MEMORY MAP
CPU ARM SYSTEMS

DMX_16N, DR_112R, DR_120R, DP_120, DP_216, DP_232, DP_364, KS_483, KS_497, KS_521, KS_522, KS_531, KS_544, KS_546, KS_550, KS_551, KS_553, KS_556, KS_574, KS_593, KS_628, T_322, TP_320, TP_430, TP_740, VP_116, VTP_323

USER MANUAL

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INDEX

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1 MEMORY MAP

1.1 Memory

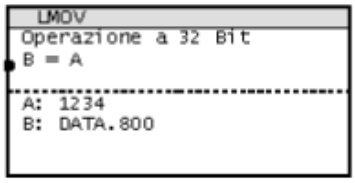
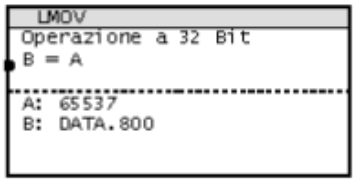
The PLC has **8192** 16-bit internal memory locations (word) called DATA. These locations are designed to contain variables of the running program and are named **from DATA.00 to DATA.8191**. Some internal DATA of the PLC are "system DATA", or have fixed meaning; others are free and can be used freely by the application program for any purpose. The value written in the system word is interpreted as a specific parameter; the table below shows the map of the data memory of system or fixed.

NOTE

Usually to carry out calculations and insert the values within the application program is used words from DATA.800 onwards.

1.1.1 16 bits and 32 bits Operations

The operations on the data memory are usually 16-bit, that is of the same size of the data, each data memory can therefore assume a decimal value from 0 to 65535 (2 ^ 16). However, it's possible to have the necessity for a larger dimensions (long 32-bit variables): these numerical values are stored in two consecutive DATE (lower = least significant word address, highest = most significant word address). Operations that act between long variables are preceded by the 'L' prefix and take account of this format automatically, so for example :

Instructions List	Ladder	Comment
LMOV #1234,DATA.800		At the end of the operation the registers will have the following values : DATA.800= 1234 DATA.801= 0
LMOV #65537,DATA.800		At the end of the operation the registers will have the following values : DATA.800= 1 DATA.801= 1

NOTE

Use operations at 16-bit and others at 32-bits in the same application can generate chaos. It's therefore advisable to standardize the method of work; alternatively pay much attention and always keep in mind that in the case of LONG operations, the data memory explained on the software is always the less significant, and then a lighter weight.

NOTE

Before leaving in the writing of a program it is good to make a division between volatile data and no. Once you make this distinction between the non-volatile data will be useful to think about what will be the working parameters and what the machine parameters. Generally the work parameters are all those values necessary to the processing that will be saved continuously in order, for example, to continue the work the following day (for example the number of pieces processed); the machine parameters instead will be here data values as initial setting to car and maybe will change only an experienced operator on a password-protected page.

1.1.2 Retentive memory and non-volatile memory

Volatile Memory : All word from DATA.00 to DATA.4096 are volatile.

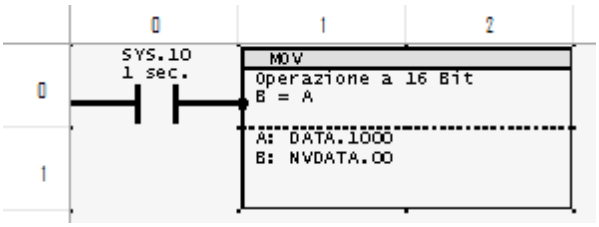
E²PROM : The locations from **DATA.4096 to DATA.8191** are used for saving data in E²PROM and therefore are non-volatile data. You can save data in E²PROM in two ways : automatically through remote writing, or by software with a simple command. Remote writing means any external object that changes the value of these data (also debugging PC), or changing it with the keyboard. Writing by software instead [see external E²PROM], involves the use of **DATA.58, DATA.59 and SYS.20** the two data must contain respectively the address of the first data to be saved, and the address of the last data to be saved while saving start setting **SYS.20,** which then will return to zero automatically. At the restart of the PLC, the data saved, resume the last stored value.

WARNING

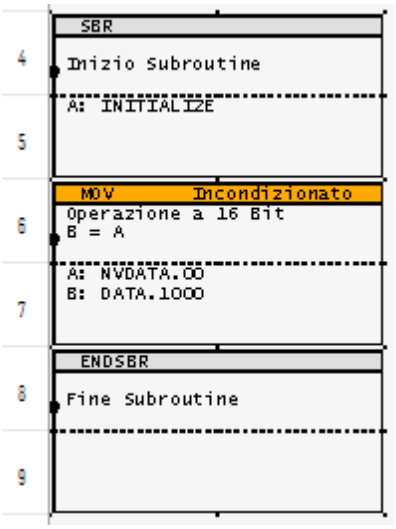
The EEPROM, for their characteristic, admit a limited number of writes (approximately 100,000 for each single address). Above that limit the EEPROM is not working and must be replaced, it is therefore recommended not to exceed this limit worth your device to malfunction.

