

4" SCH 40 PIPE WITH
4" 150 LB FLANGE SUPPLIED
& INSTALLED BY CUSTOMER. SEE 1810-0013
FOR FLANGE MOUNTING METHODS.

HEAT SHIELD
OPTIONAL

SS NOZZLES

OUTPUT BEAM

HI-TEMP SEALS

6" MIN.
(152mm)

224
(565mm)

1/8"(3mm) SEAL

OPTICAL HEAD ASSY

HEAT SHIELD, REF
FOR NON-INSULATED
STACKS OR DUCTS

LIFTOFF WEATHER COVER,
SUPPLIED IF PURCHASED

20
(508mm)

7 1/2
(190.5mm)

6
(152mm)

4" FLANGE, REF

263
(679mm)

STABILIZER
RDDS

VENT
KIT

33
(838mm)

17 5/8
(448mm)

TEMP./PRESS.
INPUT

- NOTES:
- FOR WIRING DIAGRAM SEE DRAWING 1810-0012
 - AFTER FINAL INSTALLATION AND STARTUP:
 - VERIFY THAT ALL WARNING LABELS ARE AFFIXED AT THE SUITABLE LOCATIONS ON ANY MEANS OF APPROACH TO THE MONITOR AND AT ANY MEANS OF ACCESS INTO THE STACK OR DUCT. THESE INCLUDE ELEVATORS, LADDERS, ACCESS PANELS, HATCHES, DOORS ETC.
 - VERIFY THAT THE WARNING LABEL ON THE REAR COVER WOULD BE VISIBLE IN THE INSTALLED CONFIGURATION PRIOR TO THE REMOVAL OF THE MONITOR, SHOULD THAT BE NEEDED.
 - IF STACK DIA IS 6.5FT (2 meters) OR LESS A LIGHT TRAP MAY BE REQUIRED. CONSULT FACTORY. SEE SHEET 4 FOR LIGHT TRAP INSTALLATION.

STACK
OR
DUCT

48"-60"
(122cm-152cm)

STABILIZER
RDDS

1/2" FLEX CONDUIT
CONNECTION, 3 PLACES
SUPPLIED BY TML

24
(57mm)

1/2" FLEX CONDUIT (TYPE EF), 2 PLACES
30" LONG, SUPPLIED BY MLI, TERMINATED
BY CUSTOMER

1/2" FLEX CONDUIT TO BLOWER, 24" LG
SUPPLIED BY MLI, TERMINATED
BY CUSTOMER

JUNCTION BOX JB-1, CUSTOMER TO SUPPLY
AND INSTALL JB-1 BELOW OPENING IN COVER.
(SUGGESTED BUT NOT REQUIRED)

AC CIRCUIT THRU 1/2" RIDGED
CONDUIT SUPPLIED AND INSTALLED
BY CUSTOMER

CATWALK

1/2" RIGID
CONDUIT
WITH DATA
CABLE

1/2" CONDUIT WITH
DATA CABLE TO
MODULE

28
(60mm)

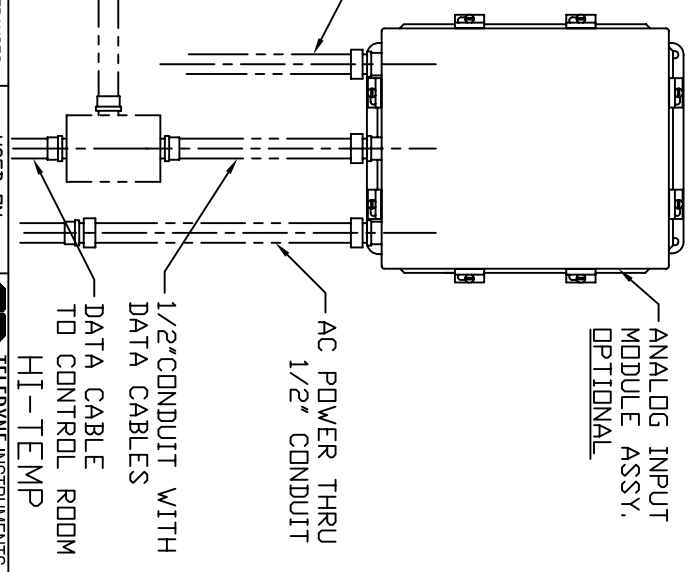
1/2" FLEX CONDUIT SUPPLIED
BY CUSTOMER

1/2" FLEX CONDUIT WITH
AC POWER SUPPLIED
BY CUSTOMER

1/2" CONDUIT WITH
DATA CABLES

1/2" CONDUIT THRU
TO CONTROL ROOM

HI-TEMP



DIMENSIONS IN () ARE METRIC

DIMENSIONAL TOLERANCES		UNLESS OTHERWISE SPECIFIED	
FRACTIONS	DECIMALS	ANGLES	DASH AND NEXT ASSEMBLY
0 TO 4 1/16	0.005	±0.005	-02
4 TO 8 1/16	0.006	±0.006	
8 AND UP 1/16	0.008	±0.008	

ALL DIMENSIONS ARE IN INCHES
DO NOT SCALE THIS DRAWING

AUTHORIZATION		DATE	
BY	DATE	BY	DATE
DRAWN	EAS 3-21-05		
CHECKED	EAS Dec-05		
DESIGNED	EAS Mar-05		
ENGINEERED	ELM 1-3-06		
PRODUCTION	GA 1-4-06		
PRODUCTION	AS 1-4-06		

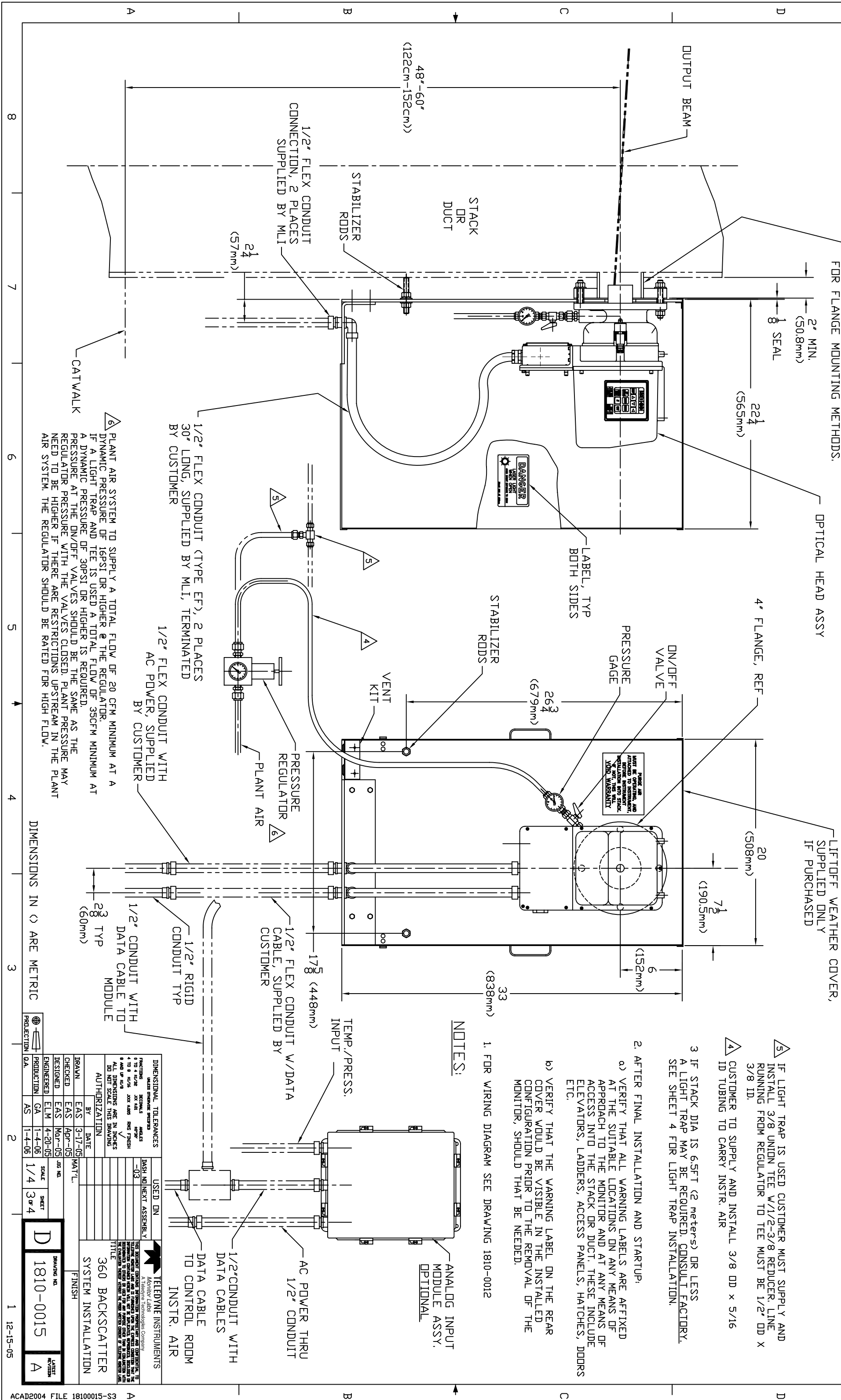
USED ON	SCALE	SHEET	DRAWING NO.	LASTEST REVISION
	1/4	2 OF 4	D 1810-0015	A

