Model QRS-2 Quick Release Switch – Electronic Accelerator for Dry Pipe or Preaction Systems

TFP1120 DECEMBER 2023

Important: Refer to technical data sheet *TFP2300* for warnings pertaining to regulatory and health information.

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NOTICE

The TYCO Model QRS-2 Quick Release Switch – Electronic Accelerator for Dry or Preaction Systems described herein must be installed and maintained in compliance with this document, as well as with the applicable standards of the NATIONAL FIRE PROTECTION ASSOCIATION (NFPA), in addition to the standards of any other authorities having jurisdiction. Failure to do so may impair the performance of this device.

The owner is responsible for maintaining their fire protection system and devices in proper operating condition. Contact the installing contractor or sprinkler manufacturer with any questions.

General description

The TYCO Model QRS-2 Quick Release Switch – Electronic Accelerator for Dry or Preaction Systems, herein called the Model QRS-2 Electronic Accelerator, is a quick-opening device intended to reduce the operating time of a dry pipe valve in a dry pipe system, or an automatic control valve (deluge valve) in a double interlock electric/electric preaction system.

The design includes the following features:

- Operation of a dry pipe or preaction valve within four seconds — independent of various combinations of system initial air pressures, system volumes, or sprinkler K-factors
- Built-in low and high pressure alarm supervision
- Visual indicator displays the device state without removing the cover or visiting the control panel
- Proven electric release technology as used for electrically operated deluge and preaction systems
- Ability to control up to two QRS-2 electronic accelerators on one to two system risers (TYCO Model DPV-1 Valve with AutoPulse Z-10 or AutoPulse Z-20 Releasing Panel)
- Ability to control up to four QRS-2 electronic accelerators on one to four system risers (Tyco Model DPV-1 Valve with Potter PFC-4410G3 Releasing Panel)
- Battery back-up in the event of primary power failure

The Model QRS-2 Electronic Accelerator is suitable for use with the following releasing panels:

- Prescient III Gas Extinguishing Panel
- Potter PFC-4410G3 Releasing Control Panel
- AutoPulse Z-10 Release Control Panel
- AutoPulse Z-20 Release Control Panel

The Model QRS-2 Electronic Accelerator is suitable for use with the following valves and size ranges:

- TYCO Model DPV-1 Dry Pipe Valve: 2 ½ in. to 6 in. (DN65 to DN150)
- TYCO DV-5A Automatic Control Valve: 1 ½ in. to 8 in. (DN40 to DN200)

Note: The DV-5A valves must be configured for a double interlock electric/electric preaction system.

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Technical data

Approvals

Table 1: Approvals certifications

Certification	Description
UL Listed	UL Listed in accordance with UL1486 based on the following criteria: • Maximum system capacity of 2250 gal (8517 L) for a single nominal 5.6 K-factor sprinkler • Maximum working water pressure of 250 psi (17,2 bar)
FM Approved	FM Approved based on the following criteria: • Sensitivity criteria shown in Figure 2 • Maximum working water pressure of 250 psi (17,2 bar)

Dry pipe valve compatibility

The Model QRS-2 Electronic Accelerator is UL Listed and FM Approved for use with the following dry pipe valve size range:

- TYCO Model DPV-1 Dry Pipe Valve: 2 ½ in. to 6 in. (DN65 to DN150)

Preaction system compatibility

The Model QRS-2 Electronic Accelerator is UL Listed and FM Approved for use with the following automatic control valve size range:

- TYCO Model DV-5A Automatic Control Valve with double interlock electric/electric preaction trim: 1 ½ in. to 8 in. (DN40 to DN200)

Maximum working air pressure

- 75 psi (5,2 bar)

Electrical specifications

Table 2: Electrical specifications

Rating	Specification
Power input	24 VDC, 75 mA
High/Low air terminals	30 VDC, 0.75 A[1]
Alarm terminals	30 VDC, 0.75 A[1]
Tamper terminals	30 VDC, 0.1 A[1]

1 Resistive load.

Pressure decay for trip rating

- 0.1 psi/sec. (0,007 bar/sec.)

High and low pressure settings

- See Table 4

Environmental specifications

- UL Listed for indoor use
- FM Approved for IP60 Rating

Battery back-up

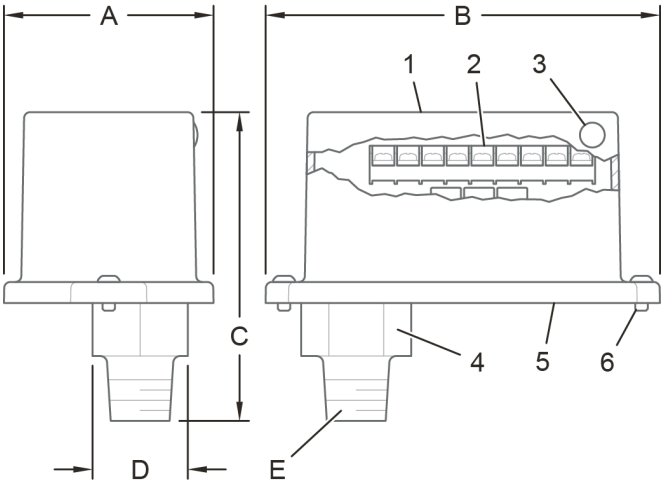
Battery back-up for dry pipe systems is provided by two BT-120 (12 AH) batteries or two (optional) BT-180 (18 AH) batteries.

For double interlock preaction systems, battery calculations must be performed by the system designer to determine the adequacy of the two batteries to meet the requirements of the authority having jurisdiction.

For information about the battery back-up calculations or ordering information, see the relevant releasing panel technical data sheet listed in Table 3.

Assembly

Figure 1: Features and dimensions

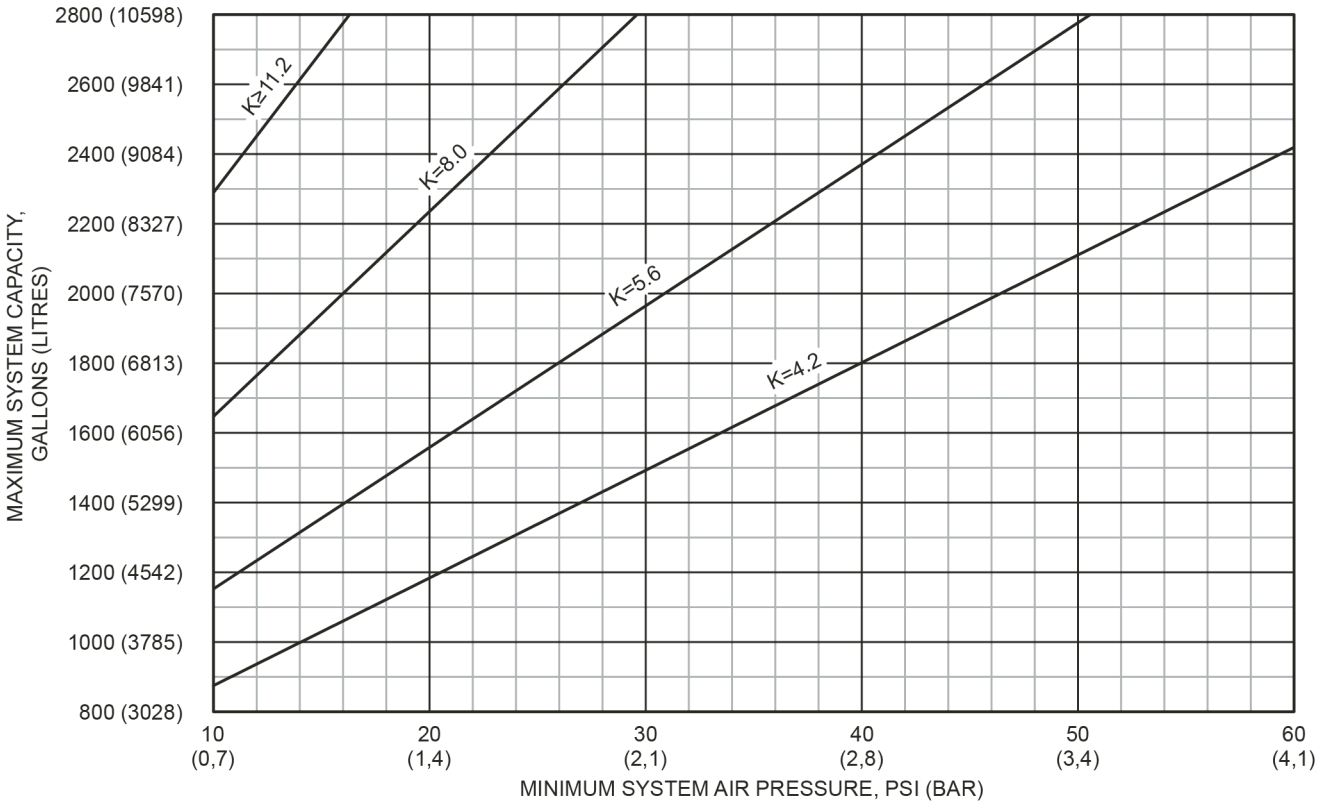


Callout	Description
1	Cover
2	Electric connection terminal block
3	Power indicator light
4	Wrench hex
5	Wiring penetration
6	Tamper resistant cover screw

Callout	Dimension
A	2.75 in. (70 mm)
B	5.18 in. (131 mm)
C	4.00 in. (102 mm)
D	1.25 in. (32 mm)[1]
E	1/2 in. NPT

1 Across wrench flats.

Figure 2: Model QRS-2 Electronic Accelerator sensitivity criteria based on FM approval



Design criteria

Read and observe the following design criteria before designing any system using the electronic accelerator.

