



FAIL SAFE MEMORY

Storage of Fail Safe data; only in PCM mode (access via Set-Up Menu)

This function is only possible when in PCM mode and with receiver models mc-12, mc-18, mc-20 and DS 20 mc!

FAIL SAFE MEMORY

The higher working reliability of Pulse Code Modulation (PCM) in relation to the simple Pulse Position Modulation (PPM) results from the fact that the microprocessor built in the receiver recognizes, whether a received control signal was falsified or damaged by external interference. In these cases the receiver automatically replaces this disturbed signal by the last correctly received, which was stored in the receiver just in case. In this way brief interference, where the radio signal is weak or the like, is managed which would otherwise lead to the well-known "glitching".

When a longer lasting disturbance to the transmission between transmitters and receivers occurs, the mc-16/20 software offers two different options of FAIL SAFE programming. Using the **INC/DEC** keys, the "FST" (Fail Safe Time) can be selected:

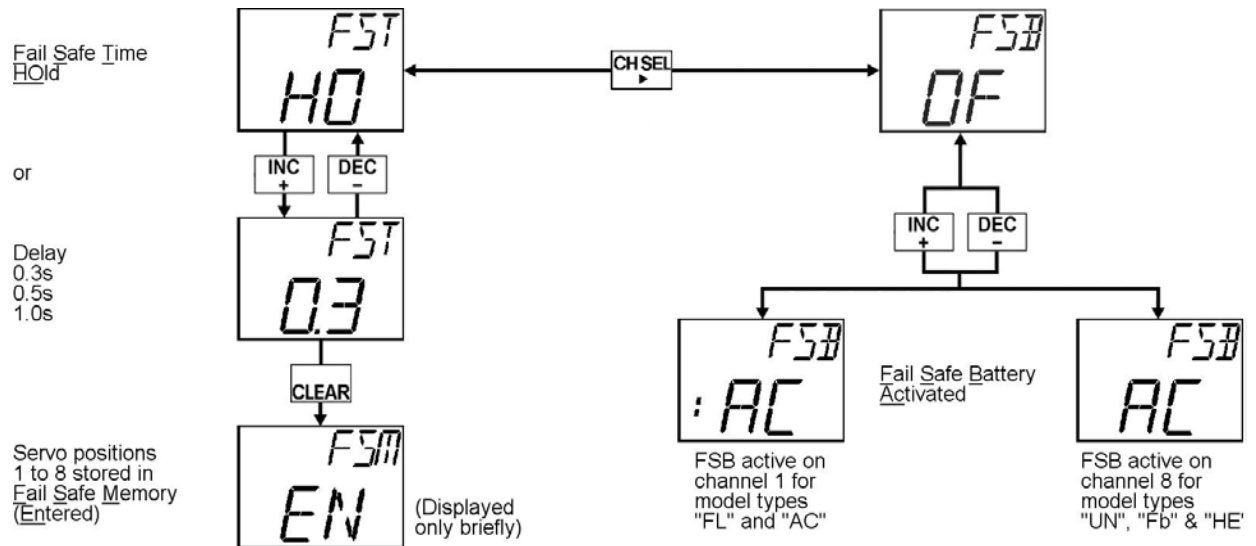
1. HOLD program (display "HO"):

In this case the Servos stops, in the case of a transmission disturbance to the receiver, in the position set by the last intact control signal. It remains in that position until a new, recognizable, control signal is detected by the receiver.

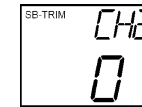
2. Variable programmable fail-safe with delay option (display: 0.3, 0.5 or 1.0):

The servo moves to a pre-programmed set position, until the receiver receives an intact control signal. It is possible to set a delay time from the beginning of the interference to the operation of the fail safe program. This is settable in three steps (0.3s, 0.5s and 1.0s) using the INC/DEC keys, taking into account different model speeds.

The desired positions of the servos on control functions 1 to 8, during the operation of fail safe, are simultaneously set at the transmitter and then the **CLEAR** key is pressed. These momentary positions are stored now as the fail safe positions. During operation these values are transferred to the receiver's memory, so that the receiver can fall back to them during interference. Storing is confirmed, in the display, by the brief display of "FSM EN", (Fail Safe Memory Entered). The fail-safe servo positions can be reset at any time, even in flight, by selecting the code and pressing **CLEAR** to be overwrite the existing settings.



and



Receiver Battery FAIL SAFE

This function is only possible when in PCM mode and with receiver models mc-12, mc-18, mc-20 and DS 20 mc!

