SMARTEH®
LIVING SYSTEMS

GENERAL INDUSTRIAL CATALOGUE

Product Overview

Product Overview

SMARTEH LPC-3 PROGRAMMABLE LOGIC CONTROLLER PRODUCT LINE 4
1.1. Standards and provisions 4
1.2. Environment 4

LPC-3 PLC BASICS 5
2.1 LPC-3 PLC Connectivity 6
2.2 LPC-3 PLC Key Functionalities 7
2.2.1 Input Output Universal PLC 7
2.2.2 Input Output Transistor PLC 8
2.2.3 Input Output Relay PLC 9
2.2.4 Graphic Operation Terminal PLC 10
2.3 LPC-3 PLCs Specification Overview 11

Written by SMARTEH d.o.o.

GENERAL INDUSTRIAL CATALOGUE
Document Version: V.01 October, 2015

Smarteh LPC-3 Programmable Logic Controller Product Line

Smarteh's third generation of customizable PLCs (Programmable Logic Controller) is ideal solution for the automation of machines and production lines where high number of various input, output and communication connections per single PLC is desirable. LPC-3 controllers offers through its innovative design a very attractive solution for a competitive price. The modules are designed with special attention to the machine building market.

Customization

Customizable PLCs, LPC-3.IOU (Input Output Universal), LPC-3.IOR (Input Output Relay), LPC-3.IOT (Input Output Transistor) and colour LPC-3.GOT (Graphic Operation Terminal).

Connectivity

LPC-3 controllers can be used as local or/and remote units, which allows the user to have a distributed control system.

Configurability & Programmability

The functionality of all the modules is simply configured using Smarteh IDE (Integrated Development Environment) software tool, which is also used to program the controllers and supports all five standard PLC languages (FBD, LD, SFC, ST, IL).

Economy

Smarteh third generation of PLCs is the ideal solution for the automation of machines and production lines, where the ratio between performance and price is one of the key elements and the demand of quality is a premise. With the use of Smarteh third generation of controllers it is possible to avoid the development of a customized electronics control units which is typically very expensive and time consuming.