Buffered RAM : Having the E²PROM a finite maximum number of scriptures specified by the manufacturer (about 100.000) to cope with the need of frequent and numerous saves was planned a dedicated area for the buffered RAM. The registers dedicated for the buffered RAM are **2048** (42 in PLC with uP STM_100) and, unlike regular registers (DATA.xx), are called NVDATA.xx! The NVDATA will be **NVDATA.00 to NVDATA.2047** (**NVDATA.41** in PLC with uP STM_100)

WARNING : The NVDATA are available only inside the functions of **MOV** in the Ladder / Instructions List. They are used in the following way :
1. To ***SAVE*** for example the value of DATA.1000 every second, you run a MOV inside the main program of DATA.1000 inside the NVDATA.00 using SYS.10 :



2. For LOAD in DATA.1000, vice versa, the value saved in the NVDATA.00 must enter the MOV in reverse Initialize subroutine (called only when you start the PLC) :



RTF

In the buffered RAM there are also: RTF! They are retentive flags that can only assume the value 0 or 1. They can be used within the PLC program like all other FLAGs, but if the PLC is switched off, RTFs maintain stored their value! They are typically used with the "**SET**" and "**RES**" instructions in ladder or in Instruction List.

WARNING: RTF and NVDATA handle the same memory areas as follows :

```
From : RTF.00 = NVDATA.00 Bit 0
To   : RTF.07 = NVDATA.00 Bit 7

From : RTF.08 = NVDATA.01 Bit 0
To   : RTF.15 = NVDATA.01 Bit 7

From : RTF.16 = NVDATA.02 Bit 0
To   : RTF.23 = NVDATA.02 Bit 7
...
From : RTF.1528 = NVDATA.191 Bit 0
To   : RTF.1535 = NVDATA.191 Bit 7
```

So if, for example, RTF.00 is set, NVDATA.00 will assume the value 1! Also the reverse operation is true, eg if NVDATA.01 assumes value 1, RTF.08 is automatically set!

1.1.3 Memory Map

Each DATE in the table is a 16-bit word. Each DATE not specified in the table can be considered "free."

DATA.00	The current page number. This date is for both reading and writing, and can be read to know which page is displaying the PLC and can be written to move to another page.
DATA.01	Command data. Some bits of this data have a particular meaning according to the table : **Bit 0 = signal but not display the alarms** If activated and if there is at least one BIT ALARM active, the PLC issues a repeated acoustic signal, the LED function (if present) are flashing and the red alarm LED lights up. Pressing the ALR button (or the bell for touch screen) you enter in the alarm display pages! **Bit 1 = Immediate display of the alarms** If you activated and if there is at least one BIT ALARM active, immediately enters the alarm display page. **Bit 2 = Mode Alarm Display** It is automatically activated when you enter the alarm display pages. The PLC displays the first alarm found, the next will be displayed after pressing the up arrow or down arrow. If you have programmed a scroll alarm time in the Project Options, the PLC will automatically scroll the active alarms according to the programmed time. If the operator presses the CLEAR button while displaying the alarm, is reset the bit (from DATA.08 to DATA.23) corresponding to the alarm displayed at that time! **Bit 3 = Active during the "EDITOR VARIABLE" mode** When you enter the "EDITOR VARIABLE" mode by pressing the ENTER key (or the same variable in the touch screen) to edit a new value, this bit is set to 1 and returns to 0 when the new value is confirmed with ENTER or cancel the entry with CLEAR.
DATA.02	Words activation LED of the panel [A]
DATA.03	Words activation LED of the pane [B]
DATA.04	Word pressed Keys [A]
DATA.05	Word pressed Keys [B]
DATA.06	Word pressed Keys [C]
DATA.07 DEDICATA 	**Word INTERNAL Alarms.** THIS ALARM WORD is TOTALLY DEDICATED TO COMMUNICATION ERRORS OR SYSTEM ALARMS (DON'T USE IT)

Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
ALR 15	ALR 14	ALR 13	ALR 12	ALR 11	ALR 10	ALR 9	ALR 8	ALR 7	ALR 6	ALR 5	ALR 4	ALR 3	ALR COM 2	ALR COM 1	ALR COM 0

