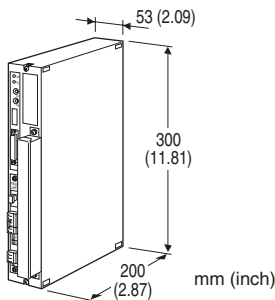


## Remote I/O

### REMOTE I/O INTERFACE UNIT

#### Functions & Features

- Interfacing between the host computer and remote I/O devices
- RS-232-C (non-procedure)
- Buffer memory common for DLC commands enables quick I/O without waiting time
- Process I/O



## MODEL: DLC-[1][2]-[3]

### ORDERING INFORMATION

- Code number: DLC-[1][2]-[3]
- Specify a code from below for each [1] through [3].  
(e.g. DLC-1S1A4B4-K)

### [1] TRANSMISSION MEDIA

- 1: Twisted-pair cable
- 2: Fiber optics cable
- 7: Twisted-pair - fiber optics (repeater incorporated)

### [2] I/O SECTION

#### [Computer Interface without Process I/O]

00: RS-232-C (non-procedure)

#### [RS-232-C with Process I/O]

- A1: Di 32 points
- A2: Di 64 points
- C1: Do 32 points (relay)
- C2: Do 32 points (open collector)
- C3: Do 64 points (relay)
- C4: Do 64 points (open collector)
- E1: Di 16 + Do 16 points (relay)
- E2 : Di 16 + Do 16 points (open collector)
- G1x: Ai 32 points
- M1x: Ao 32 points
- P1x : Pi 16 + Ai 16 points

R1xx: Ai 16 + Ao 16 points

S1xx: Ai 8 + Ao 8 + Di 8 + Do 8 points

U1x : Po 16 + Ao 16 points

See data sheet for Standard Multi-Transmission Unit (model: DLA1) for specifications of I/O sections.

### [3] POWER INPUT

#### AC Power

K: 85 - 132 V AC

(Operational voltage range 85 - 132 V, 47 - 66 Hz)

L: 170 - 264 V AC

(Operational voltage range 170 - 264 V, 47 - 66 Hz)

#### DC Power

S: 12 V DC

(Operational voltage range 12 V  $\pm$ 10 %, ripple 10 %p-p max.)

R: 24 V DC

(Operational voltage range 24 V  $\pm$ 10 %, ripple 10 %p-p max.)

### RELATED PRODUCTS

- Standard multi-transmission unit (model: DLA1)

### GENERAL SPECIFICATIONS

**Construction:** Surface mounting; terminal access on the front

#### Connection

**Transmission line terminal:** Euro type connector terminal; wire size 1.25 mm<sup>2</sup> max.

**Power supply terminal:** Euro type connector terminal; wire size 1.25 mm<sup>2</sup> max.

**RUN contact:** Euro type connector terminal; wire size 1.25 mm<sup>2</sup> max.

#### I/O section:

• **32-point I/O (or less):** 40-pin connector terminal; M3 x 6 screws (torque 0.7 N·m)

• **64-point I/O:** FCN 40-pin connector (two); (FUJITSU FCN-365P040-AU)

**Housing material:** Flame-resistant resin (beige)

**Isolation:** I/O to transmission section to power

**Station No. adjustment:** 2 rotary switches; 00 - FF (256)

#### ■ Controller & Transmission Sections

**Power indicator:** Red LED turns ON in normal conditions; OFF when the voltage level becomes low.

**RUN indicator:** Red LED turns OFF in error.

#### ■ I/O Section

**Contact I/O indicator LED:** Red lights turn on when the respective I/O channels are ON.

**Analog I/O CPU RUN indicator LED:** Red LED turns ON when the CPU function proves normal, OFF in error.

■ **RUN Output:** Contact opens in error.

**Rated load:** 100 V AC or 30 V DC @ 1 A (resistive load)

**Maximum switching voltage:** 120 V AC or 30 V DC

**Maximum switching power:** 100 VA or 30 W

**Minimum load:** 5 V DC @ 10 mA

#### Error detection

- Communication:** The receiver units detect loss of communication and wire break.
- CPU:** Watch-dog timer
- Power voltage:** Detects when the voltage supply to the CPU drops by 10 %.

