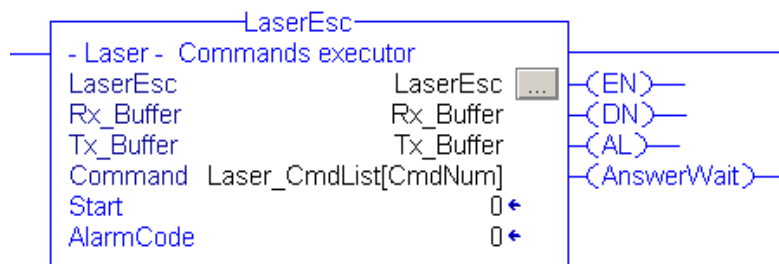


## The LaserEsc Add-On

This Add-On has been implemented in order to provide basic help to PLC's application developers on the command configuration side with a Datalogic Laser reader device.

This function processes the data set by the developer and organized according to the pre-stored format (Data Types -> User-Defined), and produces the corresponding command in the format readable by the Datalogic device. These commands (stored in a string) are automatically sent to the device through the 'DAD\_DPD' Add-On. Later, every response generated by the device itself (also read through 'DAD\_DPD') will be also analyzed.

If the answer is correct compared to the command, the function considers the job done and sets TRUE (1) its output variable DN, indicating that the procedure was successful. Otherwise, i.e. if the answer is wrong, or it specifies a refusal by the device, the function generates an error signal (AL) and a relatively specific error code (AlarmCode).



## Input description

Name	Usage	Data Type	Default	Style	Req	Vis	Description
EnableIn	Input	BOOL	1	Decimal	<input type="checkbox"/>	<input type="checkbox"/>	Enable Input - System Defined Parameter
EnableOut	Output	BOOL	0	Decimal	<input type="checkbox"/>	<input type="checkbox"/>	Enable Output - System Defined Parameter
Rx_Buffer	InOut	DAD_RxTx			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Reception buffer (for partner answers)
Tx_Buffer	InOut	DAD_RxTx			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Transmission buffer (for commands to partner)
Command	InOut	Laser_Command			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Command list
Start	Input	BOOL	0	Decimal	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Function command start
EN	Output	BOOL	0	Decimal	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Function working
DN	Output	BOOL	0	Decimal	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Function successful executed
AL	Output	BOOL	0	Decimal	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Alarm active
AlarmCode	Output	INT	0	Decimal	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Code of Alarm occurred
AnswerWait	Output	BOOL	0	Decimal	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Waiting For Answer flag

- **EnableIn:** BOOL.  
This input enables the Add-On function processing. Set this input to 0 is equivalent to 'jump' the function code. The Add-On does not perform any function if its input 'Start' is enabled, so it is permissible to put FALSE (0) this input when the function does not work.
  
- **Start:** BOOL.  
This input signal runs the command specified in the input variable 'Command' (IN / OUT). When the function detects the status of 'Start ' at TRUE (1), it begins executing the specified command until it is completely processed. If 'Start' is set to FALSE (0) while the command is running (e.g. while waiting for response from the partner), then the execution is deleted. The execution of a command is not interruptible by acting on the input 'Start'.

## Output description

Name	Usage	Data Type	Default	Style	Req	Vis	Description
EnableIn	Input	BOOL	1	Decimal	<input type="checkbox"/>	<input type="checkbox"/>	Enable Input - System Defined Parameter
EnableOut	Output	BOOL	0	Decimal	<input type="checkbox"/>	<input type="checkbox"/>	Enable Output - System Defined Parameter
Rx_Buffer	InOut	DAD_RxTx			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Reception buffer (for partner answers)
Tx_Buffer	InOut	DAD_RxTx			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Transmission buffer (for commands to partner)
Command	InOut	Laser_Command			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Command list
Start	Input	BOOL	0	Decimal	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Function command start
EN	Output	BOOL	0	Decimal	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Function working
DN	Output	BOOL	0	Decimal	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Function successful executed
AL	Output	BOOL	0	Decimal	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Alarm active
AlarmCode	Output	INT	0	Decimal	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Code of Alarm occurred
AnswerWait	Output	BOOL	0	Decimal	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Waiting For Answer flag

- **EnableOut:** BOOL.  
This output only copies the status of 'EnableIn' input, so it do not communicate any information about the processing status of the function.
  
- **EN:** BOOL.  
This output only copies the state of the 'Start' input, so it communicates only that the execution of the function has been controlled, but not the eventual completion of the processing or interruption due to an alarm.
  
- **DN:** BOOL.  
This output is set to TRUE (1) by the function itself when the execution of a command is successfully completed. The output status remains TRUE (1) until the 'Start' input is TRUE (1).
  
- **AL:** BOOL.  
If during execution of a command a inconsistent situation occurs (e.g. the command given is not recognized by the function, or one or more of its parameters are invalid, or the response is not recognized, etc. ..) then the function stops and sets the output 'AL ' TRUE (1) to indicate the fault (alarm). The output status remains TRUE (1) until the 'Start' input is TRUE (1).

- **AlarmCode:** INT.

This output (numerical) has been introduced to provide specific information about the status of a fault when it occurs. The table below lists all possible anomalies detected by the function, with a brief description.

The numerical value of output 'AlarmCode' when a problem occurs, is composed in order to show both the code of the command that was running and the fault event. In the decimal encoding value, the most significant digit (left) expresses the code of the running command in accordance with the following table (field IN/OUT), while the least significant (right) identifies the alarm in the table below.

