

# 1 Universal Digital Interface Description

## Jumper PCB 5947

jumper	signal	Jumper position	From/To generator	From/To remote TT	From/To Digital
JP1	potter call bucky selection	1-2 OBS3 2-3 OBS2 4-5 OBS1	from	X	X
JP2	detector selection on WS2	1-2 detector 2 2-3 detector 1	x	X	x
JP3	generic digital selection		x	X	X
JP4	HIRIS / CD 1000 / APOLLO DIVA / APOLLO CCD		x	X	X
JP5	Infimed / Xsight		x	X	X
JP6	Alpha / Fly		x	X	X
JP7	not used		x	X	X
JP8	potter reply voltage section		x	X	X
JP9	Eidos/Hiris		x	X	X
JP10	potter reply voltage section		X	X	X
JP11	potter reply voltage section		X	X	X
JP12	potter reply voltage section		X	X	X
JP13	detector 2 selection	Not used	X	X	To
JP14	inverted input				
JP15	cine T0 selection	Active low 1-2 / 3-4 Active high 2-3 / 4-5	X	X	from
JP16	detector selection on WS1	1-2 detector 2 2-3 detector 1	x	x	To
JP17	cine T1 selection	Active low 1-2 / 3-4 Active high 2-3 / 4-5	X	x	From
JP18	detector selection on WS3	1-2 detector 2 2-3 detector 1	x	x	X
JP19	start HCF	Active low 1-2 / 3-4 Active high 2-3 / 4-5	X	x	
JP20	Cine select	Active low 1-2 / 3-4 Active high 2-3 / 4-5	x	X	from
JP21	cine T2 selection	Active low 1-2 / 3-4 Active high 2-3 / 4-5	x	x	From
JP22	injector start	Active low 1-2 / 3-4 Active high 2-3 / 4-5	X	x	from
JP23	Ready_ACQ_RAD/CIN E/HCF	Active low 1-2 / 3-4 Active high 2-3 / 4-5	x	x	To
JP24	external devices supplied by generator		x	x	X

JP25	injector selection	Active low 1-2 / 3-4 Active high 2-3 / 4-5	x	x	From
JP26	Ready_ACQ_FL	Active low 1-2 / 3-4 Active high 2-3 / 4-5	x	x	To
JP27	AEC ON	Active low 1-2 / 3-4 Active high 2-3 7 4-5	x	x	From
JP28 JP29	detector2 selection	Active low JP28 / JP29 1-2 Active high JP28 / JP29 2-3	x	x	To
JP30 JP31	EXON	Active low JP30 / JP31 1-2 Active high JP30 / JP31 2-3	x	x	To
JP32 JP33	GENREADY	Active low JP32 / JP33 1-2 Active high JP32 / JP33 2-3	X	x	to
JP34 JP35	detector1 selection	Active low JP34 / JP35 1-2 Active high JP34 / JP35 2-3	x	x	To
JP36 JP37	TOMO selection	Active low JP36 / JP37 1-2 Active high JP36 / JP37 2-3	x	x	To
JP38 JP39	PFL start fluoro	Active low JP38 / JP39 1-2 Active high JP38 / JP39 2-3	x	x	To
JP40 JP41	Com rx.	Active low JP40 / JP41 1-2 Active high JP40 / JP41 2-3	x	x	To
JP42 JP43	P.prep.g	Active low JP42 / JP43 1-2 Active high JP42 / JP43 2-3	x	x	To
JP44 JP45	Rad. Rx	Active low JP44 / JP45 1-2 Active high JP44 / JP45 2-3	x	x	To
JP46	Buc_st → rx.gen	Override remote tt	x	to	To
JP47	Esi → esi_sex	Override remote tt	X	to	to
JP48	Inverted input selection		x	x	X
JP49	STP stepping selection	Active high 1-2 low 2-3	x	to	X
JP50	X-RAY exposure on	Active high 1-2 low 2-3	x	to	X
JP51	POTTER working place	Active high 1-2 low 2-3	x	to	X
JP52	Buc_st remote tt exposure call	Active high 1-2 low 2-3	X	to	x
JP53	SUP164 remote tt working place	Active high 1-2 low 2-3	x	to	x
JP54	DIRECT working place	Active high 1-2 low 2-3	x	to	X
JP55	ESI digital working place	Active high 1-2 low 2-3	x	to	x

