Interface

For Infrared Transmission

For Radio Transmission

Installation instructions

English

Type

IF59-A2

BLUM
focus on productivity

The language version of the manufacturer (DE/EN) is decisive for the technical content.

Subject to technical change without notice.

Original operating instructions

Article number of this documentation: 180168_EN

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1. Introduction

1.1 Declaration of warnings

NOTICE

signifies measures to avoid material damages.

Please read and observe the notes included in these instructions.
Subject to technical change without any notice.

1.2 Keys


Information on secondary literature


Additional advice

LED shines

LED flashes

Green

Red

Blue

Orange

Violet

White

Settings	Status
	ON
	OFF
	freely selectable
	Default condition of standard version

1.3 Further applicable documents

Control-specific connection diagrams
These are available at Blum-Novotest.

Installation instructions IF59-30

1.4 Abbreviations

U_B operating voltage
SSR Solid State Relais
SW Switch

2. System overview

2.1 Complete system

The interface IF59-A2 is compatible for BLUM measuring devices with infrared and radio transmission.

The receiver enables wireless communication between the measuring devices and the NC control.

Data transfer to the NC control via IF59-A2 interface.

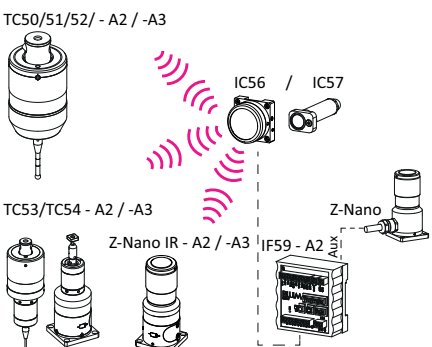


Fig. 2-1

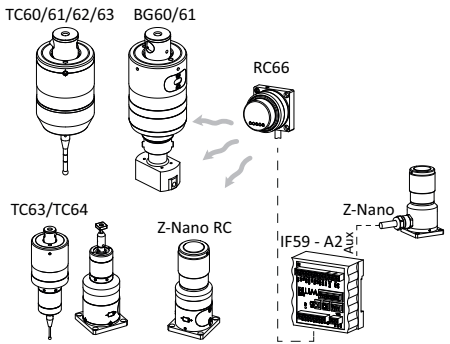


Fig. 2-2

2.2 Dimensions

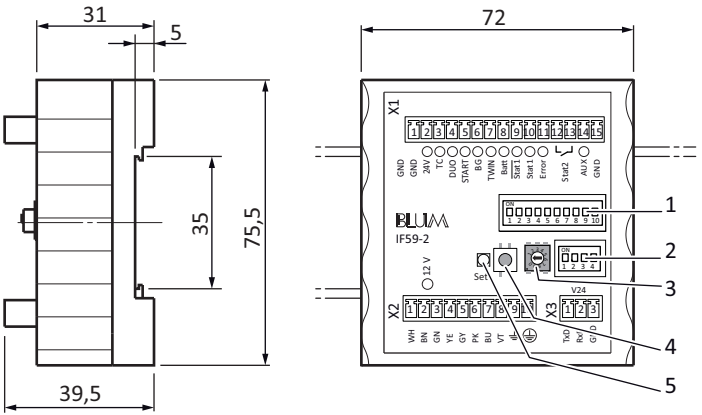


Fig. 2-3

(1) DIP switch 1
(2) DIP switch 2
(3) Coding switch
(4) Button SET
(5) LED SET

2.3 Technical data

Protection class	IP50
Mounting	DIN Rail (DIN EN 50 022-35)
Power supply U_B	15 ... 30 V DC / 100 mA
Inputs	4 x 10 mA
Outputs	4 x 50 mA Push-pull 1 x 50 mA Solid State Relay (SSR)
Interface	RS232
Storage temperature	-20 °C ... +70 °C
Operating temperature	+5 °C ... +50 °C

Tab. 2-1

3. Electrical connection

NOTICE

Damage and malfunction of the measuring system is possible caused by faulty cable mounting

- ▶ Connect or disconnect connecting cables or plug connections without power supply only.
- ▶ Observe fail-safe cable laying according to the regulations for measuring system cables.
- ▶ Connect the cable shielding on the control side with the machine earth. At adapter connections the shielding must be directed over the plug housing and the complete plug connection must be mounted isolated.
- ▶ Observe intactness of gasket and adjusting groove of plug connector.
- ▶ Tighten the plug connector firmly (M_d = 2.0 ... 2.5 Nm).

NOTICE

Damage to the measuring system by short circuit possible.

The outputs cannot be connected in parallel!

- ▶ Connect each individual wire to its own terminal.