Quick operation of the Model QRS-2 Electronic Accelerator does not ensure that the fire protection system will meet the water delivery time requirement of the authority having jurisdiction (following opening of the Inspector's Test Connection). The sprinkler system designer must be aware that water delivery time is primarily determined by the following factors:

- Configuration and volume of the piping network
- System air pressure at time of electronic accelerator trip
- Number and orifice size of open sprinklers
- Water supply characteristics

The sensitivity criteria for the electronic accelerator is a function of the following factors:

- Pressure decay for a trip rating of 0.1 psi (0,007 bar) per second,
- System volume
- K-factor of the system sprinklers
- Minimum initial air pressure

Note: The larger the system volume combined with smaller sprinkler K-factor or lower initial air pressure results in a slower air decay rate upon the first sprinkler operation. Conversely, a smaller system volume combined with a larger sprinkler K-factor or higher initial air pressure results in a faster air decay rate.

When the sprinkler system is designed within the criteria provided by the graph, operation of the electronic accelerator and subsequent operation of the associated dry pipe or preaction valve can be expected within four seconds. In the case of the double interlock preaction system, operation is based on the electric detection system operating before a first sprinkler operation.

The minimum system air pressure must be the greater of that required for the dry pipe/preaction valve as a function of the maximum expected water supply pressure or based on the graph when using the electronic accelerator.

When multiple sprinkler operations are being considered, such as when using a dry system water delivery design according to Section 8.2.3.6 of NFPA 13 (2019 edition), use the *K≥11.2* K-factor curve shown in Example 3.

Example 1

Assuming a system volume of 1500 gal (5680 L) and the use of sprinklers having a K-factor of 5.6, the minimum system air pressure must be 18.5 psi (1,3 bar).

Example 2

Assuming a system volume of 2000 gal (7570 L) and the use of sprinklers having a K-factor of 8.0, the minimum system air pressure must be 16.0 psi (1,1 bar).

Example 3

Assuming the use of a dry system water delivery design per the 2007 edition of NFPA 13, Section 7.2.3.6, where in the operation of two 5.6 K-factor sprinklers might be anticipated (and the effective K-factor is then 11.2), the *K≥11.2* K-factor curve can be utilized. Consequently, assuming a system volume of 2400 gal (9084 L), the minimum system air pressure must be 11.5 psi (0,8 bar).

Installation

About this task:
The Model QRS-2 Electronic Accelerator must be installed in accordance with this section.

Installing the Model QRS-2 Electronic Accelerator

Before you begin:
For information about the compatible panel technical data sheets, see Table 3:

Table 3: Compatible panel technical data sheets

Technical data sheet	Panel description
TFP1121	Model QRS-2 Quick Release Switch – Electronic Accelerator for Prescient III Gas Extinguishing Panel
TFP1122	Model QRS-2 Quick Release Switch – Electronic Accelerator for Potter PFC-4410G3 Releasing Control Panel
TFP1123	Model QRS-2 Quick Release Switch – Electronic Accelerator for AutoPulse Z-10 Release Control Panel
TFP1124	Model QRS-2 Quick Release Switch – Electronic Accelerator for AutoPulse Z-20 Release Control Panel

To install the electronic accelerator, complete the following steps:

1. Install the electronic accelerator according to Figure 6 or Figure 10 as applicable. Install the DV-5A Double Interlock Preaction Trim with Electric/Electric Actuation and QRS-2 electronic accelerator according to Figure 12 or Figure 13 as applicable. Install the solenoid valve with the flow direction arrow as indicated.

   ⓘ **Note:** Apply the pipe thread sealant sparingly to male threads only.

2. Locate the releasing panel according to the following criteria:
   - In a dry and protected area
   - In close proximity to the valve riser(s)

   ⓘ **Note:** If one panel is used for multiple dry pipe valve risers, it is recommended that only a single panel is used when the multiple risers are adjacent to each other. Otherwise, difficulty may be encountered when performing the resetting procedure.

Installation arrangements

Figure 3 to Figure 11 describe the dimensions and arrangements; Figure 12 and Figure 13 describe optional arrangements.

Figure 3: 2 ½ in. to 6 in. (DN65 to DN150) DPV-1 dry pipe valve with standard trim and Model QRS-2 Electronic Accelerator installation dimensions

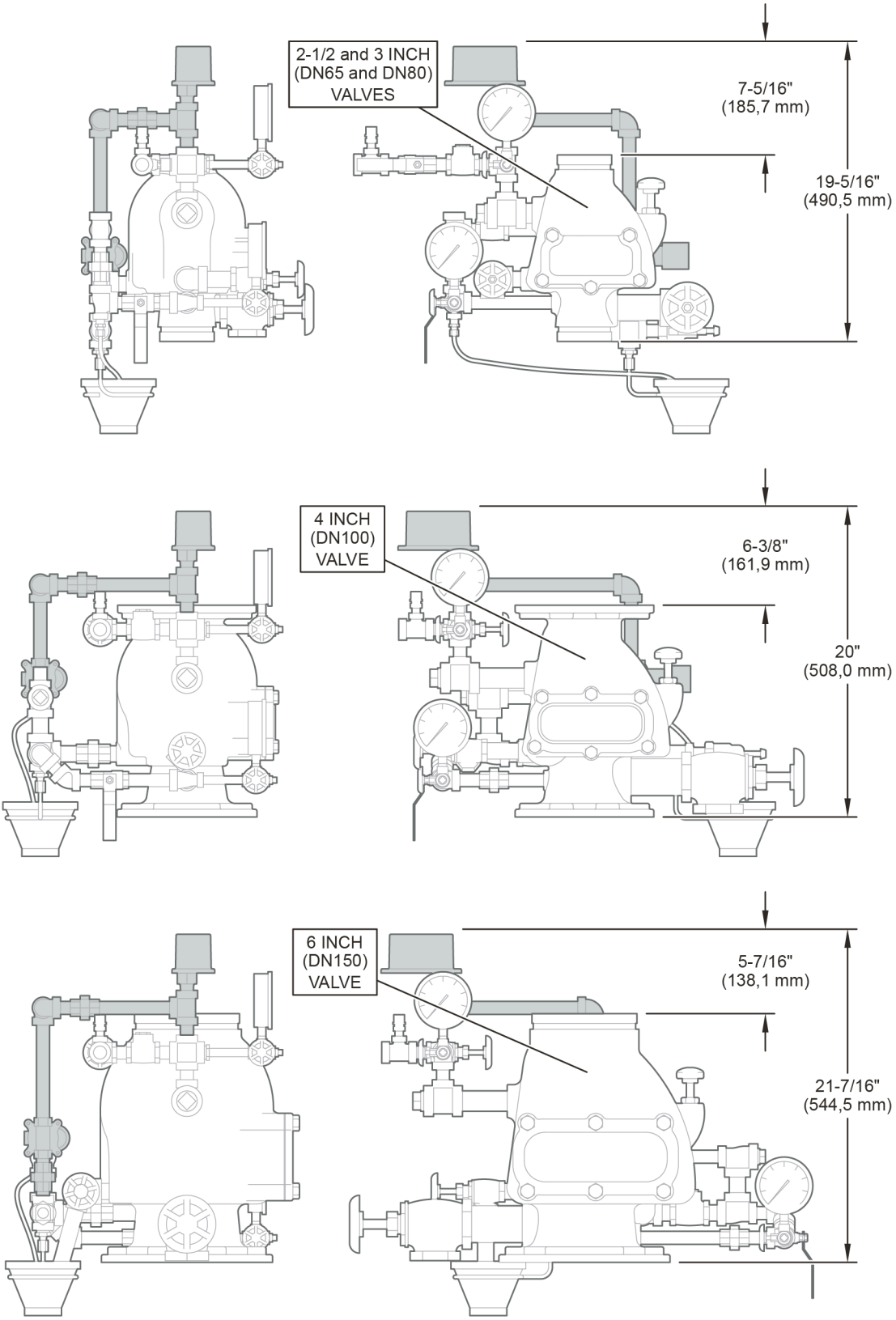


Figure 4: 4 in to 6 in. (DN100 to DN150) DPV-1 dry pipe valve with European conformity trim and Model QRS-2 Electronic Accelerator installation dimensions