DATA.08	From Alarm 000 to Alarm 015. For each bit is associated the respective alarm page!	
DATA.09	From Alarm 016 to Alarm 031. For each bit is associated the respective alarm page!	
DATA.10	From Alarm 032 to Alarm 047. For each bit is associated the respective alarm page!	
DATA.11	From Alarm 048 to Alarm 063. For each bit is associated the respective alarm page!	
DATA.12	From Alarm 064 to Alarm 079. For each bit is associated the respective alarm page!	
DATA.13	From Alarm 080 to Alarm 095. For each bit is associated the respective alarm page!	
DATA.14	From Alarm 096 to Alarm 111. For each bit is associated the respective alarm page!	
DATA.15	From Alarm 112 to Alarm 127. For each bit is associated the respective alarm page!	
DATA.16	From Alarm 128 to Alarm 143. For each bit is associated the respective alarm page!	
DATA.17	From Alarm 144 to Alarm 159. For each bit is associated the respective alarm page!	
DATA.18	From Alarm 160 to Alarm 175. For each bit is associated the respective alarm page!	
DATA.19	From Alarm 176 to Alarm 191. For each bit is associated the respective alarm page!	
DATA.20	From Alarm 192 to Alarm 207. For each bit is associated the respective alarm page!	
DATA.21	From Alarm 208 to Alarm 223. For each bit is associated the respective alarm page!	
DATA.22	From Alarm 224 to Alarm 239. For each bit is associated the respective alarm page!	
DATA.23	From Alarm 240 to Alarm 255. For each bit is associated the respective alarm page!	
DATA.24	Address of the last modified variable.	
DATA.25	External variables with attribute "Nothing" - Serial COM Port on which you can read/write the variable	
DATA.26	External variables with attribute "Nothing" - Number of the reading variable	
DATA.27	External variables with attribute "Nothing" - Number of the writing variable	
DATA.28	External variables with attribute "Nothing" - Value to write L	
DATA.29	External variables with attribute "Nothing" - Value to write H	
DATA.30	Program Execution Time (usec * 10). Example : Value 150 = 1.5 msec	
DATA.31	Day of the month (clock calendar)	
DATA.32	Day of the week (clock calendar)	
DATA.33	Month (clock calendar)	
DATA.34	Year (clock calendar)	
DATA.35	Hour (clock calendar)	

DATA.36	Minute (clock calendar)	
DATA.37	Seconds (clock calendar)	
DATA.38	Days elapsed since the beginning of the year	
DATA.39	Minutes elapsed since the beginning of the year	
DATA.40	Astronomical sunrise time	
DATA.41	Astronomical sunset time	
DATA.42	Civil sunrise time	
DATA.43	Civil sunset time	
DATA.44	Time Band	
DATA.45	Latitude (degrees)	
DATA.46	Latitude (minutes)	
DATA.47	Latitude (seconds)	
DATA.48	Longitude (degrees)	
DATA.49	Longitude (minutes)	
DATA.50	Longitude (seconds)	
DATA.51	Altitude	
DATA.52	Sun Tilt (degrees)	
DATA.53	Solar azimuth angle (degrees)	
DATA.54	Selected language (0 = First language of the project)	
DATA.55	Contrast (PLC with graphical display)	
DATA.56	Backlight time	
DATA.57	Backlight level	
DATA.58	First DATA to save (save in EEPROM) / Recipe Number	
DATA.59	Last DATA to save (save in EEPROM) / DATA recipe starts	
DATA.60	Recipe Number	
DATA.61	First Date memory of the recipe (specify only the number of DATA)	
DATA.62	Recipe size (number of DATA)	
DATA.63	x	

DATA.64	KNP_STATUS 0	
DATA.65	KNP_STATUS 1	
DATA.66	Enabling Nodes COM 0 L : Each BIT corresponds to a node [0 = Disabled; 1 = Enabled]	
DATA.67	Enabling Nodes COM 0 H : Each BIT corresponds to a node [0 = Disabled; 1 = Enabled]	
>>>	>>>	
DATA.76	Enabling Nodes COM 5 L : Each BIT corresponds to a node [0 = Disabled; 1 = Enabled]	
DATA.77	Enabling Nodes COM 5 H : Each BIT corresponds to a node [0 = Disabled; 1 = Enabled]	
DATA.78	Key Code	
DATA.79	Alarm History Command	
DATA.80	Encoders Simulator Division	
DATA.81	Encoders Simulator Units	
DATA.82	“USER_INT” TIMER (msec) : time between two “user_int”	
DATA.83	Var. Ext. Block : COM PORT to use	
DATA.84	Var. Ext. Block : NODE Address	
DATA.85	Var. Ext. Block : block transfer DATA source	
DATA.86	Var. Ext. Block : block transfer DATA destination	
DATA.87	Var. Ext. Block : block (number of variables) TO READ	
DATA.88	Var. Ext. Block : block (number of variables) TO WRITE	
DATA.89	Version of Operating System	
DATA.90	Node Address	
DATA.91	Print : Serial COM Port (COM_0 = 3, COM_1 = 4 ...)	
DATA.92	Print : Initial Page	
DATA.93	Print : Number of Pages to print	
DATA.96	COM_0 Node Error	
>>>	>>>	
DATA.101	COM_5 Node Error	
DATA.102	FTP Result	
DATA.104	FREE Protocol : Number of characters received. COM_0	

