Third generation of Smarteh PLCs
LONGO LPC-3

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.

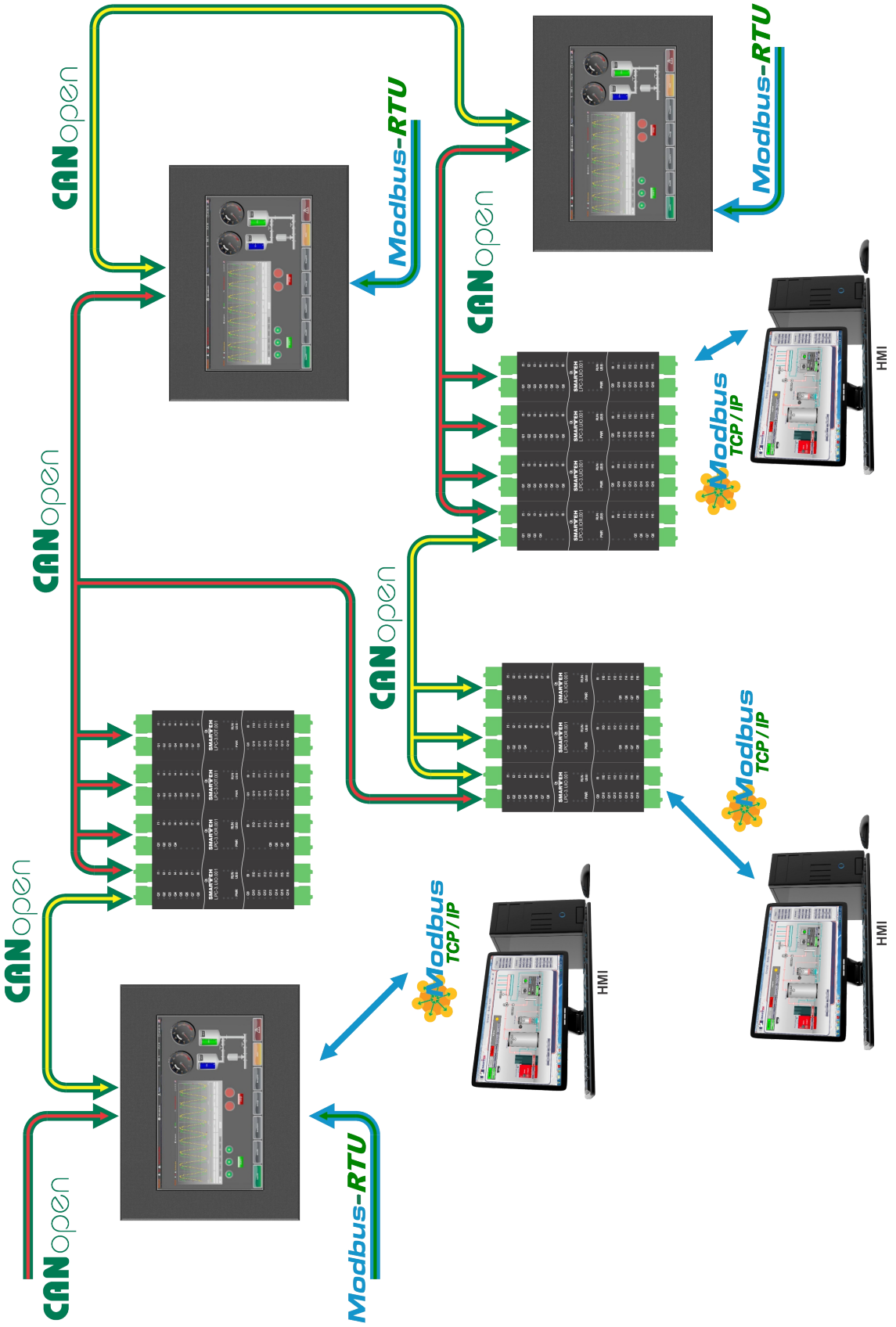
The main advantages are:

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

Picture 1: Smarteh third generation of programmable controllers

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.

Smarteh IDE 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.



Picture 2: Connectivity of third generation of Smarteh programmable controllers

Key functionalities of the LPC-3 PLCs

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.

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.

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 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.

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 and/or Master device. The program can be downloaded 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” 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.

	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 VDC			
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 and/or Master, http, 2 x CANopen, Modbus RTU Master
Programming ports	USB			Ethernet, USB
Integrated	RTC, NV RAM, FLASH			RTC, NV RAM, FLASH, Micro SD
SW for configuration and programming	Smarteh IDE			
Programming languages	IEC 61131-3 FBD, LD, SFC, ST, IL			
Compliant to	EMC: EN 61000-6-3:2007 + A1:2011, EN 61000-6-1:2007, EN 61000-3-2:2006 + A1:2009 + A2: 2009, EN 61000-3-3:2013 LVD: IEC 61010-1:2010 (3rd Ed.), IEC 61010-2-201:2013 (1st Ed.)			
Number of digital inputs -12..30 V	* ≤ 16	16	16	/
Number of single ended voltage inputs -10..10 V	* ≤ 16	/	/	/
Number of differential voltage inputs -10..10 V	* ≤ 8	/	/	/
Number of single ended voltage inputs 0..1 V	* ≤ 8	/	/	/
Number of single ended current inputs -20..20 mA	* ≤ 16	/	/	/
Number of differential current inputs -20..20 mA	* ≤ 8	/	/	/
Number of single ended current inputs 0..10 mA	* ≤ 8	/	/	/
Number of voltage outputs -10..10 V	* ≤ 2	/	/	/
Number of current outputs -20..20 mA	* ≤ 2	/	/	/
Number of single ended thermocouple inputs (E, J, K, N, R, S, T)	* ≤ 8	/	/	/
Number of thermistor inputs (Pt100, Pt200, Pt500, Pt1000,...)	* ≤ 8	/	/	/
Number of digital transistor outputs, source 1,2 A	16	/	16	/
Fast counters up to 100 kHz	* ≤ 2	/	/	/
Quadrature encoders up to 50 kHz	* ≤ 2	/	/	/
Number of relay outputs	/	8	/	/
7” colour display 800 x 480 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.

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