NOTICE

Damage by improper installation of cables and hoses

- ▶ When mounting cables and hoses, please provide sufficient strain relief.
- ▶ Please note the minimum binding radius of cables and hoses.

NOTICE

Damages of the measuring system by chips are possible.

- ▶ Never install cables and wires without protection in the working area.
- ▶ Protect cables and wires in the working area against flying chips, e.g. by protection hose, protection spring, cover, etc.

- Mounting: on DIN rail (DIN 50 022)
- Dismounting: pull back snap latch

3.1 Overview

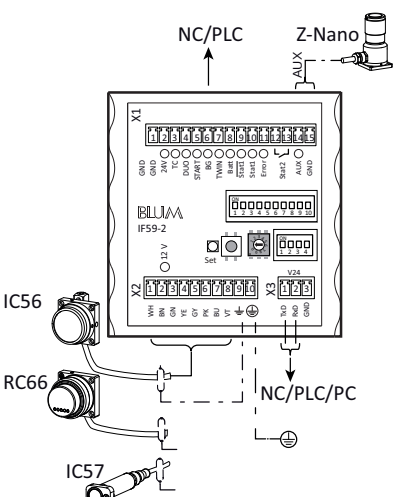


Fig. 3-1

NOTICE

Measuring system malfunctioning and damage possible as a result of faulty earthing.

- ▶ Use the enclosed BLUM accessory set!
- ▶ Earth the measuring system as per the installation instructions for the accessory set!

NOTICE

Material damages caused by wrong wiring of the interfaces at the machine control

The electrical connections, mentioned in this instruction, are exemplary and may vary depending on the machine control.

- ▶ Please refer to the documentation supplied by the machine manufacturer!
- ▶ Consider the electrical wiring diagrams, suitable for your machine control!

NOTICE

Measuring error is possible.

If the signals $\overline{\text{BATTERY}}$ and $\overline{\text{ERROR}}$ are not monitored, measuring errors may occur.

- ▶ Carry out multiple contacts.

NOTICE

Risk of collision

If the signal ERROR is not monitored in the PLC or the measuring cycles, the falling edge ($\overline{\text{STATUS}}$) must be used compulsorily for the measuring input.

3.2 IF59-A2 at PLC

3.2.1 Switch-on / Off Level-Controlled

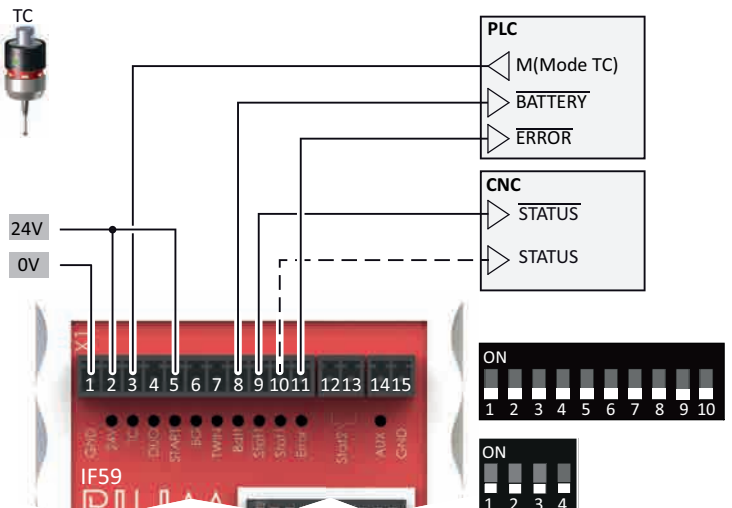


Fig. 3-2 Switch-on / off Level-Controlled

IR: Probe switch-off method: Optical off (flash)

Radio: Automatic pairing via input AUX is not possible.

Switch-on/-off via M-function

START = 24 V	Start release
M(Mode TC) = 1	Mode TC
M(Mode TC) = 0	Mode standby

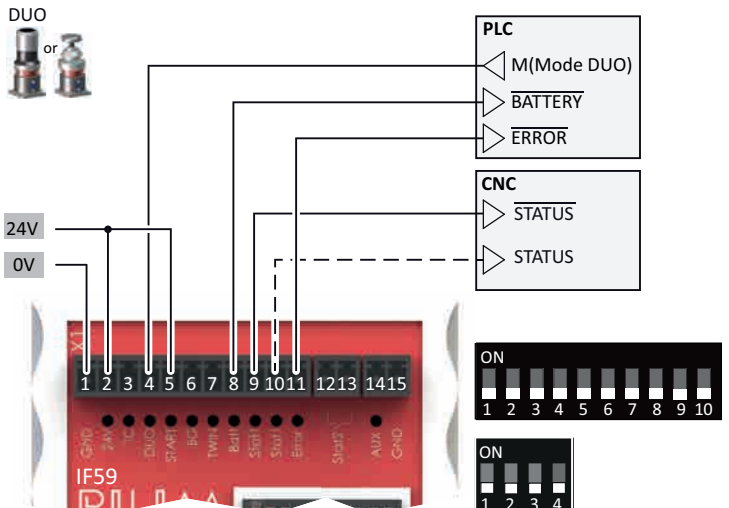


Fig. 3-3 Switch-on / off Level-Controlled

IR: Probe switch-off method: Optical off (flash)

