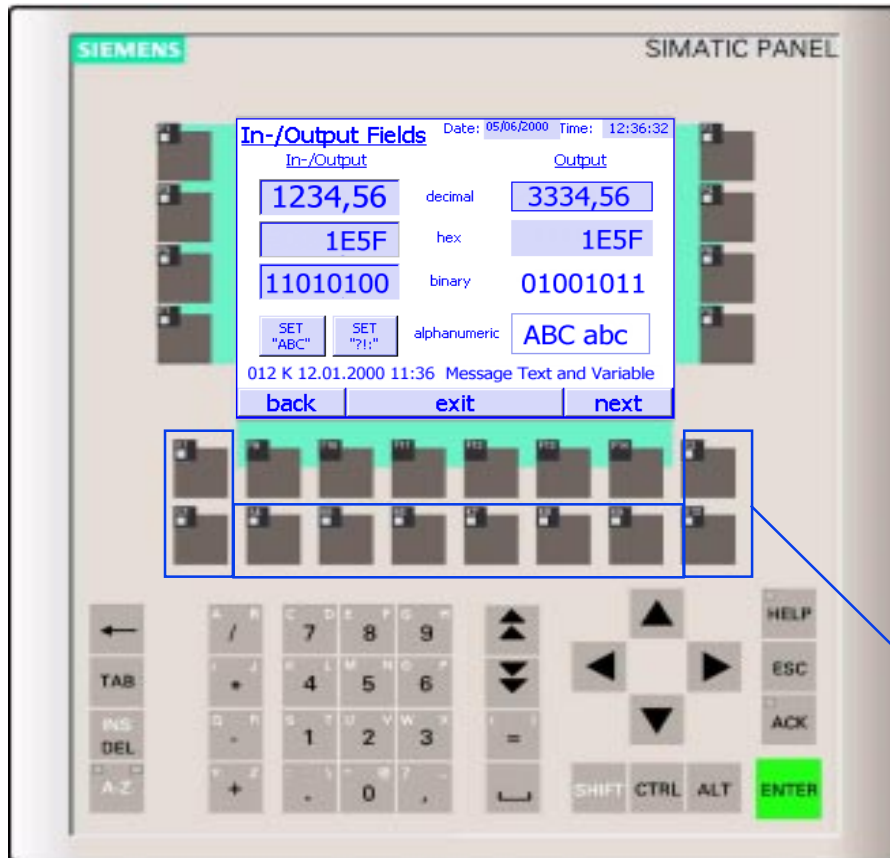
Menu tree of OP15 (screen call-out keys)



OP170B - CE Operator Panel



5,7"



- Recipes
- Curves
- Text- and Graphic lists
- Alarm and Machine mailfunktions
- 3 Online Languages (20 Offline)
- Foil Keyboard with LED's
- Password
- Alphanumeric inputs
- Alarm Clock
- Compact Flash Card
- and more.

OEM definable Machine keys

B/H/T: 240mm x 252mm x 45mm

OP 170 B - Screen Sample (open loop)



!
↻
❄️
🔧
🔌
🌀
📺
🌡️
i
⚠️

Act. product counter	99999	Start time	20:45:15
Current Start-up	99999	Cycle time	999.9 s
Current pressure	100	Production time	999.9 s
Current flow	80		