TELEDYNE INSTRUMENTS
Monitor Labs
A TeleDyne Technologies Company

TITLE
360 BACKSCATTER
SYSTEM INSTALLATION
FINISH

ACAD2004 FILE 18100015-S2

ZONE	SYM.	DESCRIPTION	DATE	APPD.
A		RELEASE FOR PRODUCTION	12-15-05	ELM



DIMENSIONAL TOLERANCES		USED ON	
UNLESS OTHERWISE SPECIFIED	ANGLES	DASH	DN1
FRACTIONS	DECIMALS	DN1	DN1
0 TO 4 1/16	0.001	DN1	DN1
4 TO 8 1/16	0.002	DN1	DN1
8 AND UP 1/16	0.003	DN1	DN1
ALL DIMENSIONS ARE IN INCHES	DO NOT SCALE THIS DRAWING		

DATE	BY	DESCRIPTION
3-17-09	EAS	DRAWN
3-17-09	EAS	CHECKED
4-20-05	EAS	DESIGNED
1-4-06	ELM	ENGINEERED
1-4-06	GA	PRODUCTION
1-4-06	AS	PRODUCTION

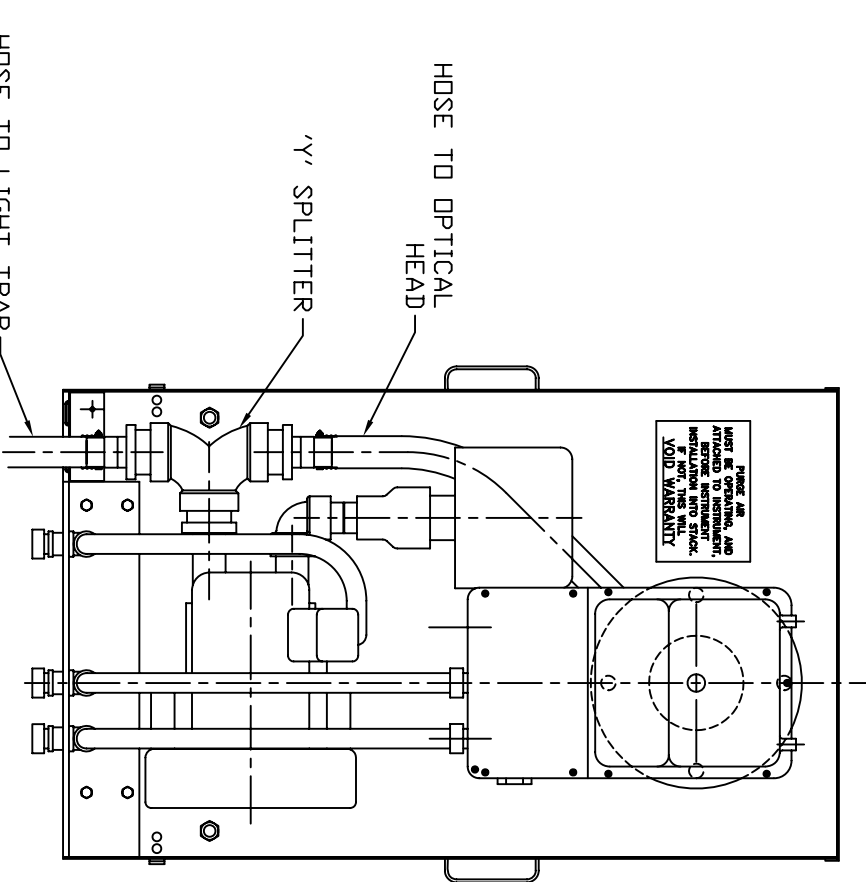
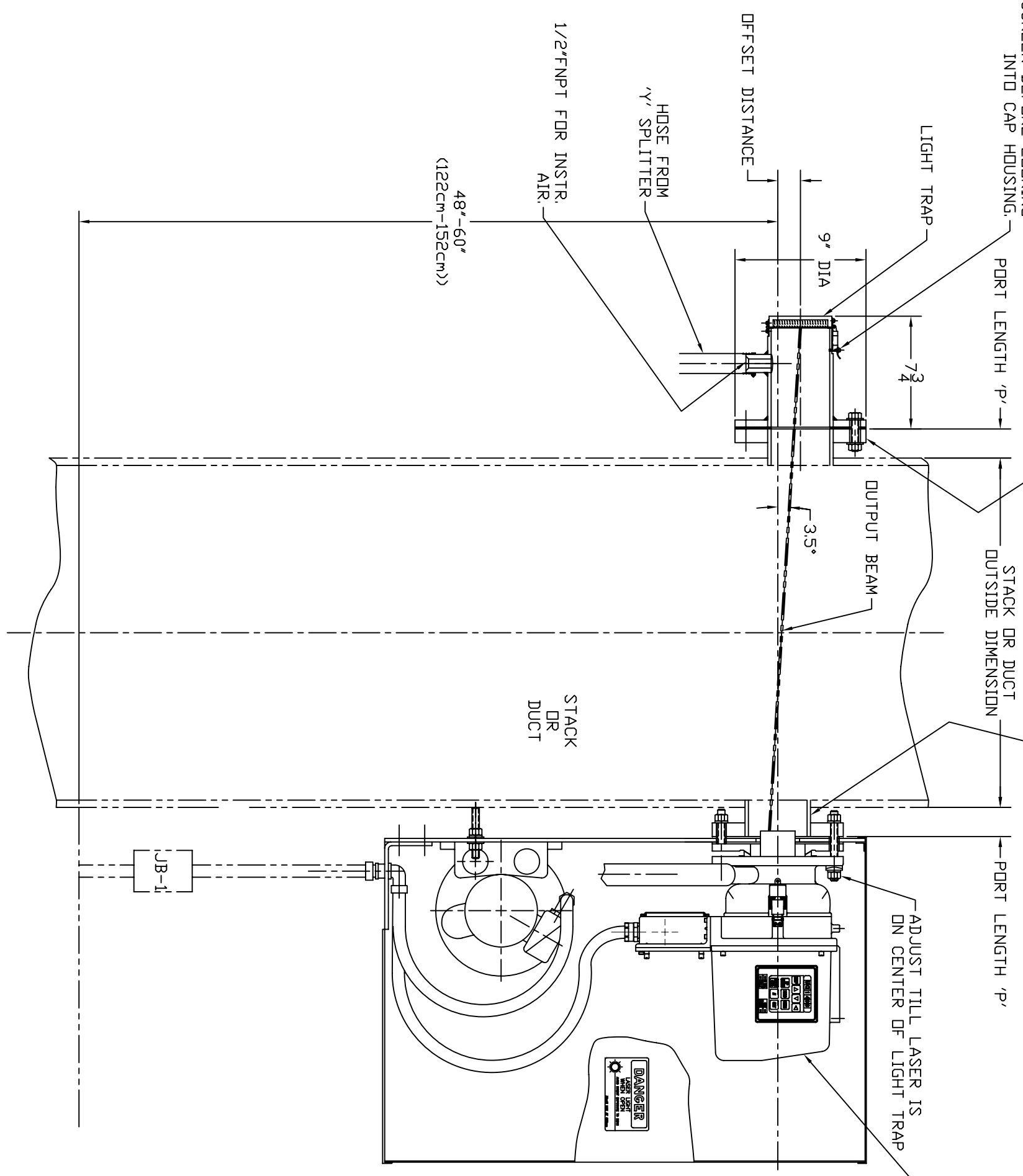
REV.	DATE	DESCRIPTION
1	12-15-05	RELEASE FOR PRODUCTION