Radio: Automatic pairing via input AUX is not possible.

Switch-on/-off via M-function

START = 24 V	Start release
M(Mode DUO) = 1	Mode DUO
M(Mode DUO) = 0	Mode standby

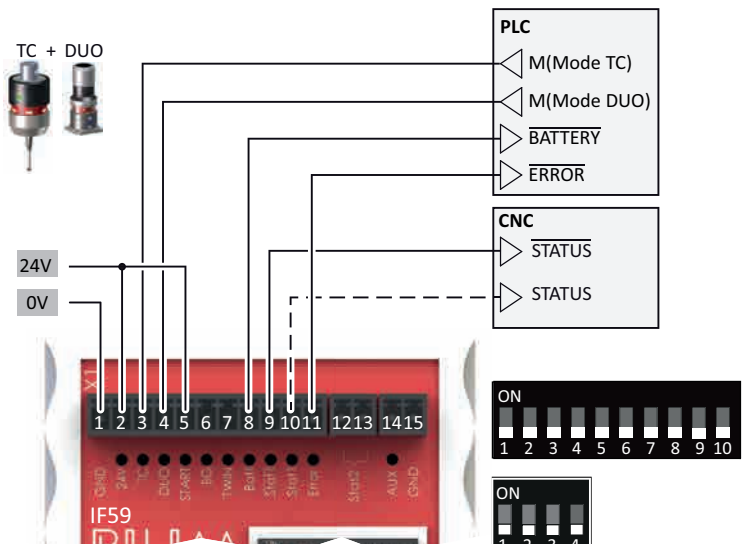


Fig. 3-4 Switch-on / Off Level-Controlled, 2 M-Codes

IR: Probe switch-off method: Optical off (flash)

Radio: Automatic pairing via input AUX is not possible.

Switch-on/-off via M-function

Measurement TC:	
START = 24 V	Start release
M(Mode TC) = 1	Mode TC
M(Mode DUO) = 0	
M(Mode TC) = 0	Mode standby
M(Mode DUO) = 0	
Measurement DUO:	
M(Mode TC) = 0	
M(Mode DUO) = 1	Mode DUO
M(Mode DUO) = 0	Mode standby
M(Mode TC) = 0	

3.2.2 Switch-On / -Off Impulse-Controlled

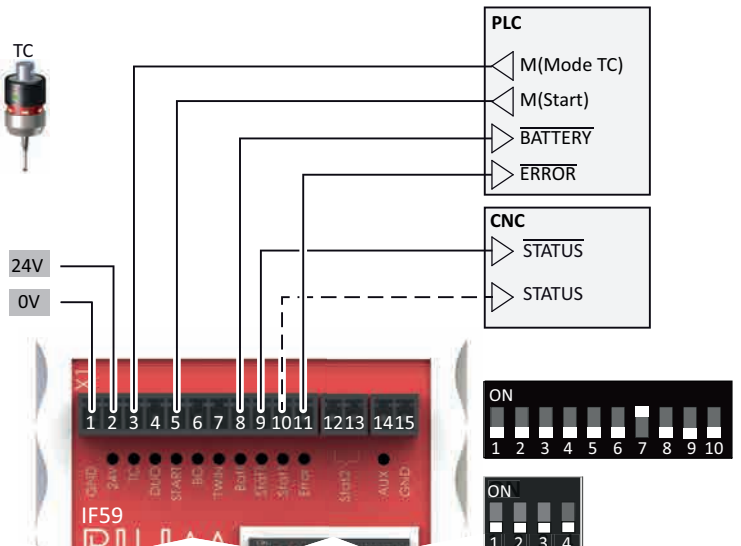


Fig. 3-5 Switch-On / -Off Impulse-Controlled

IR: Probe switch-off method: Optical off (flash)