>>>	>>>	
DATA.109	FREE Protocol : Number of characters received. COM_5	
DATA.110	TCP INPUTS	
DATA.111	TCP OUTPUTS	
DATA.112	Fast Timer 1 millisecond n. 0 (enabled by SYS.112)	
>>>	>>>	
DATA.119	Fast Timer 1 millisecond n. 0 (enabled by SYS.119)	
DATA.120	GPRS : Command	
DATA.121	GPRS : Start	
DATA.122	GPRS : Number	
DATA.123	Script Version / Operation in Progress	
DATA.124	IP Address 0 [000.000.000.000]	
DATA.125	IP Address 1 [000.000.000.000]	
DATA.126	IP Address 2 [000.000.000.000]	
DATA.127	IP Address 3 [000.000.000.000]	
DATA.128	Subnet Mask 0 [000.000.000.000]	NOT USED
DATA.129	Subnet Mask 1 [000.000.000.000]	NOT USED
DATA.130	Subnet Mask 2 [000.000.000.000]	NOT USED
DATA.131	Subnet Mask 3 [000.000.000.000]	NOT USED
DATA.132	DNS Address 0 [000.000.000.000]	NOT USED
DATA.133	DNS Address 1 [000.000.000.000]	NOT USED
DATA.134	DNS Address 2 [000.000.000.000]	NOT USED
DATA.135	DNS Address 3 [000.000.000.000]	NOT USED
DATA.136	Gateway 0 [000.000.000.000]	
DATA.137	Gateway 1 [000.000.000.000]	
DATA.138	Gateway 2 [000.000.000.000]	
DATA.139	Gateway 3 [000.000.000.000]	
DATA.140	SMTP Address 0 [000.000.000.000]	

DATA.141	SMTP Address 1 [000.000.000.000]	
DATA.142	SMTP Address 2 [000.000.000.000]	
DATA.143	SMTP Address 3 [000.000.000.000]	
DATA.144	SMTP Port (default = 25)	
DATA.145	HTTPD Port (default = 80)	
DATA.146	MAC Address 0 - READ ONLY [000.000.000.000.000.000]	
DATA.147	MAC Address 1 - READ ONLY [000.000.000.000.000.000]	
DATA.148	MAC Address 2 - READ ONLY [000.000.000.000.000.000]	
DATA.149	MAC Address 3 - READ ONLY [000.000.000.000.000.000]	
DATA.150	MAC Address 4 - READ ONLY [000.000.000.000.000.000]	
DATA.151	MAC Address 5 - READ ONLY [000.000.000.000.000.000]	
DATA.160	Send email	
DATA.161	Result send email	
DATA.162	LOG Status : Bit 15..8 = Limit reached - Bit 7..0 = Log Enabled	
DATA.163	If different from 0 FORCE THE LOG WRITING x (1...8)	
DATA.164	Export LOG x (1 ... 8) to a USB stick	
DATA.165	Send LOG x (1 ... 8) as an attachment to an email	
DATA.166	Delete the LOG x (1..8) Only for the Logs in EEPROM / For TOTAL Cancellation write 65535-0xFFFF hex	
DATA.167	LOG x (1...8) to read	
DATA.168	RECORD number to be read within LOG X (1 ... 8) indicated on DATA.167 If different from 0 FORCE THE LOG READING x (DATA.167) - RECORD Y (DATA.168)	
DATA.169	Starting DATA of the RECORD destination where the values read using the DATA.167 and the DATA.168	
DATA.170	Last RECORD recovered	
DATA.173	Special Functions : Command	
DATA.174	Special Functions : INPUT 1 L	
DATA.175	Special Functions : INPUT 1 H	
DATA.176	Special Functions : INPUT 2 L	
DATA.177	Special Functions : INPUT 2 H	
DATA.178	Special Functions : OUTPUT L	

DATA.179	Special Functions : OUTPUT H	
DATA.180	Week Program N° 00 : Days of the week	
DATA.181	Week Program N° 00 : Hour ON	
DATA.182	Week Program N° 00 : Hour OFF	
...	...	
DATA.369	Week Program N° 63 : Days of the week	
DATA.370	Week Program N° 63 : Hour ON	
DATA.371	Week Program N° 63 : Hour OFF	
DATA.372	Log 0 : START	
DATA.373	Log 0 : STOP	
DATA.374	Log 0 : TIME	
DATA.375	Log 0 : DIMENSION	
...	...	
DATA.400	Log 7 : START	
DATA.401	Log 7 : STOP	
DATA.402	Log 7 : TIME	
DATA.403	Log 7 : DIMENSION	
DATA.404	Cold Junction Temperature	
DATA.405	Cold Junction Temperature - *Engineering Value*	
DATA.406	Cold Junction Temperature - *Filtered Value*	
DATA.407	Cold Junction Temperature - *Immediate Value*	
DATA.408	Analog Input Channel 0 - *INSTANT VALUE* [bit]	
...	...	
DATA.415	Analog Input Channel 7 - *INSTANT VALUE* [bit]	
DATA.416	Analog Input Channel 0 – *FILTERED VALUE* [bit]	
...	...	
DATA.423	Analog Input Channel 7- *FILTERED VALUE* [bit]	
DATA.424	Analog Input Channel 0 – *Temperature* [degrees]	

