



IS-02



User Manual

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2 General description.

The Elber IF Switch accepts 4 inputs IF 70MHz FM modulated according to CCIR TV standard and performs following operations:

- ✓ Continuous monitoring and calculus of video S/N on input IFA, IFB, SATIF (hence shown as S/N_A , S/N_B e S/N_{SAT}).
- ✓ Continuous Reading and indication of ID label eventually present on the identification line (to be chosen by the customer) of every input.
- ✓ Selection of one of the input signals and its connection to a 3-way IF distributor.
- ✓ Monitoring and remote control of switch status.

3 Selection logic description.

Selection can be performed manually, remotely or automatically on the basis of a pre-programmed selection logic.

Criteria of the automatic selection foresee the outgoing, by the input signals, of an acceptability condition, which verifies:

- ✓ Presence and matching of ID label with the foreseen one. Two different labels can be chosen; option can be disabled.
- ✓ Video S/N must be greater than 40 dB (different on customer request) and video coming from demodulation of satellite digital signals should present a BER greater than a predefined threshold.
- ✓ The selection between the signals identified as acceptable is performed on the basis of the comparison of their video S/N.
- ✓ The switch is equipped of a temporization system able to avoid frequent switch in presence of fast fading events.

IF A and IF B should be provided by terrestrial links, SAT IF should be and IF signal locally modulated by the video coming out of a digital satellite receiver, LOC IF is a back-up signal locally generated.

Input A and B (terrestrial lines) have a priority. The selection of input SAT can be performed only in the case that none of A and B input is acceptable, on the basis of both ID label correspondence and 40 dB video S/N outgoing.

The LOC IF is used to warranty continuity of connection from the electrical point of view and present the lowest priority.

The AUTOMATIC selection logic is the following:

- If input A is acceptable and S/N_A outgoes the hysteresis curve (in comparison with S/N_B), signal selected will be IF A.
- If input B is acceptable and S/N_B outgoes the hysteresis curve (in comparison with S/N_A), signal selected will be IF B.
- If both IF A and IF B are not acceptable, SAT if will be selected, supposing that the BER value is above threshold.
- In case SAT IF is not acceptable, LOC IF emergency signal will be selected.

Two different hysteresis curves (HYST H and HYST L) are stored in the equipment memory. (See related figure).

The hysteresis interval is not constant but depends on the S/N measure, and it's greater in HYST H rather than HYST L. The possibility of choosing between two different curves let to better fit the switch operation to the link conditions.

In presence of fast fading on the terrestrial links which caused a double commutation from A to B and reverse to A, a system avoid that a new selection of line B can happen, except if a pre-determined time has passed (programmable).

Selection of shown options can be performer through the setting of 4 DIP Switches according to the following table.

Table 1

FUNCTION	SW1	POSITION	
		ON (1)	OFF (0)
Hysteresis curve selection	1	Hyst_H	Hyst_L
ID Selection	2	To be choosen	To be choosen
ID test on terrestrial lines enabling	3	YES	NO
ID test on SAT line enabling	4	YES	NO

In MANUAL mode the selection between the inputs is performed through the rotating switch on the front panel.

The confirmation of the manual mode selection is shown by lighting on of the red led identified as MAN. The selected channel is indicated by lighting on of the green led located on the top of the corresponding input connector.

If MAN led is off, that means that AUTOMATIC functioning is enabled.

In this condition, it is possible to remotely control the selection by sending codified level on pins 3 to 8 of DB15 connector placed in the back panel.

By checking the status of pins 9 to 15 of the same connector is also possible to monitor the switch status.

In following the pinout of the DB15 connector table is shown:

Table 2

PIN #		PIN #	
1	Not connected	9	Input A selected
2	Not connected	10	Input B selected
3	+5V out	11	Input C selected
4	Input ADR0	12	Input D selected
5	Input ADR1	13	Input selection COMMON
6	AUTO / REMOTE Mode	14	Supply alarm contact 1
7	Gnd	15	Supply alarm contact 2 (Open=
8	Gnd		Alarm)

Table 3 show the remote selection logic.

Table 3

AUTO / REMOTE	ADR1	ADRO	SELECTION
1	X	X	Automatic
0	0	0	IF A
0	0	1	IF B
0	1	0	SAT IF
0	1	1	LOC IF

4 Front panel indicators and connectors.

Table4

FUNCTIONS	ITEM	LABEL
Terrestrial line A input	BNC female 75 Ohm	IFA
Terrestrial line B input	BNC female 75 Ohm	IFB
SAT IF input	BNC female 75 Ohm	SAT IF
Local auxiliary IF input	BNC female 75 Ohm	LOC IF
IF output	BNC female 75 Ohm	
Display of ID labels and S/N of signals present on IFA, IFB, SAT IF	LCD alphanumeric display	
ON/OFF indication	Led	ON
+15V indication	Led	+15V
-15V indication	Led	-15V
Input scan indication	Led	SCAN
AUTO/MAN indication	Led	MAN
BER alarm on SAT input	Led	ALARM SAT
Hysteresis High curve selection	Led	HYST H

In case of failure of power supply, the signal present on IF A is directly connected to the nearest IF output and the two other outputs will be disabled.

5 Hysteresis Graph.

Continuous line: HYST H curve limits

Dotted line: HYST L curve limits.

