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LIGO-T1400709-v1

LIGO

November 5, 2014

LLO Beam-Tube Environment Sensor Network

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1 Description

The beam-tube enclosure for each arm of the interferometer has 14 double-doors, 7 on one side of the mid-station, and 7 on the other side of the mid-station. That makes 28 such locations in all. At each such location there is a box with two Acromag digitizers. One is a 961EN (6-channel ADC for analog current readout). These are used to readout the beam-tube thermocouples and a relative-humidity sensor. There is also a 962EN (6-channel ADC for analog voltages). These are used for reading out vacuum sensors, etc. as needed.

2 References

- Acromag web site <http://www.acromag.com>
- Acromag 961EN/962EN Data Sheet [961EN_962EN Ethernet Analog Input Modules.pdf](#)
- Acromag 961EN/962EN User's Manual (Available from website with login)
- Siemens 353 to Modbus TCP/IP Application Note (from Acromag)
[Siemens_353_to_ModbusTCPIP_App_Note.pdf](#)

3 Network Addresses

The Acromag 961ENs are named l0ve<x/y><##>c, where <x/y> is for which arm, the <##> is the double-door label, and 'c' to indicate analog current readout

The Acromag 962ENs are named l0ve<x/y><##>v, where <x/y> is for which arm, the <##> is the double-door label, and 'v' to indicate analog voltage readout

All these units are on the same VLAN (10.110.60.xxx). This VLAN has a network mask of 255.255.255.0. The VLAN gateway is 10.110.60.1.

Enclosure Double-Door	961EN Name	961EN IP
X11	l0vex11c	10.110.60.171
X12	l0vex12c	10.110.60.172
X13	l0vex13c	10.110.60.173
X14	l0vex14c	10.110.60.174
X15	l0vex15c	10.110.60.175
X16	l0vex16c	10.110.60.176
X17	l0vex17c	10.110.60.177
X21	l0vex21c	10.110.60.181
X22	l0vex22c	10.110.60.182
X23	l0vex23c	10.110.60.183
X24	l0vex24c	10.110.60.184
X25	l0vex25c	10.110.60.185
X26	l0vex26c	10.110.60.186
X27	l0vex27c	10.110.60.187
Y11	l0vey11c	10.110.60.191
Y12	l0vey12c	10.110.60.192
Y13	l0vey13c	10.110.60.193
Y14	l0vey14c	10.110.60.194
Y15	l0vey15c	10.110.60.195
Y16	l0vey16c	10.110.60.196
Y17	l0vey17c	10.110.60.197
Y21	l0vey21c	10.110.60.201
Y22	l0vey22c	10.110.60.202
Y23	l0vey23c	10.110.60.203
Y24	l0vey24c	10.110.60.204
Y25	l0vey25c	10.110.60.205
Y26	l0vey26c	10.110.60.206
Y27	l0vey27c	10.110.60.207

4 Modbus readout

On the 961ENs, the first channel (CH00) is used for the beam-tube thermocouple readout. The second channel (CH01) is used for the relative humidity(RH) sensor readout.

The RH sensor uses 4-20mA current-loop readout. Minimum current is 0%, and maximum current is 100%.

For details, see the Acromag manuals.