Information message
Manual lubrication
Purge setting
📄



Blue mode



MP 370 - CE Operator Panel

**12" TFT LCD Display
800 x 600 SVGA
256 colors**

**Smooth front
without cover,
degree of
protection IP65/
Nema 4/12**

**Temperature range
0° to 50° C**

**Serial interface of
configuration com-
puter and printer**



**Life expectancy of
backlighting: 50,000 hrs**

**Dimensions as TP27-10":
- Front 335 x 275
- Mounting 310 x 248 x 65**

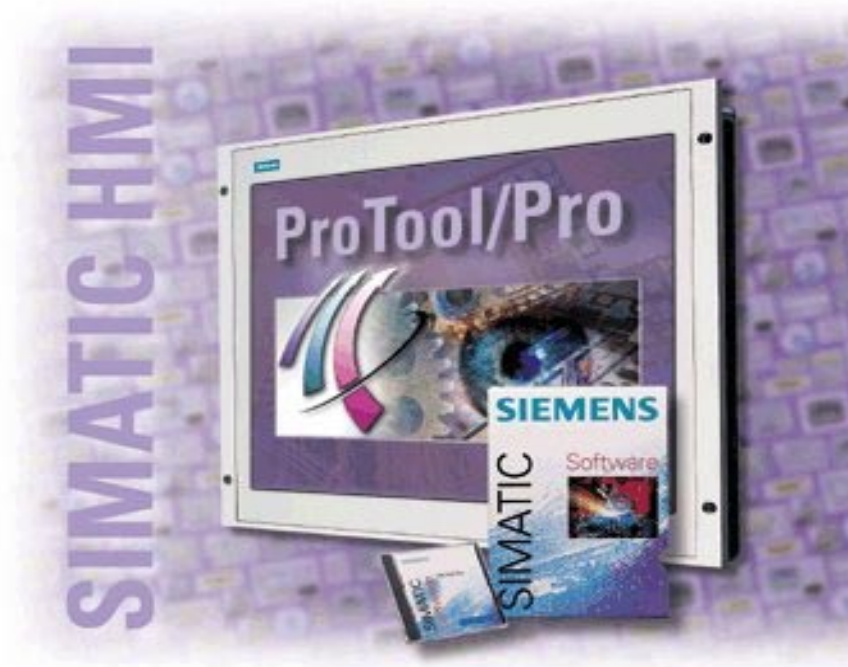
**6 MB
configuration memory**