...	...	
DATA.431	Analog Input Channel 7 – *Temperature* [degrees]	
DATA.432	**PID : Channel 0 - Input** : If you also enable the Temperature SYS [SYS.121], the value of temperatures in degrees is automatically copied to this DATA	
DATA.433	**PID : Channel 0 - Set Point** : Temperature set point in degrees	
DATA.434	**PID : Channel 0 - Cycle Time Regulation :** Indicates how often perform the regulation [1/10 sec.]	
DATA.435	**PID : Channel 0 - Regulation Band :** Band within which the PID regulation is executed	
DATA.436	**PID : Channel 0 - Integral Term :** Integral term used in calculations during the PID regulation	
DATA.437	**PID : Channel 0 - Derivative Term :** Derivative term used in calculations during the PID regulation	
DATA.438	**PID : Channel 0 - Dead Band :** Band within which PID Regulation is NOT executed	
DATA.439	**PID : Channel 0 - Alarm :** Degree value to be added to the SET POINT. Upon reaching this temperature rises the Alarm SYS [SYS.125]	
DATA.440	**PID : Channel 0 - PWM :** Cycle Time of the PWM actuation. It may be different from the cycle time of the PID Regulation [1/10 sec.]	
DATA.441	**PID : Channel 0 - Min Actuation Value :** MIN Value of the actuation; never drops below this value	
DATA.442	**PID : Channel 0 - Max Actuation Value :** MAX Value of the actuation; will not rise above this value ever	
DATA.443	**PID : Channel 0 - Actuation :** Actuation value from 0 to 4095 to be copied in an eventual DAC output	
DATA.444	**PID : Channel 0 - Actuation % :** Percentage value (0 … 100 %) of the actuation	
...	...	
DATA.544	**PID : Channel 7 - Input** : If you also enable the Temperature SYS [SYS.177], the value of temperatures in degrees is automatically copied to this DATA	
DATA.545	**PID : Channel 7 - Set Point** : Temperature set point in degrees	
DATA.546	**PID : Channel 7 - Cycle Time Regulation :** Indicates how often perform the regulation [1/10 sec.]	
DATA.547	**PID : Channel 7 - Regulation Band :** Band within which the PID regulation is executed	
DATA.548	**PID : Channel 7 - Integral Term :** Integral term used in calculations during the PID regulation	
DATA.549	**PID : Channel 7 - Derivative Term :** Derivative term used in calculations during the PID regulation	
DATA.550	**PID : Channel 7 - Dead Band :** Band within which PID Regulation is NOT executed	
DATA.551	**PID : Channel 7 - Alarm :** Degree value to be added to the SET POINT. Upon reaching this temperature rises the Alarm SYS [SYS.181]	
DATA.552	**PID : Channel 7 - PWM :** Cycle Time of the PWM actuation. It may be different from the cycle time of the Regulation PID [1/10 sec.]	
DATA.553	**PID : Channel 7 - Min Actuation Value :** MIN Value of the actuation; never drops below this value	
DATA.554	**PID : Channel 7 - Max Actuation Value :** MAX Value of the actuation; will not rise above this value ever	
DATA.555	**PID : Channel 7 - Actuation :** Actuation value from 0 to 4095 to be copied in an eventual DAC output	

DATA.556	**PID : Channel 7 - Actuation % :** Percentage value (0 ... 100 %) of the actuation	
DATA.560	Ramp 0 : START	
DATA.561	Ramp 0 : STOP	
DATA.562	Ramp 0 : TIME	
DATA.563	Ramp 0 : BASE	
DATA.564	Ramp 0 : VALUE	
DATA.565	Ramp 0 : TIMER	
...	...	
DATA.602	Ramp 7 : START	
DATA.603	Ramp 7 : STOP	
DATA.604	Ramp 7 : TIME	
DATA.605	Ramp 7 : BASE	
DATA.606	Ramp 7 : VALUE	
DATA.607	Ramp 7 : TIMER	
DATA.608	DAC 0 Value	
...	...	
DATA.615	DAC 7 Value	
DATA.616	PWM 0 Frequency [Hz]	
DATA.617	PWM 0 Duty Cycle [Value from 0 to 1000 : that is from 0 to 100.0 %]	
...	...	
DATA.630	PWM 7 Frequency [Hz]	
DATA.631	PWM 7 Duty Cycle [Value from 0 to 1000 : that is from 0 to 100.0 %]	
DATA.632	Encoder 0 Value L	
DATA.633	Encoder 0 Value H	
...	...	
DATA.646	Encoder Value 7 L	
DATA.647	Encoder Value 7 H	
DATA.648	PRESET Value 0 L	