Receiver Battery FAIL SAFE

The output channel for the Receiver Battery FAIL SAFE is preset for model types "FL" and "AC" on channel 1 (throttle/spoiler), and for the types "UN", "Fb", "HE" on the channel 8.

As soon as the voltage of the receiver battery falls below a certain value, the associated servo goes to it's central position, to indicate the low battery voltage. By movement of control stick (1 or 8) the FAIL SAFE servo is release, so that servo again operates as desired by the pilot. The model must be landed immediately after the first FAIL SAFE message.

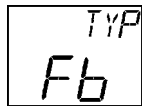
Summary of Ready-Made Multi-Function Programs



Standard (Fly)
Described on page 28.



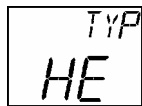
Unify
Described on page 34.



F3B / Butterfly
Described on page 42.

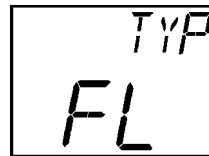


Acrobatic
Described on page 52.



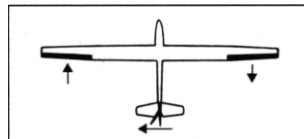
Helicopter
Described on page 60.

The five ready-made multi-function programs simplify programming considerably. Once you have determined the model type using the System Menu, you can call up any of the special functions listed in the following section. Most of the mixer functions can be switched on and off via external switches. You have to complete adjustment of the mixer values, to match the particular model, by flight testing.

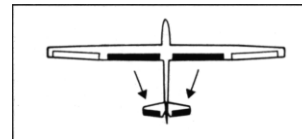


FL =
STANDARD
Described on page 28.

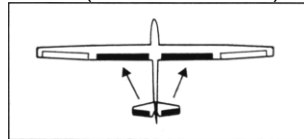
Mixer Function	Code	Switch	Std Value
Combi (Aileron – Rudder)	A-R	3	0%
Flap – Elevator	F-E	5	0%
Elevator – Flap	E-F	4	0%
V-Tail	WNG (VTL)	-	OFF
Delta	WNG (DLT)	-	OFF
Freely programmable mixers	A, B, C	7, 6, 5	0%



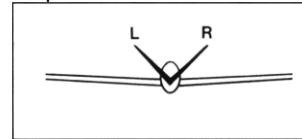
Combi (Aileron – Rudder)



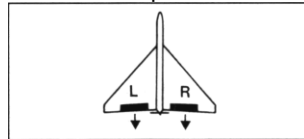
Flap – Elevator



Elevator – Flap



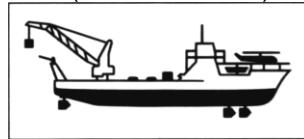
V-Tail (Elevator / Rudder)



Delta (Aileron / Elevator)



Freely Programmable

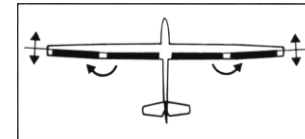


NAUTIC – channel 7, 8

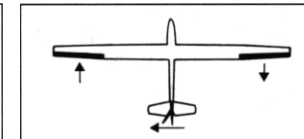


UN =
UNIFLY
Described on page 34.

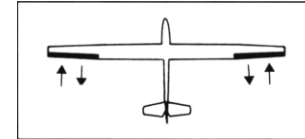
Mixer Function	Code	Switch	Std Value
Flap – Flaperon	F-A	-	0%
Combi (Aileron – Rudder)	A-R	3	0%
Differential	DIF	6	0%
Flap – Elevator	F-E	5	0%
Elevator – Flap	E-F	4	0%
V-Tail	WNG (VTL)	-	OFF
Spoiler	S-E	7	0%
Freely programmable mixers	A, B, C	7, 6, 5	0%



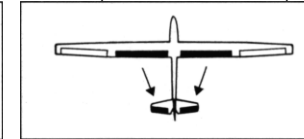
Flap – Flaperon



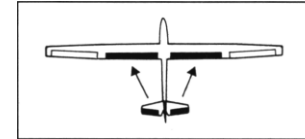
Combi (Aileron – Rudder)



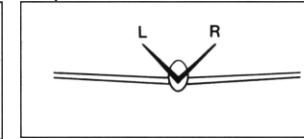
Differential



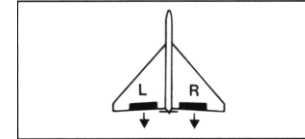
Flap – Elevator



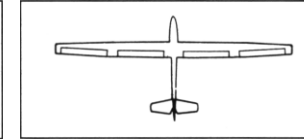
Elevator – Flap



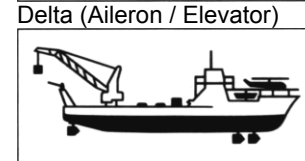
V-Tail (Elevator / Rudder)



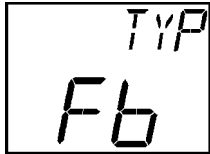
Delta (Aileron / Elevator)



Freely Programmable



NAUTIC – channel 7, 8



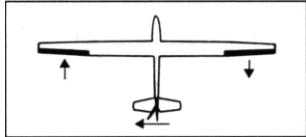
Fb = F3B, Butterfly

Described on page 42.