1.1 STANDARDS & PROVISIONS

	LPC-3
EMC	IEC/EN 61000-6-2 (EN 50082) IEC/EN 61000-6-4 (EN 50081)
LVD	IEC/EN 61010-1:2010 IEC/EN 61010-2:2013

1.2 ENVIRONMENT

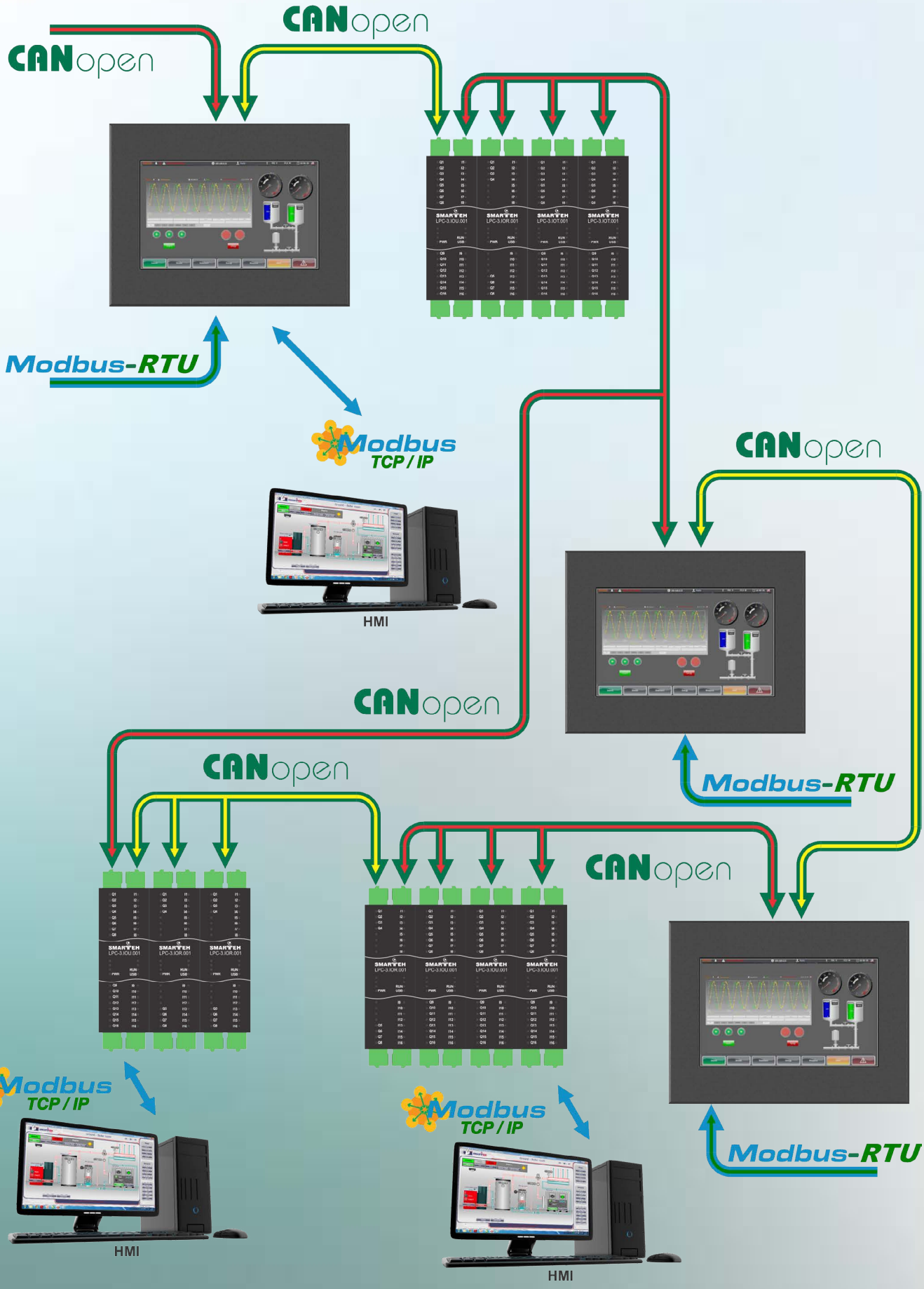
		LPC-3
Temperature	Operation	0 to 50 °C
	Storage	-20 to 60 °C
Relative humidity		max. 95%, no condensation
Permissible altitude		2000 m
Pollution degree		Class II (double insulation)
Protection class		IP 30

SMARTEH
LIVING SYSTEMS

LPC-3

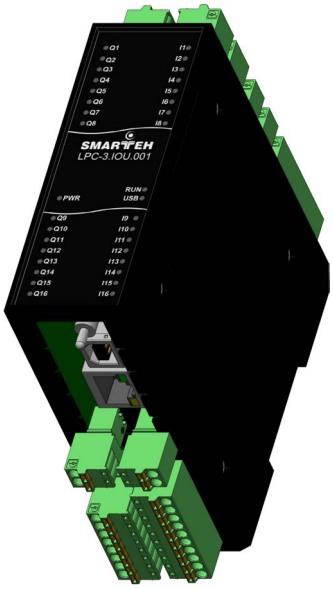
Basics

2.1 LPC-3 PLC Connectivity



2.2. LPC-3 PLC KEY FUNCTIONALITIES

2.2.1 Input Output Universal PLC



LPC-3.IOU is an innovative Universal PLC with software selection of the type and function for each of the 16 inputs and 2 analog outputs. Each of 16 inputs can be individually configured as digital (-12..30 V) input with a selectable range of switching voltages, as analog voltage (-10..10 V) or current (-20..20 mA) input.

In addition 8 high accuracy analog inputs can be individually selected for direct connection of up to 8 thermocouples (E, J, K, N, R, S, T), up to 8 thermistors (Pt100, Pt200, Pt500, Pt1000, Ni1000, NTC 10 kΩ), up to 8 voltage 0..1 V or up to 8 current 0..10 mA sources.