## Jumper status for Eidos / Iris

jumper	Signal	Signal name	Insert position
JP1	potter call bucky selection	OBS3	1-2
JP2	detector selection on WS2	DT1H or DT2H	2-3
JP3	generic digital selection	Bit0	Not in
JP4	HIRIS / CD 1000 / APOLLO DIVA / APOLLO CCD	Bit1	Not in
JP5	Infimed / Xsight	Bit2	Not in
JP6	Alpha / Fly	Bit3	Not in
JP7	not used	Bit4	Not in
JP8	potter reply voltage section 15 V	In JP8-JP10-JP11-JP12	x
JP9	Eidos/Hiris	Bit5	1-2
JP10	potter reply voltage section RTN 15 V	In JP8-JP10-JP11-JP12	X
JP11	potter reply voltage section 24V	In JP10-JP11	X
JP12	potter reply voltage section RTN 24 V	In JP10-JP11	X
JP13	detector 2 selection	Dect2sel (not used)	Not in
JP14	inverted input	Not used	
JP15	cine T0 selection	TC0	Not in
JP16	detector selection on WS1	DT1T or DT2T	Not in
JP17	cine T1 selection	TC1	Not in
JP18	detector selection on WS3	DT1P or DT2P	Not in
JP19	start HCF	xPF	Not in
JP20	Cine select	Selc	Not in
JP21	cine T2 selection	TC2	Not in
JP22	injector start	xNS	Not in
JP23	Ready_ACQ_RAD/CINE/HCF	Oexp+	2-3 and 4-5
JP24	external devices supplied by generator		Not in
JP25	injector selection	ENA	Not in
JP26	Ready_ACQ_FL	OFL+	2-3 and 4-5
JP27	AEC ON	AECx	2-3 and 4-5
JP28-JP29	detector2 selection	DECT2	Not in
JP30-JP31	x-Ray ON	EXON	2-3 and 2-3
JP32-JP33	Generator ready to HCF	GEN.READY	2-3 and 2-3
JP34-JP35	detector1 selection	DECTx	2-3 and 2-3
JP36-JP37	TOMO selection	TOMO_C	2-3 and 2-3
JP38-JP39	start fluoro	PFL	2-3 and 2-3
JP40-JP41	Rx common	Com rx.	2-3 and 2-3
JP42-JP43	Generator in prep.	P.prep.g	2-3 and 2-3
JP44-JP45	Generator ready to expose	Rad. Rx	2-3 and 2-3
JP46	Buc_st → rx.gen	Override remote tt	1-2
JP47	Esi → esi_sex	Override remote tt	1-2
JP48	Inverted input selection	Not used	
JP49	stepping selection	STP	2-3
JP50	exposure on	X-RAY	2-3
JP51	working place n.3	POTTER	2-3
JP52	remote tt exposure call	Buc_st	2-3

JP53	remote tt working place	SUP164	2-3
JP54	working place	DIRECT	2-3
JP55	digital working place	ESI	2-3