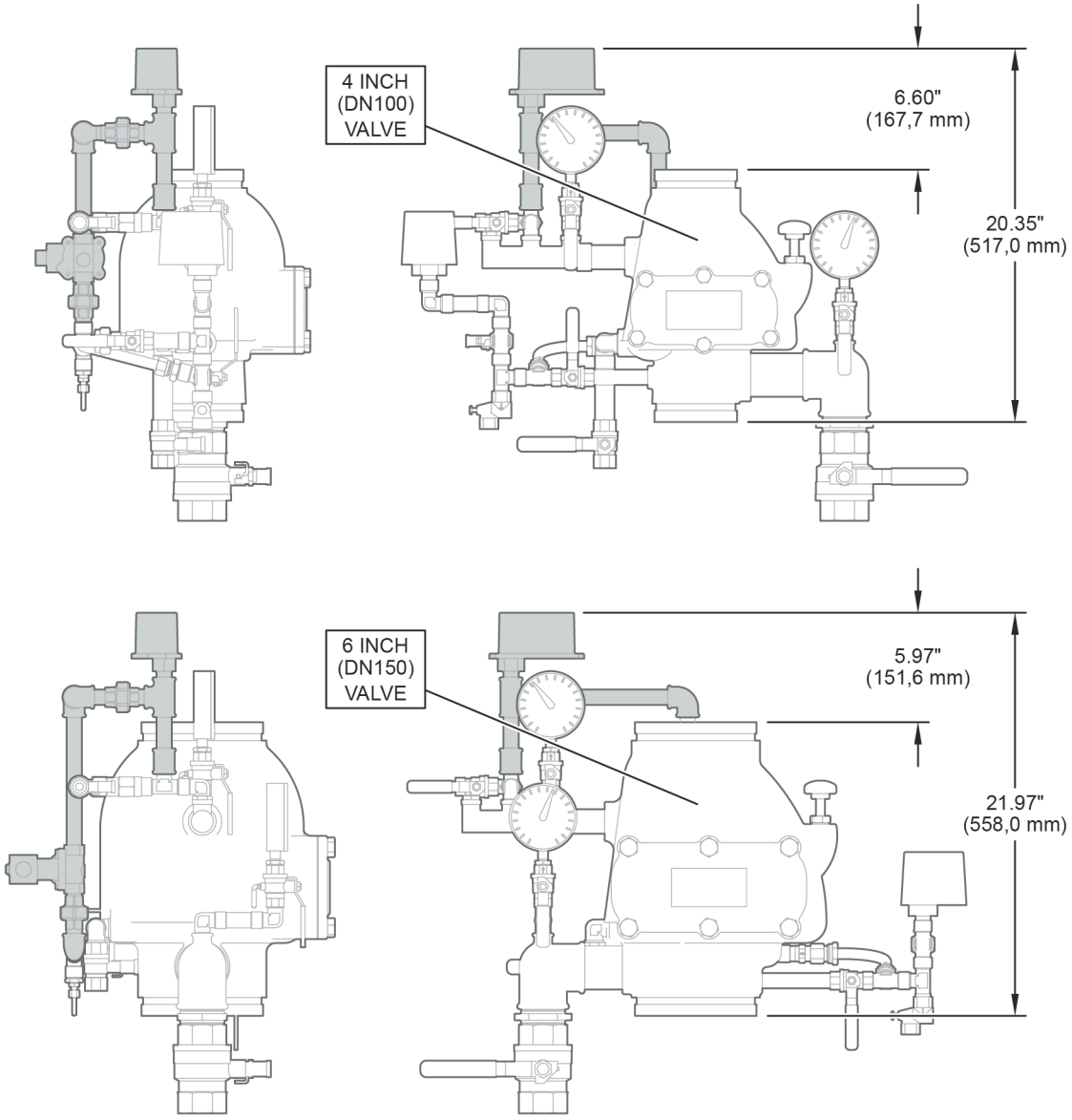
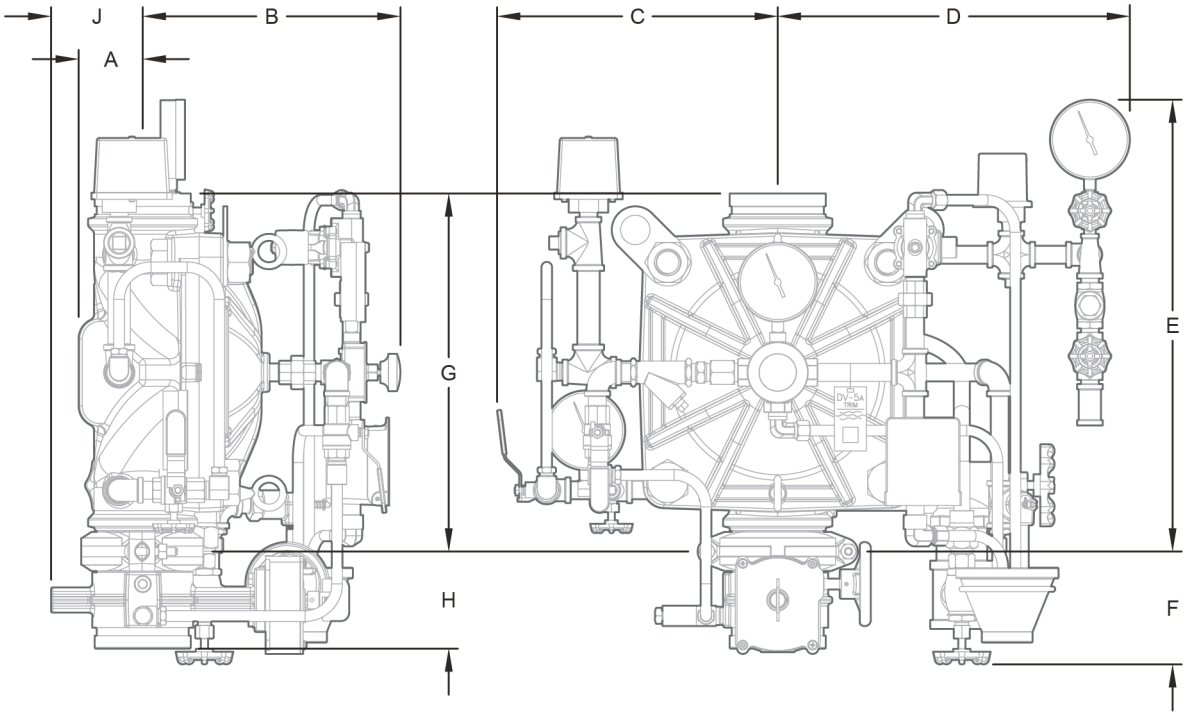


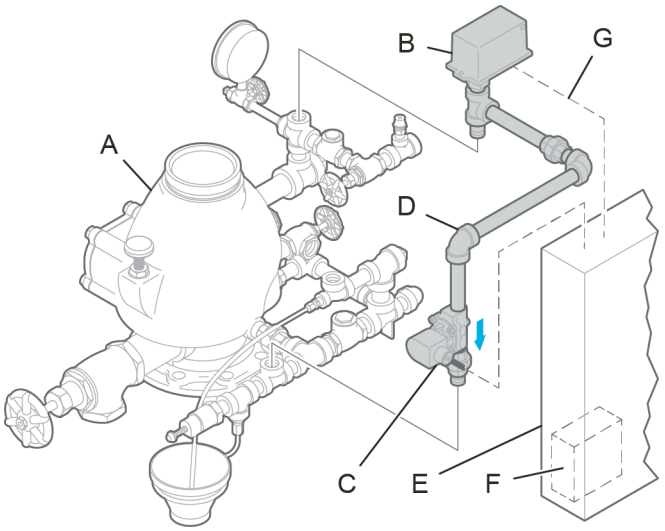
Figure 5: Installation dimensions, 1 ½ in. to 8 in. (DN40 to DN200) DV-5A preaction valve and Model QRS-2 Electronic Accelerator



Nominal valve size ANSI in. (DN)	in.[1, 2] (mm)								
	A	B	C	D	E	F	G	H	J
1 1/2 (40)	2.8 (71)	9.7 (246)	10.4 (264)	15.7 (399)	16.2 (412)	7.3 (185)	10.2 (259)	8.0 (203)	1.2 (31)
2 (50)	2.8 (71)	9.7 (246)	10.4 (264)	15.7 (399)	16.2 (412)	7.3 (185)	10.2 (259)	3.8 (97)	2.9 (74)
3 (80)	3.0 (76)	10.9 (277)	12.0 (305)	16.3 (414)	18.5 (470)	5.8 (147)	13.8 (351)	3.9 (99)	3.6 (91)
4 (100)	3.0 (76)	12.2 (310)	13.1 (333)	16.5 (419)	21.0 (533)	5.1 (129)	16.8 (427)	4.5 (114)	4.3 (109)
6 (150)	4.5 (114)	13.6 (345)	15.0 (381)	18.4 (467)	24.8 (630)	3.4 (86)	22.4 (569)	5.9 (150)	5.7 (145)
8 (200)	4.5 (114)	16.3 (414)	17.2 (437)	19.5 (495)	29.1 (739)	2.9 (74)	27.5 (699)	5.2 (132)	6.7 (170)

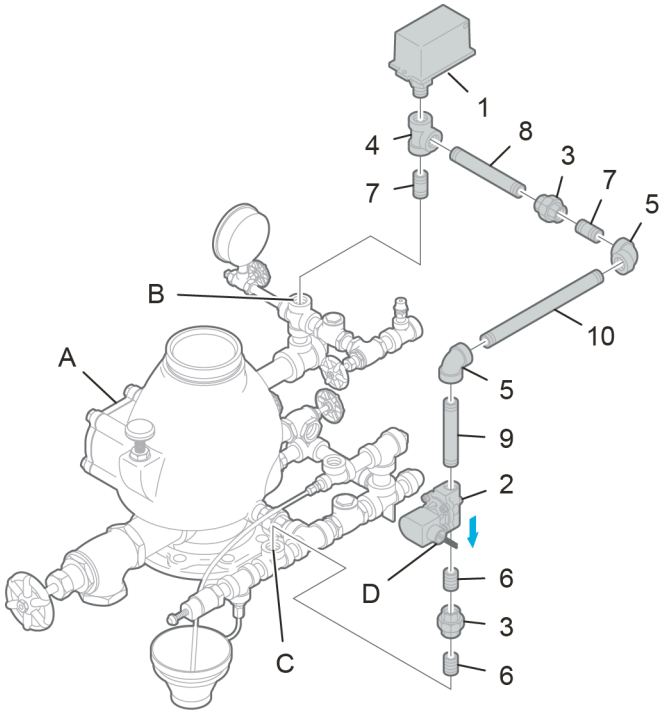
1 Dimensions are based on drain valves in an open condition.
2 Dimensions do not provide installation clearance.