Up to 2 fast counters and 2 quadrature encoders can also be selected. 16 galvanic isolated transistor outputs (2 groups of 8 outputs) guarantee a current source of up to 1,2 A per output and are current and thermal protected. 2 selectable voltage (-10..10 V) or current(-20..20 mA) analog outputs are also integrated.

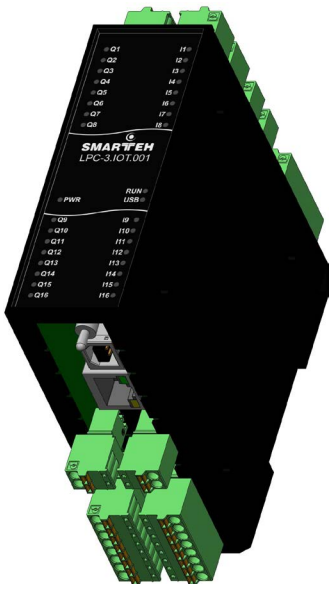
PLC is equipped with Ethernet connection and can be used as a Modbus TCP Slave device, with an USB port, used for programming and debugging.

It also includes 2 galvanic isolated CAN bus, used for local or remote connection to other LPC-3 PLCs.

Integrated Setting Storage FLASH, RTC and NV RAM, doesn't need the battery for it's functioning.

Smarteh IDE (Integrated Development Environment) software tool is used with all the PLCs from the LPC-3 family and it supports all five standard PLC programmable languages (FBD, LD, SFC, ST, IL). It also supports "off line", "on line" debugging and local program transferring. Distributed processing is supported allowing use of fast local and remote operations.

2.2.2 Input Output Transistor PLC



LPC-3.IOT is a Transistor PLC with 16 galvanic isolated digital inputs and 16 transistor outputs, with maximum output current of 1,2 A.

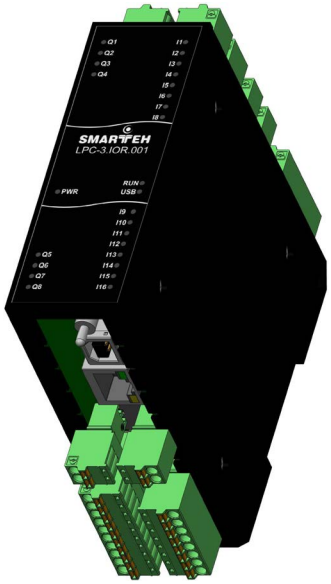
PLC is equipped with Ethernet connection and can be used as a Modbus TCP Slave device, with a USB port, used for programming and debugging.

It also includes 2 galvanic isolated CAN bus, used for local or remote connection to other LPC-3 PLCs.

Integrated Setting Storage FLASH, RTC and NV RAM, doesn't need the battery for it's functioning.

Smarteh IDE (Integrated Development Environment) software tool is used with all the PLCs from the LPC-3 family and it supports all five standard PLC programmable languages (FBD, LD, SFC, ST, IL). It also supports "off line", "on line" debugging and local program transferring. Distributed processing is supported allowing use of fast local and remote operations.

2.2.3 Input Output Relay PLC



LPC-3.IOR is a Relay output PLC with 16 galvanic isolated digital inputs, 4 normally open and 4 switching relays.

PLC is equipped with Ethernet connection and can be used as a Modbus TCP Slave device, with an USB port, used for programming and debugging. It also includes 2 galvanic isolated CAN bus, used for local or remote connection to other LPC-3 PLCs.

Integrated Setting Storage FLASH, RTC and NV RAM, doesn't need the battery for it's functioning.

Smarteh IDE (Integrated Development Environment) software tool is used with all the PLCs from the LPC-3 family and it supports all five standard PLC programmable languages (FBD, LD, SFC, ST, IL). It also supports "off line", "on line" debugging and local program transferring. Distributed processing is supported allowing use of fast local and remote operations.

2.2.4 Graphic Operation Terminal PLC

LPC-3.GOT is a Graphical Operation Terminal PLC that offers an intuitive, clear and flexible interface between the user and the machine.