3.2.3 Switch-On Autoflash - Switch-Off Timeout

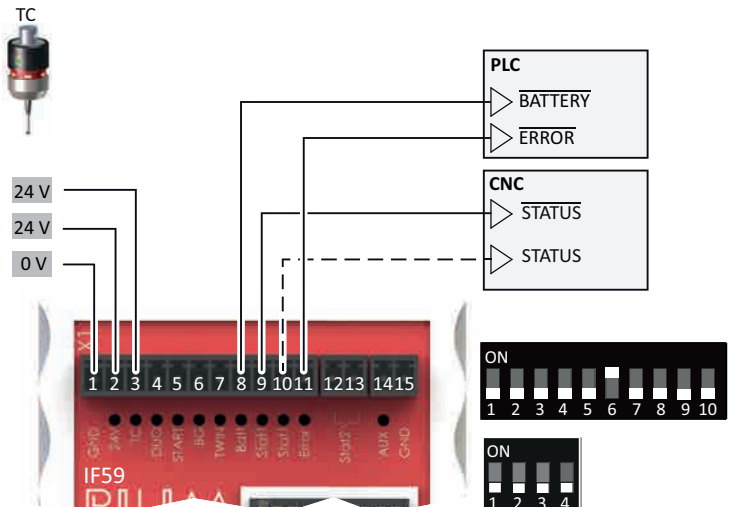


Fig. 3-6 Switch-ON Autoflash / Switch-Off Timeout OFF

Not available for radio transmission

IR: Probe switch-off method: Timeout Off

3.3 Electrical connection IF59-A2 and laser system / Z-Nano on one measuring input

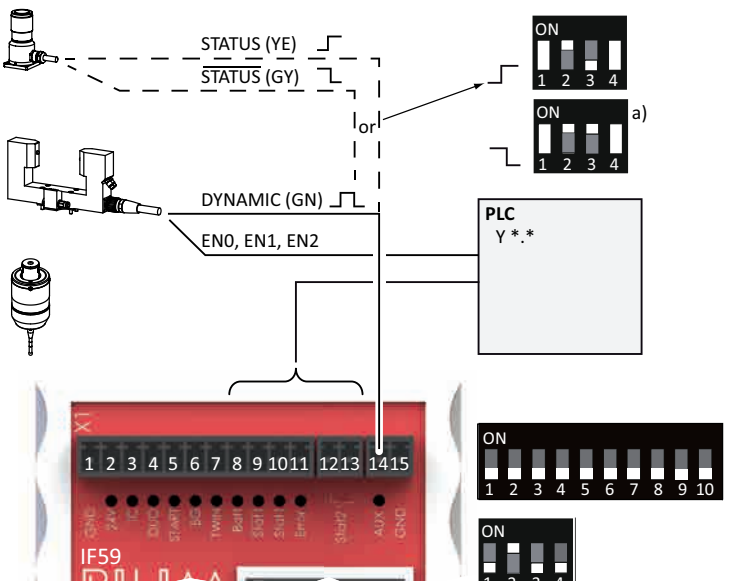


Fig. 3-7

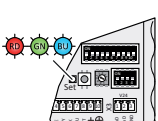
a) DIP switch 2:

If SW3 is in position ON, the outputs in standby mode are also switched with level high/low.

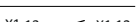
4. Configuration

Settings	Status
	ON
	OFF
	freely selectable
	Default condition of standard version

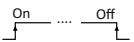
Changes on the dip-switches are taken over in the interface. Approx. 2 sec. for taking over. A new dip-switch position is confirmed on the LED SET with a flashing sequence (red – green – blue).



4.1 DIP switch 1

	SW	Function	Status	Description	
*					
Signal level	1	Battery	ON	BATTERY: Battery low: “High” signal (rising edge)	
			OFF *	$\overline{\text{BATTERY}}$: Battery low: “Low” signal (falling edge)	
	2	Error	ON	ERROR: Error: “High” signal (rising edge)	
			OFF *	$\overline{\text{ERROR}}$: Error: “Low” signal (falling edge)	
	3	Status2	ON	Status2 N/C:	
			OFF *	Status2 N/O:	
* status of delivery ** not valid for radio transmission					

	SW	Function	Status	Description
Signal linking	4	Status	ON	Error has no effect on output Status ***NOTICE*** Risk of collision ▶ Here, the signals STATUS and ERROR must be controlled.
			OFF *	Error causes "status deflected"
	5	Error	ON	"Battery low" activates output signal ERROR
			OFF *	"Battery low" doesn't influence output signal ERROR
* status of delivery ** not valid for radio transmission				