## MULTIPLEX COMMUNICATION

**Communication:** Half-duplex, synchronous

**Transmission:** Conform to RS-422, EIA

**Transmission speed:** 125 kbps

**Protocol:** SIN-NET (M-System's; data format conforms to SDLC)

**Error check:** CRC

#### ■ Twisted-pair Cable

**Cable:** CPEV-0.9 dia.

**Connection:** Euro Type connector terminal; wire size 1.25 mm<sup>2</sup> max.

**Transmission Distance:** 1 kilometer max. with 16 units connected; 3 kilometers max. between 2 stations each of which consists of 3 units

**Terminator:** Incorporated (Remove the attached jumper pin when the unit is not located at the end of transmission line.)

#### ■ Fiber Optics Cable

**Link:** JIS F07 connector (Consult factory for details)

**Transmission distance:** 1 kilometer max. with PCF

**Transmission loss:** 7 dB max.

■ **Twisted-pair – Fiber Optics:** Converting signals between two media and waveform shaping

## INTERFACE

**Transmission:** Conform to EIA RS-232-C

**Communication:** Asynchronous, half-duplex, non-procedure

**DIP switch:** Setting RS-232-C specifications

**Transmission speed:** 300 – 9600 bps

**Data bit:** 7 or 8 bits

**Stop bit:** 1, 1.5 or 2 bits

**Parity:** Even or odd

**RS-232-C connector:** 25-pin D-sub connector (female) (M2.6 × 0.45 screw connector)

**RS-232-C cable:** Cross (provided by the user)

## INSTALLATION

#### Power consumption

- AC:** Approx. 17.5 VA max.
  - DC:** Approx. 17 W max. (1.1 A with 24 V)
- Grounding:** Not required in normal environments; 100 Ω or less grounding resistance in noisy environments
- Operating temperature:** -5 to + 50°C (23 to 122°F)

**Operating humidity:** 30 to 90 %RH (non-condensing)

**Atmosphere:** No corrosive gas or heavy dust

**Mounting:** Surface; Rack Mounting Frame (model: BX-1DL) available

**Weight:** 2 kg (4.4 lb)

## PERFORMANCE

**Permissible power failure duration:** ≤ 20 ms

**Insulation resistance:** ≥ 100 MΩ with 500 V DC

**Dielectric strength:** 1500 V AC @ 1 minute (I/O to transmission to power)

## DESCRIPTIONS

### •RUN Contact (LED) Behaviors

**Input units (00, A1, A2, G1 and P1):** The LED turns ON with the network configured; OFF in an abnormality; the network is reconfigured after an abnormality.

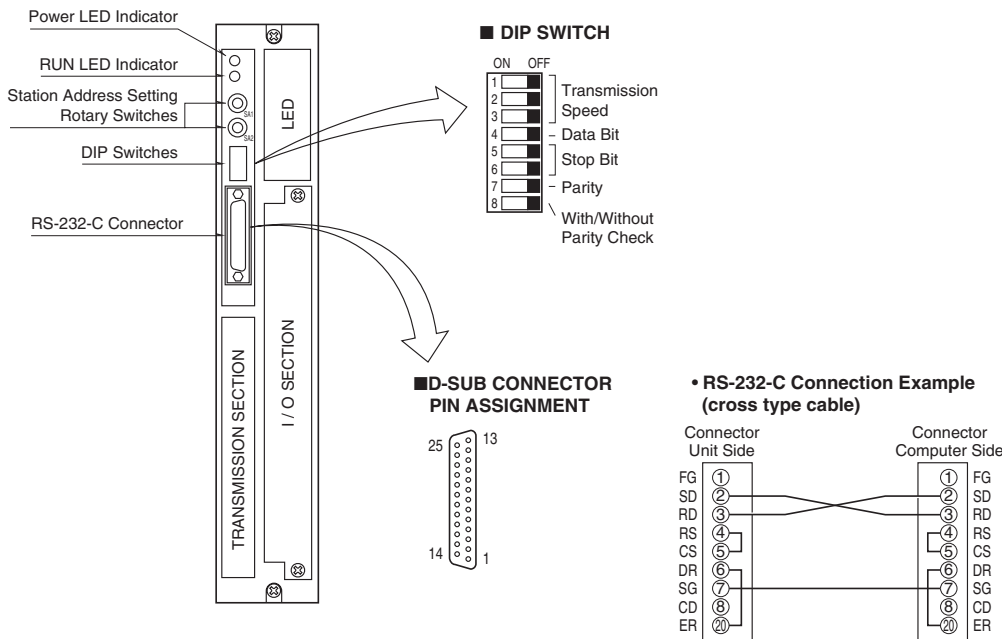
**Output units (C1, C2, C3, C4, M1 and U1):** The LED turns ON when data from the paired input unit is received normally, with the network configured; OFF when the data is lost; turns also OFF in an abnormality in the network.