## Jumper status for Clisis / Iris

jumper	Signal	Signal name	Insert position
JP1	potter call bucky selection	OBS3	1-2
JP2	detector selection on WS2	DT1H or DT2H	Not in
JP3	generic digital selection	Bit0	Not in
JP4	HIRIS / CD 1000 / APOLLO DIVA / APOLLO CCD	Bit1	1-2
JP5	Infimed / Xsight	Bit2	Not in
JP6	Alpha / Fly	Bit3	Not in
JP7	not used	Bit4	Not in
JP8	potter reply voltage section 15 V	In JP8-JP10-JP11-JP12	x
JP9	Eidos/Hiris	Bit5	Not in
JP10	potter reply voltage section RTN 15 V	In JP8-JP10-JP11-JP12	X
JP11	potter reply voltage section 24V	In JP10-JP11	X
JP12	potter reply voltage section RTN 24 V	In JP10-JP11	X
JP13	detector 2 selection	Dect2sel (not used)	Not in
JP14	inverted input	Not used	
JP15	cine T0 selection	TC0	Not in
JP16	detector selection on WS1	DT1T or DT2T	Not in
JP17	cine T1 selection	TC1	Not in
JP18	detector selection on WS3	DT1P or DT2P	Not in
JP19	start HCF	xPF	Not in
JP20	Cine select	Selc	Not in
JP21	cine T2 selection	TC2	Not in
JP22	injector start	xNS	Not in
JP23	Ready_ACQ_RAD/CINE/HCF	Oexp+	2-3 and 4-5
JP24	external devices supplied by generator		Not in
JP25	injector selection	ENA	Not in
JP26	Ready_ACQ_FL	OFL+	2-3 and 4-5
JP27	AEC ON	AECx	2-3 and 4-5
JP28-JP29	detector2 selection	DECT2	Not in
JP30-JP31	x-Ray ON	EXON	2-3 and 2-3
JP32-JP33	Generator ready to HCF	GEN.READY	2-3 and 2-3
JP34-JP35	detector1 selection	DECTx	2-3 and 2-3
JP36-JP37	TOMO selection	TOMO_C	2-3 and 2-3
JP38-JP39	start fluoro	PFL	2-3 and 2-3
JP40-JP41	Rx common	Com rx.	2-3 and 2-3
JP42-JP43	Generator in prep.	P.prep.g	2-3 and 2-3
JP44-JP45	Generator ready to expose	Rad. Rx	2-3 and 2-3
JP46	Buc_st → rx.gen	Override remote tt	1-2
JP47	Esi→ esi_sex	Override remote tt	1-2
JP48	Inverted input selection	Not used	
JP49	stepping selection	STP	2-3
JP50	exposure on	X-RAY	2-3
JP51	working place n.3	POTTER	2-3
JP52	remote tt exposure call	Buc_st	2-3

JP53	remote tt working place	SUP164	2-3
JP54	working place	DIRECT	2-3
JP55	digital working place	ESI	2-3

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**Led for Clisis / Iris configuration**


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**Working place selection**


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**WP1 (CLISIS)**

OFT	from generator	signal Active	DL8	OFF
OCC	from generator	signal NOT Active	DL9	ON
SUP164	from interface	signal Active	DL55	ON
				(DL63 if active High)
if inserted JP16 pos 1-2 or pos 2-3				
DT1T	from interface JP16 pos 2-3		DL40	ON
DT2T	from interface JP16 pos 1-2		DL42	ON

**WP2 (DIGITAL)**

OFT	from generator	signal NOT Active	DL8	ON
OCC	from generator	signal Active	DL9	OFF
ESI	TO remote tt	signal Active	DL56	ON
				(DL65 if active High)
Esi SEL	from remote tt	signal Active	DL31	ON
if inserted JP2 pos 1-2 or pos 2-3				
DT1H	from interface JP2 pos 2-3		DL40	ON
DT2H	from interface JP2 pos 1-2		DL42	ON

**WP3 (potter)**

OFT	from generator	signal NOT Active	DL8	ON
OCC	from generator	signal NOT Active	DL9	ON
POTTER	from interface	signal Active	DL54	ON
				(DL64 if active High)

**WP4 (Direct)**

OFT	from generator	signal Active	DL8	OFF
OCC	from generator	signal Active	DL9	OFF
DIRECT	from interface	signal Active	DL57	ON
				(DL61 if active High)

TO OVERRIDE REMOTE TT INSERT JUMPER JP46/JP47 (remote TT and digital supply)

**FLUOROSCOPY**


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FLUORO	from remote tt	signal active	DL37	ON
ORP	from generator	signal active	DL7	ON
PFL	fluoro to digital	signal active	DL43	ON
COM.RX	to digital	signal active	DL44	ON

OFL+	from digital	signal active	DL48 ON
IFS	fluoro to gen.	signal active	DL11 ON
OXT	from generator	signal Active	DL3 ON
ORM	to interface	signal active	DL1 ON
ORT	to interface	signal active	DL6 ON
EXON	to digital	signal active	DL38 ON

## Pulsed FLUOROSCOPY

FLUORO	from remote tt	signal active	DL37 ON
PFL	fluoro to digital	signal active	DL43 ON
COM.RX	to digital	signal active	DL44 ON
START HCF	from digital	signal active	DL34 ON
ITD	to generator	signal active	DL19 ON
IFS	fluoro to gen.	signal active	DL11 ON
ORP	from generator	signal active	DL7 ON
OBS-1 or 2	from generator	signal active	DL2 (or DL5 WP2) ON
OXT	from generator	signal active	DL3 ON
GEN.READY	to digital	signal active	DL39 ON
OEXP+	from digital	blinking	DL50 blinking
IRP	to generator	blinking	DL18 blinking
ORT	from generator	blinking	DL6 blinking
ORM	to interface	signal active	DL1 blinking
EXON	to digital	signal active	DL38 blinking