	SW	Function	Status	Description
Options	6	Flash	ON**	Autoflash: Activation of probing system with intervisibility
			OFF *	Flash by M-Code: Activation of probing system via M-function M (Start)
	7	Level-controlled	ON	Impulse-controlled via M-code Activation / deactivation via impulse signal, T > 10 ms Condition: SW6 = OFF 
			OFF *	Level-controlled via M-code Activation / deactivation via level signal Condition: SW6 = OFF 
	8	Auto ON	ON	Reactivation by control (trigger signal)
			OFF *	Reactivation by interface (trigger signal) On interruption of the transmission, the interface tries to reactivate the probing system.
	9	Mode switch-over	ON**	Mode DUO off = Mode TC If mode DUO is not selected, the receiver switches automatically into mode TC.
			OFF *	Mode DUO off = Standby If mode DUO is not selected, the receiver switches to standby automatically.
	10	Activation	ON **	Transmitter power for activation signal (flash) 50%
			OFF *	Transmitter power for activation signal (flash) 100%

* status of delivery ** not valid for radio transmission

4.2 DIP switch 2

	SW	Function	Status	Description
*				
Functions	1	no function	ON	---
			OFF *	---
	2	Input AUX	ON	Input AUX = enabled
			OFF *	Input AUX = disabled
	3	Input AUX	ON	Input AUX: Measurement with level change high-low Condition: IF59-A2 in Mode Standby
			OFF *	Input AUX: Measurement with level change low-high Condition: IF59-A2 in Mode Standby
	4	Setting Mode	ON	Setting Mode = ON Reserved
			OFF *	Setting Mode = OFF Pairing operation

* status of delivery

4.3 Electrical connection

X1			
Pin	**Connection**	**Designation**	**Data**
1	GND	Mass	0 V
2	24 V	Power supply U_B	15 ... 30 V / 100 mA
3	TC	Mode TC	10 ... 30 V / 10 mA
4	DUO	Mode DUO	10 ... 30 V / 10 mA
5	START	Flash / Start	10 ... 30 V / 10 mA
6	BG	Mode BG	10 ... 30 V / 10 mA
7	TWIN	Mode TWIN	10 ... 30 V / 10 mA
8	Batt	Output $\overline{\text{BATTERY}}$	24 V / 50 mA
9	$\overline{\text{Stat1}}$	Output $\overline{\text{STATUS1}}$	24 V / 50 mA
10	Stat1	Output STATUS1	24 V / 50 mA
11	Error	Output $\overline{\text{ERROR}}$	24 V / 50 mA
12	Stat2	Output STATUS2	
13		Solid State Relay (SSR)	
14	AUX	Input AUX	10 ... 30 V / 10 mA
15	GND	Mass	0 V

X2			
Pin	**Connection**	**Colour of core wire[a]**	**Colour of core wire[b]**
1	WH	White	inside shielding
2	BN	Brown	Brown
3	GN	Green	Green
4	YE	Yellow	Yellow
5	GY	Grey	Grey
6	PK	Pink	White
7	BU	Blue	Blue
8	VT	Violet	---
9	⏚	shielding	outside shielding
10	⏚	protective earth conductor of the	protective earth conductor of the

[a] IC56 / RC66 / IC57-A1 / IC57-A2 / IC57-A3
Adapter cable 142810 / 142812

[b] IC57-A3
Adapter cable 142808 / 142809

X3			
Pin	**Connection**	**Designation**	**Data**
1	T x D	receiver data	V24 interface
2	R x D	transmitter data	V24 interface
3	0 V	Mass	GND

Tab. 4-1

5. Setup radio system

In order that a radio measuring system can work together with the IF59-A2, it must be assigned to an operating mode in which it can be activated. This process is called "pairing".

Up to 6 radio measuring systems type TC/Z can be paired on the interface and addressed via the inputs TC, DUO, BG and TWIN.

Up to 3 radio measuring systems type RG/DIGILOG can be paired on the interface and addressed via the inputs TC, DUO, BG and TWIN.

There are two methods of probe pairing.

- Pairing procedure via SET-key (manual pairing)
- Pairing procedure via M-function (automatic pairing)

NOTICE

Risk of collision due to lack of pairing possible.

▶ Execute probe pairing after an exchange of the system or after a repair by Blum-Novotest.

Probe	Position coding switch	Mode IF59-A2	Input TC	Input DUO	Input BG	Input TWIN
	0	Standby	Low	Low	Low	Low
1	1[a]	TC1	**High**	Low	Low	Low
		(DIGILOG1)	**High**	Low	**(High)**	Low
2	2[a]	TC2	Low	**High**	Low	Low
		(DIGILOG2)	Low	**High**	**(High)**	Low
3	3[a]	TC3	**High**	**High**	Low	Low
		(DIGILOG3)	**High**	**High**	**(High)**	Low
4	4	TC4	**High**	Low	**High**	**High**
5	5	TC5	Low	**High**	**High**	**High**
6	6	TC6	**High**	**High**	**High**	**High**

[a] Probes with DIGILOG or RG-function can be used in the operating mode TC or in the operating mode DIGILOG. For the pairing procedure, please use the coding switch position 1, 2, 3.

