

Magdalena Ridge Observatory Interferometer

AMOS / 2000 / 29-09 : HW ICD

Unit Telescope Electrical ICD

SCOPE

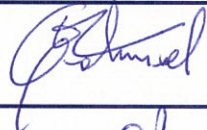


The aim of this document is to describe all hardware interface signals and to provide their exact location (connector and pin).

DOCUMENT CLIENT N°

MRO-ICD-AMO-6000-025

<i>Issue</i>	<i>Date</i>	<i>Modifications</i>
3	24/09/2009	Q4,Q5 locations Ethernet hub ports IRIG-B signal
2	26/09/2008	Issue updated for FDR FTTA interface to PI controller Emergency stop circuit modified following PDR review
1	23/11/2007	Preliminary ICD

COMMENTS

		<i>Date</i>	<i>Signature</i>
<i>Prepared by</i>	Eric GABRIEL	24/09/09	
<i>Checked by</i>	Olivier PIRNAY	24.09.09	
<i>Released by</i>	Olivier PIRNAY	24 09 09	

Connector (3)	Location	Layout ⁽¹⁾	Direction	Type
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Main power supply

Connector	Location	Layout	Direction	Type		
010X1	4mm ² terminals block	Q4	No-UPS Phase 1	MRO -> AMOS	208 VAC 10 A	
			No-UPS Phase 2	MRO -> AMOS		
			No-UPS Phase 3	MRO -> AMOS		
			No-UPS Neutral	MRO -> AMOS		
			PE	Protective Earth	MRO -> AMOS	Earth
			5	UPS Line	MRO -> AMOS	110 V AC
			6	UPS Neutral	MRO -> AMOS	16 A
			PE	Protective Earth	MRO -> AMOS	Earth

Emergency stop signal

Connector	Location	Layout	Direction	Type	
080X1	2,5 mm ² terminal block	Q4	Enclosure Control System Emergency stop relay	MRO -> AMOS	dry contact
			Ground related to the signal on pin #1	MRO -> AMOS	
			MROI Control room Rearm signal	MRO -> AMOS	24 V DC
			Ground related to the signal on pin #3	MRO -> AMOS	GND
			Enclosure Control System Emergency stop Loop	AMOS -> MRO	dry contact
			Ground related to the signal on pin #5	AMOS -> MRO	
			Enclosure Control System Emergency stop Status	MRO -> AMOS	dry contact
			Ground related to the signal on pin #7	MRO -> AMOS	
			PE	Protective Earth	MRO -> AMOS

FTTA ⁽²⁾

Connector	Location	Layout	Direction	Type	
220X10	LEMO connector : EPG.00.302.NLN	Q5	Tip Input signal (Ain+)	MRO -> AMOS	Analog signal + / - 10 V
			Tip Input signal (Ain-)	MRO -> AMOS	
			Housing	Cable shield	
220X11	LEMO connector : EPG.00.302.NLN	Q5	Tip Output signal (Aout)	MRO -> AMOS	Analog signal + / - 10 V
			Tip Output signal (GND)	MRO -> AMOS	
			Housing	Cable shield	
220X12	LEMO connector : EPG.00.302.NLN	Q5	Tilt Input signal (Ain+)	MRO -> AMOS	Analog signal + / - 10 V
			Tilt Input signal (Ain-)	MRO -> AMOS	
			Housing	Cable shield	
220X13	LEMO connector : EPG.00.302.NLN	Q5	Tilt Output signal (Aout)	MRO -> AMOS	Analog signal + / - 10 V
			Tilt Output signal (GND)	MRO -> AMOS	
			Housing	Cable shield	

IRIG-B signal

Connector	Location	Layout	Direction	Type	
093U1-X4	Sub-D 9 female	Q5	GND (recommended Time Code return)	AMOS -> MRO	TTL signals
			1 PPS out	AMOS -> MRO	
			Time code OUT (AM)	AMOS -> MRO	
			GND (recommended for 1 PPS signal)	AMOS -> MRO	

Ethernet hub ⁽⁴⁾

Port	Location	Layout	Direction	Type	
Port #1	RJ 45	Q5	TCS PC	MRO <-> AMOS	Copper
Port #2		Q5	Network switchable power supply (Pulizzi)	MRO <-> AMOS	
Port #3		Q4	PLC	MRO <-> AMOS	
Port #4		Q4	Spare	MRO <-> AMOS	
Port #5		Q5	M2 Hexapod Controler	MRO <-> AMOS	
Port #6		Q5	M2 FTTA Controller	MRO <-> AMOS	
Port #7		Q4	Gimbal Service Plug	MRO <-> AMOS	
Port #8		Q5	Spare	MRO <-> AMOS	

Notes:

- (1) Layouts meanings are related to closed contact
- (2) For details, see annex.
- (3) Connectors are defined at AMOS side.
- (4) Hub is provided and installed by MROI. Its location is chosen by MROI. The Ethernet cabling between AMOS owned hardware and the hub is not foreseen by AMOS.

16.2.2 Analog In Sockets

The analog input lines In 1 to In 4 are located on the E-711.IA4 analog interface module. The identifiers representing these analog input lines in the E-712 firmware depend on the number of capacitive sensor channels present in the E-712 system. See "Accessible Items and Their Identifiers" (p. 69) for more information.

Analog input lines which are not used should be deactivated to avoid interferences. See "Deactivation of Unused Analog Input Lines" (p. 53) for more information.

Connector type: LEMO EPG.00.302.NLN

Pin	Signal	Function
1	input	A _{IN+} Analog differential input
2	input	A _{IN-} Analog differential input



The socket case is connected to GND.

$|A_{IN+} - A_{IN-}| \leq 10 \text{ V}$ in the range of -10 to +10 V

Resolution: 18 bit

Bandwidth: 25 kHz

Max. impedance of the signal source: 250 ohm

A larger impedance of the signal source will increase the noise and hence reduce the resolution.

16.2.3 Analog Out Sockets

The analog output lines Out 1 to Out 4 are located on E-711.IA4 analog interface module.

Connector type: LEMO EPG.00.302.NLN

Pin	Signal	Function
1	output	A _{OUT} Analog output, -10 to 10 V
2	GND	GND



Resolution: 16 bit

Bandwidth: 25 kHz