CLIENTE: SISTEMATICA	**PRJ_ID:** 014	**REV.:** 04

CONTROLLER8 DEVICE CONFIGURATION PLUG

Rev.Index	Data	Descrizione
01	17/09/2012	Prima stesura
02	23/10/2012	English translation
03	07/11/2012	Some corrections
04	17/10/2013	Modificati valori timeout impostabili
05	21/11/2013	Modified max transmitter number setting
06	04/07/2016	Added 433MHz values in table "Communication frequency selection"

	SCRITTO	VERIFICATO	APPROVATO
DATA	04/07/2016	04/07/2016	04/07/2016
FUNZIONE	Documentation	Documentation	Documentation
NOME	Quaglia Alessandro	Quaglia Alessandro	Quaglia Alessandro

1. Introduction

CONTROLLER8 radio receiver is capable of 6 general purpose power outputs EV1 to 6 (generally ralated to the remote control function buttons 1 to 6) and two extra outputs:

- MASTER OUTPUT: if enabled it is switched on together with the EVn during the operation with button n. It can be used to control by-pass electrovalve or powerpack starter switch.
- EMERGENCY/DOUBLE SPEED OUTPUT: its behaviour depend by the mode selected:
  - EMERGENCY OUTPUT: it stays on during all the working session time: it means that it is switched on with the START command from the transmitter and it is switched off when the working session ends by the transmitter STOP command/emergency mushroom or if remote control unused timeout expires.
  - DOUBLE SPEED OUTPUT: during the operation with functions on which tilting hand feature applies, this output it is switched on if the inclination of the remote control rise above 45 degree allowing to double the oil flow in the idraulic circuit through an extra electrovalve

The CONTROLLER8 CONFIGURATION PLUG allow to configure in every moment which of the above output are related to the function buttons 1 to 6 on the remote control transmitter and then have to be switched on during the button held down.
The CONFIGURATION PLUG also allow to configure:

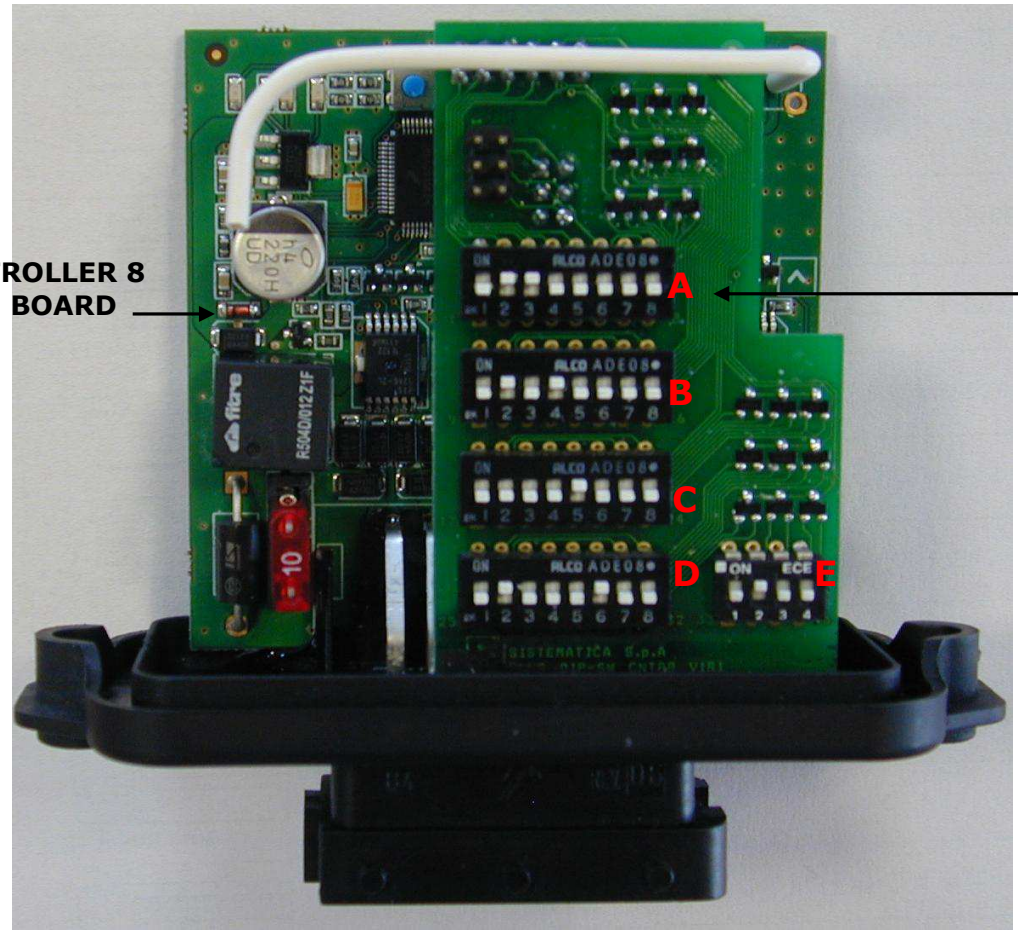
- Working mode for each transmitter button 1 to 6, momentary or latched
- Safety point feature (enabled or disabled) for each transmitter button
- Remote control unused timeout value
- Interlock between transmitter buttons
- Hard selection of the communication center frequency
- Number of transmitter that can be paired with the CONTROLLER8 receiver