TELEDYNE INSTRUMENTS	Monitor Labs
A TeleDyne Technologies Company	
THIS DOCUMENT CONTAINS PROPRIETARY AND CONFIDENTIAL INFORMATION. IT IS THE PROPERTY OF TELEDYNE INSTRUMENTS. IT IS TO BE USED ONLY FOR THE PURPOSES SPECIFIED IN THE ORDER. IT IS NOT TO BE REPRODUCED, COPIED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN CONSENT OF TELEDYNE INSTRUMENTS.	
TITLE	
360 BACKSCATTER SYSTEM INSTALLATION	
FINISH	
DRAWING NO.	1810-0015
LATEST REVISION	A

REVISONS		DATE	APPD.
ZONE	SYM.	DESCRIPTION	12-15-05 ELM
A		RELEASE FOR PRODUCTION	

THIS PORT MUST BE OFFSET IN THE VERTICAL DIRECTION, SEE NOTE 2.

4" SCH 40 PIPE WITH 4" 150 LB FLANGE SUPPLIED & INSTALLED BY CUSTOMER TYP BOTH SIDES. SEE 1810-0013 FOR FLANGE MOUNTING METHODS.



- NOTES:
1. THIS SHEET IS TO BE USED FOR LIGHT TRAP INSTALLATION ONLY. SEE SHEET 1/2 OR 3 FOR ALL OTHER INSTALLATION DETAILS.
 2. OFFSET DISTANCE CALCULATION:
ENGLISH

$$\langle\langle P \times 2 \rangle + \text{STACK} \text{ DD} + 7 \rangle \times \text{TIAN} 3.5 \rangle - .57 = \text{OFFSET DISTANCE}$$
 METRIC

$$\langle\langle P \times 2 \rangle + \text{STACK} \text{ DD} + 178 \text{mm} \rangle \times \text{TIAN} 3.5 \rangle - 15 \text{mm} = \text{OFFSET DISTANCE}$$

WITH LIGHT TRAP

TELEDYNE INSTRUMENTS
 Monitor Labs
 A TeleDyne Technologies Company

360 BACKSCATTER
 LIGHT TRAP INSTALLATION

FINISH

DRAWN	EAS	4-11-05	MAT'L.	
CHECKED	EAS	Dec-05		
DESIGNED	EAS	Apr-05		
ENGINEERED	ELM	1-3-06		
PRODUCTION	GA	1-4-06		
PRODUCTION	AS	1-4-06		

SCALE 1/4

SHEET 4 OF 4

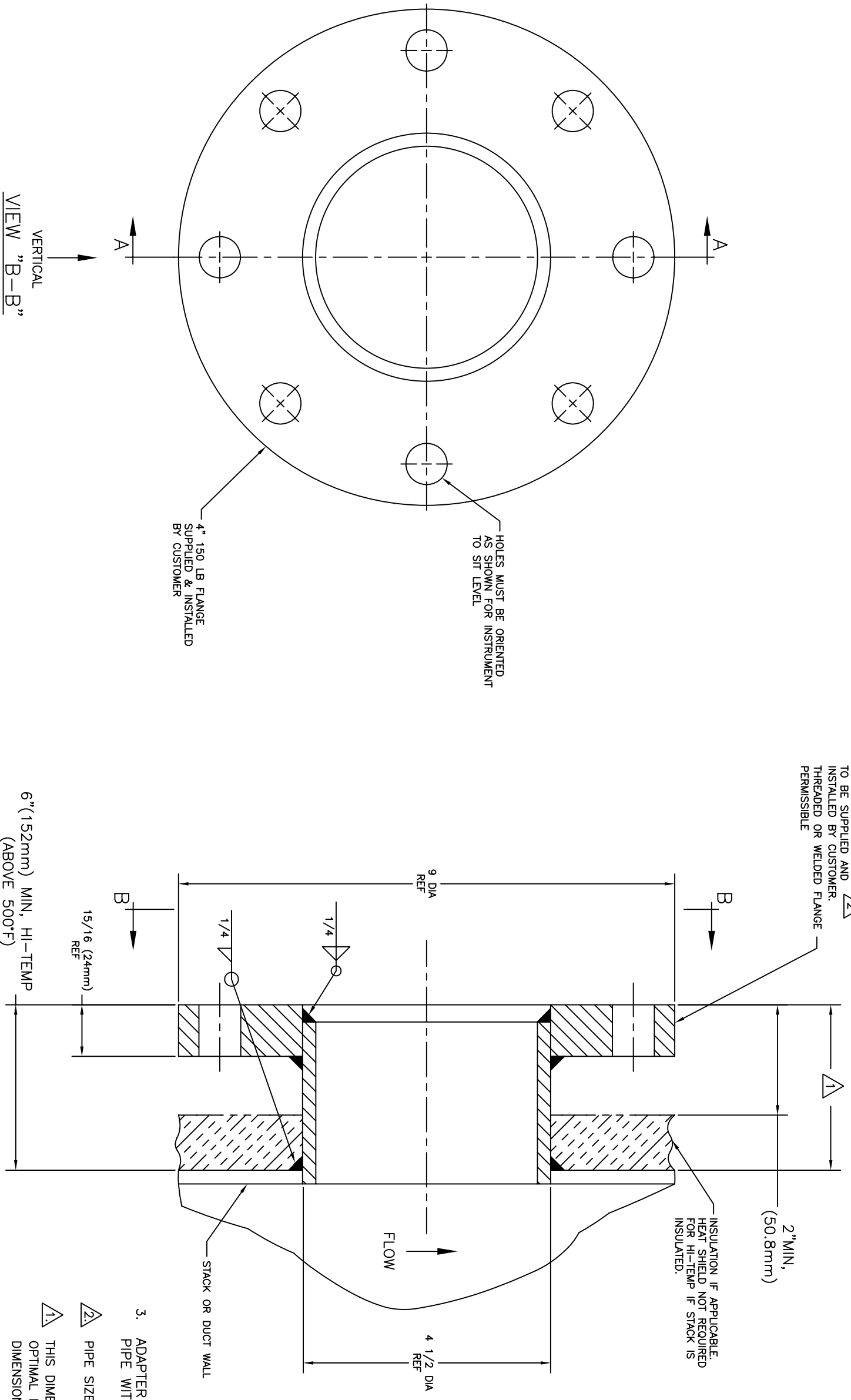
DRAWING NO. 1810-0015

LATEST REVISION A

ACAD2004 FILE 18100015-S4

REVISIONS		DATE	APPD.
ZONE SYM.	DESCRIPTION	12-15-05	ELM
A	RELEASE FOR PRODUCTION		

DWG. NO. 1810-0013 SH 1 1



4" SCHEDULE 40 PIPE AND 150 LB FLANGE TO BE SUPPLIED AND INSTALLED BY CUSTOMER. THREADED OR WELDED FLANGE PERMISSIBLE

INSULATION IF APPLICABLE. HEAT SHIELD NOT REQUIRED FOR HI-TEMP IF STACK IS INSULATED.