PC/CF card slot

**Ethernet (TCP/IP)
interface**

**USB-interface poss. for
- keyboard
- mouse
- barcode reader**

SIJECT 16: HMI Software



■ ProTool/Lite for OP 170

- Configuration Software
 - MLFB 6AV6580-3BX05-2AX0
 - list price: 330.- Euro
 - no run time license necessary

■ ProTool/Pro for MP 270/370

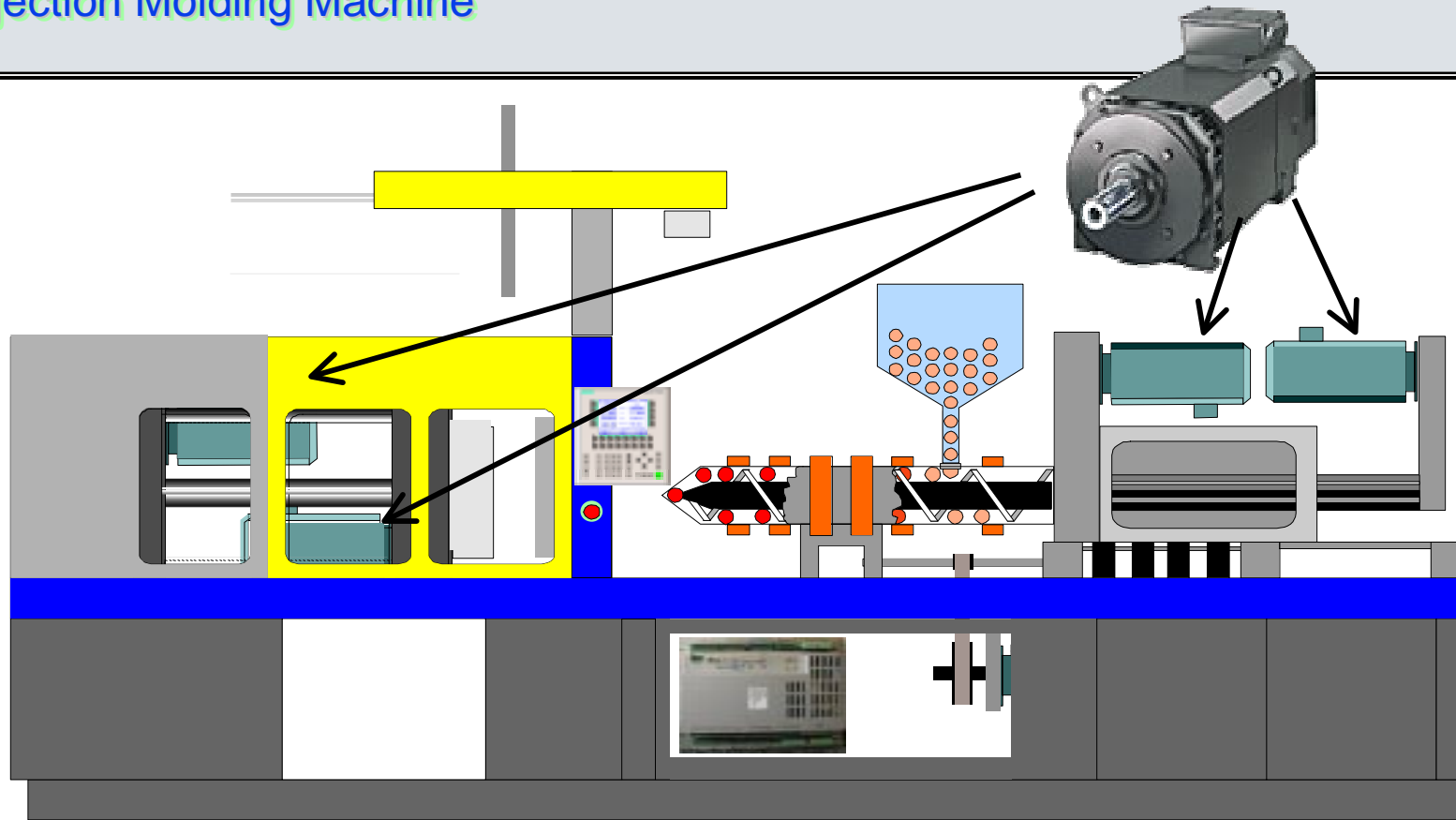
- Configuration Software
 - MLFB 6AV6581-3BX05-2AX0
 - list price : 930.- Euro
- run time software (2048 power tags)
 - MLFB: 6A6584-1AF05-2BX0
 - list price: 2195.- Euro