The usage of the CONFIGURATION PLUG change according to the remote control in use:

- STANDARD (or general purpose) application remote control

- 4 FUNCTION TAIL LIFT dedicated remote control

CONTROLLER8 SIGNALS	CONNECTOR PIN
EV 1	B7
EV 2	C7
EV 3	A6
EV 4	B6
EV 5	A5
EV 6	B5
EMERGENCY/DOUBLE SPEED	A7
MASTER OUTPUT	A8
+ SUPPLY (VBATT)	B8
- SUPPLY (GND)	B1



All the configuration mentioned are realized through the 5 dip-switch array showed in the picture above:

	1	2	3	4	5	6	7	8
A	DIP1	DIP2	DIP3	DIP4	DIP5	DIP6	DIP7	DIP8
B	DIP1	DIP2	DIP3	DIP4	DIP5	DIP6	DIP7	DIP8
C	DIP1	DIP2	DIP3	DIP4	DIP5	DIP6	DIP7	DIP8
D	DIP1	DIP2	DIP3	DIP4	DIP5	DIP6	DIP7	DIP8
E	DIP1	DIP2	DIP3	DIP4				

2. E-Dip description

E-dip array allow to configure some features independently by the remote control type STANDARD or TAIL-LIFT. Here as follow the means of each switch of the E-dip

E1: Enable/disable Safety point feature related to the transmitter START button

E1	
OFF	SP disabled on transmitter START button
ON	SP enabled on transmitter START button

E2: Application selection STANDARD or TAIL-LIFT

E2	
OFF	STANDARD application
ON	TAIL-LIFT application

E3/E4: System unused Timeout setting

E3	E4	Timeout
OFF	OFF	15 sec.
OFF	ON	2 min.
ON	OFF	15 min.
ON	ON	Unlimited

A/B/C/D -dip array have different means if E2 defines a STANDARD or TAIL-LIFT system

3. TAIL LIFT application (E2 = ON)

In TAIL LIFT mode all function works in momentary mode

	1	2	3	4	5	6	7	8
A	SP T1	MO T1	EV1	EV2	EV3	EV4	EV5	EV6
B	SP T2	MO T2	EV1	EV2	EV3	EV4	EV5	EV6
C	SP T3	MO T3	EV1	EV2	EV3	EV4	EV5	EV6
D	SP T4	MO T4	EV1	EV2	EV3	EV4	EV5	EV6

A → configuration settings for transmitter button 1 (Up)
B → configuration settings for transmitter button 2 (Close)
C → configuration settings for transmitter button 3 (Down)
D → configuration settings for transmitter button 4 (Open)

Dip 1	Enable/disable Safety point feature
Dip 2	Enable/disable MASTER OUTPUT
Dip 3	Enable/disable output EV1
Dip 4	Enable/disable output EV2
Dip 5	Enable/disable output EV3
Dip 6	Enable/disable output EV4
Dip 7	Enable/disable output EV5
Dip 8	Enable/disable output EV6

Example 1: transmitter button 1 configuration settings

	1 – S.P.	2 – M.O.	3 – EV1	4 – EV2	5 – EV3	6 – EV4	7 – EV5	8 – EV6
A	ON	ON	ON	OFF	ON	OFF	OFF	OFF

- Safety point enabled: the transmitter has to be close to the safety point plate when using button 1
- Button 1 activate the following outputs: M.O. + EV1 + EV3

Example 2: transmitter button 3 configuration settings

	1 – S.P.	2 – M.O.	3 – EV1	4 – EV2	5 – EV3	6 – EV4	7 – EV5	8 – EV6
C	OFF	ON	OFF	OFF	ON	OFF	OFF	ON

- Safety point disabled: not need to place the transmitter close to the safety point plate when using button 3
- Button 3 activate the following outputs: M.O. + EV3 + EV6

4. STANDARD application (E2 = OFF)

In STANDARD application the number of the dip-switch column (1 to 6) represent the transmitter button to which the configuration of the whole column applies.