Tab. 5-1

During operating mode DIGILOG, the LED SET is shining blue.

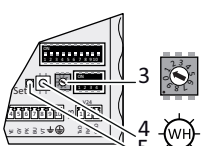
5.1 Pairing procedure via SET-key (manual pairing)

✓ IF59-A2, DIP switch 2:

✓ Touch probe: Standby-Mode
IF59-A2: Standby-Mode
RC66:connected with IF59-A2

🛠 Magnetic pin

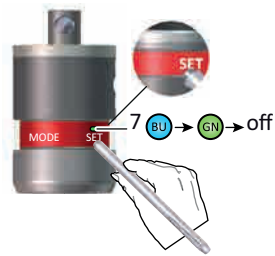
1. Turn coding switch to requested probe assignment.
2. Actuate SET-key on IF59-A2, until LED SET flashes white.



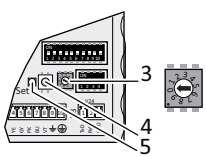
3. Select probe which should be paired:

   Hold the magnetic pin on SET, until the LED Status shines blue (approx. 2 sec.).

   When the LED Status changes to green, the probe is paired and returns into stand-by mode. Further probes in the receiving range of the RC66 are not affected by a pairing procedure.

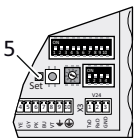


4. Turn back coding switch on IF59-A2, position "0".
   Actuate SET-key on IF59-A2.



(3) Coding switch
(4) Button SET
(5) LED SET
(7) LED Status

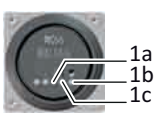
LED´s:



WH – Pairing runs

GN – Pairing successful

RD – Failure pairing



1a	WH	Pairing runs
1b + 1c	GN	Pairing successful
1b + 1c	RD	Failure pairing

BU – Pairing runs

GN – Pairing successful

RD – Failure pairing

Tab. 5-2

5.2 Pairing procedure via M-function (automatic pairing)

Probe Z-Nano cannot be operated via the AUX-input as the AUX-input is used for pairing.

✓ IF59-A2, DIP switch 2:

✓ Touch probe: Standby-Mode
IF59-A2: Standby-Mode
RC66:connected with IF59-A2

✓ Input AUX (X1-14) must be wired with another machine output.

✓ Input AUX is switchable.

✓ Operating mode is switchable (TC / DUO / BG / TWIN)

✓ Start signal is not firmly connected.

🛠 Magnetic pin

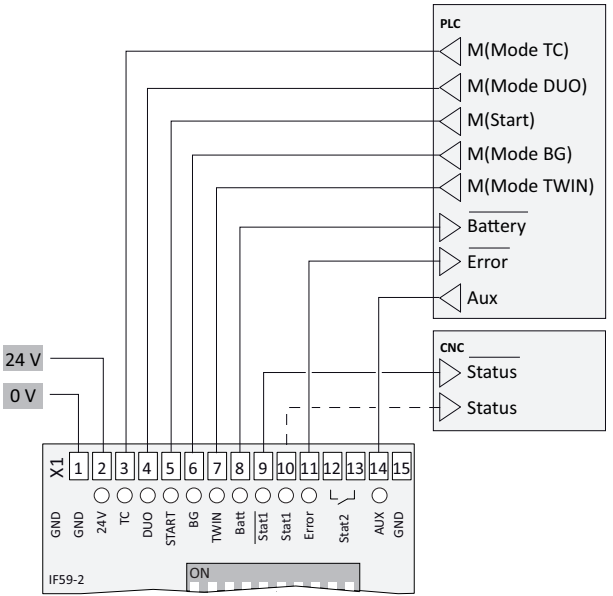


Fig. 5-1

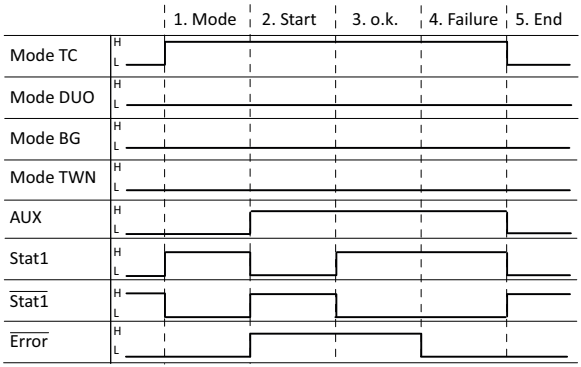


Fig. 5-2

1. Create operating mode with which a radio probe is operated (here: TC1)
2. Start pairing with: signal AUX = high
   Select probe which should be paired:
   Hold the magnetic pin on SET, until the LED Status shines blue (approx. 2 sec.).

