



**DENGENSHA**

# *Robot Integrated Weld Control*

## *Introduction*

*RWC-2000, RWI-2100: Fanuc R-J3iC*

*RWC-3200, RWI-3200: Nachi-Fujikoshi AX*

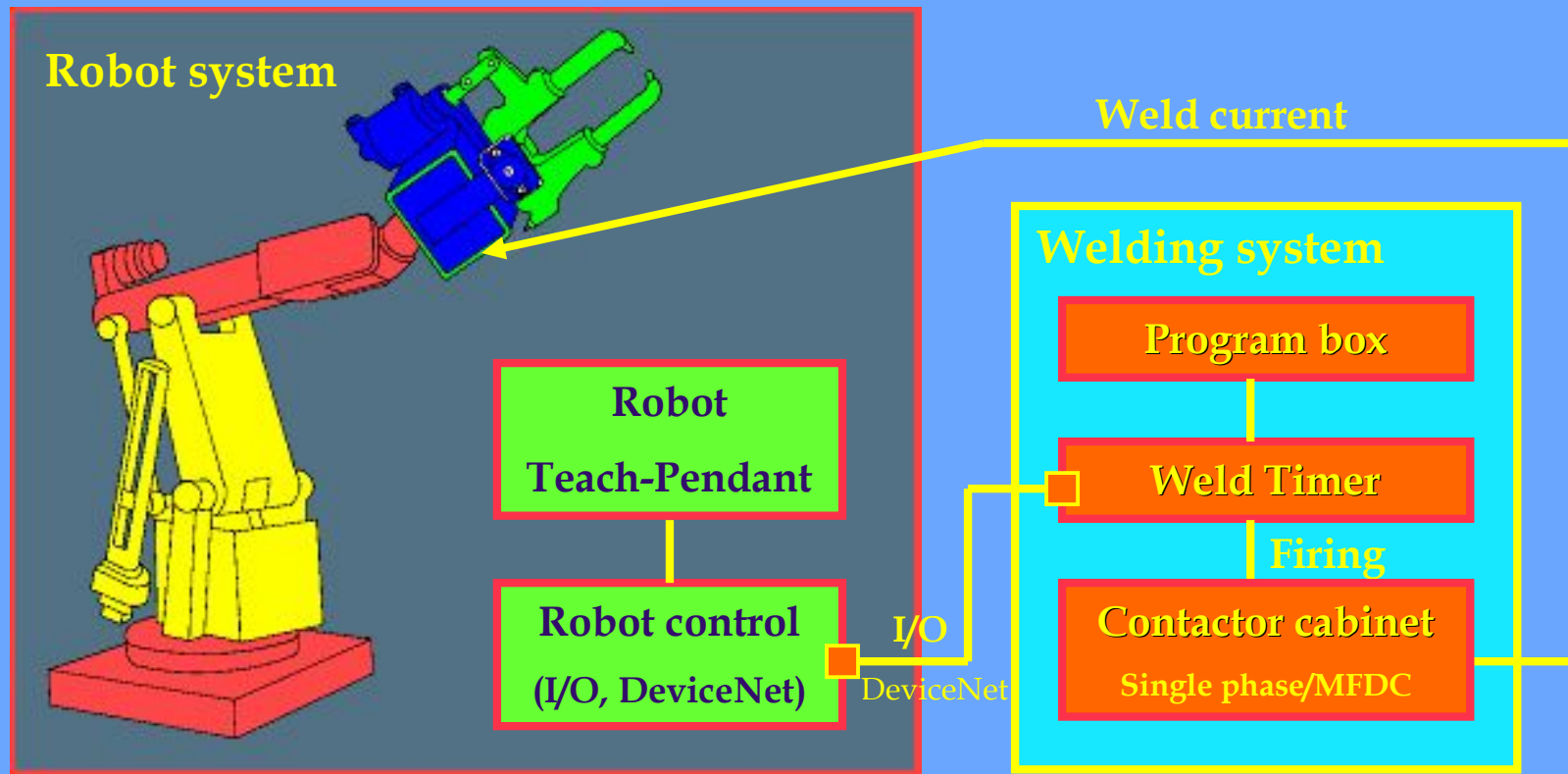
*RWC-4000, RWI-4100: Motoman NX100*