	1 – BUTTON 1	2 – BUTTON 2	3 – BUTTON 3	4 – BUTTON 4	5 – BUTTON 5	6 – BUTTON 6	7	8
A	DIP1	DIP2	DIP3	DIP4	DIP5	DIP6	DIP7	DIP8
B	DIP1	DIP2	DIP3	DIP4	DIP5	DIP6	DIP7	DIP8
C	DIP1	DIP2	DIP3	DIP4	DIP5	DIP6	DIP7	DIP8
D	DIP1	DIP2	DIP3	DIP4	DIP5	DIP6	DIP7	DIP8

In STANDARD application EVn will be always activated during the button n held down

4.1 Transmitter button and related outputs settings

	1 – BUTTON 1	2 – BUTTON 2	3 – BUTTON 3	4 – BUTTON 4	5 – BUTTON 5	6 – BUTTON 6	Setting
A	DIP1	DIP2	DIP3	DIP4	DIP5	DIP6	Function mode
B	DIP1	DIP2	DIP3	DIP4	DIP5	DIP6	Master Output
C	DIP1	DIP2	DIP3	DIP4	DIP5	DIP6	Safety Point
D	DIP1	DIP2	DIP3	DIP4	DIP5	DIP6	Double speed

An [1 to 6]: Function mode configuration. These switches allow to decide if the outputs related to the transmitter button will be activated in momentary or latched mode

An	
OFF	Momentary mode
ON	Latched mode

Bn [1 to 6]: Enable/disable the activation of the MASTER OUTPUT during the activation of button n

Bn	
OFF	MASTER OUTPUT disabled
ON	MASTER OUTPUT enabled

Cn [1 to 6]: Enable/disable the Safety point feature on button n

Cn	
OFF	Safety Point disabled
ON	Safety Point enabled

Dn [1 to 6]: Enable/disable Double speed feature on button n (only if supported by transmitter)

Dn	
OFF	Double Speed disabled
ON	Double Speed enabled

If all D1 to 6 = OFF the EMERGENCY/DOUBLE SPEED output will work as EMERGENCY output

Example:

	1 – BUTTON 1	2 – BUTTON 2	3 – BUTTON 3	4 – BUTTON 4	5 – BUTTON 5	6 – BUTTON 6
A	ON	OFF	OFF	OFF	ON	ON
B	ON	ON	OFF	ON	ON	ON
C	OFF	ON	OFF	OFF	OFF	ON
D	OFF	OFF	ON	OFF	OFF	OFF

BUTTON1 → EV1 + M.O. (Latched)
BUTTON2→ EV2 + M.O. (Momentary, close to Safety Point plate)
BUTTON3 → EV3 + DOUBLE SPEED output when inclination > 45 deg. (Momentary)
BUTTON4 → EV4 + M.O. (Momentary)
BUTTON5 → EV5 + M.O. (Latched)
BUTTON5 → EV6 + M.O. (Latched, close to Safety Point plate)

4.2 Interlock settings

Interlock settings between transmitter buttons are defined by dip-switch A7 and A8 as showed in table below:

A7	A8	
OFF	OFF	Only 1 button a time allowed
OFF	ON	Up to 2 buttons a time allowed, except for couples 1-2, 3-4, 5-6
ON	OFF	Up to 2 buttons a time allowed
ON	ON	No interlock: any combination of more buttons a time allowed

4.3 Max transmitter number setting

The maximum number of transmitter that can be paired on the receiver can be configured through dip-switch B7 e B8 as showed in table below:

B7	B8	Max transmitter number
OFF	OFF	1
OFF	ON	5
ON	OFF	10
ON	ON	20

4.4 Communication frequency selection

It is possible to force the communication frequency through dip switch C7-C8-D7-D8 as showed in table below.
The available frequencies will depend by the transmitter frequency band (433MHz, 868MHz European ISM Band or 915MHz FCC allowed band)

C7	C8	D7	D8	**Easy RTX 433**	**Easy RTX 868**	**Easy RTX 915**
OFF	OFF	OFF	OFF	Random	Random	Random
OFF	OFF	OFF	ON	433.2 MHz	865.4 MHz	915.2 MHz
OFF	OFF	ON	OFF	433.3 MHz	865.6 MHz	915.4 MHz
OFF	OFF	ON	ON	433.4 MHz	865.8 MHz	915.6 MHz
OFF	ON	OFF	OFF	433.5 MHz	866.0 MHz	915.8 MHz
OFF	ON	OFF	ON	433.6 MHz	866.2 MHz	916.0 MHz
OFF	ON	ON	OFF	433.7 MHz	866.4 MHz	916.2 MHz
OFF	ON	ON	ON	433.8 MHz	866.6 MHz	916.4 MHz
ON	OFF	OFF	OFF	433.9 MHz	866.8 MHz	916.6 MHz
ON	OFF	OFF	ON	434.0 MHz	867.0 MHz	916.8 MHz
ON	OFF	ON	OFF	434.1 MHz	867.2 MHz	917.0 MHz
ON	OFF	ON	ON	434.2 MHz	867.4 MHz	917.2 MHz
ON	ON	OFF	OFF	434.3 MHz	867.6 MHz	917.4 MHz
ON	ON	OFF	ON	434.4 MHz*	867.8 MHz	917.6 MHz
ON	ON	ON	OFF	434.5 MHz	868.0 MHz	917.8 MHz
ON	ON	ON	ON	434.6 MHz	868.2 MHz	918.0 MHz

If "random" frequency is selected (C7-C8-D7-D8 = OFF) the communication frequency will be chosen randomly during the pairing procedure

* RESERVED