The terminal design is compact, watertight, with 7” colour display and touch functionality integrated.

PLC is equipped with Ethernet connection and can be used as a Modbus TCP Slave device. The program can be transferred remotely over the Ethernet. USB port is used for programming and debugging.

It also includes 2 galvanic isolated CAN bus, used for local or remote connection to other LPC-3 PLCs. In addition, Modbus RTU is integrated and PLC can operate as a master or slave device.

PLC has an integrated Micro SD card, Setting Storage FLASH, RTC, NV RAM which doesn’t need the battery for it’s functioning.

Smarteh IDE (Integrated Development Environment) software tool is used with all the PLCs from the LPC-3 family and it supports all five standard PLC programmable languages (FBD, LD, SFC, ST, IL) and GUI (Graphical User Interface). It also supports “off line”, ‘’on line” debugging, local and remote program transferring. Distributed processing is supported allowing use of fast local and remote operations.

2.3 LPC-3 PLCS SPECIFICATION OVERVIEW

	Input Output Universal PLC	Input Output Relay PLC	Input Output Transistor PLC	Graphical Operational Terminal PLC
TECHNICAL DATA	LPC-3.IOU	LPC-3.IOR	LPC-3.IOT	LPC-3.GOT
Power supply	11..30 V DC			
Connection	Spring type disconnect-able connectors, for wires from 0,14 to 1,5 mm^2			
Communication port	Ethernet, 2 x galvanic isolated CAN, USB			Ethernet, 2 x galvanic isolated CAN, RS485, USB
Communication protocols	Modbus TCP/IP Slave, 2 x CANopen			Modbus TCP/IP Slave, http, 2 x CANopen, Modbus RTU Master / Slave
Programming ports	USB			Ethernet, USB
Integrated	RTC, NV RAM, FLASH			RTC, NV RAM, FLASH, Micro SD
SW for configuration & programming	Smarteh IDE			
Programming languages	IEC 61131-3 FBD, LD, SFC, ST, IL			
Certificates	EMC: IEC/EN 61000-6-2 (EN50082), IEC/EN 61000-6-4 (EN50081), LVD: IEC/EN 61010-1: 2010, IEC/EN 61010-2: 2013			
Nr. of digital inputs -12..30 V	* ≤ 16	16	16	/
Nr. of single ended voltage inputs -10..10 V	* ≤ 16	/	/	/
Nr. of differential voltage inputs -10..10 V	* ≤ 8	/	/	/
Nr. of single ended voltage inputs 0..1 V	* ≤ 8	/	/	/
Nr. of single ended current inputs -20..20 mA	* ≤ 16	/	/	/
Nr. of differential current inputs -20..20 mA	* ≤ 8	/	/	/
Nr. of single ended current inputs 0..10 mA	* ≤ 8	/	/	/
Nr. of voltage outputs -10..10 V	* ≤ 2	/	/	/
Nr. of current outputs -20..20 mA	* ≤ 2	/	/	/
Nr. of single ended thermocouple inputs (E, J, K, N, R, S, T)	* ≤ 8	/	/	/
Nr. of thermistor inputs (Pt100, Pt200, Pt500, Pt1000,...)	* ≤ 8	/	/	/
Nr. of digital transistor outputs, source 1,2 A	16	/	16	/
Fast counters up to 100 kHz	* ≤ 2	/	/	/
Quadrature encoders up to 50 kHz	* ≤ 2	/	/	/
Nr. of relay outputs	/	8	/	/
7" color display 800 x480 pixel with resistive touch function	/	/	/	1
Dimensions (mm)	110 x 100 x 35			210 x 160 x 35
Installation	DIN rail			Flush mounted

*Software selectable. Maximum number of all inputs is 16, maximum number of all analog outputs is 2.

SMARTEH d.o.o.

Poljubinj 114, 5220 Tolmin, Slovenia

tel.: + 386(0)5 388 44 00

fax.: + 386(0)5 388 44 01

info@smarteh.si

www.smarteh.com