DATA.649	PRESET Value 0 H	
...	...	
DATA.662	PRESET Value 7 L	
DATA.663	PRESET Value 7 L	
DATA.664	FTP Start : Initial DATE to send	
DATA.665	FTP Number: number of DATA to send	
DATA.666	ILOG STATUS	
DATA.667	ILOG REINIT	
...	...	
DATA.704	STEP 0 : Value L	
DATA.705	STEP 0 : Value H	
DATA.706	STEP 0 : Target L	
DATA.707	STEP 0 : Target H	
DATA.708	STEP 0 : Max Frequency	
DATA.709	STEP 0 : Actual Frequency	
DATA.710	STEP 0 : Up Ramp	
DATA.711	STEP 0 : Down Ramp	
DATA.712	STEP 0 : Value Ramp - READ ONLY	
...	...	
DATA.734	STEP 3 : Value L	
DATA.735	STEP 3 : Value H	
DATA.736	STEP 3 : Target L	
DATA.737	STEP 3 : Target H	
DATA.738	STEP 3 : Max Frequency	
DATA.739	STEP 3 : Actual Frequency	
DATA.740	STEP 3 : Up Ramp	
DATA.741	STEP 3 : Down Ramp	
DATA.742	STEP 3 : Value Ramp - READ ONLY	

DATA.780	PWM MAX VEL	
DATA.781	PWM SPEED	
DATA.782	PWM ACC	
DATA.783	PWM MAX CURR	
DATA.784	PWM_CURR	
DATA.786	USB Command	
DATA.787	USB Record Fields Number	
DATA.788	USB Record Start Address	
DATA.789	USB Record Number	
DATA.790	USB Start [DATA Memory]	
DATA.791	USB Stop [DATA Memory]	
DATA.792	File Name 0	
...	...	
DATA.797	File Name 5	
DATA.846	GSM MO.FIELD	
DATA.847	GSM TX DATA	
DATA.848	GSM TEL NUM	
DATA.858	GSM SAVE NUM	
DATA.880	CAMS Value	
DATA.882	CAMS OUT L (Bit 0 = CAM_00 ... Bit 15 = CAM_15)	
DATA.883	CAMS OUT H (Bit 0 = CAM_16 ... Bit 15 = CAM_31)	
DATA.884	CAMS Time (msec)	
DATA.885	CAMS Max value (Limit in msec)	
DATA.888	CAM 00 Start	
DATA.889	CAM 00 Stop	
...	...	
DATA.950	CAM 31 Start	
DATA.951	CAM 31 Stop	

Legend	
Comment	**Icon**
DATA saved in E²PROM	
Read Only DATA	

1.2 System Flags

Each system flag is written as : "SYS.nn". The SYS are the individual bits (0 or 1) and can be substantially of two types :

- SYS used by the operating system to signal the state of a resource (for example, there are SYS active every second, every minute etc ...)
- or the SYS that must be set by the programmer in order to enable a particular resource of the PLC (for example, the encoder input is not considered a fast input to the encoder if it is not activated on the SYS and so for other resources)

In the second case in question, i.e. the activation of a resource via the setting of a SYS, it is normally performed inside the INITIALIZE subroutine; this because being that subroutine accessed by default from the PLC to the first cycle you will have available the resource in question for the duration of the program.
Into PLC are defined different system flag to make available information relating to the state and to enable / disable some internal resources.

We see the complete map of all the flags of the system :

Name of the SYS	Description
SYS.00	Always false flag
SYS.01	Always true flag
SYS.02	High only the first program cycle
SYS.03	Flag used by instruction CMP (compare): SYS.03 active if the first operand is equal to second. OPR1 = OPR2
SYS.04	Flag used by instruction CMP (compare): SYS.04 active if the first operand is lower than the second. OPR1 < OPR2
SYS.05	Flag used by instruction CMP (appears): SYS.05 active if the first operand is higher than the second. OPR1 > OPR2
SYS.06	Mathematics Flag : Carry - NOT USED
SYS.08	High any 10 msec
SYS.09	High any 100 msec
SYS.10	High any second
SYS.11	High any minute
SYS.12	High any 15 minutes
SYS.13	High any 1 hour
SYS.14	Blink (0.5 sec ON and 0.5 sec OFF)
SYS.15	Blink (1.0 sec ON and 1.0 sec OFF)
SYS.16	BUZZER enable

