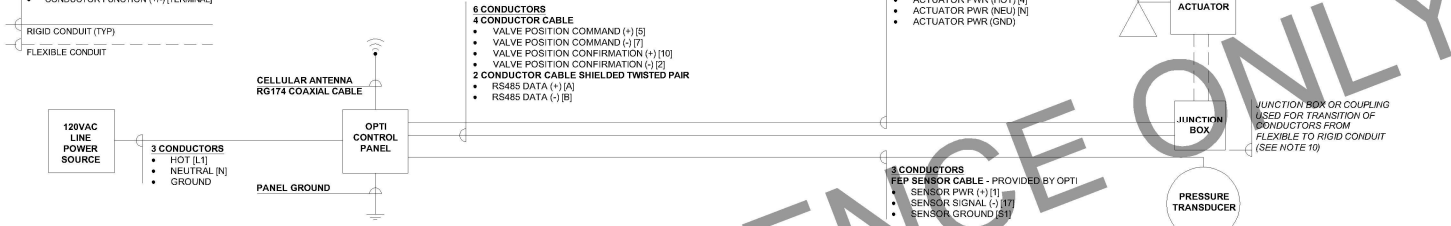


KEY:
 CONDUCTOR NAME / CONDUCTOR COUNT IN CONDUIT
 SUGGESTED # OF CONDUCTORS PER CABLE
 * CONDUCTOR FUNCTION (+) (TERMINAL)



120VAC WIRING GUIDE - V 2.0.4				
CONTROL PANEL TERMINAL	EXTERNAL DEVICE TERMINAL	WIRE COLOR/CABLE LOCATION	PURPOSE	PROCURED BY
L1	-----	-----	120VAC HOT, LINE POWER	-----
N	-----	-----	NEUTRAL, LINE POWER	-----
GROUNDING NUT	-----	-----	GROUND, LINE POWER	-----
ACTUATOR - ROTORK IQT SERIES 393M2000				
4	2	3 CONDUCTOR CABLE	120VAC HOT, ACTUATOR POWER	INSTALLER
N	3	3 CONDUCTOR CABLE	NEUTRAL, ACTUATOR POWER	INSTALLER
GROUND LUG	GND SYMBOL	3 CONDUCTOR CABLE	GROUND, ACTUATOR POWER	INSTALLER
5	26	4 CONDUCTOR CABLE	VALVE POSITION COMMAND SIGNAL (+)	INSTALLER
7	27	4 CONDUCTOR CABLE	VALVE POSITION COMMAND SIGNAL (-)	INSTALLER
10	22	4 CONDUCTOR CABLE	VALVE POSITION CONFIRMATION SIGNAL (+)	INSTALLER
2	23	4 CONDUCTOR CABLE	VALVE POSITION CONFIRMATION SIGNAL (-)	INSTALLER
A +	32	2 CONDUCTOR CABLE, SHIELDED TWISTED PAIR	RS485 DATA (+)	INSTALLER
B -	28	2 CONDUCTOR CABLE, SHIELDED TWISTED PAIR	RS485 DATA (-)	INSTALLER
PRESSURE TRANSDUCER (4-20mA) - PMC VL2000 SERIES				
1	-----	RED (+), PMC	PRESSURE TRANSDUCER, POWER	OPTI
17	-----	BLACK (-), PMC	PRESSURE TRANSDUCER, SIGNAL	OPTI
S1	-----	GREEN (GND), PMC	PRESSURE TRANSDUCER, GROUNDING	OPTI

