

# 基于 PCS7 与 SMPT-1000 的工业生产控制系统设计

050043

DOI:10.12238/etd.v3i5.5538

**摘要:** 本文基于虚拟机下 PCS7 集成环境以及 SMPT-1000 实验平台实现工业生产连续控制, 选用 S7-400 系列 CPU 作为处理核心, 分析相关参数和工艺要求, 设计合理方案, 利用 PID 控制规律搭建 CFC、编写 SFC 顺序开车步骤, 并整定控制参数, 顺利实现了系统从冷态开车到稳定生产的全过程。开车过程迅速稳定, 产出浓度较高, 自动调节效果明显, 具有一定的抗干扰能力, 为真实工业生产提供了借鉴及控制思路。

**关键词:** 过程控制; PCS7; SMPT-1000; PID 调节

**中图分类号:** [TH-9] **文献标识码:** A

## Design of Industrial Production Control System Based on PCS7 and SMPT-1000

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**Abstract:** This paper realizes the continuous control of industrial production process, which based on PCS7 integrated environment under virtual machine and SMPT-1000 experimental platform. Selecting S7-400 Series CPU as the processing core. We analyze the relevant parameters and process requirements, designing rational project, using PID control rules to build CFC, compile SFC sequential start-up steps, and set the control parameters, making the whole process of the system from cold start-up to stable production successful. The start-up process is rapid and stable, the output concentration is high. System automatic regulation has obvious effect, and it has certain anti-interference ability, which provides reference for real industrial production.

**Keywords:** Process control; PCS7; SMPT-1000; PID regulation

引言

[2]

### 2 控制回路及顺序开车步骤设计

2.1

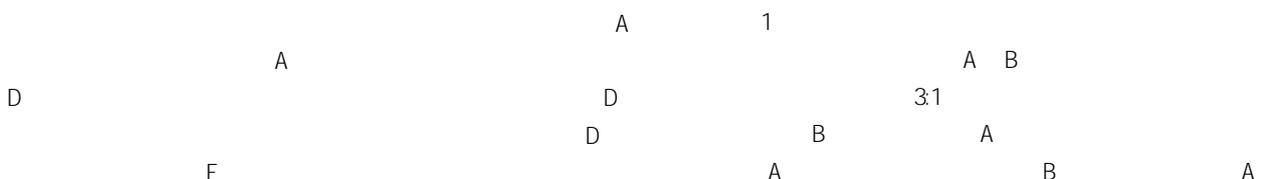
		S7- 400	CPU
412- 5H PN/DP	PROFIBUS		I/O CPU
PROFIBUS DP	SMPT- 1000	PM125	
	PLC 400	CP	7
		PM125	4
			0
	Byte		512
WORDS	CUP	CFC	SFC

[1]

### 1 工艺生产过程分析

A B

2.2





A

3 响应曲线及性能分析

B C 9.3.1

50kPa

80%

130

40%

600

40%

5.7kg/s

4 结语

PCS7

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