Figure 6: DPV-1 dry pipe valve with Model QRS-2 Electronic Accelerator and releasing panel installation riser arrangement



Callout	Riser component description	Part number
A	Model DPV-1 Dry Pipe Valve with standard trim	—
B	Model QRS-2 Quick Release Switch	100300
C	Solenoid valve	—
D	Model QRS-2 Quick Release Switch Trim	—
E	Listed releasing panel:	
	Potter PFC-4410G3 Releasing Control Panel	20235
	Prescient III Gas Extinguishing Panel	1100700
	AutoPulse Z-10 Release Control Panel	430525A
	AutoPulse Z-20 Release Control Panel	436959A
F	24 VDC Battery Back-Up:	
	Model BT-120	20128
	Model BT-180	20121
G	Electrical connections	—

Figure 7: Model QRS-2 Electronic Accelerator and one DPV-1 dry pipe valve installation riser arrangement

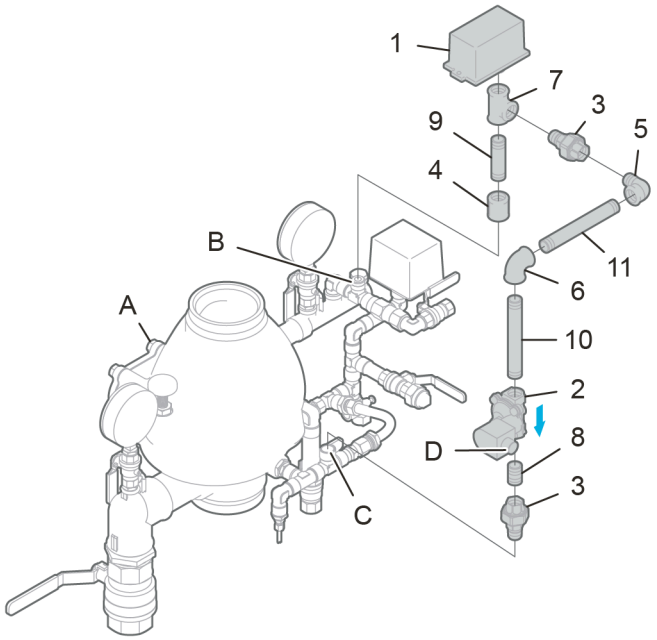


Callout	Valve riser features description
A	Model DPV-1 Dry Pipe Valve with standard trim
B	1/2 in. NPT port, electronic accelerator trim connection to air supply
C	1/2 in. NPT port, electronic accelerator trim connection to valve intermediate chamber
D	1/2 in. conduit solenoid connection to releasing panel

Callout	Trim component description	Quantity	Part number
1	Model QRS-2 Quick Release Switch	1	100300
2	Solenoid valve	1	52-287-1-024[1]; 52-287-1-024P[2]
3	½ in. union	2	—
4	½ in. tee	1	
5	½ in. 90° elbow	2	—
6	½ in. x close nipple	2	—
7	½ in. x 1 ½ in. nipple	2	—
8	Select the nipple according to the valve size: • ½ in. x 1 ½ in. nipple, 2 ½ in. and 3 in. valves • ½ in. x 5 ½ in. nipple, 4 and 6 in. valves	1	—
9	Select the nipple according to the valve size: • ½ in. x 6 ½ in. nipple, 2 ½ in. and 3 in. valves • ½ in. x 4 ½ in. nipple, 4 in. valve • ½ in. x 7 in. nipple, 6 in. valve	1	—
10	Select the nipple according to the valve size: • ½ in. x 7 in. nipple, 2 ½ and 3 in. valves • ½ in. x 9 ½ in. nipple, 4 in. valve • ½ in. x 8 ½ in. nipple, 6 in. valve	1	—

1 Part number for Americas and APAC regions.
2 Part number for EMEA region.

Figure 8: Model QRS-2 Electronic Accelerator European conformity trim arrangements for a 2½ in. (DN65), 3 in. (DN80), or 4 in. (DN100) DPV-1 dry pipe valve installation

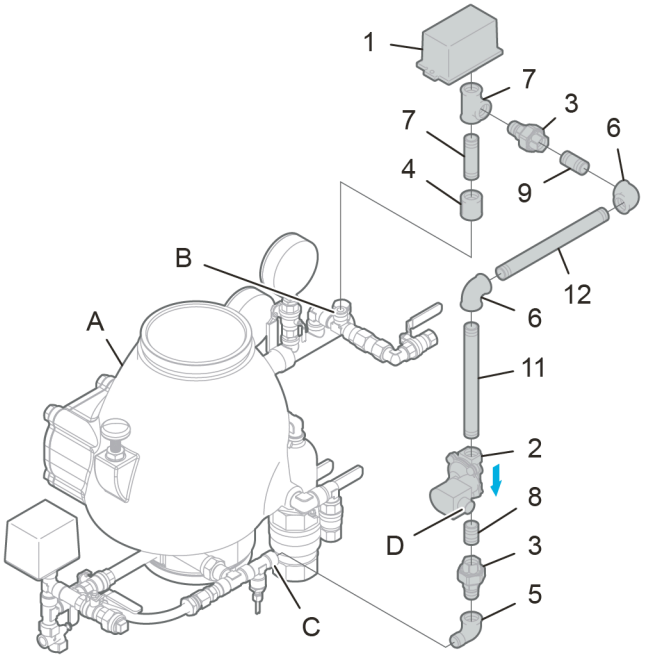


Callout	Valve riser features description
A	Model DPV-1 Dry Pipe Valve with European Conformity trim
B	1/2 in. BSP port, electronic accelerator connection to air supply
C	1/2 in. BSP port, electronic accelerator trim connection to valve intermediate chamber
D	1/2 in. conduit solenoid connection to releasing panel

Callout	Trim component description	Quantity	Part number
1	Model QRS-2 Quick Release Switch	1	100300
2	Solenoid valve, 24 VDC	1	52-287-1-024P
3	½ in. BSP Fig. 341 union Male x Female	2	—
4	½ in. BSP Fig. 270 socket coupling	1	
5	½ in. BSP Fig. 92 elbow 90° Male x Female	1	—
6	½ in. BSP Fig. 90 Elbow 90°	1	—
7	½ in. BSP Fig. 130 tee	1	—
8	½ in. BSPT 30 mm pipe nipple	1	—
9	½ in. BSPT 70 mm pipe nipple	1	—
10	½ in. BSPT 140 mm pipe nipple	1	—
11	½ in. BSPT 150 mm pipe nipple	1	

ⓘ **Note:** All fittings and nipples are galvanized.

Figure 9: Model QRS-2 Electronic Accelerator European conformity trim arrangements for one 6 in. (DN150) DPV-1 dry pipe valve installation

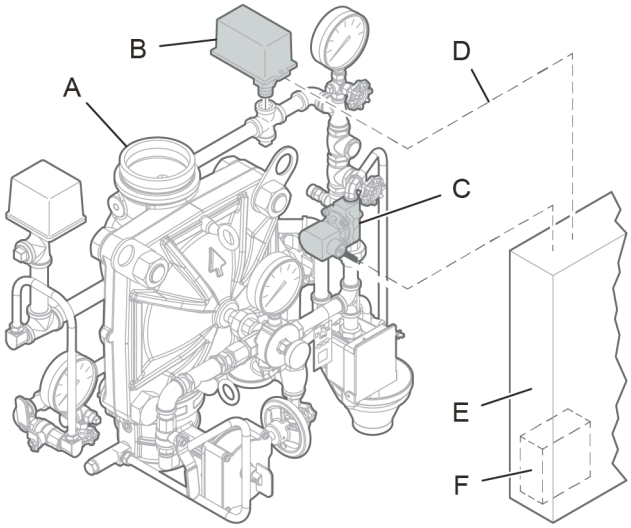


Callout	Valve riser features description
A	Model DPV-1 Dry Pipe Valve with European Conformity trim
B	1/2 in. BSP port, electronic accelerator trim connection to air supply
C	1/2 in. BSP port, electronic accelerator trim connection to valve intermediate chamber
D	1/2 in. conduit solenoid connection to releasing panel

Callout	Trim component description	Quantity	Part number
1	Model QRS-2 Quick Release Switch	1	100300
2	Solenoid valve, 24 VDC	1	52-287-1-024P
3	½ in. BSP Fig. 341 union Male x Female	2	—
4	½ in. BSP Fig. 270 socket coupling	1	
5	½ in. BSP Fig. 92 elbow 90° Male x Female	1	—
6	½ in. BSP Fig. 90 Elbow 90°	2	—
7	½ in. BSP Fig. 130 tee	1	—
8	½ in. BSPT 30 mm pipe nipple	1	—
9	½ in. BSPT 30 mm pipe nipple	1	—
10	½ in. BSPT 70 mm pipe nipple	1	—
11	½ in. BSPT 200 mm pipe nipple	1	—
12	½ in. BSPT 200 mm pipe nipple	1	—

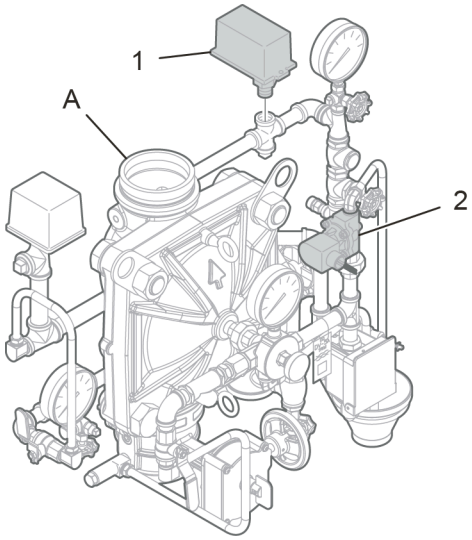
ⓘ **Note:** All fittings and nipples are galvanized.