HOLES MUST BE ORIENTED AS SHOWN FOR INSTRUMENT TO SIT LEVEL

4" 150 LB FLANGE SUPPLIED & INSTALLED BY CUSTOMER

6" (152mm) MIN, HI-TEMP (ABOVE 500°F)

SECTION "A-A"

- NOTES:
- 1 THIS DIMENSION SHOULD BE KEPT TO A MINIMUM FOR OPTIMAL PERFORMANCE. CONTACT THE FACTORY IF THIS DIMENSION EXCEEDS 8"
 - 2 PIPE SIZES ARE AMERICAN STANDARD.
 - 3 ADAPTER PLATES ARE AVAILABLE FOR 3", 5" & 6" PIPE WITH 150# FLANGES.

TELEDYNE INSTRUMENTS
 Monitor Labs
 A TeleDyne Technologies Company

360
 BACKSCATTER MONITOR
 FLANGE MTG. METHODS

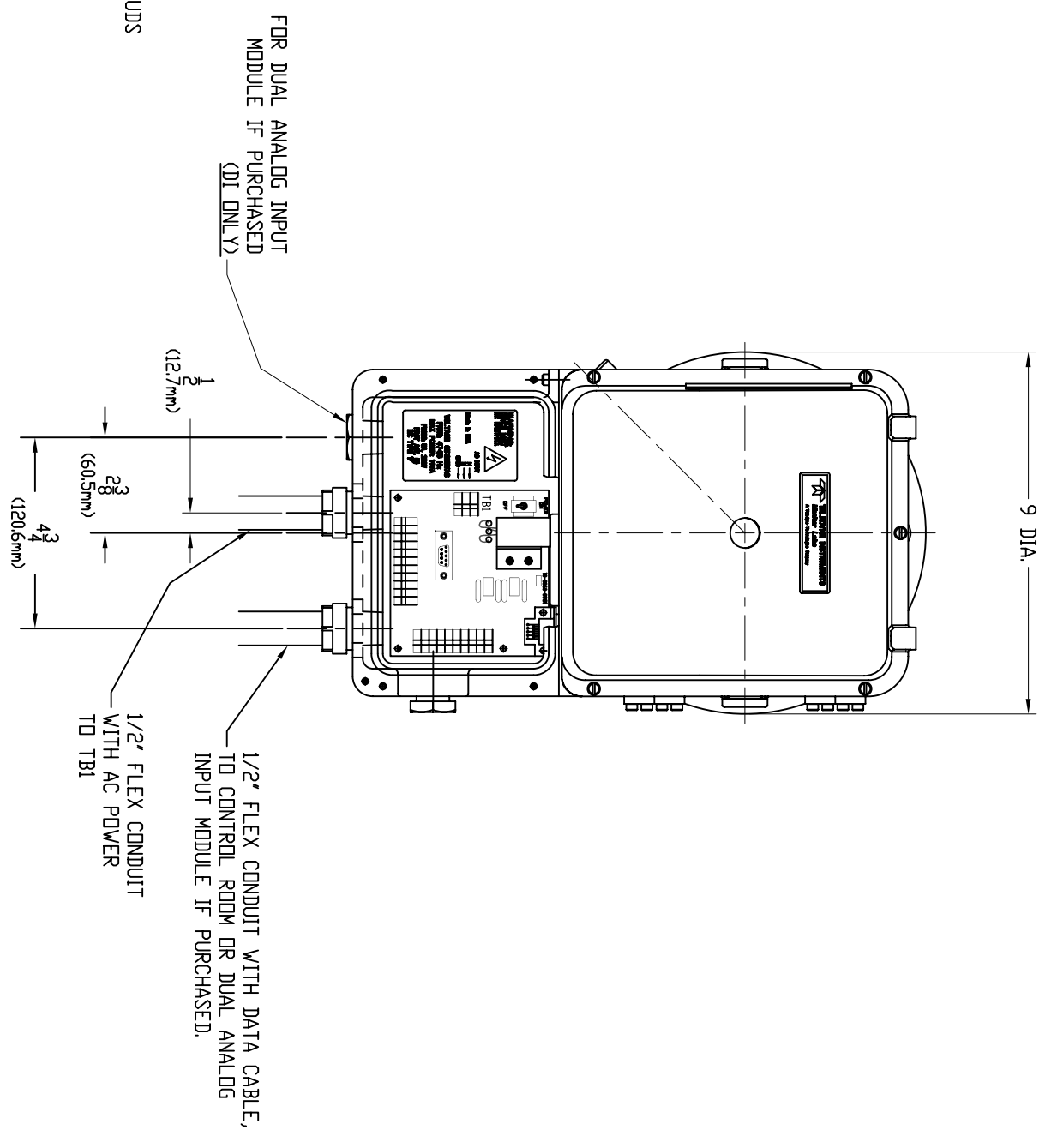
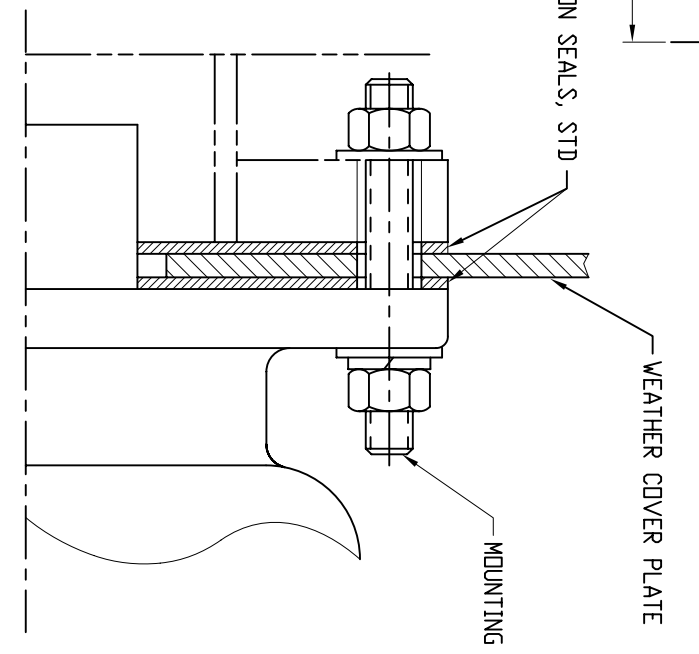
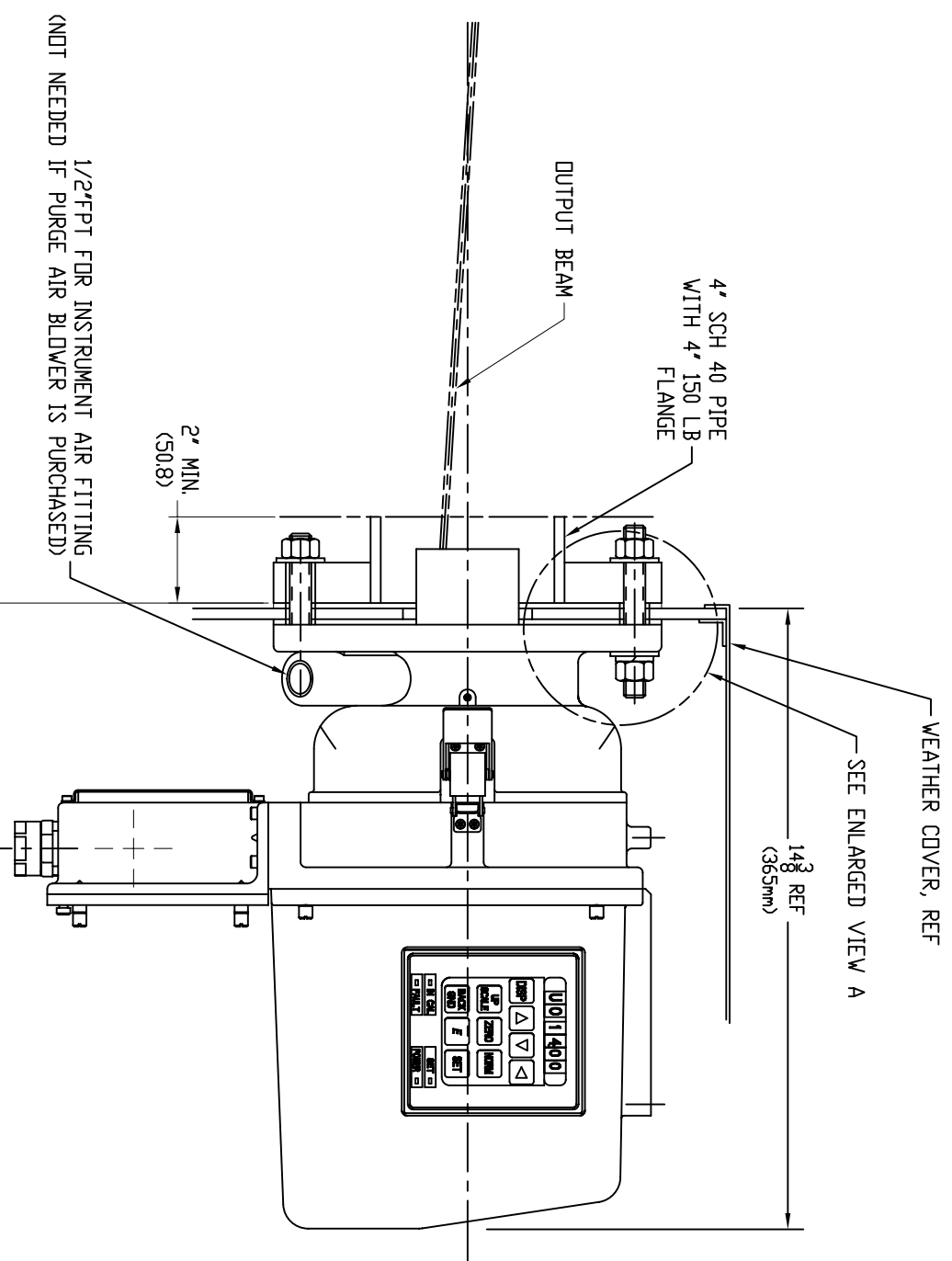
DIMENSIONAL TOLERANCES		USED ON	
FINISHES	DECIMALS	DASH NO	NEXT ASSEMBLY
0 TO $4 \frac{1}{16}$	XX .01	-01	
$4 \frac{1}{16}$ TO $8 \frac{1}{16}$	XXX .005		
$8 \frac{1}{16}$ AND UP	XXXX .005		
ALL DIMENSIONS ARE IN INCHES			
DO NOT SCALE THIS DRAWING			

AUTHORIZATION		DATE	
BY	DATE	BY	DATE
EAS	3-17-06		
CHECKED	EAS	ADP	05
DESIGNED	EAS	MAR	05
ENGINEERED	ELM	4-20-06	
PRODUCTION	GA	1-4-06	
QA	AS	1-4-06	

DRAWING NO.		SHEET	
D	1810-0013	1	1

ACAD2004 FILE: 18100013

ZONE	SYM.	DESCRIPTION	DATE	APP'D.
A		RELEASE FOR PRODUCTION	12-15-05	ELM



SEE SHEET 2 FOR HI-TEMP
SEE SHEET 3 FOR LIGHT TRAP

VIEW A
FULL SCALE

TELEDYNE INSTRUMENTS
Monitor Labs
A Teledyne Technologies Company

360 BACKSCATTER OPTICAL HEAD INSTALL

THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION AND IS THE PROPERTY OF TELEDYNE INSTRUMENTS. IT IS TO BE KEPT CONFIDENTIAL AND NOT TO BE REPRODUCED, COPIED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM. ANY UNAUTHORIZED USE OF THIS DOCUMENT IS PROHIBITED AND WILL BE PROSECUTED TO THE FULL EXTENT OF THE LAW.

ALL DIMENSIONS ARE IN INCHES
DO NOT SCALE THIS DRAWING

DIMENSIONAL TOLERANCES		USED ON	
UNLESS OTHERWISE SPECIFIED		DASH	NEXT ASSEMBLY
FRACTIONS	DECIMALS	-01	
0 TO 4 31/64	0.001		
4 TO 8 31/64	0.002		
8 AND UP 31/64	0.005		
RHS FINISH			
9 AND UP 31/64			
ALL DIMENSIONS ARE IN INCHES			
DO NOT SCALE THIS DRAWING			

AUTHORIZATION		DATE	
DRAWN	EAS	3-17-05	
CHECKED	EAS	Apr-05	
DESIGNED	EAS	Mar-05	
ENGINEERED	ELM	1-03-06	
PRODUCTION	GA	1-4-06	
	AS	1-4-06	

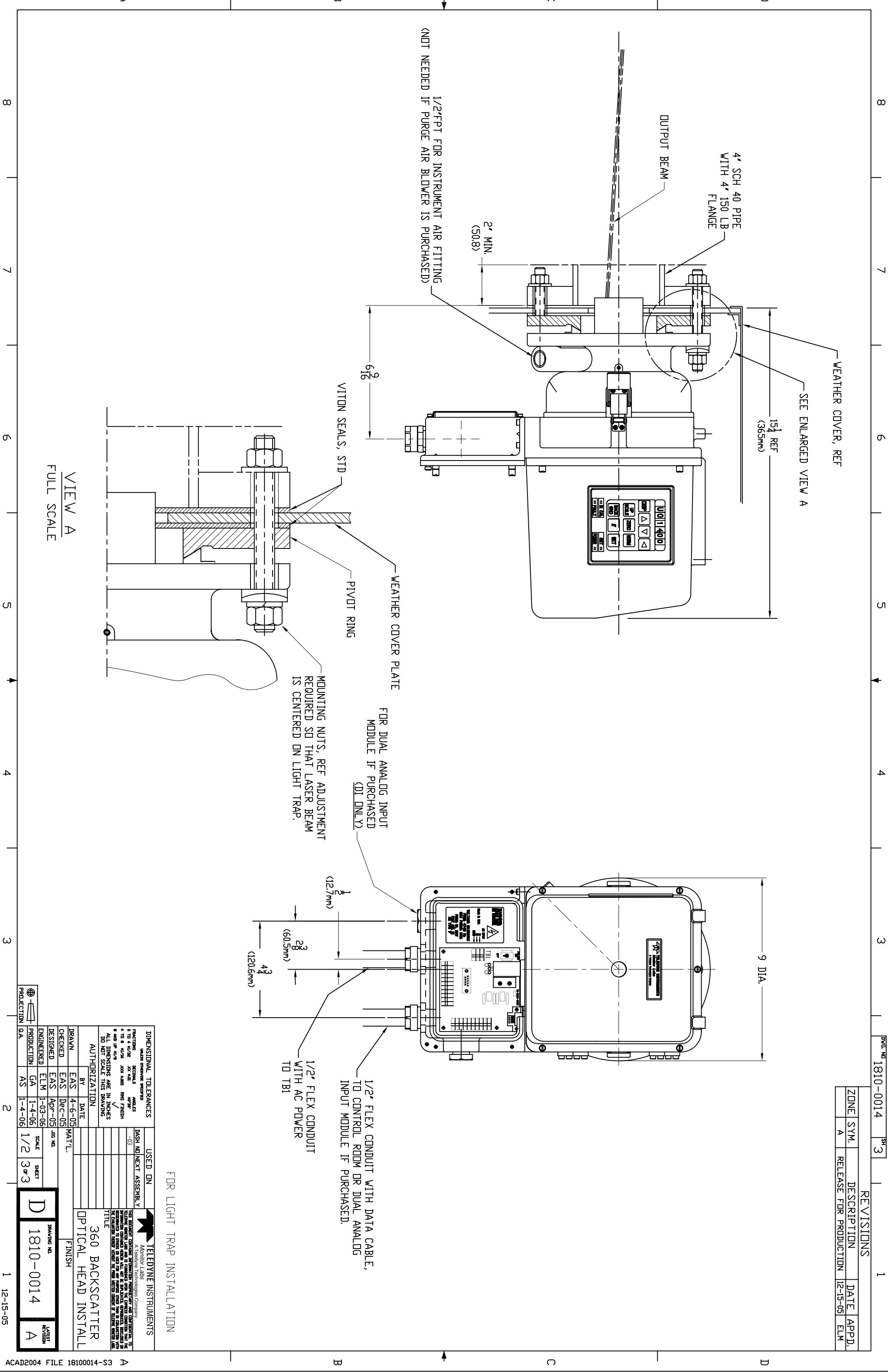
MATERIAL		FINISH	
BY	DATE		

DRAWING NO.	REVISED
1810-0014	A

ACAD2004 FILE 18100014

REVISIONS		DATE	APP'D.
ZONE	SYM.	DESCRIPTION	
A		RELEASE FOR PRODUCTION	ELM

DWG. NO. 1810-0014 SH. 3



FOR LIGHT TRAP INSTALLATION

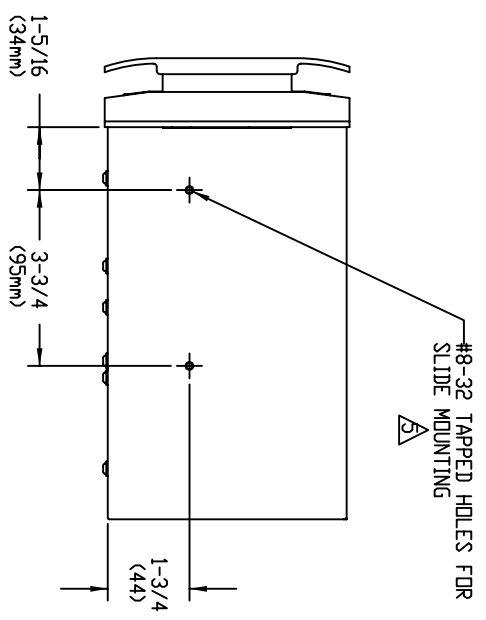