**I/O-mixed units (E1, E2, R1 and S1):** Functions of both input and output units are used.

[CAUTION]

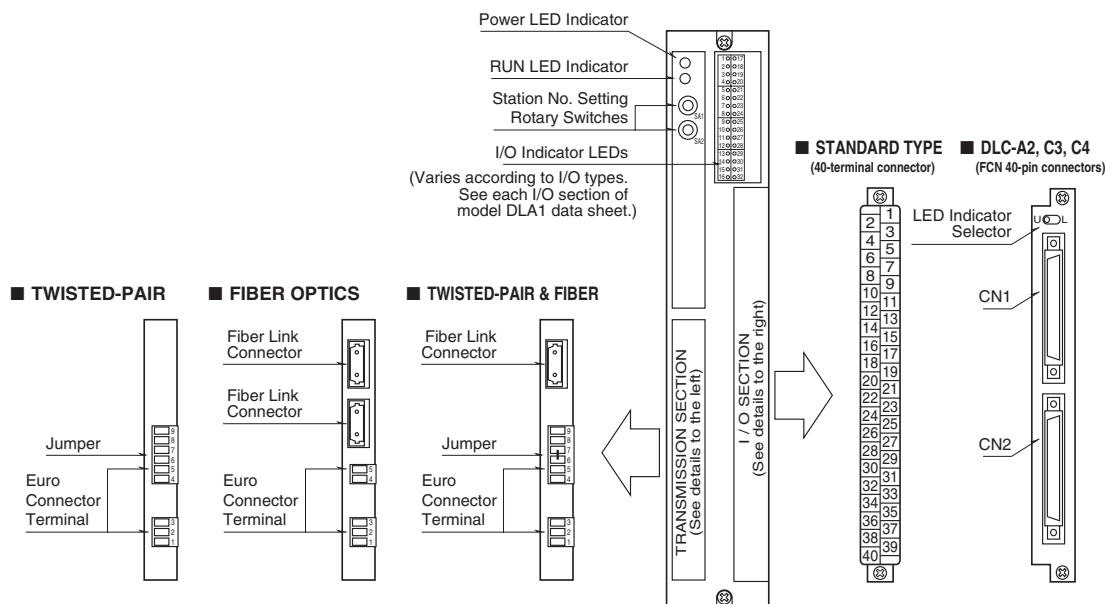
When the network is reconfigured e.g. by noise interference, the RUN LED and output for all units on the network turn briefly OFF until they are turned ON after the reconfiguration is complete.

## EXTERNAL VIEW



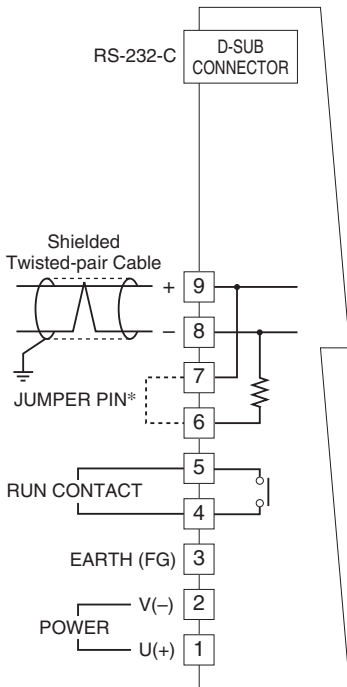
### ■ MULTI-TRANSMISSION SECTION, PROCESS I/O SECTION & INDICATOR LED SECTION