SYS.17	Enable WF_FIFO management
SYS.18	Enable WS_FIFO management
SYS.19	Enable Encoder simulation
SYS.20	EEPROM Data saving : DATA.58 must contain the address of the first register to be saved (value between 4097 and 8191), while DATA.59 must contain the address of the last log to be saved (value between 4097 and 8191)
SYS.21	Save recipe
SYS.22	Load recipe
SYS.23	KNP Net.ENA
SYS.24	High any 5 minutes
SYS.25	High any 2.5 minutes
SYS.26	Signal communication active
SYS.28	MAC_WP : Week Program active
SYS.29	MAC_SEGMENT active
SYS.30	Active 1 second out of 10
SYS.31	USB Ready
SYS.32	Week Program N°00 active
...	...
SYS.95	Week Program N°63 active
SYS.96	Transmission with FREE protocol on COM 0
SYS.97	Transmission with FREE protocol on COM 1
SYS.98	Transmission with FREE protocol on COM 2
SYS.99	Transmission with FREE protocol on COM 3
SYS.100	Transmission with FREE protocol on COM 4
SYS.101	Transmission with FREE protocol on COM 5
SYS.102	Virtual Inputs
SYS.103	FTP Send
SYS.104	Enable E_METER
SYS.108	Enable CAMME Elettroniche
SYS.109	Init. External Variables
SYS.112	Activation TIM 0 to 1 msec base
...	...
SYS.119	Activation TIM 7 to 1 msec base
SYS.120	**PID : Channel 0 - Enable :** Enable of the Channel 0
SYS.121	**PID : Channel 0 - Temperature :** If enabled, is copied directly into DATA.432 [Input] the degrees value read by ADC 0
SYS.122	**PID : Channel 0 - Invert :** If enabled, the PID operates in reversed manner,that is to cool! Instead of giving power,takes it off
SYS.123	**PID : Channel 0 - Out :** Out "pulsing" of the PID. To be copied on a static out
SYS.124	**PID : Channel 0 - Ready :** Bit raised when you are inside the Regulation Band
SYS.125	PID : Channel 0 - Alarm : Bit raised when the temperature is greater than or equal to SET POINT [DATA.433] + Alarm DATA [DATA.439]
SYS.128	**PID : Channel 1 - Enable :** Enable of the Channel 1

SYS.129	**PID : Channel 1 - Temperature :** If enabled, is copied directly into DATA.448 [Input] the degrees value read by ADC 1
SYS.130	**PID : Channel 1 - Invert :** If enabled, the PID operates in reversed manner,that is to cool! Instead of giving power,takes it off
SYS.131	**PID : Channel 1 - Out :** Out "pulsing" of the PID. To be copied on a static out
SYS.132	**PID : Channel 1 - Ready :** Bit raised when you are inside the Regulation Band
SYS.133	**PID : Channel 1 - Alarm** : Bit raised when the temperature is greater than or equal to SET POINT [DATA.449] + Alarm DATA [DATA.455]
SYS.136	**PID : Channel 2 - Enable** : Enable of the Channel 2
SYS.137	**PID : Channel 2 - Temperature** : If enabled, is copied directly into DATA.464 [Input] the degrees value read by ADC 2
SYS.138	**PID : Channel 2 - Invert** : If enabled, the PID operates in reversed manner,that is to cool! Instead of giving power,takes it off
SYS.139	**PID : Channel 2 - Out** : Out "pulsing" of the PID. To be copied on a static out
SYS.140	**PID : Channel 2 - Ready** : Bit raised when you are inside the Regulation Band
SYS.141	**PID : Channel 2 - Alarm :** Bit raised when the temperature is greater than or equal to SET POINT [DATA.465] + Alarm DATA [DATA.471]
SYS.144	**PID : Channel 3 - Enable :** Enable of the Channel 3
SYS.145	**PID : Channel 3 - Temperature :** If enabled, is copied directly into DATA.480 [Input] the degrees value read by ADC 3
SYS.146	**PID : Channel 3 - Invert :** If enabled, the PID operates in reversed manner,that is to cool! Instead of giving power,takes it off
SYS.147	**PID : Channel 3 - Out :** Out "pulsing" of the PID. To be copied on a static out
SYS.148	**PID : Channel 3 - Ready :** Bit raised when you are inside the Regulation Band
SYS.149	**PID : Channel 3 - Alarm** : Bit raised when the temperature is greater than or equal to SET POINT [DATA.481] + Alarm DATA [DATA.487]
SYS.152	**PID : Channel 4 - Enable** : Enable of the Channel 4
SYS.153	**PID : Channel 4 - Temperature** : If enabled, is copied directly into DATA.496 [Input] the degrees value read by ADC 4
SYS.154	**PID : Channel 4 - Invert** : If enabled, the PID operates in reversed manner,that is to cool! Instead of giving power,takes it off
SYS.155	**PID : Channel 4 - Out** : Out "pulsing" of the PID. To be copied on a static out
SYS.156	**PID : Channel 4 - Ready** : Bit raised when you are inside the Regulation Band
SYS.157	**PID : Channel 4 - Alarm :** Bit raised when the temperature is greater than or equal to SET POINT [DATA.497] + Alarm DATA [DATA.503]
SYS.160	**PID : Channel 5 - Enable :** Enable of the Channel 5
SYS.161	**PID : Channel 5 - Temperature :** If enabled, is copied directly into DATA.512 [Input] the degrees value read by ADC 5
SYS.162	**PID : Channel 5 - Invert :** If enabled, the PID operates in reversed manner,that is to cool! Instead of giving power,takes it off
SYS.163	**PID : Channel 5 - Out :**