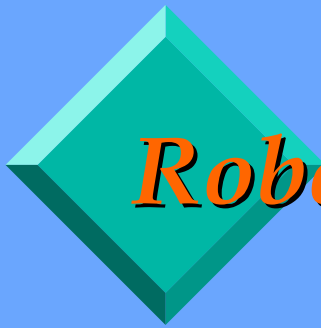
*RWC-6000, RWI-6100: ABB IRC5*



# Conventional Welding system

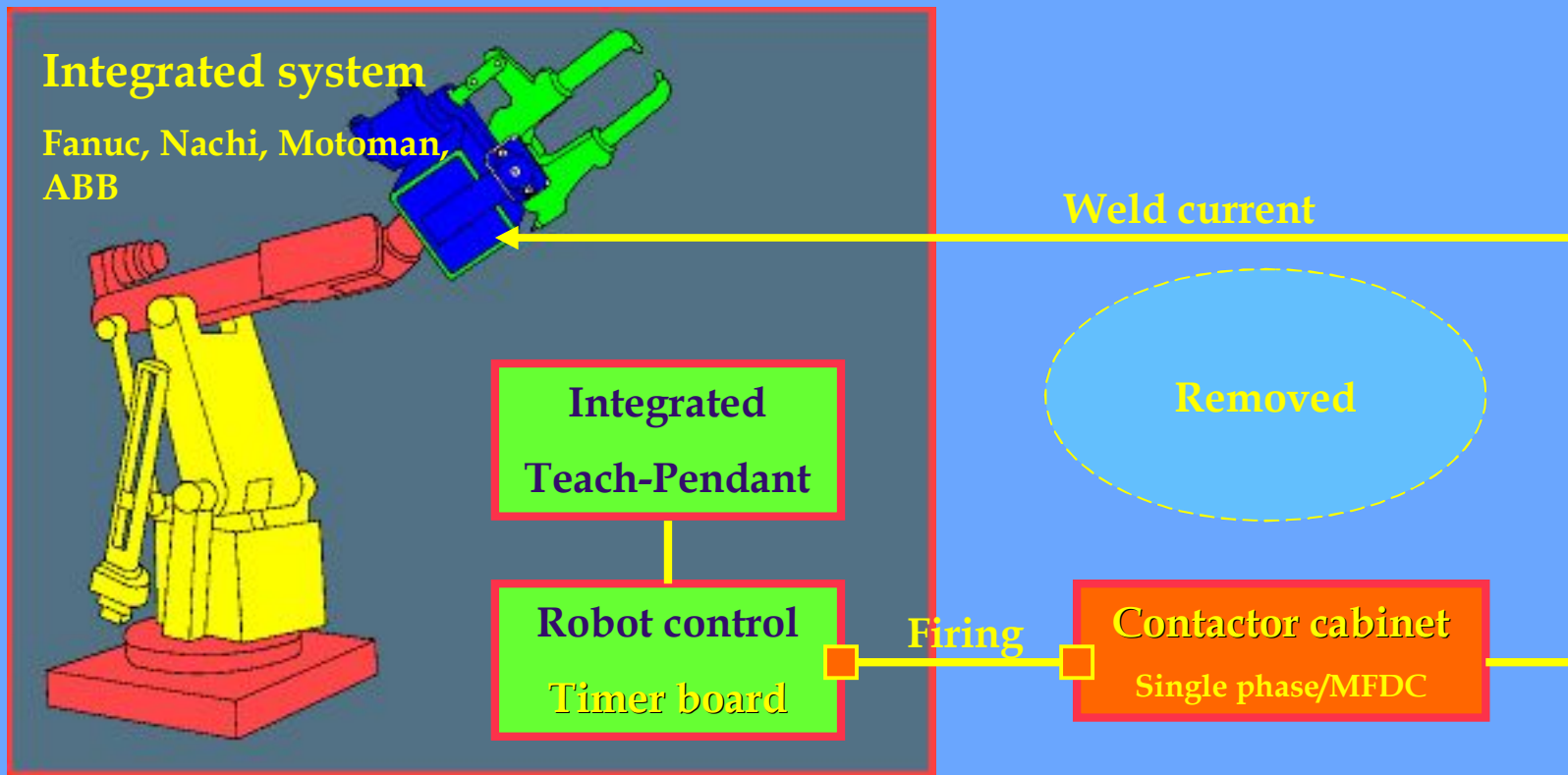
- ❖ Independent Robot and Weld Timer communicate by I/O or DeviceNet