## Radiography on WS1 (CLISIS)

### Preparation

I-ST	from remote tt	signal active	DL30 ON
IPR	to generator	signal active	DL14 ON
ORP	from generator	signal active	DL7 ON

### Second step

II-ST	from remote tt	signal active	DL29 ON
ISR	from remote tt	signal active	DL16 ON
OXT	from generator	signal active	DL3 ON
OBS-1	from generator	signal active	DL2 ON
BUC-ST	to remote tt	signal active	DL58 ON

(DL62 if active High)

### exposure

Rx-GEN	from remote tt	signal active	DL35 ON
IRP	to generator	signal active	DL18 ON
ORT	from generator	signal active	DL6 blinking
ORM	to interface	signal active	DL1 blinking
X-RAY	to remote tt	signal active	DL52 ON

(DL60 if active High)

## Radiography on WS2 (DIGITAL)

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### Preparation

I-ST	from remote tt	signal active	DL30 ON
P.PREP.G.	to digital	signal active	DL45 ON
COM.rx	to digital	signal active	DL44 ON
IPR	to generator	signal active	DL14 ON
ORP	from generator	signal active	DL7 ON

### Second step

II-ST	from remote tt	signal active	DL29 ON
ISR	from remote tt	signal active	DL16 ON
OBS-2	from generator	signal active	DL5 ON
OXT	from generator	signal active	DL3 ON
BUC-ST	to remote tt	signal active	DL58 ON
Rx-GEN	from remote tt	signal active	DL35 ON
			(DL62 if active High)
RAD	to digital	signal active	DL46 ON
OEXP+	from digital	blinking	DL50 blinking
IRP	to generator	blinking	DL18 blinking
ORM	to interface	signal active	DL1 blinking
ORT	from generator	blinking	DL6 blinking
EXON	to digital	signal active	DL38 ON
X-RAY	to remote tt	signal active	DL52 blinking
			(DL60 if active High)

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**Generator Input Meaning**


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<b>IN</b>	<b>GENERIC</b>	<b>HIRIS / CD 1000 / APOLLO DIVA / APOLLO CCD</b>	<b>INFIMED / X-SIGHT</b>	<b>ALPHA / FLY</b>
ITS	Tomo Slow	Cine time_2	DSA select	DSA select
ITF	Tomo Fast	Cine select	not used	Cine select
ITA	Tomo Angle 8° / Tomo select	CineRate / Tomo select	Tomo select	CineRate_0 / Tomo select
ITB	Tomo Angle 20° / Tomo time_0	Cine / Tomo time_0	Tomo time	CineRate_1 / Tomo time
ITC	Tomo Angle 30° / Tomo time_1	Cine / Tomo time_1	Exposet ON	Exposet ON
ITD	Tomo Angle 40° / Pulse select	Pulse select	Pulse select	Pulse select

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## Operating

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### Remote Control Tilting Table (WP1)

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Select WP N°1. Led **DL9**, **DL7** and **DL55** will be lit.

Push **FLUORO** footswitch, continuous fluoro will start and following led will be lit: **DL37**, **DL7**, **DL43**, **DL44**, **DL48**, **DL11**, **DL3**, **DL1**, **DL6**, and **DL38**.

release **FLUORO** footswitch.

Select **PHCF** on the digital system.

Push **FLUORO** footswitch, pulsed fluoro will start and following led will be lit: **DL7**, **DL37**, **DL43**, **DL44**, **DL34**, **DL19**, **DL11**, **DL2**, **DL3**, **DL39**, **DL50** blinking, **DL18** blinking, **DL6** blinking, **DL1** blinking and **DL38** blinking.

release **FLUORO** footswitch.

Unselect **PHCF**.

Select on control console 80kV, 50mA, 0.100s, Large Focus.

Push **Prep** pushnutton, Led **DL30** and **DL14**, **DL7** will be lit.

Push **Prep** and **Radio**, a radiography will start.

During exposure check the following led to be lit: **DL2**, **DL58**, **DL7**, **DL16**, **DL3**, **DL29**, **DL35**, **DL18**, **DL6** blinking, **DL1** blinking and **DL52**.

release **Prep** and **Radio**.