Contents



- Hardware CI board
- Technology Software
- Hardware HMI
- Fully Electric Injection Molding Machine
(under preparation)

Fully Electrical Injection Molding Machine



under preparation



Customer benefit,
for a Fully Electrical Injection Molding Machine

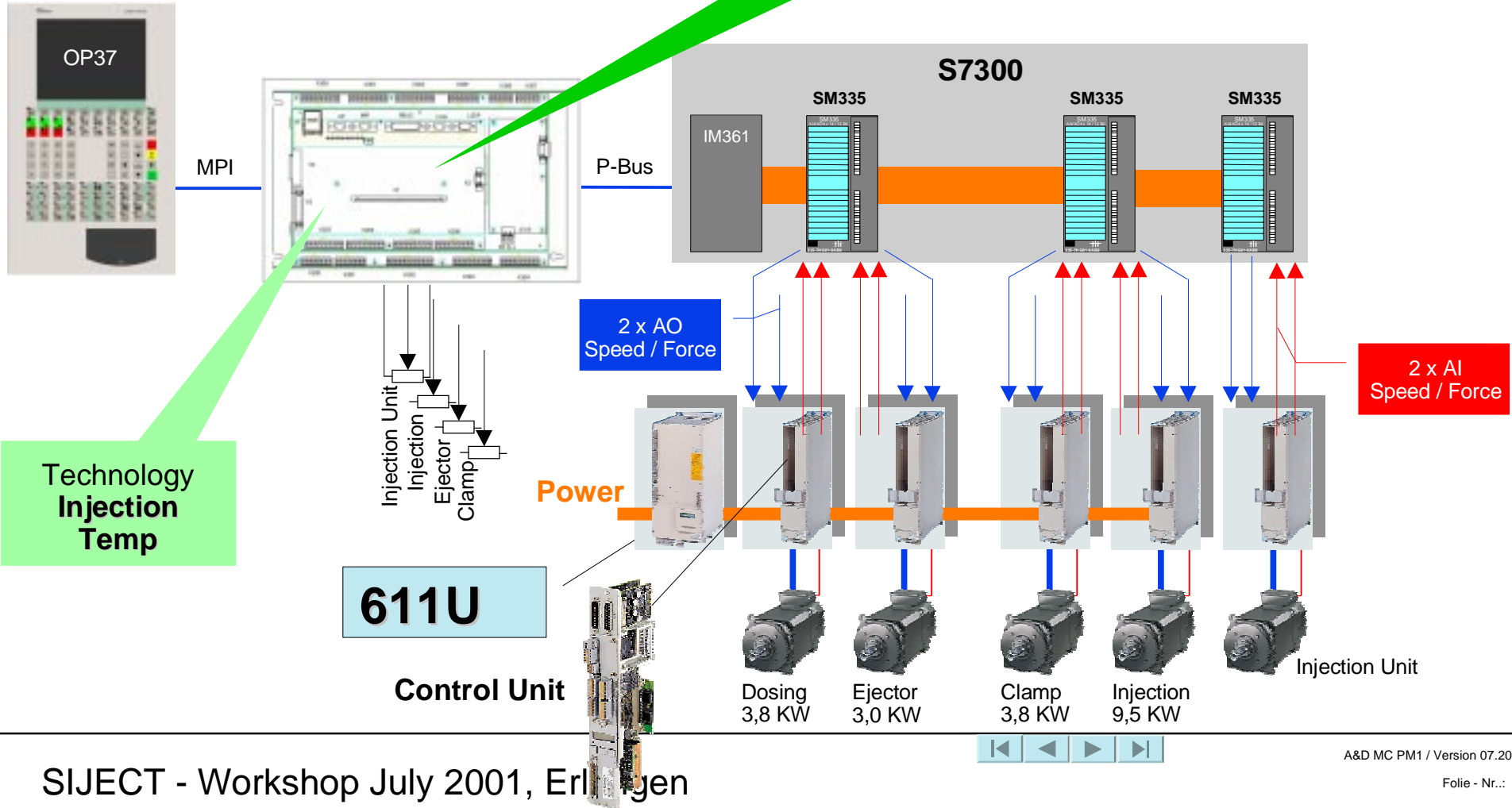


advantages:

- Higher accuracy
- Better repeatability **20-25 %**
- Reduced energy consumption **30-50 %**
- Clean room ability **100 %**
- Decreased Noise ejection **60-70 %**
- Smaller costs, for aim-off of lubricant, oil approx. **80 %**
- Smaller disposal costs (Oil) approx. **80 %**