3. Signal Stat1 = high:End of pairing
   Signal $\overline{\text{Error}}$ = high:Pairing successful
   Signal $\overline{\text{Error}}$ = low:Pairing failed
4. To terminate the action, reset signals TC / DUO / BG / TWIN.
5. Reset signal AUX.

6. Measuring sequence

6.1 TC - level controlled - SW8 = OFF

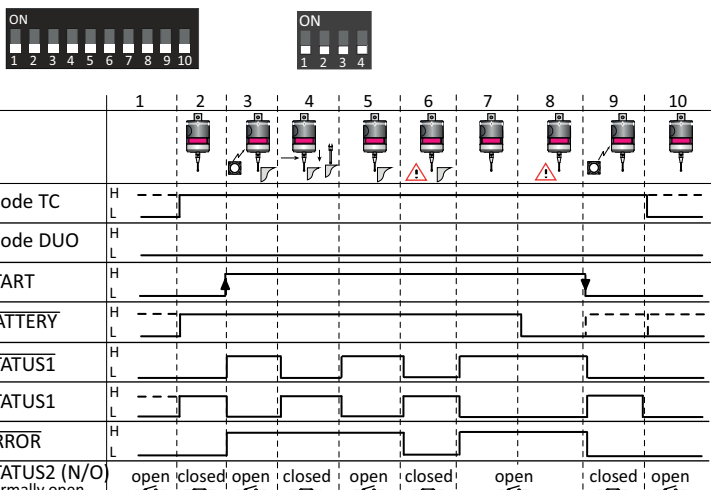


Fig. 6-1

(1) Standby
(2) Mode TC
(3) Activate probe (M-Code)
(4) Deflect stylus
(5) Stylus initial position
(6) Error transmission interrupted (SW8=OFF, SW4=OFF)
(7) Error rectified
(8) Warning: Battery low (SW5=OFF)
(9) Deactivate probe (M-Code)
(10) Exchange probe / standby

6.2 TC - level controlled - SW8=ON

Not available for radio transmission

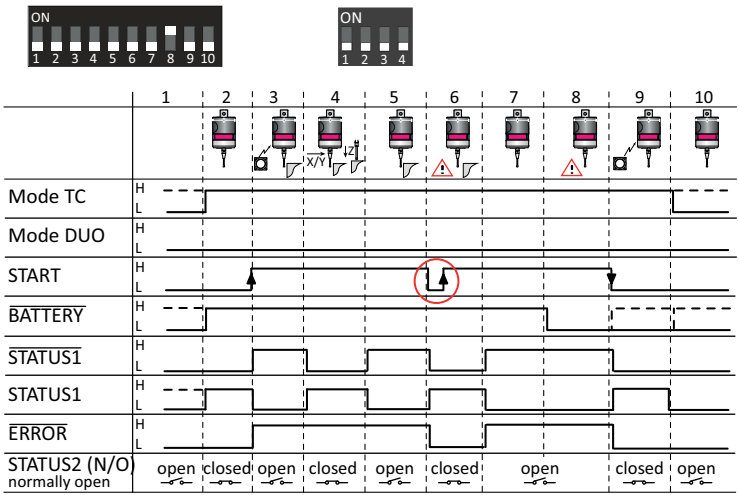


Fig. 6-2

(1) Standby
(2) Mode TC
(3) Activate probe (M-Code)
(4) Deflect stylus
(5) Stylus initial position
(6) Error transmission interrupted (SW8=ON, SW4=OFF)
(7) Error rectified
(8) Warning: Battery low (SW5=OFF)
(9) Deactivate probe (M-Code)
(10) Exchange probe / standby