	Out "pulsing" of the PID. To be copied on a static out
SYS.164	**PID : Channel 5 - Ready :** Bit raised when you are inside the Regulation Band
SYS.165	**PID : Channel 5 - Alarm** : Bit raised when the temperature is greater than or equal to SET POINT [DATA.513] + Alarm DATA [DATA.519]
SYS.168	**PID : Channel 6 - Enable :** Enable of the Channel 6
SYS.169	**PID : Channel 6 - Temperature :** If enabled, is copied directly into DATA.528 [Input] the degrees value read by ADC 6
SYS.170	**PID : Channel 6 - Invert :** If enabled, the PID operates in reversed manner,that is to cool! Instead of giving power,takes it off
SYS.171	**PID : Channel 6 - Out :** Out "pulsing" of the PID. To be copied on a static out
SYS.172	**PID : Channel 6 - Ready :** Bit raised when you are inside the Regulation Band
SYS.173	**PID : Channel 6 - Alarm :** Bit raised when the temperature is greater than or equal to SET POINT [DATA.529] + Alarm DATA [DATA.535]
SYS.176	**PID : Channel 7 - Enable :** Enable of the Channel 7
SYS.177	**PID : Channel 7 - Temperature :** If enabled, is copied directly into DATA.544 [Input] the degrees value read by ADC 7
SYS.178	**PID : Channel 7 - Invert :** If enabled, the PID operates in reversed manner,that is to cool! Instead of giving power,takes it off
SYS.179	**PID : Channel 7 - Out :** Out "pulsing" of the PID. To be copied on a static out
SYS.180	**PID : Channel 7 - Ready :** Bit raised when you are inside the Regulation Band
SYS.181	**PID : Channel 7 - Alarm** : Bit raised when the temperature is greater than or equal to SET POINT [DATA.545] + Alarm DATA [DATA.551]
SYS.184	Encoder 0 Monodirectional
SYS.185	Encoder 0 Bidirectional
SYS.186	Encoder 0 Preset Reached
SYS.188	Encoder 1 Monodirectional
SYS.189	Encoder 1 Bidirectional
SYS.190	Encoder 1 Preset Reached
SYS.192	Encoder 2 Monodirectional
SYS.193	Encoder 2 Bidirectional
SYS.194	Encoder 2 Preset Reached
SYS.196	Encoder 3 Monodirectional
SYS.197	Encoder 3 Bidirectional
SYS.198	Encoder 3 Preset Reached
SYS.200	Encoder 4 Monodirectional
SYS.201	Encoder 4 Bidirectional
SYS.202	Encoder 4 Preset Reached
SYS.204	Encoder 5 Monodirectional
SYS.205	Encoder 5 Bidirectional
SYS.206	Encoder 5 Preset Reached
SYS.208	Encoder 6 Monodirectional
SYS.209	Encoder 6 Bidirectional

SYS.210	Encoder 6 Preset Reached
SYS.212	Encoder 7 Monodirectional
SYS.213	Encoder 7 Bidirectional
SYS.214	Encoder 7 Preset Reached
SYS.216	STEP 0 = Start
SYS.217	STEP 0 = Manual
SYS.218	STEP 0 = Running
SYS.219	STEP 0 = Immediate STOP
SYS.220	STEP 1 = Start
SYS.221	STEP 1 = Manual
SYS.222	STEP 1 = Running
SYS.223	STEP 1 = Immediate STOP
SYS.224	STEP 2 = Start
SYS.225	STEP 2 = Manual
SYS.226	STEP 2 = Running
SYS.227	STEP 2 = Immediate STOP
SYS.228	STEP 3 = Start
SYS.229	STEP 3 = Manual
SYS.230	STEP 3 = Running
SYS.231	STEP 3 = Immediate STOP
SYS.232	PWM_0 Enable
SYS.233	PWM_0 Update
SYS.234	PWM_1 Enable
SYS.235	PWM_1 Update
SYS.236	ETH Reinit.
SYS.237	TCP_CLIENT_TX
SYS.239	UDP SEND
SYS.240	GSM SYS init error
SYS.241	GSM OK received
SYS.242	GSM tx page

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