- ELECTRICAL INSTALLATION NOTES**
- CONTRACTOR TO DETERMINE IF THERE ARE UNDERGROUND UTILITIES IN THE WORK AREA PRIOR TO EXCAVATION BY CALLING DIG SAFE AT LEAST 48 HOURS PRIOR TO STARTING WORK. CONTRACTOR SHALL BE LIABLE FOR ANY DAMAGE TO UNDERGROUND UTILITIES CAUSED BY TRENCHING OR EXCAVATION.
 - INSTALLATION OF THE CONTROL PANEL AND ASSOCIATED COMPONENTS (E.G. CABLING, CONDUIT, SENSORS) SHALL BE PERFORMED BY A LICENSED ELECTRICIAN. ELECTRICIAN SHALL BE RESPONSIBLE FOR ENSURING THAT THE CONTROL PANEL AND ASSOCIATED COMPONENTS ARE PROPERLY CONNECTED TO THE LINE POWER SOURCE AND THAT CONDUIT AND CABLING IS SIZED AND INSTALLED PER THE NEC.
 - ALL CONDUCTORS SHALL BE IDENTIFIED AT EACH END (LABELED OR COLOR CODED) AND THE IDENTIFIED CONDUCTORS DOCUMENTED IN THE SITE LAYOUT MAP.
 - PENETRATIONS INTO CONTROL PANEL MUST BE IP68 RATED (NO WATER SHALL PENETRATE ANY SEALS). SUBSURFACE TERMINATIONS SHALL BE SEALED WITH POLYURETHANE CLOSED-CELL FOAM DUCT SEALANT (PROCURED THROUGH OPTI WITH CONTROL PANEL).
 - REFERENCE 'ACTUATOR POWER CABLE AWG SPECIFICATIONS' TABLE FOR THE CORRECT CONDUCTOR GAUGE FOR ACTUATOR POWER CONNECTIONS. ALL OTHER CONDUCTORS MUST BE AT LEAST 16AWG.
 - ALL BURIED CONDUIT RUNS SHALL BE RIGID SCH 40 PVC CONDUIT. ALL EXPOSED CONDUIT SHALL BE INSTALLED WITH A MINIMUM COVER OF AT LEAST 18" IN ACCORDANCE WITH TABLE 300.5 OF THE NEC.
 - CONDUIT SHALL BE SIZED PER THE NEC TO HAVE AN ADEQUATE CROSS-SECTIONAL AREA FOR INSTALLED CABLES. REFERENCE OPTI PROVIDED TABLE FOR MINIMUM CONDUIT SIZE. ACTUATOR HAS 3x PORTS FOR CONDUIT, USE REDUCING FITTING IF NEEDED.
 - LEAVE A MINIMUM OF 1 FOOT SPARE CABLING NEATLY COILED IN CONTROL PANEL FOR FUTURE MAINTENANCE OR SYSTEM MODIFICATIONS.
 - LEAVE A MINIMUM 3 FEET LOOP OF FLEXIBLE CONDUIT IN OUTLET STRUCTURE FOR EASE OF FUTURE MAINTENANCE. FLEXIBLE CONDUIT SHALL RUN FROM ACTUATOR TO JUNCTION BOX LOCATED IN OUTLET STRUCTURE. RIGID CONDUIT SHALL RUN FROM JUNCTION BOX TO OPTI CONTROL PANEL.
 - ALL SUBMERGED/SATURATED METAL HARDWARE SHALL BE STAINLESS STEEL. GALVANIZED STEEL MAY BE USED ABOVEGROUND OR IN DRY LOCATIONS.
 - PRESSURE REFERENCE DEVICE (COMPONENT OF LEVEL SENSOR AT CABLE TERMINATION) TO BE LOCATED IN OPTI CONTROL PANEL.
 - CONNECT ALL EQUIPMENT GROUNDING CONDUCTORS TO THE OPTI CONTROL PANEL GROUNDING LUGS. GROUND THE OPTI CONTROL PANEL TO A GROUNDING ROD, GALVANIZED STEEL POLE, OR A CONCRETE-ENCASED GROUNDING ELECTRODE.
 - AFTER INSTALLATION, COMPLETE CONTRACTOR INSTALLATION CHECKLIST PROVIDED BY OPTI AND PROVIDE PHOTOS OF ALL INSTALLED EQUIPMENT. SEND SIGNED CHECKLIST AND PHOTOS TO OPTI.
 - OPTI CONSTRUCTION VERIFICATION CHECKLIST SHALL BE COMPLETED PRIOR TO ENERGIZING THE SYSTEM. FINAL COMPLETION SHALL BE REACHED WHEN: (1) CONSTRUCTION OF THE SYSTEM PER THE PLANS IS COMPLETE; (2) THE ENGINEER OF RECORD HAS COMPLETED FINAL INSPECTION OF WORK AND ALL NOTED DEFICIENCIES HAVE BEEN CORRECTED TO THE SATISFACTION OF THE ENGINEER OF RECORD, OPTI, AND THE SITE OWNER; AND (3) AN AS-BUILT SKETCH HAS BEEN PROVIDED OF ALL INSTALLED COMPONENTS IF FINAL INSTALL LOCATIONS HAVE VARIED FROM PLANS.
 - INDOOR INSTALLATIONS OR INSTALLATIONS WITH POOR CELLULAR RECEPTION REQUIRE AN OUTDOOR WALL-MOUNTED ANTENNA. CONTRACTOR TO COORDINATE ANTENNA LOCATION WITH OPTI TO ENSURE CONNECTIVITY.
 - SIGNAL WIRE CONDUITS MAY BE COMBINED INTO A SINGLE CONDUIT RUN AS NEEDED.
 - LEVEL SENSOR CABLE SHALL NOT BE SPLICED.

ACTUATOR POWER CABLE AWG SPECIFICATIONS	
ROTORK IQT125	
WIRE GAUGE	MAX. LENGTH (FT)
8	1647
10	1036
12	651
14	410
16	258
18	162

MINIMUM CONDUIT SIZE SPECIFICATIONS	
NO. CONDUCTORS	MIN. CONDUIT SIZE (IN)
2	1/2
3 - 6	3/4
7 - 9	1
10 - 12	1-1/4



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WIRING PLAN 3IN-4IN IQT125 (LINE POWERED)

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