Figure 10: DV-5A preaction valve with Model QRS-2 Electronic Accelerator and releasing panel riser arrangement



Callout	Valve riser component description	Quantity	Part number
A	DV-5A Automatic Water Control Valve with electric/electric double interlock preaction trim	—	—
B	Model QRS-2 Quick Release Switch	1	100300
C	Solenoid valve	1	Americas and APAC regions: 52-287-1-124, EMEA region: 52-287-1-124P
D	Listed releasing panel with battery back-up	1	See Releasing panels
E	Electrical connections	—	—

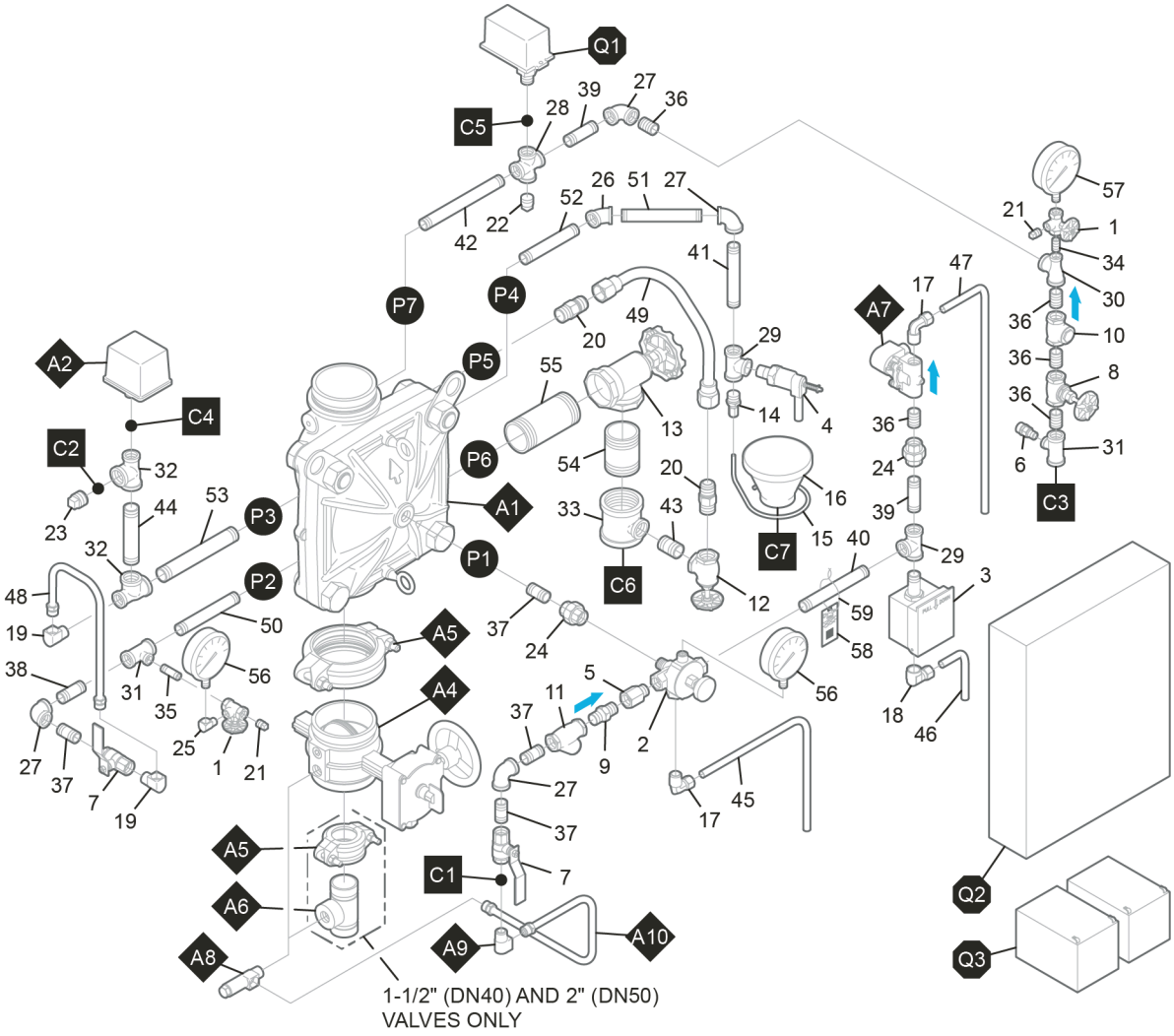
Figure 11: DV-5A preaction valve with Model QRS-2 Electronic Accelerator trim installation arrangement



Callout	Riser and trim component description	Quantity	Part number
A	DV-5A Automatic Water Control Valve with electric/electric double interlock preaction trim	—	—
1	Model QRS-2 Quick Release Switch	1	100300
2	Solenoid valve	1	Americas and APAC regions: 52-287-1-124, EMEA region: 52-287-1-124P

Optional components

Figure 12: Trim installation exploded arrangement, DV-5A preaction valve with optional Model QRS-2 Electronic Accelerator



Note:

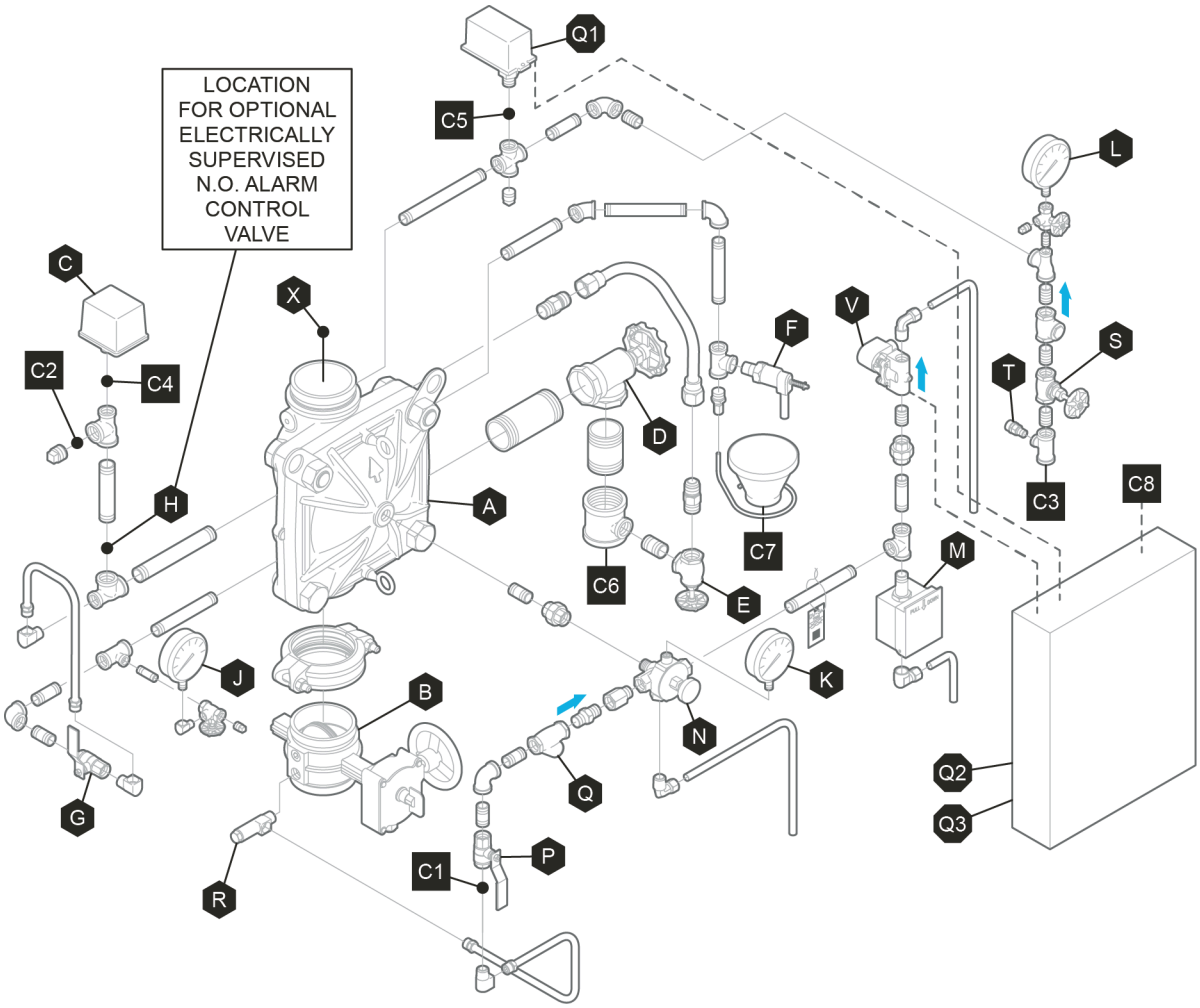
- Port connections P1 through P7 are described in Figure 2 of technical data sheet TFP1466.
- For information about external trim connections, see connections C1 through C8 in Figure 13.
- When ordering the pre-assembled DV-5A valve with galvanized valve trim or the pre-assembled DV-5A valve with galvanized valve trim and butterfly valve, items A1 through A10 are provided as applicably related to valve size. For more information, refer to technical data sheet TFP1466. The part number for item A7 is 52-287-1-124, for more information - refer to technical data sheet TFP2180.
- When ordering the DV-5A valve trim separately from the DV-5A valve, order items A1 through A10 separately, based on valve size. Water pressure gauges for the EMEA valve trim must also be ordered separately. For more information,refer to technical data sheet TFP1466.