6.3 TC - impulse-controlled

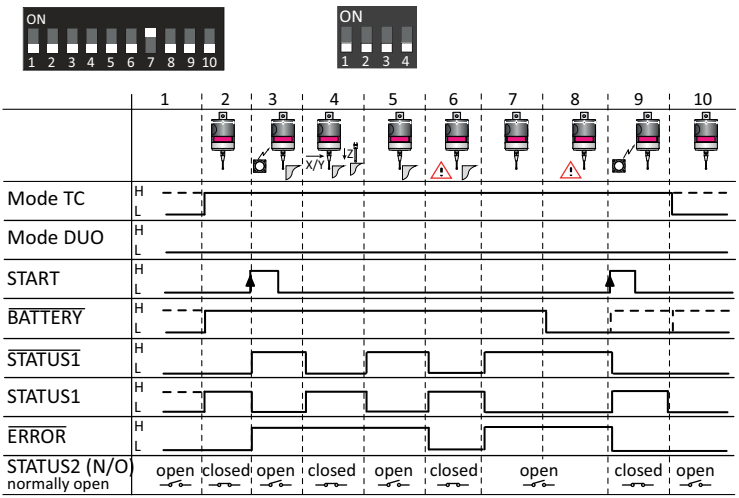


Fig. 6-3

(1) Standby
(2) Mode TC
(3) Activate probe (M-Code)
(4) Deflect stylus
(5) Stylus initial position
(6) Error transmission interrupted (SW8=OFF, SW4=OFF)
(7) Error rectified
(8) Warning: Battery low (SW5=OFF)
(9) Deactivate probe (M-Code)
(10) Exchange probe / standby

If the probe is not deflected for more than 5 minutes, it is additionally set to Standby.

Realise activation / deactivation of probe with two different M-Codes.

Example:

M46: probe system on

M47: probe system off

NOTICE

Risk of collision

If a M-function is already active (e.g. M46 probe system On), no further flash is allowed to be given when the same M-function is repeated as long as the $\overline{\text{ERROR}}$ signal gives the message "probe system ready".
Otherwise the probing system is not switched on with M46 but switched off!

6.4 TC - Switch-On Autoflash / Switch-Off Timeout

Not available for radio transmission

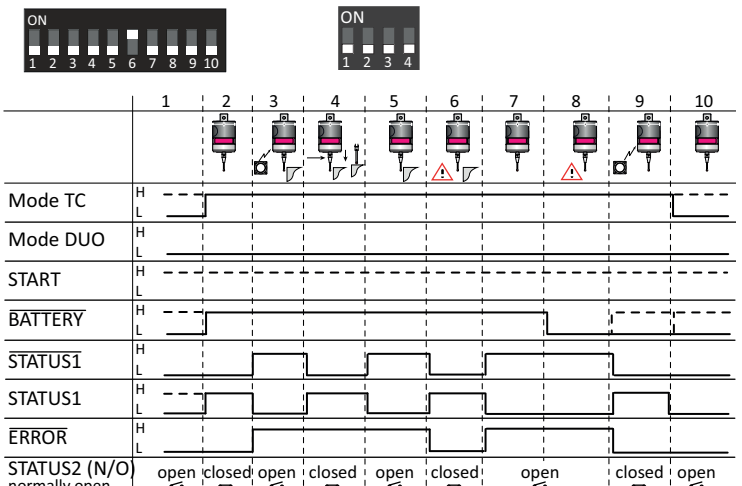


Fig. 6-4

(1) Autoflash
(2) Mode TC
(3) Activate probe (Autoflash)
(4) Deflect stylus
(5) Stylus initial position
(6) Error transmission interrupted (SW8=OFF, SW4=OFF)
(7) Error rectified
(8) Warning: Battery low (SW5=OFF)
(9) Deactivate probe (M-Code)
(10) Exchange probe / standby

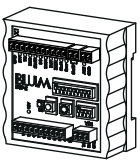
7. Troubleshooting

Error	= Error message
	= Error description
	= Check the following points
	= Remedy / Workaround

Error	LED SET flashes red
	The receiver is not identified.
	Check cable wiring.
	Connect the cable according to the wiring diagram. Execute voltage reset: Disconnect plug X1 for a short time and reconnect again.

8. Order numbers

Use original parts and accessories by Blum-Novotest only.

Interface IF59-A2	142821	

9. EC Declaration of Incorporation

acc. to the EC Machine Regulations 2006/42/EC in the edition from 17 May.2006

We hereby confirm that the subsequently following components are defined for the installation into other machines and that they are in accordance with the following safety requirements of the EC regulations.

Commissioning is not allowed until it is ascertained that the machines, in which the components are installed, are in accordance with the EC regulations 2006/42/EC.

The relevant technical information is compiled acc. to annex VII part B and, where appropriate, we will send the information concerning the components to the different countries. The industrial property rights of Blum-Novotest GmbH will remain unaffected.

Component name	IF59-A2 Interface
Safety requirements 2006/42/EC, Annex I	1.5.1
Applied standards:	
EC-Regulations:	2014/30/EU 2014/35/EU
Applied harmonized standards:	EN 61000-6, EN 60204-1 EN ISO 12100
Applied national standards:	DIN VDE 0100 DIN VDE 0113
Authorised representative for technical information:	Blum-Novotest GmbH Kaufstr. 14 88287 Gruenkraut, Germany

10.Service

BLUM

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