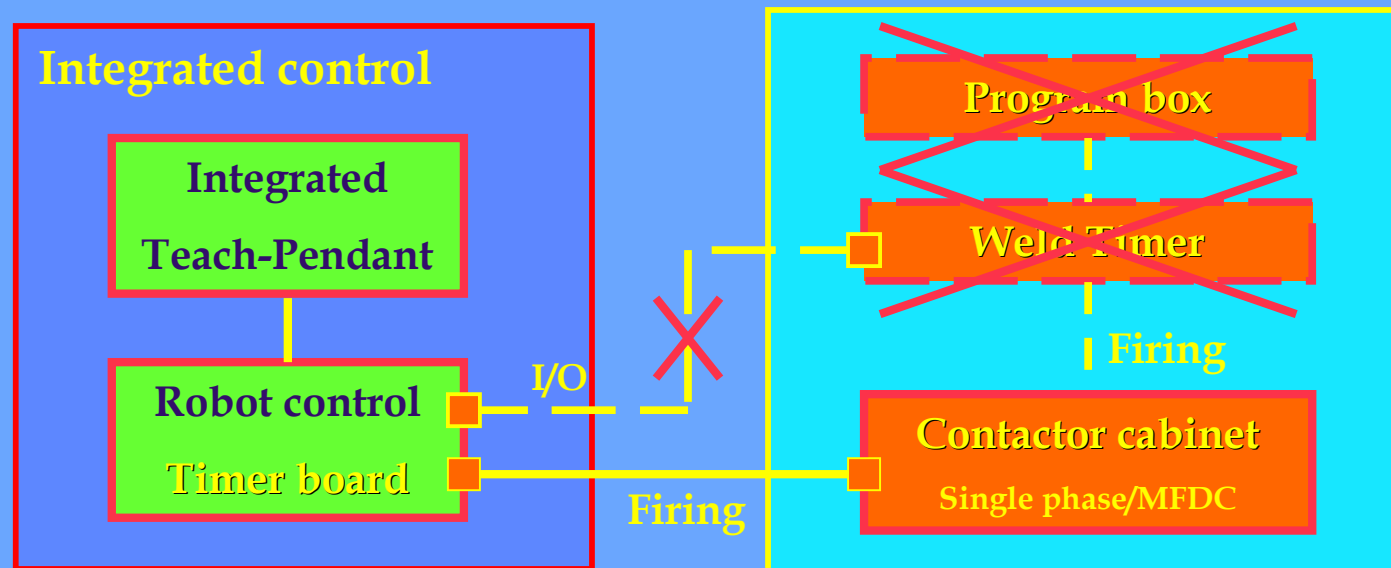
# Robot Integrated Welding system

- ❖ *Weld control is integrated in the Robot controller*



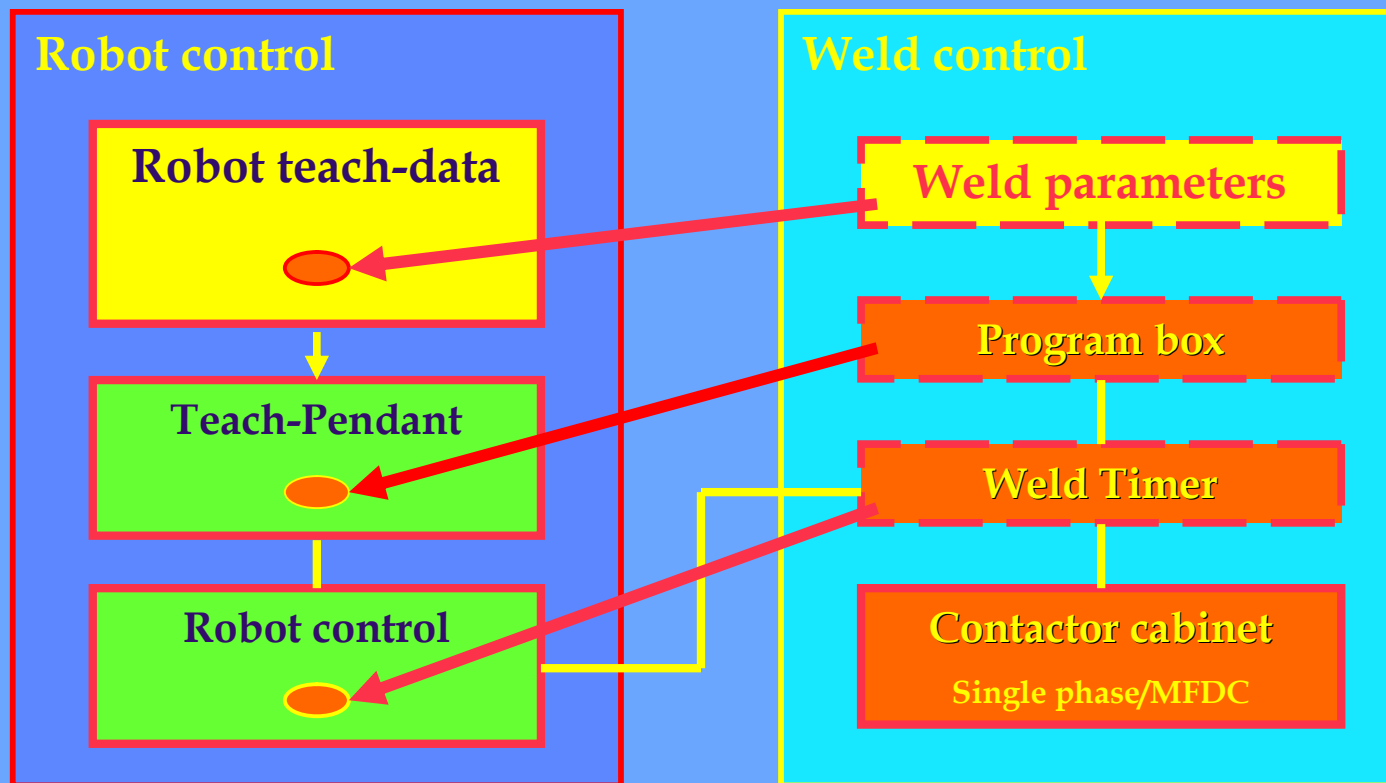
# Unification - Initial cost saving

- ❖ No longer need -
- ❖ Program box (for Timer)
- ❖ Weld Timer (Only Timer board in the Robot)
- ❖ I/O devices, wiring