Callout	Qty	Description	CH[1]	1 ½ in. (DN40)	2 in. (DN50)	3 in. (DN80)	4 in. (DN100)	6 in. (DN150)	8 in. (DN200)
1	2	1/4 in. Gauge test valve	—	460051003	460051003	460051003	460051003	460051003	460051003
2	1	MRA-1 Manual reset actuator	—	545001000	545001000	545001000	545001000	545001000	545001000
3	1	MC-2 Manual control station	—	545002000	545002000	545002000	545002000	545002000	545002000
4	1	AD-3 Automatic drain valve	—	547932004	547932004	547932004	547932004	547932004	547932004
5	1	Priming supply restriction	—	545100051	545100051	545100051	545100051	545100051	545100051
6	1	1/4 in. Pressure relief valve	—	923431020	923431020	923431020	923431020	923431020	923431020
7	2	1/2 in. Ball valve	—	460501004	460501004	460501004	460501004	460501004	460501004
8	1	1/2 in. Globe valve	—	460471005	460471005	460471005	460471005	460471005	460471005
9	1	1/2 in. Spring loaded check valve	—	923221003	923221003	923221003	923221003	923221003	923221003
10	1	1/2 in. Swing check valve	—	460491007	460491007	460491007	460491007	460491007	460491007
11	1	1/2 in. Y-strainer	—	523531006	523531006	523531006	523531006	523531006	523531006
12	1	3/4 in. Angle valve	—	460481010	460481010	460481010	460481010	460481010	460481010
13	1	Angle valve	—	460481010	460481010	460481011	460481012	460481012	460481012
14	1	Drip funnel bracket connector	—	922111005	922111005	922111005	922111005	922111005	922111005
15	1	Drip funnel bracket	—	922111003	922111003	922111003	922111003	922111003	922111003
16	1	Drip funnel	—	923431007	923431007	923431007	923431007	923431007	923431007
17	2	Comp. fitting 90° 1/2 in. MNPT x 1/2 in. OD tube	—	1001253-01	1001253-01	1001253-01	1001253-01	1001253-01	1001253-01
18	1	Comp. fitting 90° 1/2 in. FNPT x 1/2 in. OD tube	—	1001420-01	1001420-01	1001420-01	1001420-01	1001420-01	1001420-01
19	2	Flare fitting 90° 1/2 in. NPT x 1/2 in. tube	—	545100062	545100062	545100062	545100062	545100062	545100062
20	2	Flare fitting 3/4 in. NPT x 3/4 in. tube	—	545100063	545100063	545100063	545100063	545100063	545100063
21	2	Pipe plug	CH	1/4″	1/4″	1/4″	1/4″	1/4″	1/4″
22	1	Pipe plug	CH	1/2″	1/2″	1/2″	1/2″	1/2″	1/2″
23	1	Pipe plug	CH	3/4″	3/4″	3/4″	3/4″	3/4″	3/4″
24	2	Union	CH	1/2″	1/2″	1/2″	1/2″	1/2″	1/2″
25	1	Street elbow	CH	1/4″ x 90°	1/4″ x 90°	1/4″ x 90°	1/4″ x 90°	1/4″ x 90°	1/4″ x 90°
26	1	Elbow	CH	1/2″ x 45°	1/2″ x 45°	1/2″ x 45°	1/2″ x 45°	1/2″ x 45°	1/2″ x 45°
27	4	Elbow	CH	1/2″ x 90°	1/2″ x 90°	1/2″ x 90°	1/2″ x 90°	1/2″ x 90°	1/2″ x 90°
28	1	Cross	CH	1/2″	1/2″	1/2″	1/2″	1/2″	1/2″
29	2	Tee	CH	1/2″	1/2″	1/2″	1/2″	1/2″	1/2″
30	1	Reducing tee	CH	1/2″ x 1/4″ x 1/2″	1/2″ x 1/4″ x 1/2″	1/2″ x 1/4″ x 1/2″	1/2″ x 1/4″ x 1/2″	1/2″ x 1/4″ x 1/2″	1/2″ x 1/4″ x 1/2″
31	2	Reducing tee	CH	1/2″ x 1/2″ x 1/4″	1/2″ x 1/2″ x 1/4″	1/2″ x 1/2″ x 1/4″	1/2″ x 1/2″ x 1/4″	1/2″ x 1/2″ x 1/4″	1/2″ x 1/2″ x 1/4″
32	2	Reducing tee	CH	3/4″ x 1/2″ x 3/4″	3/4″ x 1/2″ x 3/4″	3/4″ x 1/2″ x 3/4″	3/4″ x 1/2″ x 3/4″	3/4″ x 1/2″ x 3/4″	3/4″ x 1/2″ x 3/4″
33	1	Reducing tee	CH	3/4″ x 3/4″ x 3/4″	3/4″ x 3/4″ x 3/4″	1-1/4″ x 1-1/4″ x 3/4″	2″ x 2″ x 3/4″	2″ x 2″ x 3/4″	2″ x 2″ x 3/4″
34	1	Pipe nipple	CH	1/4″ x CLOSE	1/4″ x CLOSE	1/4″ x CLOSE	1/4″ x CLOSE	1/4″ x CLOSE	1/4″ x CLOSE
35	1	Pipe nipple	CH	1/4″ x 1-1/2″	1/4″ x 1-1/2″	1/4″ x 1-1/2″	1/4″ x 1-1/2″	1/4″ x 1-1/2″	1/4″ x 1-1/2″
36	5	Pipe nipple	CH	1/2″ x CLOSE	1/2″ x CLOSE	1/2″ x CLOSE	1/2″ x CLOSE	1/2″ x CLOSE	1/2″ x CLOSE
37	4	Pipe nipple	CH	1/2″ x 1-1/2″	1/2″ x 1-1/2″	1/2″ x 1-1/2″	1/2″ x 1-1/2″	1/2″ x 1-1/2″	1/2″ x 1-1/2″
38	1	Pipe nipple	CH	1/2″ x 2″	1/2″ x 2″	1/2″ x 2″	1/2″ x 2″	1/2″ x 2″	1/2″ x 2″
39	2	Pipe nipple	CH	1/2″ x 2-1/2″	1/2″ x 2-1/2″	1/2″ x 2-1/2″	1/2″ x 2-1/2″	1/2″ x 2-1/2″	1/2″ x 2-1/2″
40	1	Pipe nipple	CH	1/2″ x 4-1/2″	1/2″ x 4-1/2″	1/2″ x 4-1/2″	1/2″ x 4-1/2″	1/2″ x 4-1/2″	1/2″ x 4-1/2″
41	1	Pipe nipple	CH	1/2″ x 5″	1/2″ x 5″	1/2″ x 5″	1/2″ x 5″	1/2″ x 5″	1/2″ x 5″
42	1	Pipe nipple	CH	1/2″ x 8-1/2″	1/2″ x 8-1/2″	1/2″ x 8-1/2″	1/2″ x 8-1/2″	1/2″ x 8-1/2″	1/2″ x 8-1/2″
43	1	Pipe nipple	CH	3/4″ x 1-1/2″	3/4″ x 1-1/2″	3/4″ x 1-1/2″	3/4″ x 1-1/2″	3/4″ x 1-1/2″	3/4″ x 1-1/2″
44	1	Pipe nipple	CH	3/4″ x 4-1/2″	3/4″ x 4-1/2″	3/4″ x 4-1/2″	3/4″ x 4-1/2″	3/4″ x 4-1/2″	3/4″ x 4-1/2″
45	1	Tubing, MRA-1 Drain	—	545100065	545100065	545100066	535002140	535002160	535002180
46	1	Tubing, MC-2 Drain	—	535000220	535000220	535000230	535000240	535000260	535000280
47	1	Tubing, solenoid drain	—	535001020	535001020	535000630	535000640	535000660	535000680
48	1	Tubing assembly, alarm test interconnect	—	535000320	535000320	535000330	535000340	535000360	535000380
49	1	Tubing assembly, System drain	—	535000420	535000420	535000430	535000440	535000460	535000480
50	1	Pipe nipple	CH	1/2″ x 3-1/2″	1/2″ x 3-1/2″	1/2″ x 4-1/2″	1/2″ x 5-1/2″	1/2″ x 5-1/2″	1/2″ x 6-3/4″

Callout	Qty	Description	CH[1]	1 ½ in. (DN40)	2 in. (DN50)	3 in. (DN80)	4 in. (DN100)	6 in. (DN150)	8 in. (DN200)
51	1	Pipe nipple	CH	1/2” x 5”	1/2” x 5”	1/2” x 5-1/2”	1/2” x 5-1/2”	1/2” x 5-1/2”	1/2” x 6-1/2”
52	1	Pipe nipple	CH	1/2” x 5”	1/2” x 5”	1/2” x 4-1/2”	1/2” x 5”	1/2” x 7-1/2”	1/2” x 9-1/2”
53	1	Pipe nipple	CH	3/4” x 5”	3/4” x 5”	3/4” x 6”	3/4” x 7”	3/4” x 9”	3/4” x 11-1/2”
54	1	PIPE NIPPLE	CH	3/4” x 4-1/2”	3/4” x 4-1/2”	1-1/4” x 3-1/4”	2” x 3”	2” x 3”	2” x 3”
55	1	Pipe nipple	CH	3/4” x 6-1/2”	3/4” x 6-1/2”	1-1/4” x 5-1/2”	2” x 5”	2” x 6”	2” x 8”
56	2	Water pressure gauge, 300 psi/2000 kPa (AMER/APAC)	—	923431005	923431005	923431005	923431005	923431005	923431005
	2	Water pressure gauge, 20 bar/2000 kPa (EMEA)	—	25500013	25500013	25500013	25500013	25500013	25500013
57	1	Air pressure gauge, 80 psi/550 kPa retarded to 250 psi/1750 kPa	—	923431012	923431012	923431012	923431012	923431012	923431012
58	1	Label	—	545003005	545003005	545003005	545003005	545003005	545003005
59	1	Label wire	—	—	—	—	—	—	—
A1	1	DV-5A Valve	—	Refer to technical data sheet TFP1466, Table E for DV-5A part numbers.					
A2	0	Waterflow pressure alarm switch, PS10-2 (AMER/APAC)	—	25710	25710	25710	25710	25710	25710
	0	Waterflow pressure alarm switch, PS10-1 (EMEA)	—	260	260	260	260	260	260
A3	1	Not Used	—	—	—	—	—	—	—
A4	1	Butterfly valve, G x G	—	51024A	51021A	—	—	—	—
	1	Model BFV-300 Butterfly Valve, G x G	—	—	—	59300G030WS	59300G040WS	59300G060WS	59300G080WS
A5	2	Figure 577, rigid grooved coupling	—	57715ACP	57720ACP	—	—	—	—
	1	Figure 577, rigid grooved coupling	—	—	—	57730ACP	57740ACP	57760ACP	57780ACP
A6	1	Groove x threaded outlet welded tee	—	545004000	545004001	—	—	—	—
A7	1	Solenoid valve, Normally Closed (Order separately)	—	Refer to technical data sheet TFP2180					
A8	1	Flare fitting 90°	—	545100100	545100100	545100099	545100100	545100100	545100100
A9	1	Flare fitting 90° ½ in. NPT x ½ in. tube	—	545100062	545100062	545100062	545100062	545100062	545100062
A10	1	Tubing assembly, diaphragm chamber supply	—	540000015	540000020	540000030	540000040	540000060	540000080
Q1	1	Model QRS-2 Quick Release Switch	—	923121001	923121001	923121001	923121001	923121001	923121001
Q2	1	Releasing panel, Model PFC-4410G3	—	20235	20235	20235	20235	20235	20235
Q3	2	Battery back-up, Model BT-120	—	20128	20128	20128	20128	20128	20128