(Process I/O and indicator LED sections are provided only for process I/O type)

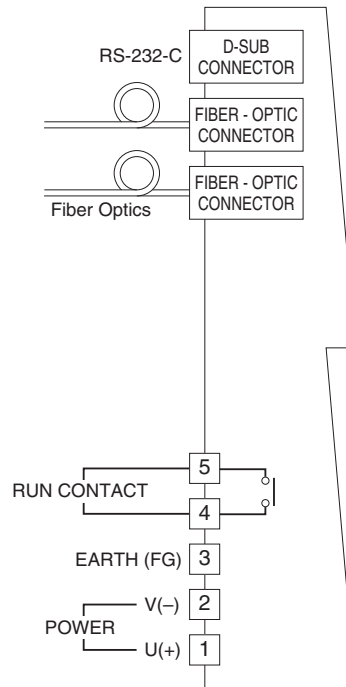


## CONNECTION DIAGRAM

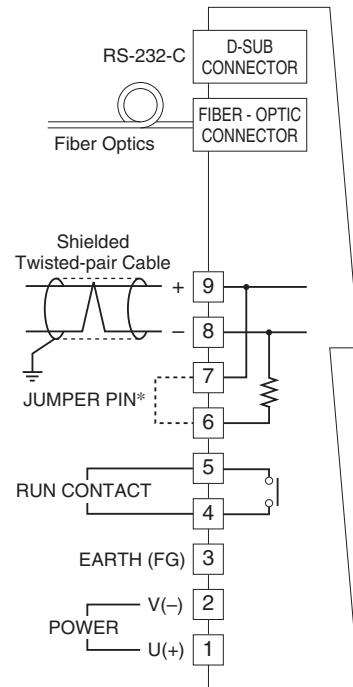
### ■ TWISTED-PAIR CABLE (transmission media code: 1)



### ■ FIBER OPTICS CABLE (transmission media code: 2)



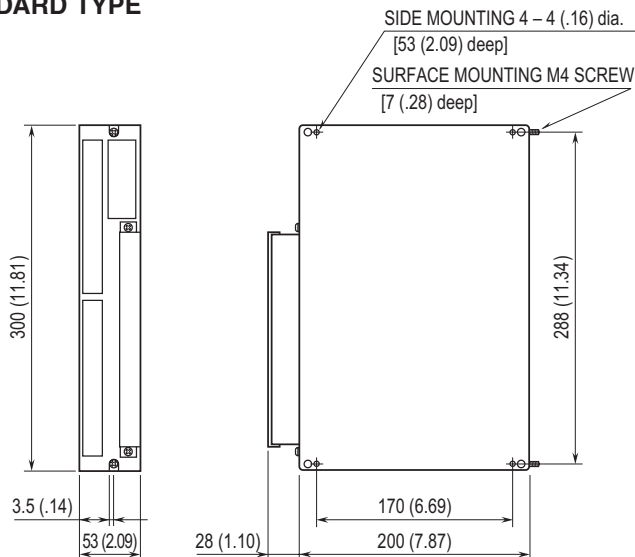
### ■ TWISTED-PAIR & FIBER OPTICS (transmission media code: 7)



\*When the unit is located at the end of transmission line via twisted-pair cable (= no cross-wiring), short across the terminals 6 – 7 with the jumper pin (or wire) provided with the unit. Remove the jumper pin for all the unit not located at the end.

## DIMENSIONS unit: mm (inch)

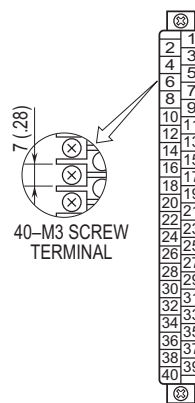
### ■ STANDARD TYPE



Observe appropriate space for the front RS-232-C cable (provided by user).