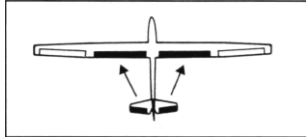
Mixer Function	Code	Switch	Std Value
Flap - Flaperon	F-A	-	0%
Combi (Aileron - Rudder)	A-R	3	0%
Differential	DIF	6	0%
Flap - Elevator	F-E	5	0%
Elevator - Flap	E-F	4	0%
V-Tail	WNG (VTL)	-	OFF
Butterfly - Flaperon	SA	7	0%
Butterfly - Elevator	SE	7	0%
Butterfly - Flap	SF	7	0%
Freely programmable mixers	A. B. C	7. 6. 5	0%



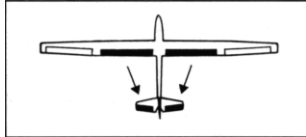
Flap - Flaperon



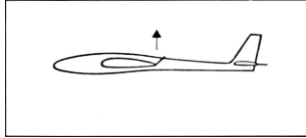
Combi (Aileron - Rudder)



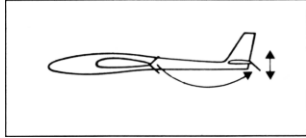
Elevator - Flap



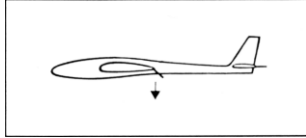
Flap - Elevator



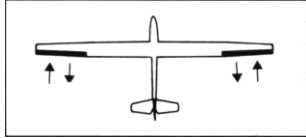
Butterfly - Flaperon



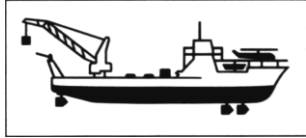
Butterfly - Elevator



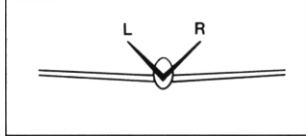
Butterfly - Flap



Differential



NAUTIC - channel 7, 8



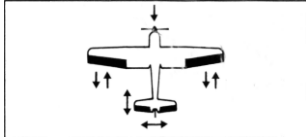
V-Tail (Elevator / Rudder)



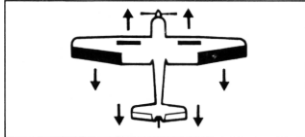
AC = ACROBATIC

Described on page 52.

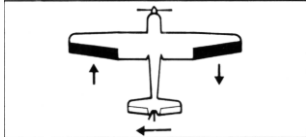
Mixer Function	Code	Switch	Std Value
Automatic Manoeuvre	SR...	6. 7	OFF
Auto-Coupled Dual Rate/Exp	AT4	-	OFF
Automatic Landing	LD...	5	OFF
Combi (Aileron - Rudder)	A-R	3	0%
Elevator - Flap	E-F	4	0%
Flaperon	WNG (FLP)	-	OFF
V-Tail	WNG (VTL)	-	OFF
Freely programmable mixers	A. B. C	7. 6. 5	0%



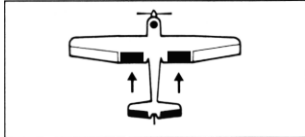
Automatic Manoeuvre



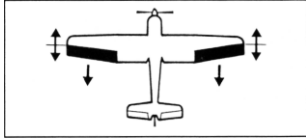
Automatic Landing



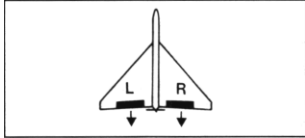
Combi (Aileron - Rudder)



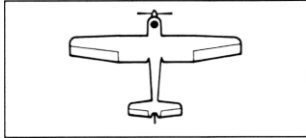
Elevator - Flap



Flaperon



Delta (Aileron / Elevator)



Freely Programmable



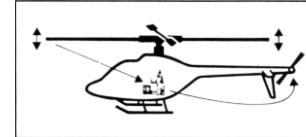
NAUTIC - channel 7, 8



HE = HELICOPTER

Described on page 60.