1 CH = Common Hardware.

Figure 13: Operational components, DV-5A preaction valve with optional Model QRS-2 Electronic Accelerator



Callout	Description
A	DV-5A Valve
B	System main control valve
C	Waterflow pressure switch
D	Main drain valve
E	System drain valve
F	Automatic drain valve
G	Alarm test valve
H	Alarm control valve (optional)
J	Water supply gauge
K	Diaphragm gauge
L	System gauge
M	Manual control station
N	Manual reset actuator
P	Diaphragm supply valve
Q	Diaphragm supply strainer
R	Water supply shut-off
S	Air supply valve
T	Air pressure relief valve
U	Not used
V	Solenoid valve

Callout	Description
W	Not used
X	System shut-off valve
C1	Diaphragm supply connection
C2	Waterflow motor alarm connection
C3	Air supply connection
C4	Waterflow pressure alarm switch connection
C5	Low air pressure switch connection
C6	Main drain connection
C7	Drip funnel drain connection
C8	Fire detection system connection
Q1	Model QRS-2 Quick Release Switch
Q2	Releasing panel
Q3	Battery back-up

Wiring the Model QRS-2 Electronic Accelerator

Before you begin:

NOTICE

All Model QRS-2 Electronic Accelerator wiring must be terminated (landed) while the releasing panel is de-energized. Failure to do so may result in unseen damage to the electronic accelerator, rendering it inoperable.

To de-energize the panel, dis-connect the stand-by batteries, and disconnect the AC input. Reverse this process to re-energize the panel.

- All electrical connections must meet the requirements of NFPA 72.

For panel wiring information, refer to the technical data sheets listed in Table 3.

To wire the electronic accelerator, complete the following steps:

1. Wire the electronic accelerator, solenoid valve, and panel according to the schematic in the releasing panel technical data sheet.
2. Wire the electronic accelerator terminals according to Figure 14 and Figure 15.

Figure 14: Model QRS-2 Electronic Accelerator terminals

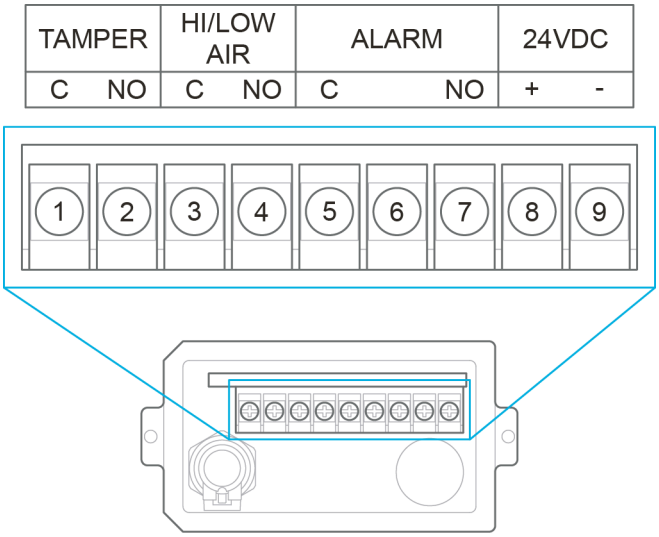
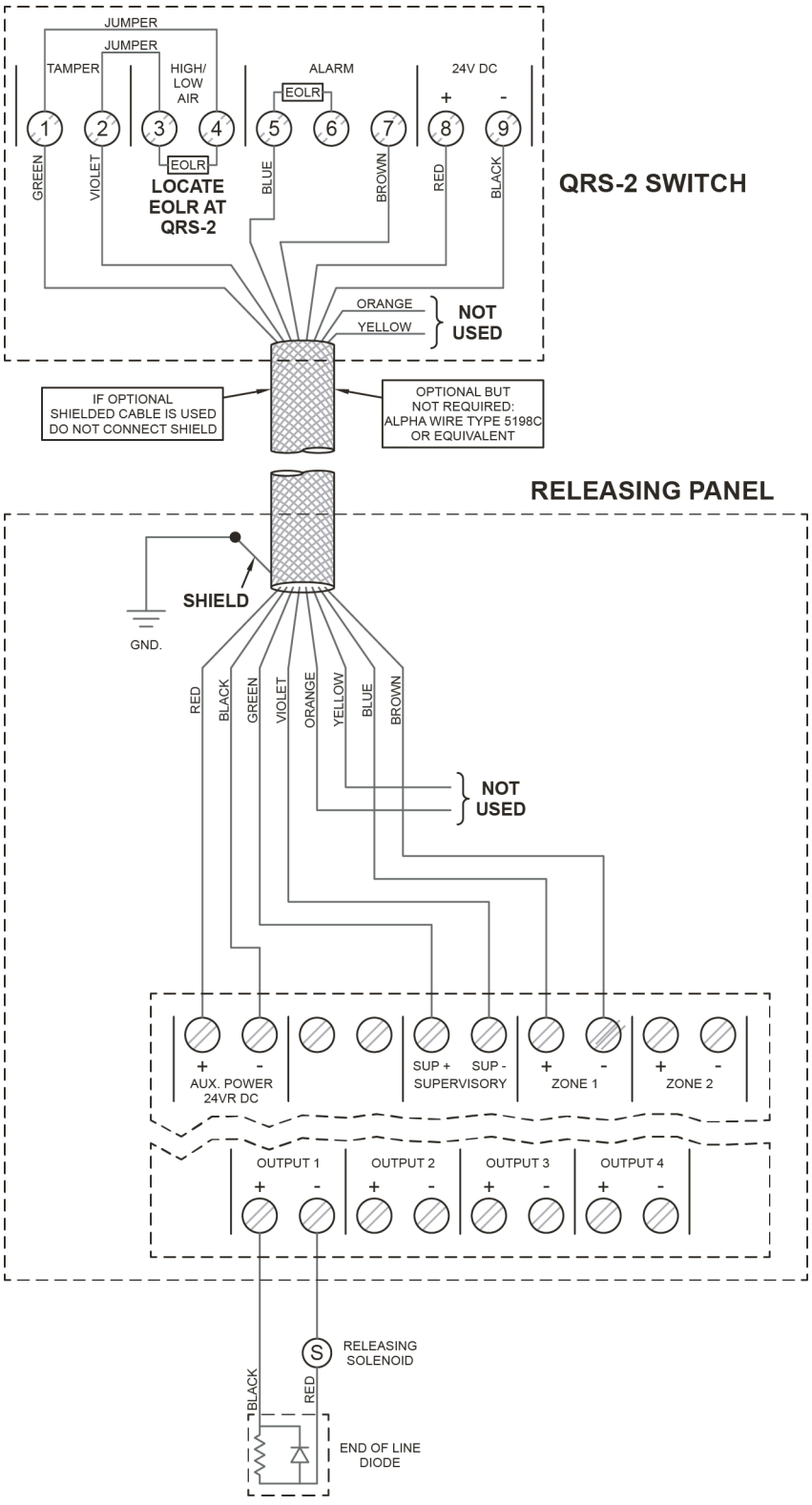


Figure 15: Wiring schematic for the Model QRS-2 Electronic Accelerator



Configuring the Model QRS-2 Electronic Accelerator

Before you begin:

- When the configuration is complete, the cover of the Model QRS-2 Electronic Accelerator must be securely fastened to the base to ensure metal-to-metal contact.

To configure the electronic accelerator, complete the following steps:

1. To set the nominal air pressure to be maintained in the sprinkler system, set the 10 position, high/low level, rotary switch setting of the electronic accelerator located inside the cover of the electronic accelerator using the information provided in Table 4.

Table 4: High/low pressure settings for the Model QRS-2 Electronic Accelerator

Switch setting	Low air threshold psi (bar)	Nominal pressure psi (bar)	High air threshold psi (bar)
0	7 (0,48)	10 (0,69)	15 (1,04)
1	7 (0,48)	15 (1,04)	20 (1,38)
2	15 (1,04)	20 (1,38)	25 (1,72)
3	15 (1,04)	25 (1,72)	35 (2,41)
4	20 (1,38)	30 (2,07)	40 (2,76)
5	25 (1,72)	35 (2,41)	45 (3,10)
6	30 (2,07)	40 (2,76)	50 (3,45)
7	35 (2,41)	45 (3,10)	55 (3,79)
8	45 (3,10)	55 (3,79)	65 (4,48)
9	55 (3,79)	65 (4,48)	75 (5,17)

2. To complete the installation:
   a. Fasten the cover of the electronic accelerator to the base securely to ensure metal-to-metal contact.
   b. Program the releasing panel according to the respective datasheet.

Operation

The Model QRS-2 Electronic Accelerator utilizes a unique system air pressure monitoring device (UL and C-UL Listed, FM Approved, see Model QRS Extinguishing System Attachment) that continuously samples air pressure at a rate of two times per second. When the air pressure is determined to have a sustained drop exceeding a rate of 0.1 psi (0,007 bar) per second as verified by three consecutive samplings, the electronic accelerator signals a releasing panel via its Panel Input initiating zone circuit, which energizes the solenoid valve.

In the case of a dry pipe valve, the energized solenoid valve introduces system air pressure to the intermediate chamber of the dry pipe valve. This pressure neutralizes the differential pressure holding the dry pipe valve closed, and permits it to open.