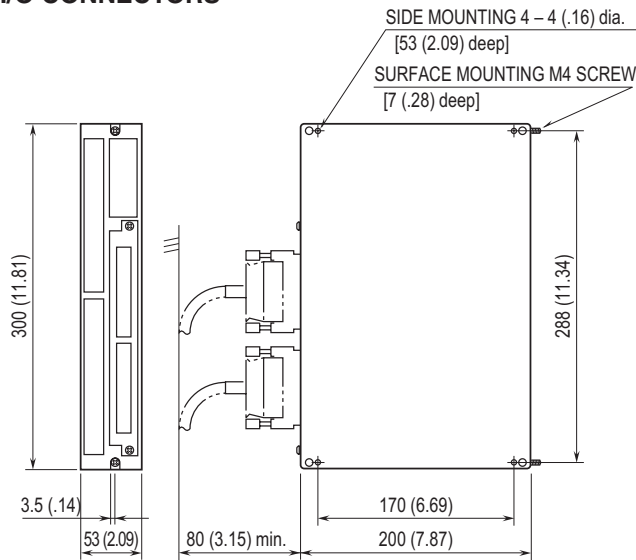
(Fig. A-1)

### • 40-pin Connector Terminal Block



(Fig. A-2)

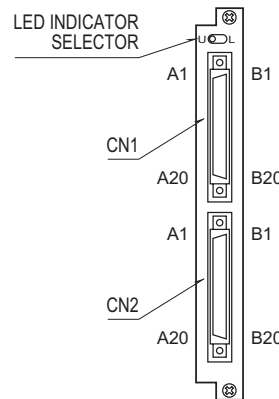
## ■ WITH I/O CONNECTORS



Observe appropriate space for the front RS-232-C cable (provided by user).

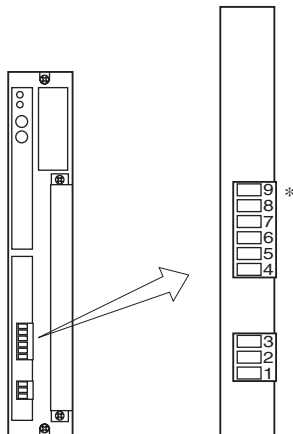
(Fig. B-1)

### • Connector Pin Assignment

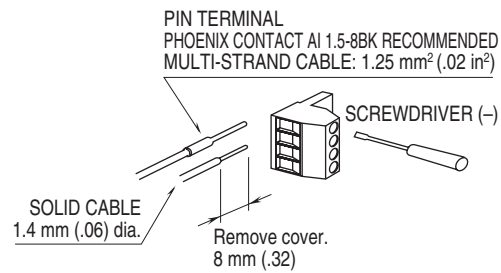


(Fig. B-2)

### • Terminal Assignment, Euro Type Connector Terminals

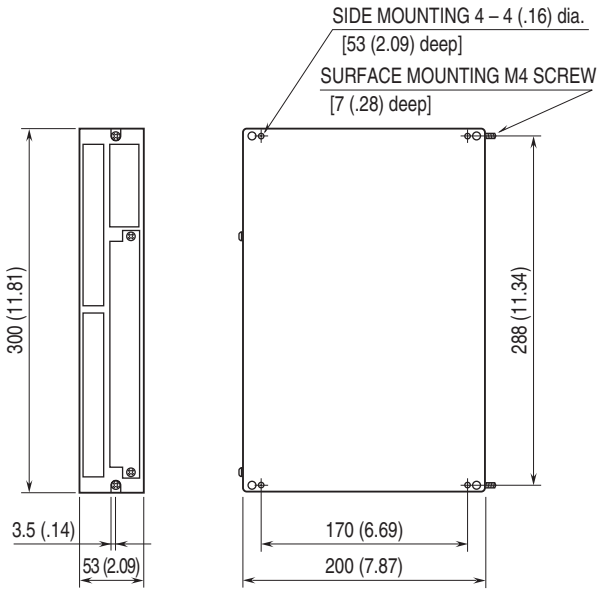


### • Wiring Procedure of Connector Terminals



\*Not provided for fiber optics (code 2)  
Note : There is no specific order for connecting fiber optics.

■ WITHOUT PROCESS I/O  
• DLC-00

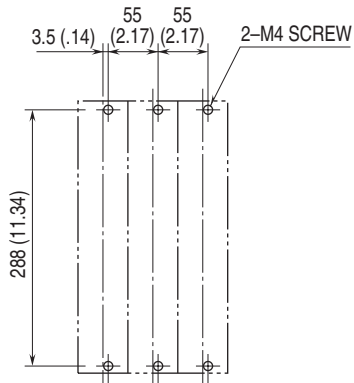


Observe appropriate space for the front RS-232-C cable (provided by the user).