### Posto lavoro Digitale

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Select WP N°2. Led **DL8**, **DL31** and **DL56** will be lit.

Push **FLUORO** footswitch, pulsed fluoro will start and following led will be lit: **DL37**, **DL7**, **DL43**, **DL44**, **DL48**, **DL11**, **DL3**, **DL1**, **DL6**, and **DL38**.

release **FLUORO** footswitch.

Select **PHCF** on the digital system.

Push **FLUORO** footswitch, pulsed fluoro will start and following led will be lit: **DL37**, **DL7**, **DL43**, **DL44**, **DL3**, **DL34**, **DL19**, **DL11**, **DL2/5**, **DL39**, **DL50** blinking, **DL18** blinking, **DL6** blinking, **DL1** blinking e **DL38** blinking and **DL52** blinking.

release **FLUORO** footswitch.

Unselect **PHCF**.

Select on control console 80kV, 50mA, 0.100s, Large Focus.

Push **Prep** pushnutton, Led **DL30**, **DL7**, **DL45**, **DL44**, **DL14** will be lit.

Push **Prep** and **Radio**, a radiography will start.

During exposure check the following led to be lit: **DL16**, **DL5**, **DL58**, **DL35**, **DL46**, **DL50** blinking, **DL18** blinking, **DL1** blinking, **DL6** blinking, **DL38**, **DL52** blinking, **DL29**, **DL3**.

On WP N.2 push **Injector Enable**, Led **DL49** will be lit.

Push **Prep** and **Radio**, no expure take place. Disable **Injector**, Led **DL49** will be off

Enable **CINE** mode on the digital system and on the generator WP2, Led: **DL26** e **DL13** will be lit. The generator control desk will show the CINE icon.

Push **Prep**, Led **DL30**, **DL7**, **DL45**, **DL44**, **DL14** will be lit.

Push **Prep** and **Radio**, cine starts and are lit the Leds **DL3**, **DL5**, **DL29**, **DL58**, **DL6**, **DL35**, **DL46**, **DL50** blinking, **DL18** blinking, **DL1** blinking, **DL16** blinking, **DL52** blinking, **DL38**.

Check in stand by mode the following table

Cine ESI time ms	Cine T0	Cine T1	Cine T2
4	DL26, DL13		
5	DL26, DL13, DL24, DL15		
6	DL26, DL13, DL23, DL17		
7	DL26, DL13, DL23, DL24, DL15, DL17		
8	DL26, DL25, DL13, DL12		
9	DL26, DL25, DL24, DL12, DL13, DL15		
10	DL26, DL25, DL23, DL12, DL13, DL17		
12	DL26, DL25, DL23, DL24, DL12, DL13, DL17, DL15		

Disable **CINE** on the digital system.

## Potter

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Select WP N°3. Led **DL8**, **DL9** and **DL54** will be lit.

Push **Prep** pushnutton, Led **DL7**, **DL14**, **DL30** will be lit

Push **Prep** and **Radio**, a radiography will start.

During exposure check the following led to be lit: **DL29**, **DL4**, **DL18**, **DL16**, **DL3**, **DL20**, **DL22**, **DL1** blinking and **DL6** blinking.

### Direct:

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Select WP N°4.

Push **Prep** and **Radio**, a radiography will start. **DL7**, **DL30**, **DL57** and **DL14** will be lit.

Push **Prep** and **Radio**, a radiography will start.

During exposure check the following led to be lit: **DL29**, **DL3**, **DL16**, **DL1** blinking e **DL6** blinking.

### Tomography

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Select WP N°1. Led **DL9**, **DL7** and **DL55** will be lit.

Enable **TON-TOMO** on the remote control tilting table.

Check using Led **DL27**, **DL33**, **DL10**, **DL41** the table below.

TC1 (led DL15) (led DL28)	TC2 (led DL17) (led DL32)	Exposure Time on control desk
Dark	Dark	2.500 s.
Lit	Dark	2.000 s.
Dark	Lit	1.600 s.
Lit	Lit	0.600 s.

Disable **TON-TOMO**.

**Stop1** from HIRIS, active High prep stopped on WP1 and WP2.

**Stop2** From Remote TT, Stepping to HIRIS.

**Stop3** segnale proveniente da HIRIS, High prep stopped on WP1 and WP2.

24 Volt WP3 Potter interface