When 'AlarmCode' = 0, then no anomaly was detected. If 'AlarmCode' takes on a nonzero value, this value will remain unchanged until the input 'Start' will be set TRUE (1). When 'Start' is FALSE (0), it is not possible (if the code is processed) to have 'AlarmCode' different than 0.

Value	Description
<b>1</b>	Command refused from partner
<b>2</b>	Command refused from partner (in a multi-command string at 2nd string)
<b>3</b>	Command refused from partner (in a multi-command string at 3th string)
<b>4</b>	Bad string (answer) terminator
<b>5</b>	Unknow command code
<b>6</b>	Bad [Mode] parameter
<b>7</b>	Bad [address] parameter
<b>8</b>	Bad [ShortCut] parameter
<b>9</b>	Bad [Value] parameter

- **AnswerWait:** Bool.

Note that the execution of a command by this Add-On function is to send the partner a string that specifies an action to perform (with specification parameters), the expectation of the response from partner and its processing to evaluate partner's reaction.

Well, in the interval of time that elapses between the writing of the command and reading the response, the output 'AnswerWait' remains TRUE (1). Only when the response will be processed by the function, the output 'AnswerWait' will be set to FALSE (0). The waiting time for a response from the partner is undefined. To stop waiting, set to FALSE the input 'Start ' (this will set 'AnswerWait' to FALSE).

## Input/output description

Add-On Instruction Definition - LaserEsc v1.0							
General Parameters Local Tags Scan Modes Change History Help							
Name	Usage	Data Type	Default	Style	Req	Vis	Description
EnableIn	Input	BOOL	1	Decimal	<input type="checkbox"/>	<input type="checkbox"/>	Enable Input - System Defined Parameter
EnableOut	Output	BOOL	0	Decimal	<input type="checkbox"/>	<input type="checkbox"/>	Enable Output - System Defined Parameter
+ Rx_Buffer	InOut	DAD_RxTx			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Reception buffer (for partner answers)
+ Tx_Buffer	InOut	DAD_RxTx			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Transmission buffer (for commands to partner)
+ Command	InOut	Laser_Command			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Command list
Start	Input	BOOL	0	Decimal	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Function command start
EN	Output	BOOL	0	Decimal	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Function working
DN	Output	BOOL	0	Decimal	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Function successful executed
AL	Output	BOOL	0	Decimal	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Alarm active
AlarmCode	Output	INT	0	Decimal	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Code of Alarm occurred
AnswerWait	Output	BOOL	0	Decimal	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Waiting For Answer flag

- **Rx\_Buffer:** DAD\_RxTx.  
This variable refers to the string which will be read from the responses to commands generated by the partners. This string is shared with the Add-On 'DAD\_DPD' that is responsible for receiving messages from the partners.
  
- **Tx\_Buffer:** DAD\_RxTx.  
This variable refers to the string on which the commands for the communication partner are written. This string is shared with the Add-On 'DAD\_DPD' that is meant to send messages (commands) to the partner.
  
- **Command:** Laser\_Command.  
This variable includes all instructions and parameters to build a command to be given to the partner (see table below):

Name:

Laser\_Command

Description:

Command Code:

0 -> List Terminator

1 -> Start\_config

2 -> Save\_config

3 -> Stop\_config

4 -> RestoreDefault

Members:

Data Type Size: 64 byte(s)

Name	Data Type	Style	Description
Code	SINT	Decimal	Command code
Par	Laser_Param		Command parameters
SCut	ScutString		Shortcut input parameter
LEN	DINT	Decimal	
DATA	SINT[8]	ASCII	
Val	ValString		Value input parameter
LEN	DINT	Decimal	
DATA	SINT[44]	ASCII	

Here is the list of commands, parameters and their ranges:

Code	Command	Parameter 1	Range	Parameter 2	Range
1	Start_config	Address	From 30 <sub>H</sub> To 128 <sub>H</sub>	Write to 'Shortcut'	
2	Save_config	Mode	P or V	Write to 'Shortcut'	
3	Stop_config	Address	From 30 <sub>H</sub> To 128 <sub>H</sub>	Write to 'Shortcut'	
4	RestoreDefault	---	---	---	---
5	SET_Integer	Shortcut:	String; Max length = 8	Value:	String; Max length = 10
6	SET_Enumeration	Shortcut:	String; Max length = 8	Value:	String; Max length = 4
7	SET_String	Shortcut:	String; Max length = 8	Value:	String; Max length = 44
8	SET_BinString	Shortcut:	String; Max length = 8	Value:	String; Max length = 44
9	Spare	Only put TRUE output 'DN'			

So, in order to issue a command to the partner, it is necessary to properly fill out the variable 'Command' by specifying the command code and parameters as defined in the table above.

- Command.Code:** SINT.  
 In this byte is set to a value from 1 to 9 that represents the command (e.g. 1 for 'Start\_config'). The command 9 (spare) as the only action will set the output 'DN' to TRUE.
- Command.Par:** Laser\_Param.  
 This variable includes all the parameters that complete the commands. The two strings in this variable must be compiled by observing the limits specified in the command table:

Name:	Laser_Command		
Description:	Command Code: 0 -> List Terminator 1 -> Start_config 2 -> Save_config 3 -> Stop_config 4 -> RestoreDefault		
Members:	Data Type Size: 64 byte(s)		
Name	Data Type	Style	Description
Code	SINT	Decimal	Command code
Par	Laser_Param		Command parameters
SCut	ScutString		Shortcut input parameter
LEN	DINT	Decimal	
DATA	SINT[8]	ASCII	
Val	ValString		Value input parameter
LEN	DINT	Decimal	
DATA	SINT[44]	ASCII	