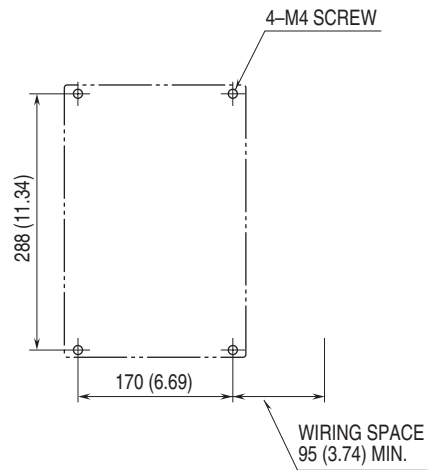
(Fig. C)

## MOUNTING REQUIREMENTS unit: mm (inch)

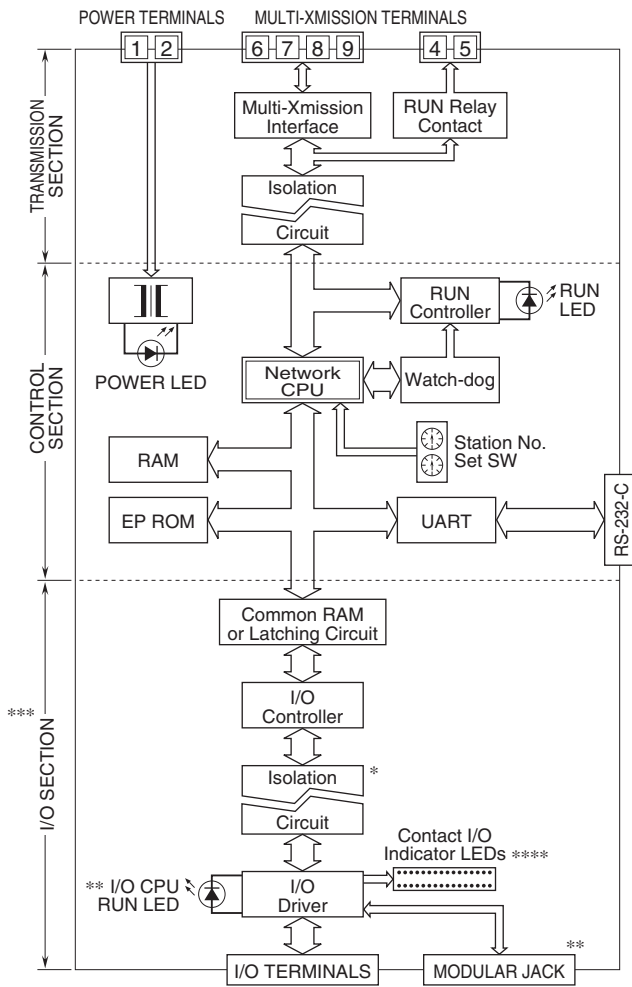
■ SURFACE MOUNTING



■ SIDE MOUNTING (terminal block at the right side)