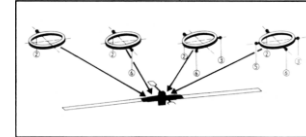
Mixer Function	Code	Switch	Std Value
Autorotation	ATR	3	OFF
Idle Up / Throttle Curve	T...	4. 5	±85%: 0
Pitch Curve	P...	4. 5	±85%: 0
Static Mix	ST...	6	0%
Dynamic Mix	DYN	6	0%
Swashplate Type	SWA	-	N
Gyro Control	GY...	7	OFF
Freely programmable mixers	A. B. C	7. 6. 5	0%



Static Mix



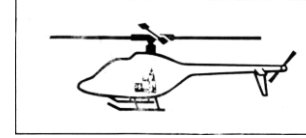
Dynamic Mix



Swashplate Type



Gyro Control



Freely Programmable



NAUTIC - channel 7, 8

STANDARD

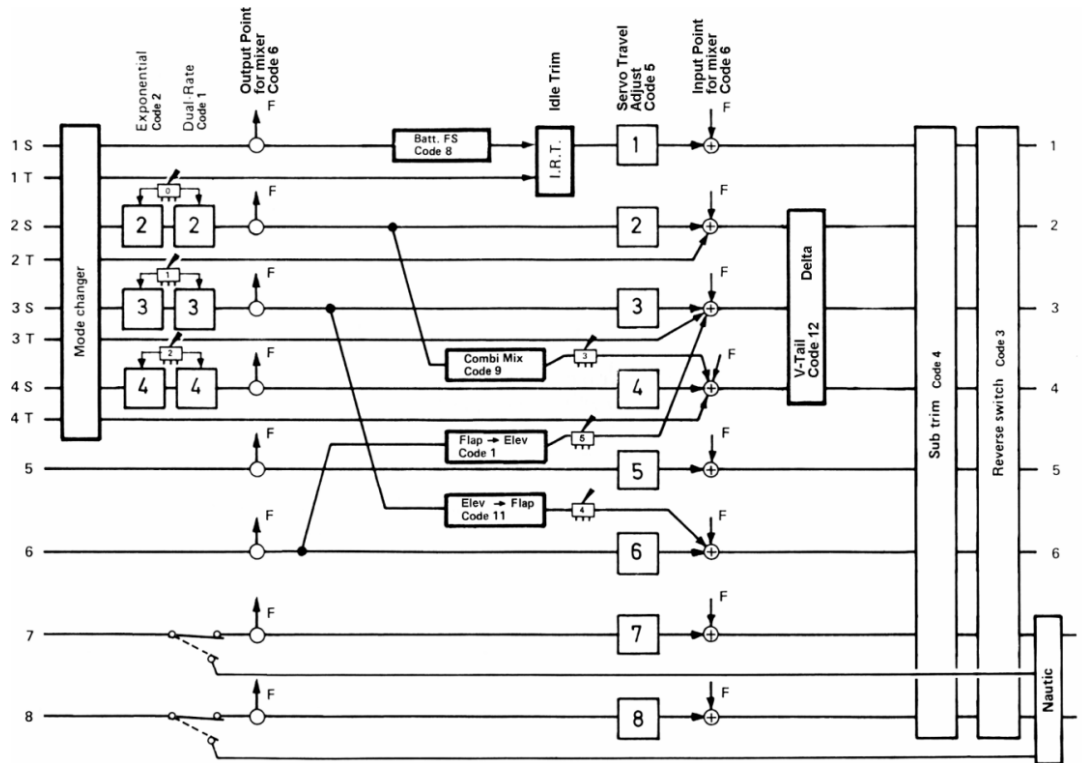
Model Type Described

Included under the STANDARD type are all motor and sailplane models, with which control over elevator, rudder, ailerons, engine throttle or rpm (and/or airbrakes for sailplane models) is possible. In this programme it is also possible, via additional control paths for auxiliary functions, to control features like retractable landing gear, cable release, mixture adjustment or also landing flaps (and/or variable flaps for sailplane models). All options, which are for this configuration possible and meaningful, are available here.

Some special mixers, such as combi-mix (aileron - rudder), elevator adjustment during flap operation and an elevator - flap mixers to assist the elevator in manoeuvring, are already configured. Beyond that three freely programmable mixers are available for applications such as aileron or flap control using two separated servos or more complex mixing functions.

The program area titles "WING" covers the programs for delta and V-tail models. With delta and flying wing models, elevator and aileron share the same control surfaces on the left and right trailing edge of the wing. With V-tail models the elevator and rudder functions are linked with one another in an appropriate way to control the model.

Block Diagram STANDARD (Fly) "FL"



Allocation of Receiver Connections (ch 1 – 8)

The servos must be connected to the receiver connections as follows:

