

# TLS-350(R) CONSOLE

NON-HAZARDOUS AREA

AMBIENT TEMPERATURE RANGE  
 $0^{\circ}\text{C} \leq T_a \leq 40^{\circ}\text{C}$

**Ex II (1) G [Ex ia] IIA**

TLS-350 CONSOLE  
 TLS-350R CONSOLE  
 CERTIFICATE NO.:  
 DEMKO 06 ATEX 137481X

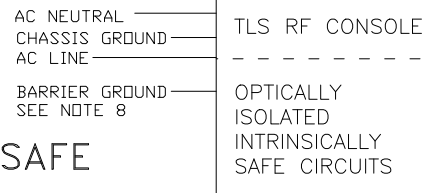
POWER MODULES  
 MAXIMUM OF 8  
 SEE NOTE 7

INTRINSICALLY SAFE  
 MODULES  
 MAXIMUM OF 8  
 IN ANY COMBINATION

ASSOCIATED APPARATUS

TLS RF CONSOLE  
 CERTIFICATE NOS.:  
 DEMKO 06 ATEX 137478X

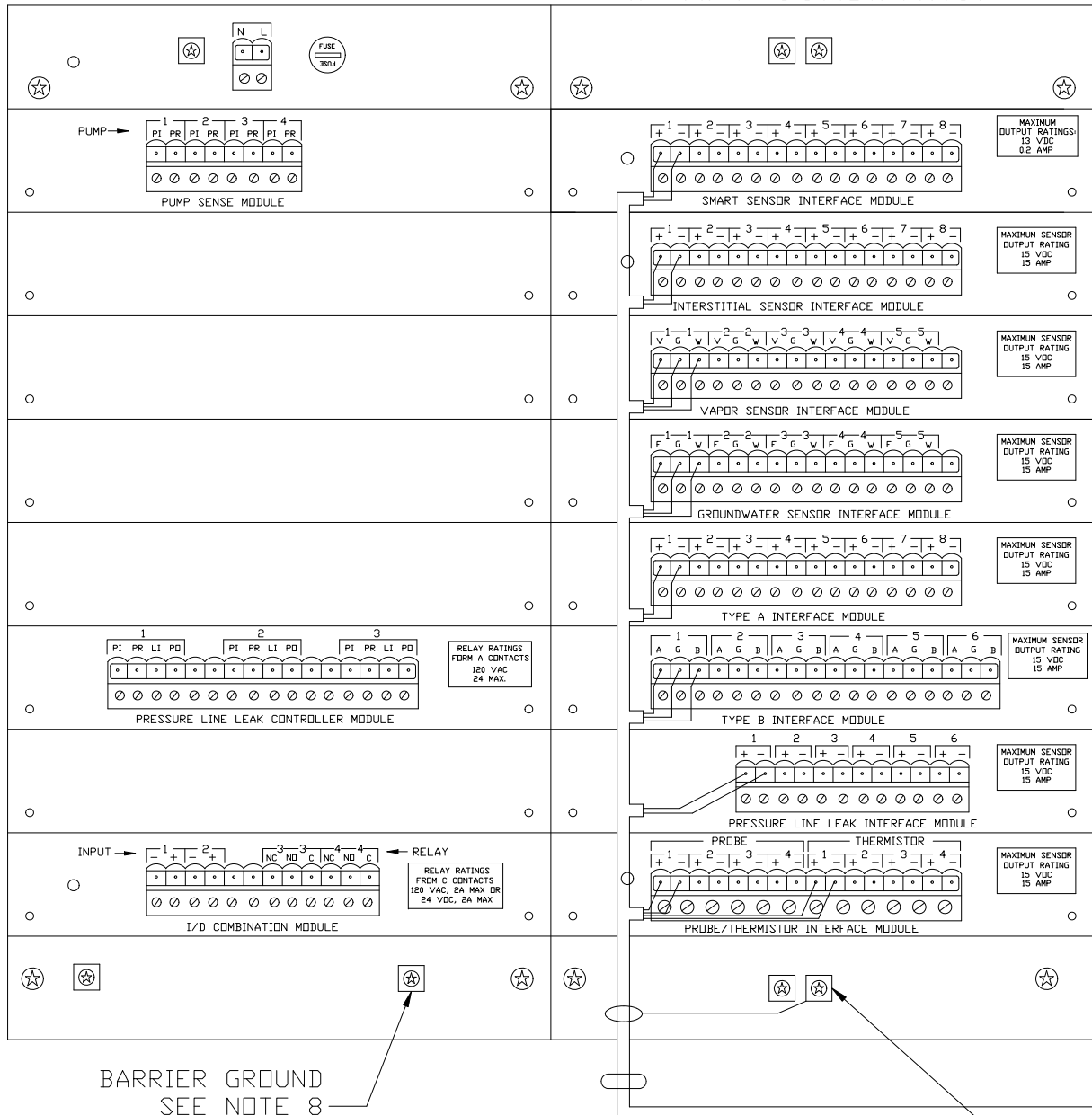
UNSPECIFIED  
 RECEIVER



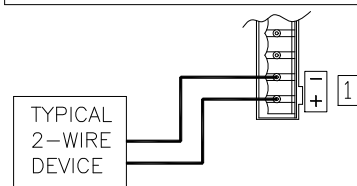
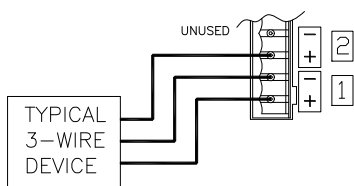
## HAZARDOUS AREA

INTRINSICALLY SAFE (I.S.) APPARATUS  
 AMBIENT TEMPERATURE RANGE  
 (UNLESS NOTED)  
 $-40^{\circ}\text{C} \leq T_a \leq 60^{\circ}\text{C}$   
**Ex II 1 G Ex ia IIA T4**  
**II 2 G Ex ia IIA T4**  
**II 1/2 G Ex ia IIA T4**

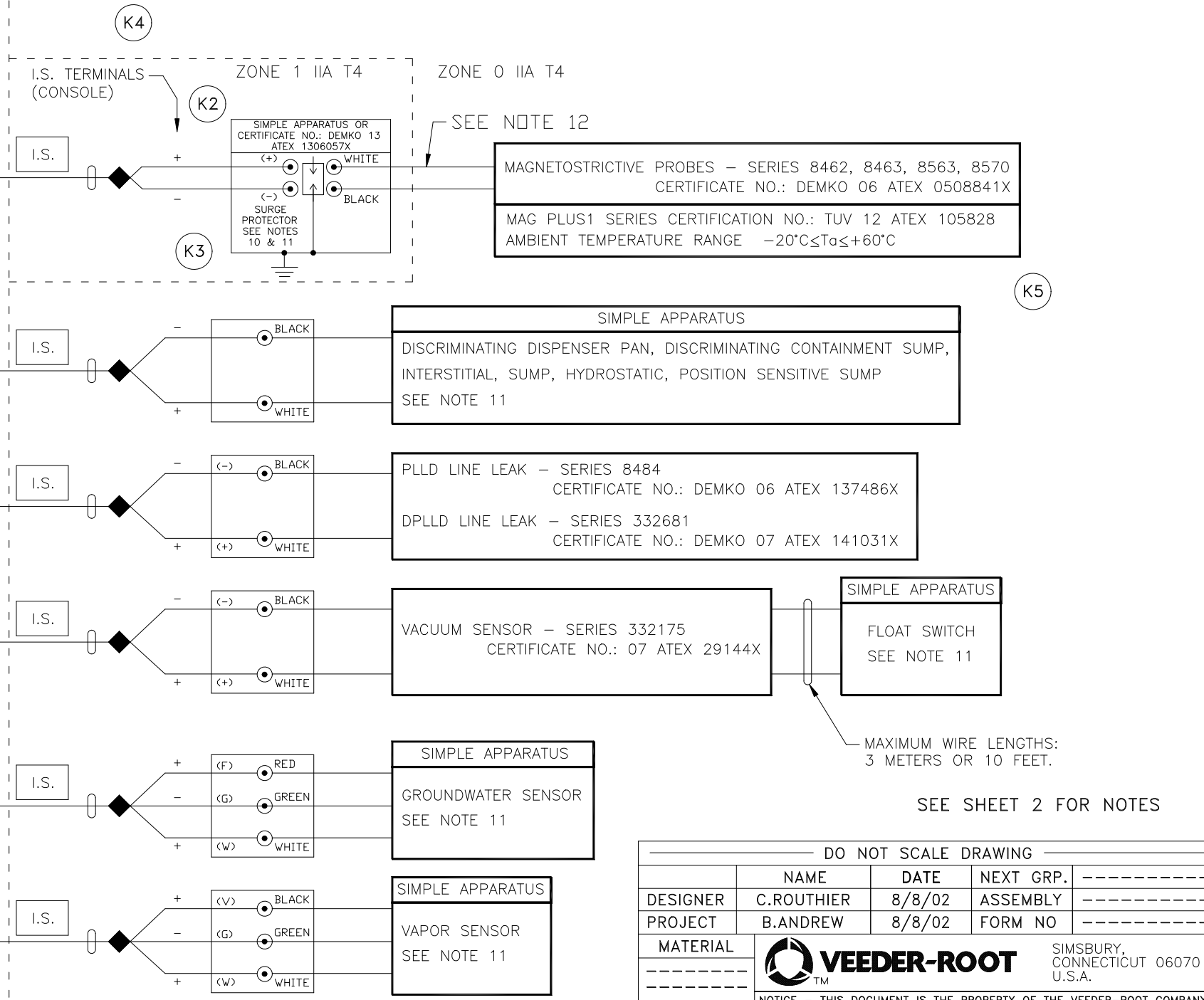
REV	DESCRIPTION	BY	DATE	ECO
H	ADDED SURGE PROTECTOR; REMOVED OPTICAL DISC. SOLID STATE SENSOR AND OPTICAL MICROSENSOR; UPDATED NOTES 8, 10, AND 11	KG	4/26/12	CN-04987
J	ADDED MAG PLUS1 CERT.NO TUV 12 ATEX 105828.	TB	2012/07/26	CN-05344
K	1. ADD II 2...T4 AND II 1/2...T4. 2. ADD CERT. NO...1306057X. 3. UPDATE GROUNDING SYMBOL. 4. UPDATE DASHED LINES 5. REMOVED SIMPLE APPARATUS, SEE PREVIOUS REV 6. UPDATE NOTE 14. 7. ADD NOTE 15 AND 16.	TKR	2013/10/17	CN-06775



BARRIER GROUND  
 SEE NOTE 8



TERMINATION  
 POINTS FOR  
 SHIELDED CABLE



Certified Product  
 No changes permitted  
 without reference to the  
 "Notified Body (NB)"

MAXIMUM WIRE LENGTHS:  
 3 METERS OR 10 FEET.

SEE SHEET 2 FOR NOTES

DO NOT SCALE DRAWING				
DESIGNER	NAME	DATE	NEXT GRP.	
C.ROUTHIER	C.ROUTHIER	8/8/02	ASSEMBLY	
B.ANDREW	B.ANDREW	8/8/02	FORM NO	
MATERIAL		SIMSBURY, CONNECTICUT 06070 U.S.A.		
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REFERENCE MFG. SPEC. VRS 81005 WHERE IT IS APPLICABLE				
UNSPECIFIED TOLERANCES +/- 0.005				
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REFERENCE MFG. SPEC. VRS 81005 WHERE IT IS APPLICABLE				
UNSPECIFIED TOLERANCES +/- 0.005				
SIZE	DRAWING NUMBER	REV.	STATUS	
D	331940-001	K	REL	
SCALE	NONE	SHEET	1 OF 2	


NOTES:

1. A MAXIMUM CABLE LENGTH OF 305 METERS OR 1,000 FEET IS ALLOWED TO CONNECT ANY SINGLE I.S. DEVICE TO THE ASSOCIATED APPARATUS. THE TOTAL ALLOWABLE CABLE LENGTH USED TO CONNECT ALL OF THE I.S. DEVICES TO THE ASSOCIATED APPARATUS IS 15,240 METERS OR 50,000 FEET.
2. EACH CABLE (OR WIRING) USED TO CONNECT I.S. DEVICES TO THE CONSOLE MUST NOT EXCEED A CAPACITANCE OF 328 pf/METER OR 100 pf/FOOT.
3. THE TOTAL CABLE CAPACITANCE, COMBINING ALL OF THE CABLE USED TO CONNECT THE INTRINSICALLY SAFE DEVICES TO THE ASSOCIATED APPARATUS, MUST NOT EXCEED 5,0μF.
4. EACH CABLE MUST NOT EXCEED AN INDUCTANCE OF 0,656 μH/METER OR 0,2 μH/FOOT.
5. THE L/R RATIO OF THE CABLE MUST NOT EXCEED 200 μH/OHM.
6. FOR EACH TLS-350 CONSOLE INSTALLED THE MAXIMUM NUMBER OF I.S. DEVICES CONNECTED TO THE ASSOCIATED APPARATUS IS 64. A MAXIMUM OF FOUR TLS RF CONSOLES CAN BE CONNECTED TO THE TLS-350 CONSOLE, WHERE EACH CONNECTED TLS RF CHANNEL EQUALS ONE I.S. DEVICE.
7. NON-HAZARDOUS ASSOCIATED APPARATUS IS AS SHOWN AND MUST NOT BE SUPPLIED FROM OR CONTAIN, UNDER NORMAL OR ABNORMAL CONDITIONS, A SOURCE OF POTENTIAL WITH RESPECT TO EARTH IN EXCESS OF 250V RMS OR 250V dc, Um = 250V.
8. CONNECT THE BARRIER GROUND TO THE EARTH GROUND BUS AT THE POWER DISTRIBUTION PANEL WITH A 4 sq. mm (10 AWG) (OR LARGER) CONDUCTOR. GROUNDING MUST COMPLY WITH EN 60079-14, CLAUSE TITLED "EARTHING OF INTRINSICALLY SAFE CIRCUITS".
9. THIS SYMBOL, ⊙ , DENOTES A FIELD WIRING CONNECTION INSIDE A WEATHERPROOF JUNCTION BOX.
10. A RISK ANALYSIS MUST BE PERFORMED TO DETERMINE IF THE INSTALLATION LOCATION IS SUSCEPTIBLE TO LIGHTNING OR OTHER SURGES. IF NECESSARY, ADD PROTECTION AGAINST LIGHTNING AND OTHER ELECTRICAL SURGES IN ACCORDANCE WITH EN 60079-25, SECTION TITLED "PROTECTION AGAINST LIGHTNING AND OTHER ELECTRICAL SURGES." IF REQUIRED INSTALL A SURGE PROTECTOR IN ZONE 1 AS CLOSE AS POSSIBLE TO THE BOUNDARY WITH ZONE 0. THE SITE PREPARATION GUIDE, MANUAL NO. 577013-578, PROVIDES ADDITIONAL DETAILS ABOUT RISK ASSESSMENT.
11. IT IS THE RESPONSIBILITY OF THE INSTALLER TO DETERMINE COMPLIANCE OF SIMPLE APPARATUS. SIMPLE APPARATUS USED WITH THIS SYSTEM MUST CONFORM TO THE FOLLOWING REQUIREMENTS:
  - A) CONSTRUCTED OF PASSIVE COMPONENTS ONLY, FOR EXAMPLE, SWITCHES, JUNCTION BOXES AND RESISTORS.
  - B) CONSTRUCTED WITHOUT ANY SOURCES OF STORED ENERGY SUCH AS BATTERIES, CAPACITORS AND INDUCTORS.
  - C) CONSTRUCTED WITHOUT SOURCES OF GENERATED ENERGY THAT PRODUCE MORE THAN 1.5V, AND 25mW OR SOURCES THAT CONTAIN A MEANS OF INCREASING THE VOLTAGE.
  - D) IF CONSTRUCTED WITH A METALLIC HOUSING THE SIMPLE APPARATUS SHALL BE CAPABLE OF WITHSTANDING THE TEST VOLTAGE TO EARTH IN ACCORDANCE WITH EN 60079-11, CLAUSE TITLED "DIELECTRIC STRENGTH REQUIREMENT" AND ITS TERMINALS MUST CONFORM TO EN 60079-11, CLAUSE 6.2.
  - E) NON-METALIC ENCLOSURES AND ENCLOSURES OF LIGHT METALS MUST COMPLY WITH EN 60079-0 SECTIONS 7 & 8 AND EN 60079-26, CLAUSE 4.3.3.
  - F) BASED ON THE AVAILABLE POWER WITHIN THE SYSTEM, SIMPLE APPARATUS THAT HAVE ELECTRICAL COMPONENTS THAT EXCEED 20 sq. mm IN TOTAL SURFACE AREA, MAY BE ASSESSED AS HAVING A T4 TEMPERATURE CODE, AT THE SPECIFIED AMBIENT TEMPERATURE RANGE OF -40°C ≤ Ta ≤ +60°C. OTHER TYPES OF SIMPLE APPARATUS MUST BE ASSESSED IN ACCORDANCE WITH EN 60079-11, CLAUSE TITLED "SIMPLE APPARATUS."
  - G) SIMPLE APPARATUS SHALL NOT CONTAIN ANY MEANS OF INCREASING THE AVAILABLE VOLTAGE OR CURRENT, FOR EXAMPLE DC TO DC CONVERTERS.
12. CABLE GLAND MUST BE A SUITABLE PROCESS CONNECTION IN ACCORDANCE WITH EN 60079-26.
13. SPECIAL CONDITIONS FOR SAFE USE, AS APPLICABLE AND AS DEFINED IN THE CERTIFICATE OF CONFORMITY AND THE SITE PREPARATION GUIDE, MANUAL NO. 577013-578, MUST BE TAKEN INTO ACCOUNT.
- K6 14. TLS-350 CONSOLES MUST BE INSTALLED IN AN INDOOR, NON-HAZARDOUS AREA IN ACCORDANCE WITH THE DESCRIPTIVE SYSTEM DOCUMENT AND THE INSTALLATION INSTRUCTIONS. ONLY ONE TLS-350 CONSOLE CAN BE CONNECTED TO ANY SINGLE INTRINSICALLY SAFE APPARATUS AS DESCRIBED ON SHEET ONE OF THIS DOCUMENT. MULTIPLE SOURCES OF POWER, ADDITIONAL TLS CONSOLES OR OTHER ASSOCIATED APPARATUS, CANNOT BE CONNECTED TO THE SAME INTRINSICALLY SAFE APPARATUS.
- K7 15. THE MAG PLUS1 SERIES PROBES MARKED Ex ia IIB T4 OR Ex ia IIC T4, WHEN USED WITHIN THIS SYSTEM THE DEVICE IS LIMITED TO GROUP IIA.
16. REFERENCE THE DEVICE CERTIFICATION FOR APPLICABLE STANDARD EDITIONS.

STANDARDS:

[Ex ia] IIA

EN 60079-0	ELECTRICAL APPARATUS FOR POTENTIALLY EXPLOSIVE ATMOSPHERES--PART 0: GENERAL REQUIREMENTS
EN 60079-11	ELECTRICAL APPARATUS FOR POTENTIALLY EXPLOSIVE ATMOSPHERES--PART 11: INTRINSIC SAFETY "I"
EN 60079-25	ELECTRICAL APPARATUS FOR EXPLOSIVE GAS ATMOSPHERES--PART 25: INTRINSICALLY SAFE SYSTEMS
EN 60079-26	ELECTRICAL APPARATUS FOR EXPLOSIVE GAS ATMOSPHERES - PART 26: CONSTRUCTION, TEST AND MARKING OF GROUP II ZONE 0 ELECTRICAL APPARATUS

		SIMSBURY, CONNECTICUT 06070 U.S.A.	
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DESCRIPTIVE SYS DOCUMENT ATEX TLS-350 & TLS-350R			
SIZE	DRAWING NUMBER	REV.	STATUS
D	331940-001	K	REL
SCALE	NONE	SHEET	2 OF 2