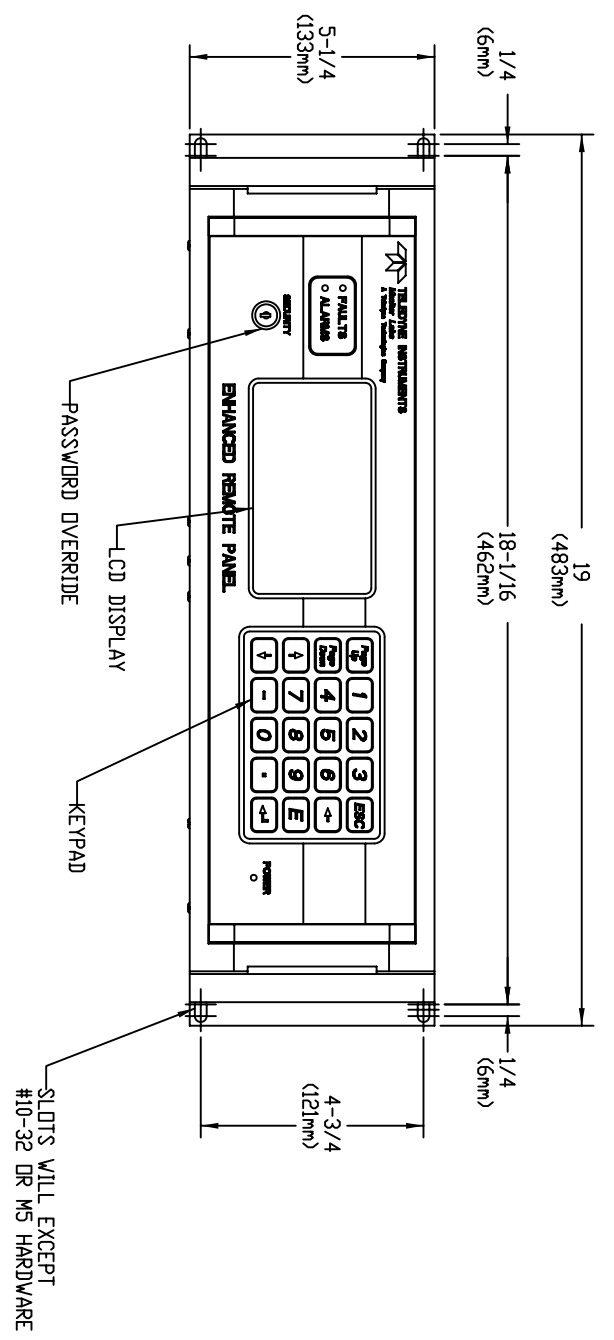
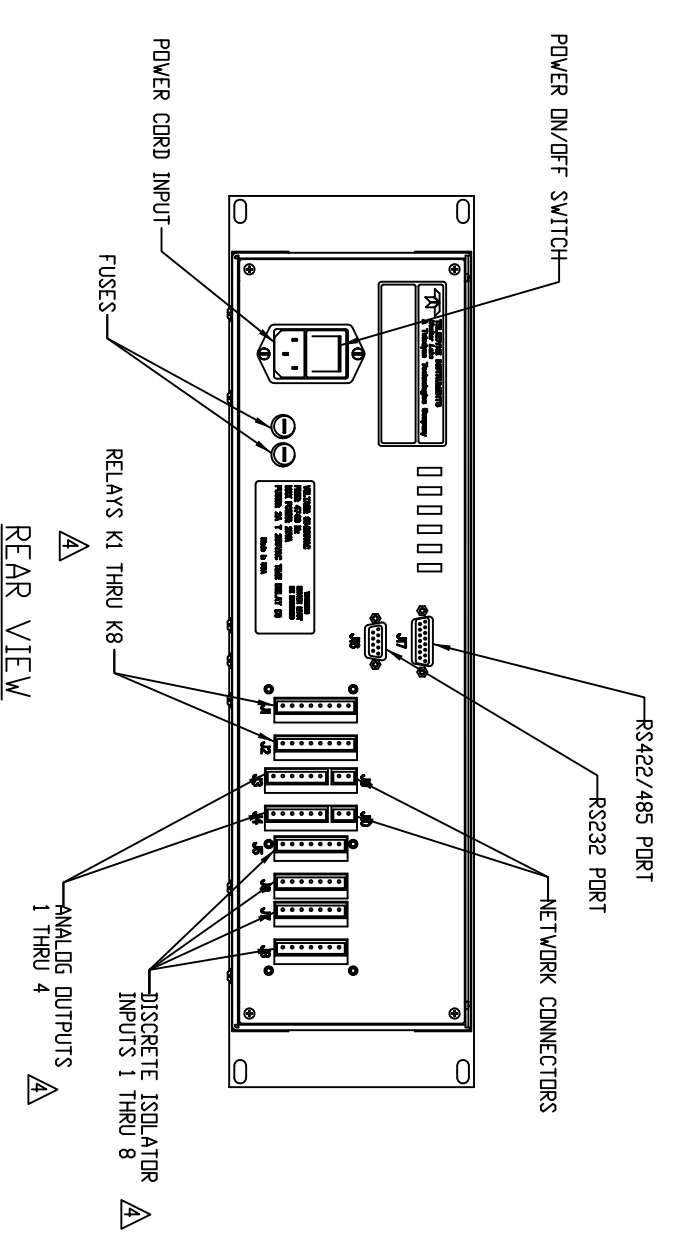
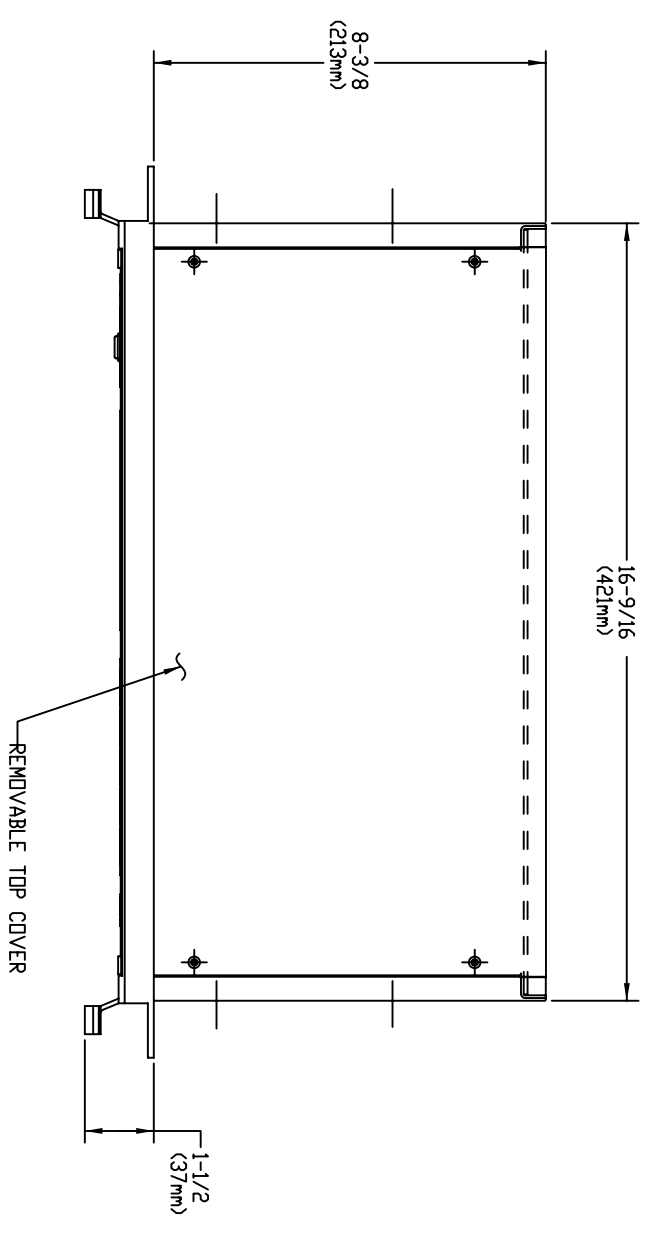
DIMENSIONAL TOLERANCES		USED ON	
FRACTIONS	DECIMALS	DASH	NEXT ASSEMBLY
0 TO 4 81/28	XX 5/8	-03	
4 TO 8 81/28	XXX 5/8		
8 AND UP 81/28	XXX 5/8		
ALL DIMENSIONS ARE IN INCHES DO NOT SCALE THIS DRAWING			