# *Integrated data entry*

- ❖ *One screen - Simple operation, easier setup*



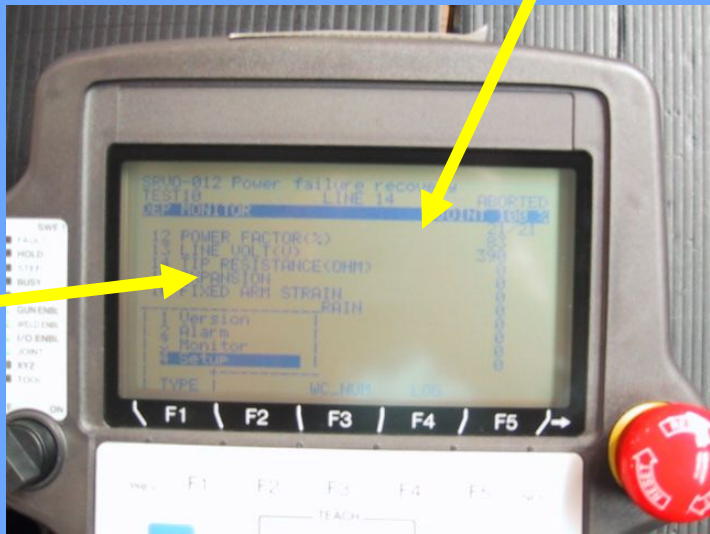


# Integrated Teach-pendant function

- ❖ Robot geometric teaching
- ❖ SPOT (welding) instruction program
- ❖ Weld parameter editing
- ❖ Monitor of weld results
- ❖ Weld faults display
- ❖ History log record

PART No.	14
CURRENT	8320 A
WELD TIME	16 cyc
LINE VOLT	438 V
.....	

SEQ No.	24
SQUEEZE	25 cyc
UP SLOPE	03 cyc
WELD 1	12 cyc
COOL	04 cyc
.....	