High End Solution with OP37 Color, CI16 DP

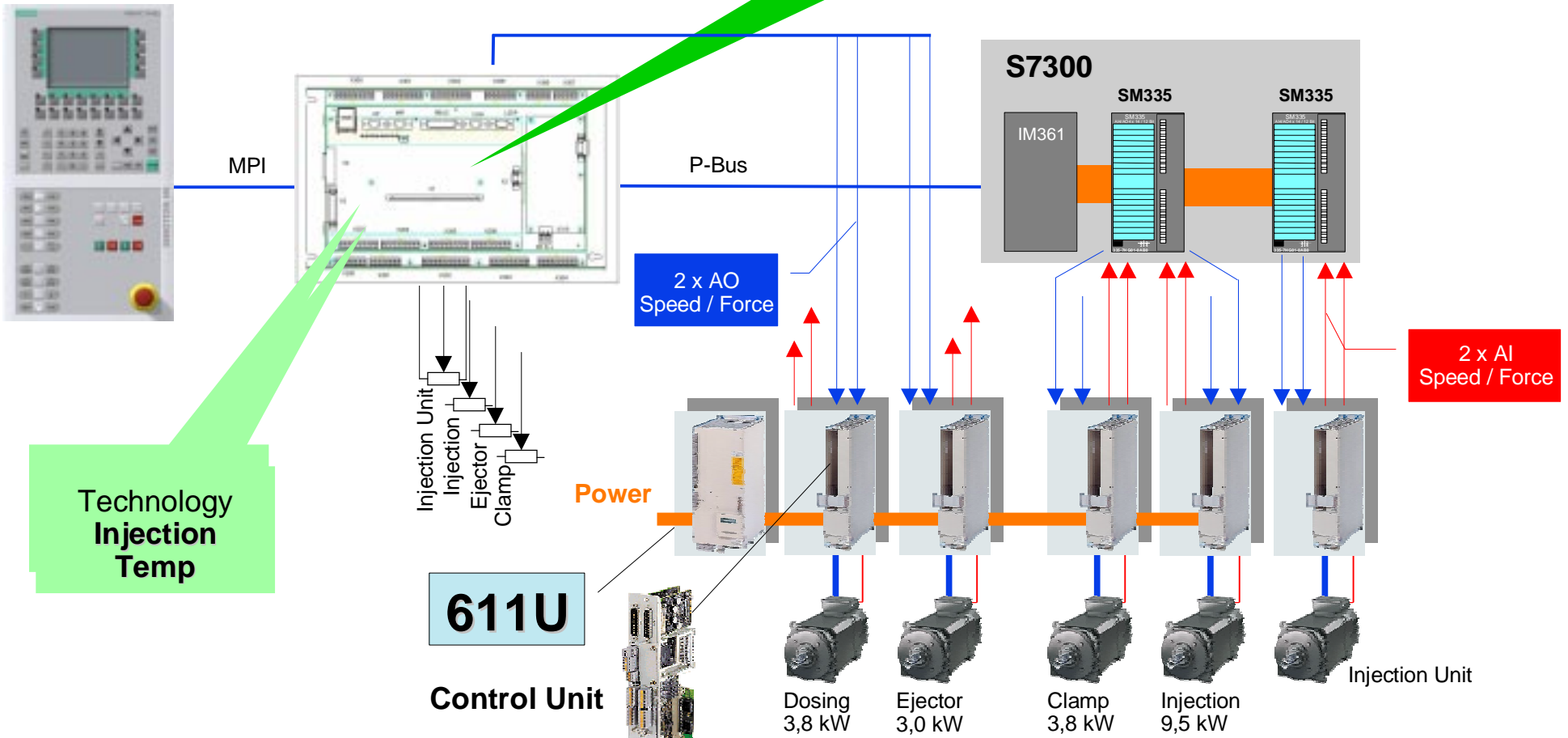
- 31 Input points 24VDC
- 24 Output points 24VDC/2A
- 16 Output points Relay
- 8 Thermocouple input points
- 4 Analog Linear Potentiometer inputs 0-10V
- 4 Analog Proportional Valve output 0-10V
- 4 Analog Proportional Valve driver output 0-10V
- 1 counter input



CI16 DP, OP170B

5,7"

- 31 Input points 24VDC
- 24 Output points 24VDC/2A
- 16 Output points Relay
- 8 Thermocouple input points
- 4 Analog Linear Potentiometer inputs 0-10V
- 4 Analog Proportional Valve output 0-10V
- 4 Analog Proportional Valve driver output 0-10V
- 1 counter input



Technology Injection Temp



Applikation Basisextruder



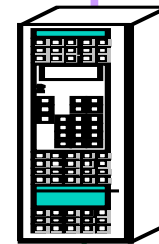
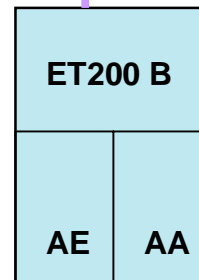
MPI