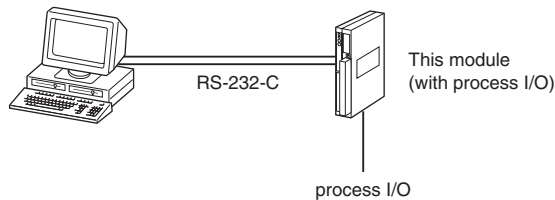
**FUNCTION BLOCK DIAGRAM**



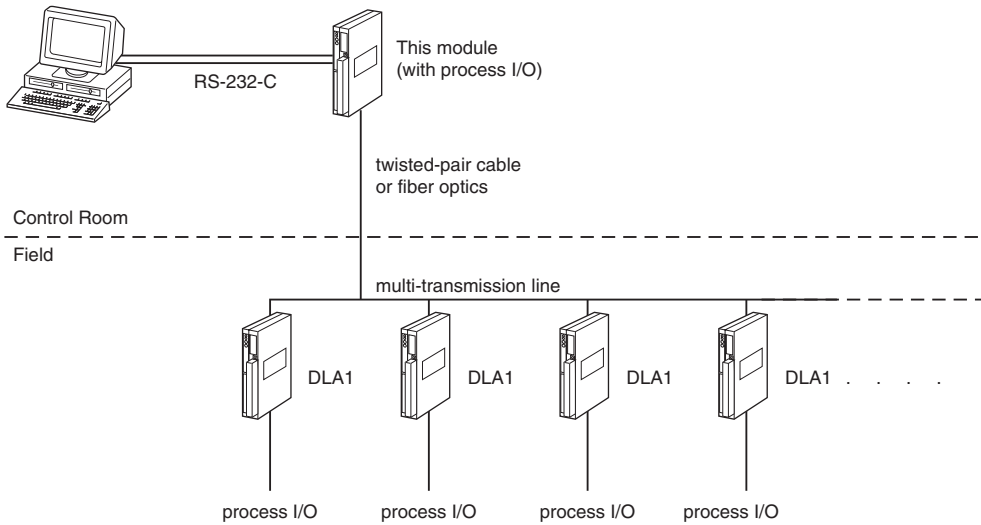
- \* Not included with codes G1, P1, R1 or S1.
- \*\* Not included with codes A1, A2, C1, C2, C3, C4, E1 or E2.
- \*\*\* Not included when there is no process I/O.
- \*\*\*\* Not included with codes G1, M1 or R1.