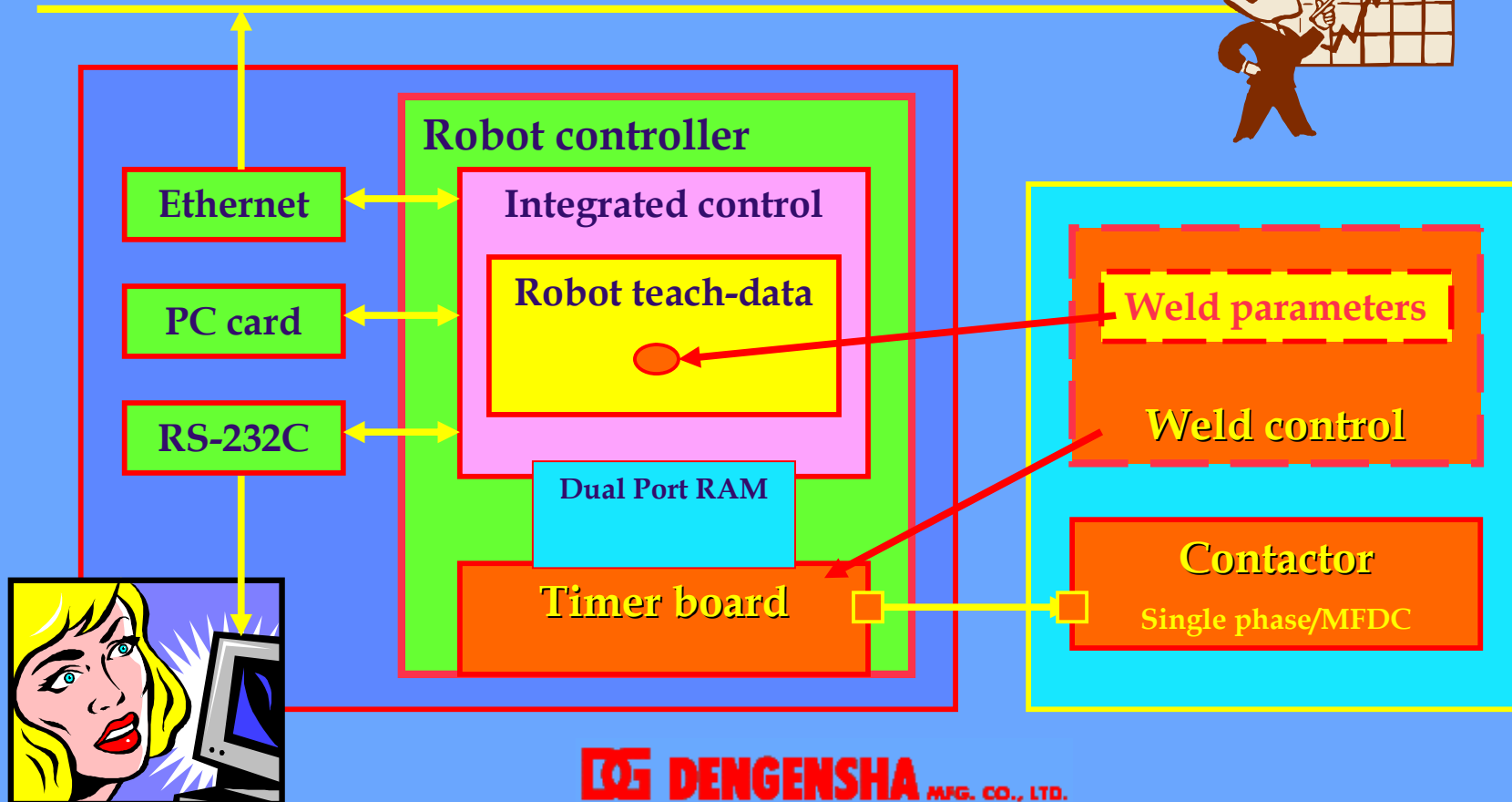




# Unified data memory

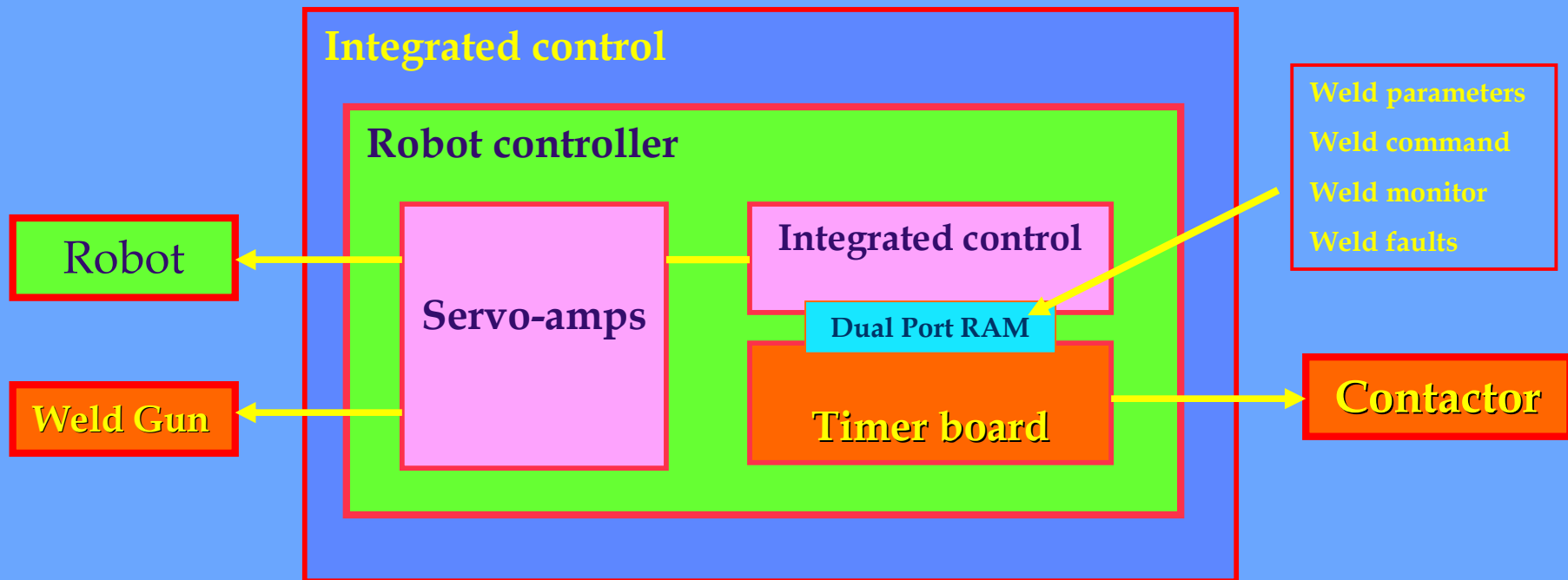
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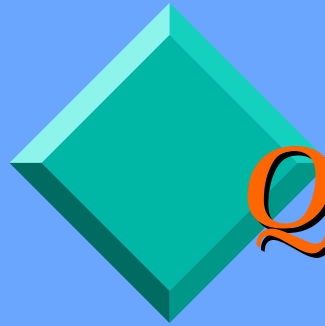
- ❖ All maintenance information in a Pendant screen
- ❖ Useful for better management