AUTHORIZATION		DATE	
BY	EAS	4-6-05	MAT'L.
CHECKED	EAS	Dec-05	
DESIGNED	EAS	Apr-05	JOB NO.
ENGINEERED	ELM	1-03-06	
PRODUCTION	GA	1-4-06	SCALE
	AS	1-4-06	1/2
			SHEET 3 OF 3

TELEDYNE INSTRUMENTS		DRAWING NO.	
Monitor Labs A Teledyne Technologies Company		D	1810-0014
TITLE		LATEST REVISION	
360 BACKSCATTER OPTICAL HEAD INSTALL		A	

TELEDYNE INSTRUMENTS	
ACAD2004	FILE 18100014-S3

REVISIONS			
SYM.	DESCRIPTION	DATE	APPD.
B	ADDED THIS SHEET PER DCN #1803-2003B	7-16-02	ELM
C	PER DCN #1803-2003C	4-1-03	



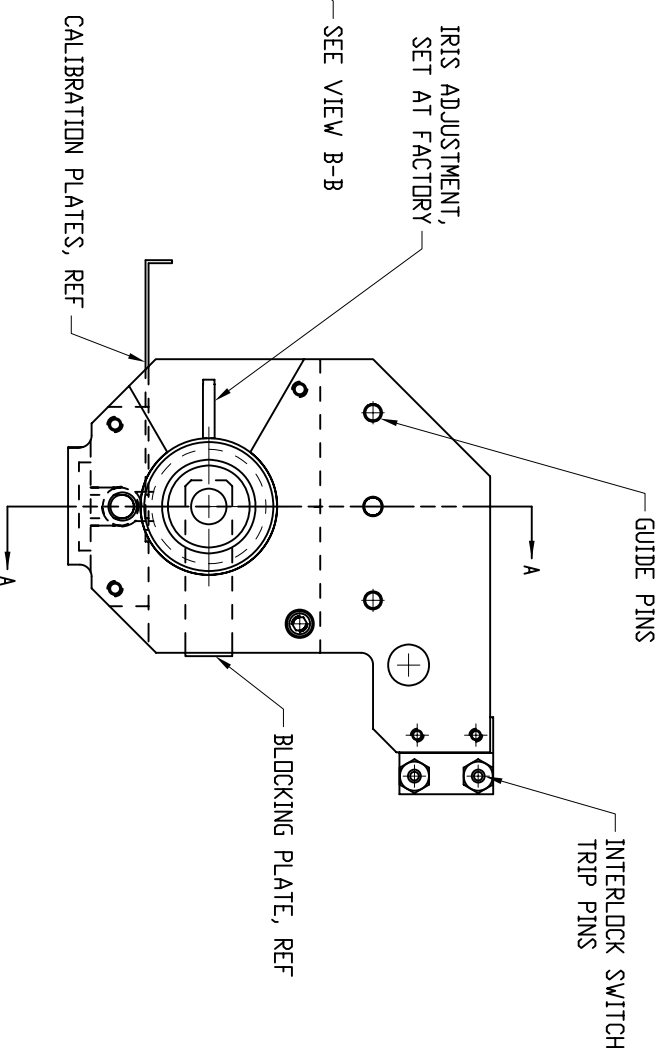
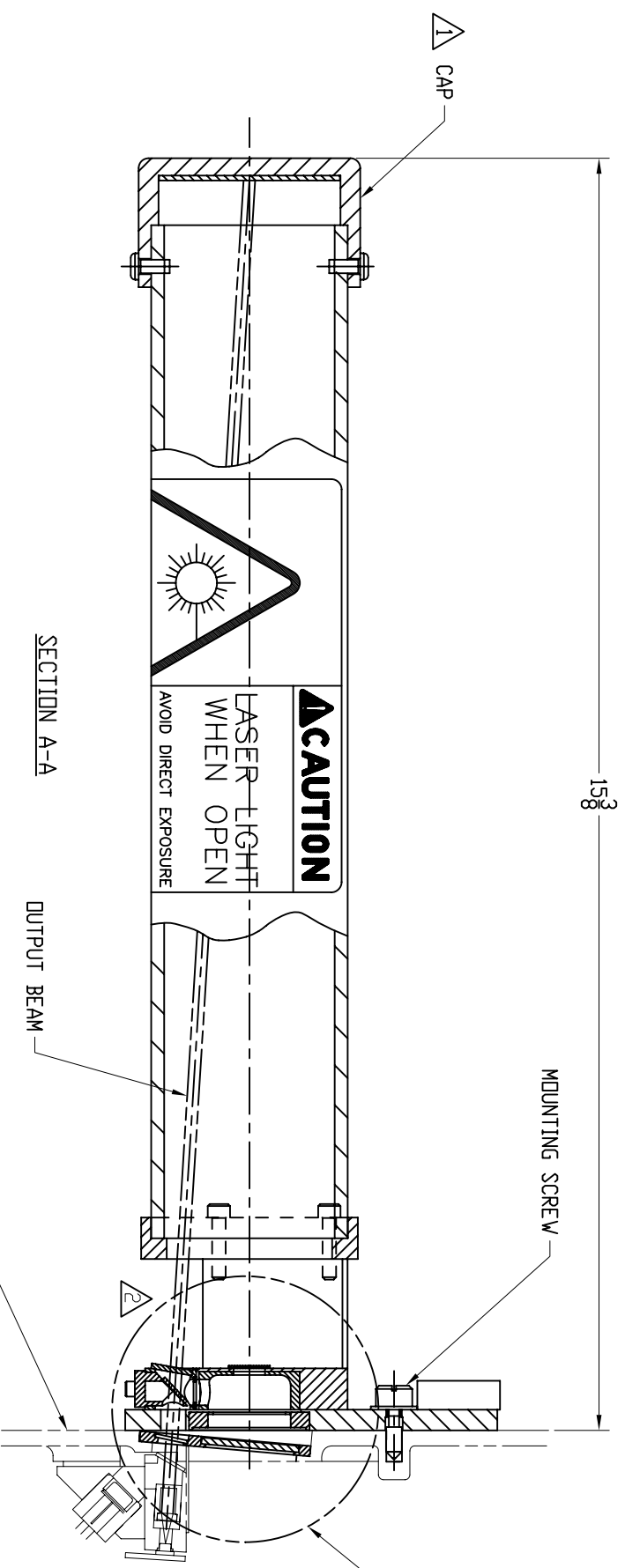
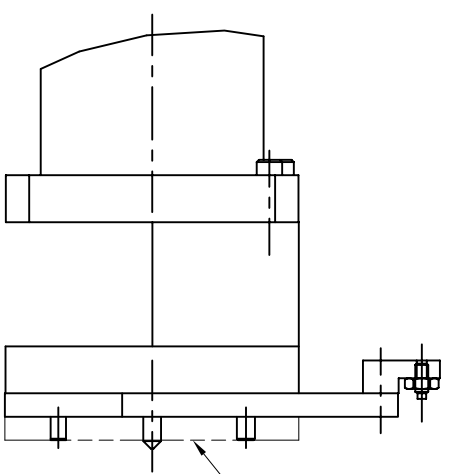
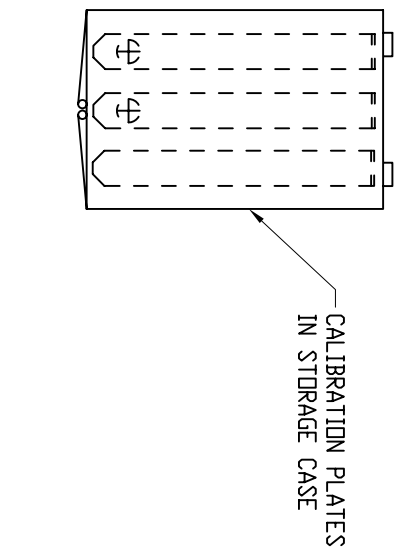
- NOTE:
- 1 DISPLAY FITS IN STANDARD 19"(482.6mm) RACK MOUNT, 5-1/4" (3U) HIGH CHASSIS
 - 2 DIMENSIONS IN \varnothing ARE METRIC
 - 3 MINIMUM REAR CLEARANCE 5"(127mm)
 - 4 THESE FEATURES ARE FUNCTIONAL ONLY IF INTERNAL I/O PC BOARD IS PURCHASED.
 - 5 SLIDES ARE AVAILABLE AS AN OPTION. CONSULT FACTORY

CUSTOMER OUTLINE DRAWING

DIMENSIONAL TOLERANCES			
FUNCTIONS	UNLESS OTHERWISE SPECIFIED	ANGLES	DASH NO
FRONT PANEL	±.005	±.005	0-02
INTERNAL	±.005	±.005	
ALL DIMENSIONS ARE IN INCHES			
DO NOT SCALE THIS DRAWING			

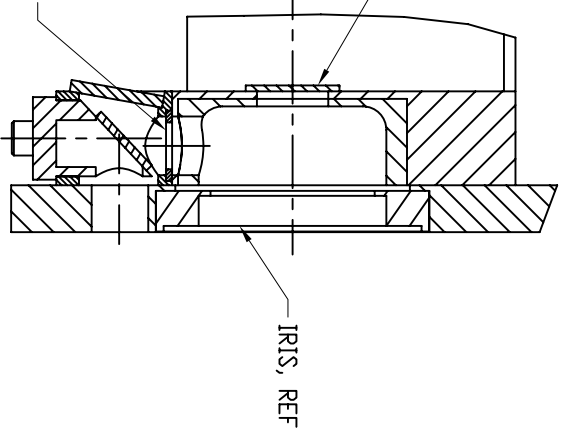
AUTHORIZATION			
BY	DATE	MAT'L	SEE BOM
DRAWN	6-JUL-02		
CHECKED	7-18-02		
DESIGNED	JUL-02		
ENGINEERED	7-24-02		
PRODUCTION	7-24-02	SCALE	
QA	7-24-02	0.500	

REVISIONS			
ZONE	SYM.	DESCRIPTION	DATE
A		RELEASE FOR PRD.	12-15-05
			ELM



BLOCKING PLATE, REF
REMOVE FOR ALIGNMENT CHECK ONLY.
MUST BE INSTALLED WHEN DOING
CALIBRATION CHECKS.

CALIBRATION PLATES, REF
SLIDE IN AND OUT FROM THE SIDE.
DIFFERENT SIZES SUPPLIED.
ONE FOR 0% & OTHERS FOR
HIGHER LEVELS AS REQUIRED



- 2 BE CERTAIN NOT TO INSERT ANY HIGHLY REFLECTIVE OR MIRROR-LIKE OBJECTS INTO THE SLOT THAT COULD REFLECT LASER ENERGY OUT.
- 1 NEVER REMOVE CAP UNLESS UNIT IS OFF. CAP SHOULD BE REMOVED BY SKILLED TECHNICIAN ONLY.

NOTES:

DIMENSIONAL TOLERANCES		USED ON	
UNLESS OTHERWISE SPECIFIED		DASH	NEXT ASSEMBLY
FRACTIONS	DECIMALS	ANGLES	
0 TO 4 31/64	XX 5/64	90°	-01
4 TO 8 31/64	XX 5/64	90° FINISH	
8 AND UP 31/64	XX 5/64	90° FINISH	
ALL DIMENSIONS ARE IN INCHES			
DO NOT SCALE THIS DRAWING			
AUTHORIZATION		TITLE	
BY	DATE	360 BACKSCATTER, CAL KIT OUTLINE	
EAS	3-22-06	FINISH	
CHECKED		MATERIAL	
DESIGNED	EAS	MOT-05	
ENGINEERED	ELM	1-03-06	
PRODUCTION	GA	1-4-06	
	AS	1-4-06	

TELEDYNE INSTRUMENTS
Monitor Labs
A Teledyne Technologies Company

DRAWING NO 1810-0657

LATEST REVISION A

ACAD2004 FILE: 18100657