SIJECT
CI 16 DP

P-Bus

TEMP

PROFI
BUS



Expansion of
periphery,
drives, sensors
with
PROFIBUS-OP



MASTER-
DRIVES VC
15-250 kW

Cheap and fast
connection to
standard S7-
Periphery



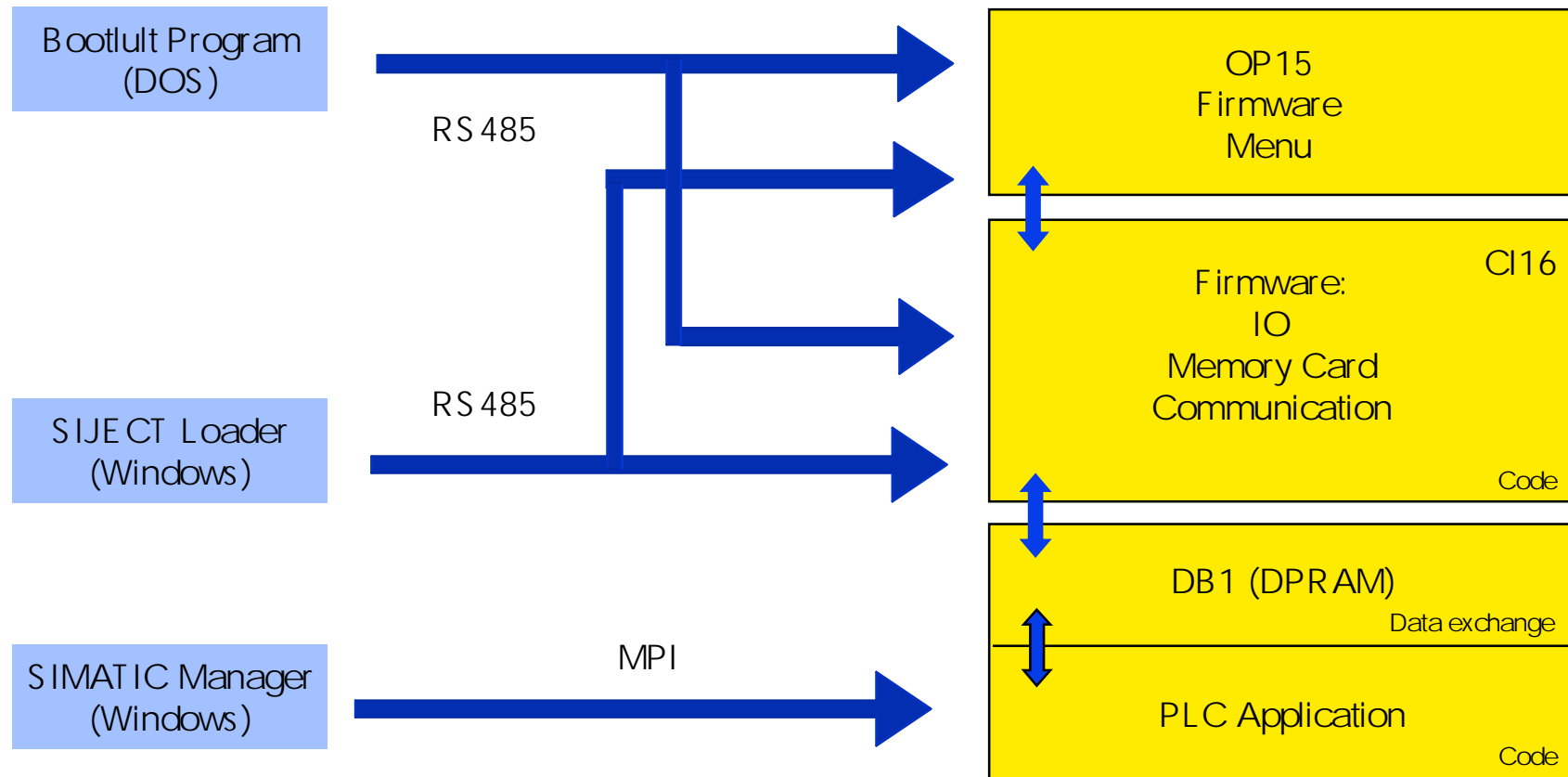
Back up sheets

Contents

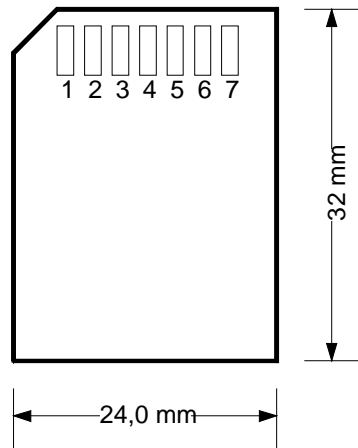


- Start-up & Service
- Technology Software
- Hardware HMI
- Fully Electric Injection Molding Machine

Software & Tools



Handling Multi Media Card (MMC)



Standard Memory Card (8 - 128 Mbyte)
Fully compliant with industry standards
Miniature postage stamp size
Low power consumption to conserve battery life

1. Recipes:
the MMC 50 can store up to 50 recipes
the SIJECT 30 can store up to 30 recipes
2. PLC - Controlprogram
3. Technology Software (TECH + TEMP)
4. Start page for OP 15