In the case of a double interlock electric/electric preaction system, the energized solenoid valve releases diaphragm pressure from the automatic control valve (deluge valve) to permit the automatic control valve to open.

The electronic accelerator automatically adjusts to both small and slow changes in system pressure, but trips when there is a steady drop in pressure (as in the case of sprinkler operation).

Setting procedure

Before you begin:
A dry pipe system or a double interlock electric/electric preaction system and the QRS-2 electronic accelerator must be reset and restored to service as soon as possible after an operation.

NOTICE

The system must be completely drained before proceeding. Follow the setting procedure according to the releasing panel specified for the application.

The owner is responsible for maintaining their fire protection system and devices in proper operating condition. Contact the installing contractor or sprinkler manufacturer with any questions.

For panel setting information, refer to the relevant releasing panel technical data sheet listed in Table 3.

To reset and restore service after an operation, complete the following step:

- Follow the setting procedure in the releasing panel technical data sheet.

Care and maintenance

The following procedures and inspections should be performed as indicated, in addition to any specific requirements of the NFPA, and any impairment must be immediately corrected.

The owner is responsible for the inspection, testing, and maintenance of their fire protection system and devices in compliance with this document, as well as with the applicable standards of the NATIONAL FIRE PROTECTION ASSOCIATION, for example, NFPA 25, in addition to the standards of any authority having jurisdiction. Contact the installing contractor or product manufacturer with any questions.

It is recommended that automatic sprinkler systems be inspected, tested, and maintained by a qualified inspection service.

The QRS-2 electronic accelerator must be maintained and serviced in accordance with this section.

NOTICE

The QRS-2 electronic accelerator uses electronic components to monitor the system air pressure. Keep all radio transmitters or RF sources at least 12 in. (304.8 mm) from the electronic accelerator. Failure to do so could result in an unintended operation of the dry pipe or preaction system.

Before closing a fire protection system main control valve for inspection or maintenance work on the fire protection system that it controls, permission to shut down the affected fire protection system must be obtained from the proper authorities and all personnel who may be affected by this action must be notified.

If an electronic accelerator is to be temporarily taken out of service, the proper authorities and all personnel who may be affected must be notified.

Testing the Model QRS-2 Electronic Accelerator

Before you begin:
It is recommended that the Model QRS-2 Electronic Accelerator is tested on a quarterly basis according to the steps in this section.

1. When operation of the dry pipe/preaction valve is not intended during the electronic accelerator trip test, close the system's main control valve, and open the system's main drain valve to relieve the supply pressure to the dry pipe/preaction valve. Otherwise, proceed according to the following steps.
2. Perform step a or b according to the type of system installed:
   a. For a dry pipe system, open the Inspector's Test Connection. Verify that the time to electronic accelerator trip is essentially the same as in previous tests.

      Note: A momentary burst of air from a dry pipe valve's automatic drain valve indicates that the electronic accelerator is tripped. In addition, the display on the operating interface of the releasing panel will indicate operation.

   b. For a double interlock electric/electric preaction system, first operate the detection system and then open the Inspector's Test Connection. Verify that the time to electronic accelerator trip is essentially the same as in previous tests.

      Note: Release of the DV-5A diaphragm pressure though the open solenoid valve indicates that the electronic accelerator is tripped. In addition, the display on the operating interface on the releasing panel will indicate operation.
3. Reset the electronic accelerator in accordance with the appropriate setting procedure.

Maintaining the releasing panel batteries

Before you begin:
Read the battery maintenance instructions in the relevant releasing panel technical data sheet listed in Table 3.

To maintain the batteries:

- Inspect, test, and maintain the batteries according to the instructions in the releasing panel technical data sheet.

Limited warranty

For warranty terms and conditions, visit http://www.tyco-fire.com.

Ordering procedure

About this task:
Contact your local distributor for availability. When placing an order, indicate the full product name, and part number (PN).

Dry pipe valve system parts

The required components for one dry pipe valve riser are provided in a dry pipe valve system electronic accelerator package.

Americas and APAC

Americas and APAC dry pipe valve electronic accelerator package

The package contents are described in Table 5.

Specify: Americas or APAC Model QRS-2 Quick Release Switch package, quantity, PN 100300A

Note: You can use an Americas and APAC package on an EMEA dry pipe system also.

Table 5: Americas dry pipe valve system electronic accelerator package contents

Part	Part number
Model QRS-2 Quick Release Switch	100300
Model QRS-2 Quick Release Switch trim	100300T
Solenoid	52-287-1-024

Americas or APAC dry pipe valve system electronic accelerator trim

One trim is required for each additional dry pipe riser, for up to three additional dry pipe risers for a Potter PFC-4410G3 panel, and for up to two additional risers for AutoPulse Z-10 or Z-20 panels.

Note: The trim does not include a releasing panel, or BT120 or BT180 type batteries.

Specify: Part description, for use with Model QRS-2 Quick Release Switch dry pipe valve, PN 100300T

EMEA

EMEA dry pipe valve electronic accelerator package

The package options are described in Table 6and the contents are described in Table 7.

Specify: Full package name, quantity, PN (see Table 6)

Table 6: EMEA dry pipe valve electronic accelerator package options

Description	Part Number
EMEA Model QRS-2 Quick Release Switch 2½ to 4 in. package	100300B
EMEA Model QRS-2 Quick Release Switch 6 in. package	100300C

Note: For information about package contents, see Table 7 and Table 8.

Note: To order a package with Americas style trim for EMEA, order an Americas and APAC package, PN 100300A.

Table 7: EMEA Model QRS-2 Quick Release Switch 2½ to 4 in. package contents

Part	Part number
Model QRS-2 Quick Release Switch	100300
Model QRS-2 Quick Release Switch 2½ to 4 in. trim	100300E
Solenoid	52-287-1-024P

Table 8: EMEA Model QRS-2 Quick Release Switch 6 in. package contents

Part	Part number
Model QRS-2 Quick Release Switch	100300
Model QRS-2 Quick Release Switch 6 in. trim	100300F
Solenoid	52-287-1-024P

EMEA dry pipe valve system electronic accelerator trim

One trim is required for each dry pipe valve system riser.

Note: The trim does not include a releasing panel, or BT120 or BT180 type batteries.

Specify: Part description, for use with Model QRS-2 Electronic Accelerator dry pipe valve, PN 100300E (see Table 7) or PN 100300F (see Table 8)

Dry pipe valve system replacement trim parts

Specify: Part description, for use with Model QRS-2 Quick Release Switch Dry Pipe Valve, PN (see Figure 6 and Figure 7)

Double interlock preaction system electric/electric actuation parts

DV-5A valve double interlock preaction system electric/electric actuation trim

ⓘ **Note:** The package does not include a releasing panel, or BT120 or BT180 type batteries.

Specify:

- DV-5A Double Interlock Electric/Electric Trim, PN (see *technical data sheet TFP1466*).
- Model QRS-2 Quick Release Switch, PN 100300

DV-5A double interlock preaction system electric/electric actuation preaction system replacement trim parts

Specify: Description, for use with Model QRS-2 Quick Release Switch, DV-5A electric/electric preaction, PN (see Figure 12)

Pre-trimmed DV-5A valve double interlock preaction system electric/electric actuation assembly options

Preaction system with butterfly valve and QRS-2 electronic accelerator

ⓘ **Note:** The package does not include a releasing panel or BT120 type batteries.

Specify: Size, G x G end connection, pre-trimmed DV-5A assembly with butterfly valve and Model QRS-2 Quick Release Switch, PN (see Table 9)

Table 9: G x G end connection parts - 1 ½ in. to 8 in. size range

Part	Part number
1 ½ in G x G	55-101-1-515Q
2 in. G x G	55-101-1-520Q
3 in. G x G	55-101-1-530Q
4 in. G x G	55-101-1-540Q
6 in. G x G	55-101-1-560Q
8 in. G x G	55-101-1-580Q

Preaction system with QRS-2 Quick Release Switch only

ⓘ **Note:** The package does not include a releasing panel or BT120 type batteries.

Specify: Size, F x G end connection, pre-trimmed DV-5A assembly with Model QRS-2 Quick Release Switch, PN (see Table 10)

Table 10: F x G end connection parts

Part	Part Number
3 in F x G	55-003-1-530Q
4 in. F x G	55-003-1-540Q

Table 10: F x G end connection parts

Part	Part Number
6 in. F x G	55-003-1-560Q
8 in. F x G	55-003-1-580Q

Preaction system with Model QRS-2 Quick Release Switch without butterfly valve

ⓘ **Note:** The package does not include a releasing panel or BT120 type batteries.

Specify: Size, G x G end connection, pre-trimmed DV-5A assembly with Model QRS-2 Quick Release Switch, PN (see Table 11)

Table 11: G x G end connection parts

Part	Part number
1 ½ in G x G	55-001-1-515Q
2 in. G x G	55-001-1-520Q
3 in. G x G	55-001-1-530Q
4 in. G x G	55-001-1-540Q
6 in. G x G	55-001-1-560Q
8 in. G x G	55-001-1-580Q

Releasing panels

Releasing panel for Americas

For ordering information about releasing panels and their supporting batteries and parts for the Americas market, refer to the technical data sheets listed in Table 3 for the following panels:

- Potter PFC-4410G3 Releasing Control Panel
- Autopulse Z-10 Release Control Panel
- Autopulse Z-20 Release Control Panel

Releasing panel for EMEA

For ordering information about releasing panels and their supporting batteries and parts for the EMEA market, refer to the technical data sheets listed in Table 3 for the following panels:

- Prescient III Gas Extinguishing Panel

Releasing panel for APAC

For ordering information about releasing panels and their supporting batteries and parts for the APAC market, refer to the technical data sheets listed in Table 3 for the following panels:

- Model PFC-4410G3 Releasing Panel
- Autopulse Z-10 Release Control Panel
- Autopulse Z-20 Release Control Panel