# Quicker response by Dual Port RAM connection

- ❖ Reduce cycle time - 5-10%





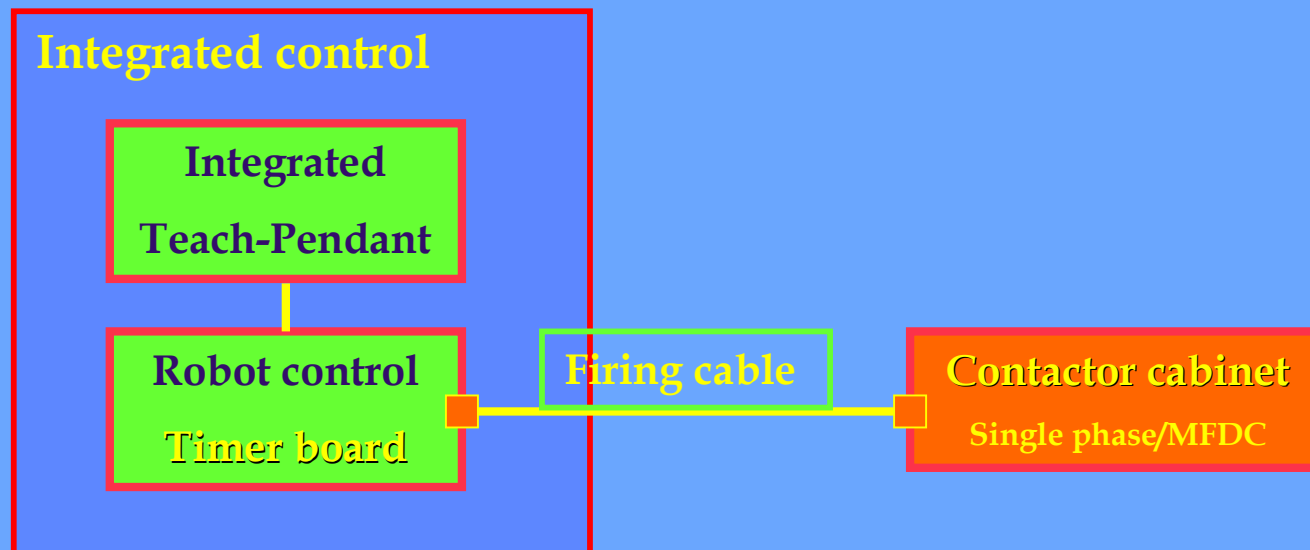
# Quicker transmission

*No noise filtering / Serial data / PLC scanning time of transmission*

Sequence	Start Trigger	Squeeze	Weld	Hold	Completion	Unit
Time	3	24	15	6	3	cycles
	0.05	0.4	0.25	0.1	0.05	seconds
Robot Integrated		0.75				seconds
Discrete I/O		0.85				seconds

# Simple interface

- ❖ *Only 1 firing cable between Robot and Contactor*
- ❖ *Simple installation, Less confusing*



# Advantage of the Robot Integrated Welding system

- ❖ *Unification – Initial cost saving*
  - : No need – Program Box, Weld Timer, I/O devices, wiring
- ❖ *Integrated data entry*
  - : Simple operation, easier setup
- ❖ *Unified data memory*
  - : All information in a screen
  - : Useful for better management
- ❖ *Quicker response by Dual Port RAM connection*
  - : Reduce cycle time – 5-10%
- ❖ *Simple interface*
  - : Only 1 firing cable between Robot and Timer
  - : Simple installation, Less confusing
- ❖ *For Fanuc, Nachi-Fujikoshi, Motoman, ABB robots*
- ❖ *Single phase AC, MFDC*