**SYSTEM CONFIGURATION EXAMPLES**

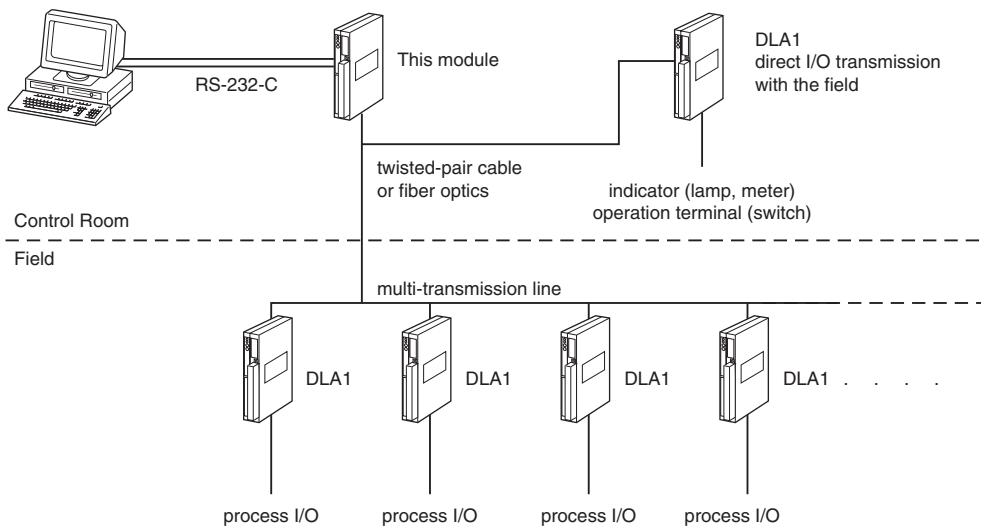
**1. Minimum System Configuration**



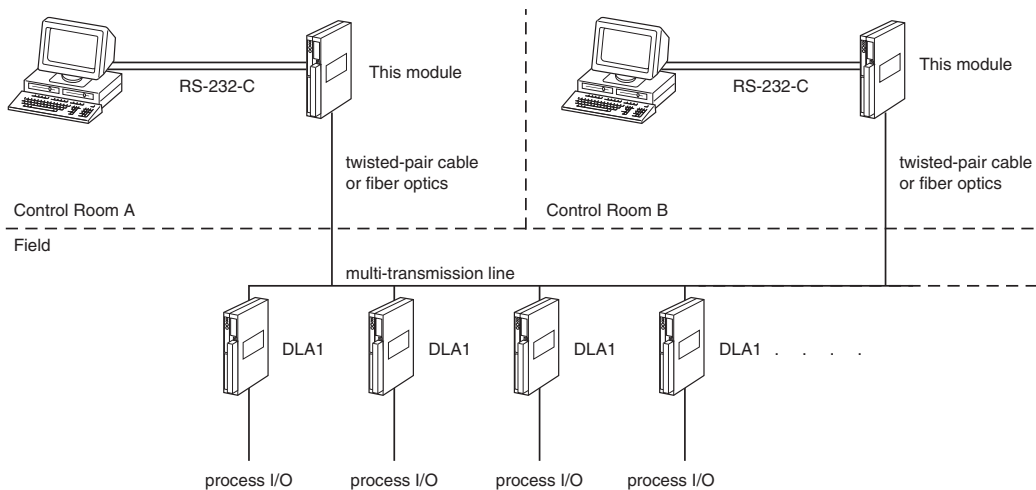
## 2. Remote I/O: 1 Computer



## 3. Remote I/O: 1 Computer and Multi-Transmission Unit for Back-Up

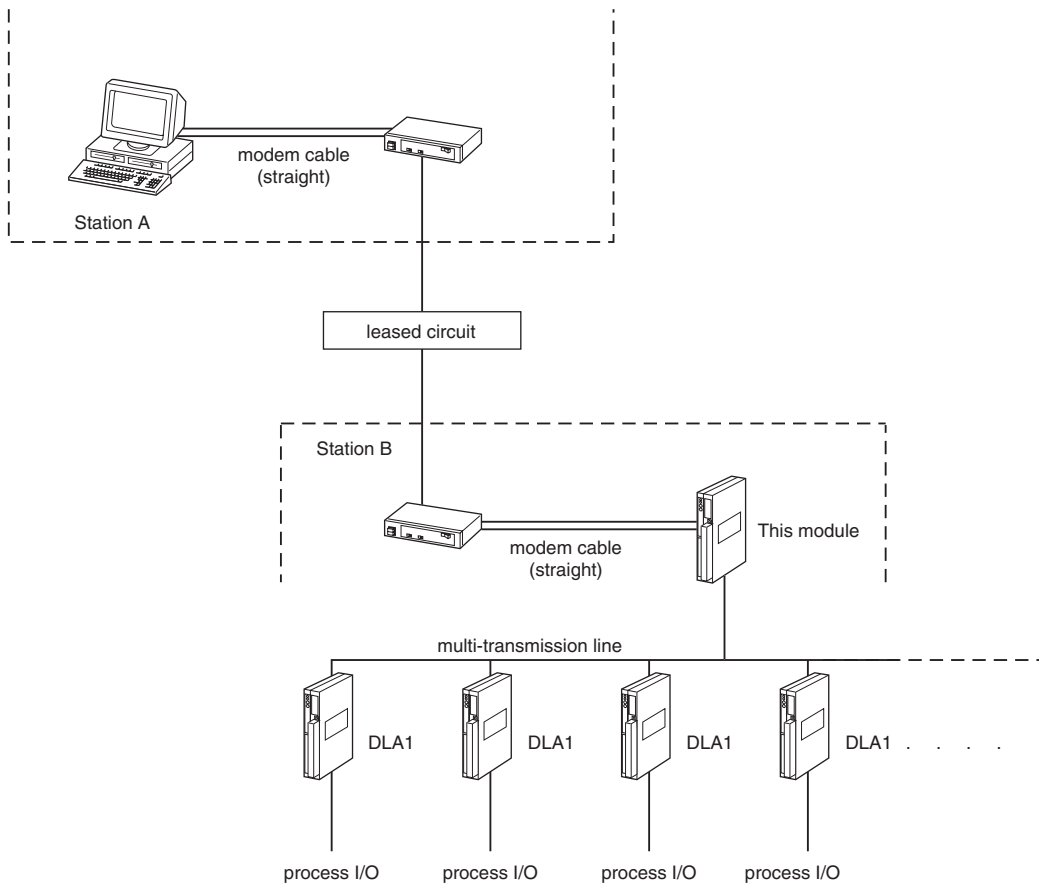


## 4. Remote I/O: Several Computers





5. Remote I/O: Via Modem



Specifications are subject to change without notice.