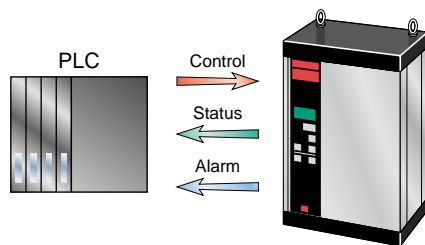




All Danfoss VLT 2800 drives incorporate a standard RS-485 interface allowing up to 31 units to be controlled over a single twisted pair cable. The controlling PC, or PLC, or EMS could be up to three-quarters of a mile away, without using repeaters. The units transmit data in turns over the common wire connection (the bus).

In the communication between PLC and the VLT 2800 there are three types of signals:

- Control signals (speed change, start/stop, reversing)
- Status signals (motor current, motor frequency, frequency reached)
- Alarm signals (motor stopped, overtemperature)



Three signal types between PLC and VLT 5000 or VLT 2800.

## Standard I/Os

### VLT 2800

- 5 digital inputs
- 1 pulse/encoder input
- 2 analog inputs
- 1 digital/pulse output
- 1 relay output
- 1 analog output

### Electrical Installation,

#### Control Cables

- max. 2.5 mm (flat-blade screwdriver) control terminals

### Electrical Installation, Control Cables

Generally speaking, control cables must be screened/armored and the screen must be connected by means of a cable clamp at both ends to the metal cabinet of the unit.

Normally, the screen must also be connected to the body of the controlling unit (follow the instructions for installation given for the unit in question).

If very long control cables are used, 50/60 Hz earth loops may occur that may disturb the system. This problem can be solved by connecting one end of the screen to earth via a 100nF condenser (keeping leads short).

### Galvanic Isolation (PELV)

All analog and digital inputs and outputs and the RS 485 serial communication port are *galvanically isolated from the supply voltage*. Because these points do not share a common, the drive can eliminate ground loop problems.

In the VLT 2800 Series, all control terminals as well as terminals 1-5 (AUX relays) are supplied by or connected to circuits that comply with PELV (high impedance) requirements in relation to the AC line potential.

PELV offers protection by way of extra low voltage. Protection against electric shock is considered to be ensured when the electrical supply is of the PELV type and the installation is made as described in local/national regulations on PELV supplies.

In VLT 2800 units, all control terminals as well as terminals 1-3 (AUX relay) are supplied from or in connection with extra low voltage (PELV).

Galvanic (ensured) isolation is obtained by fulfilling requirements concerning higher isolation and by providing the relevant creepage/clearance distances. These requirements are described in the EN 50178 standard.

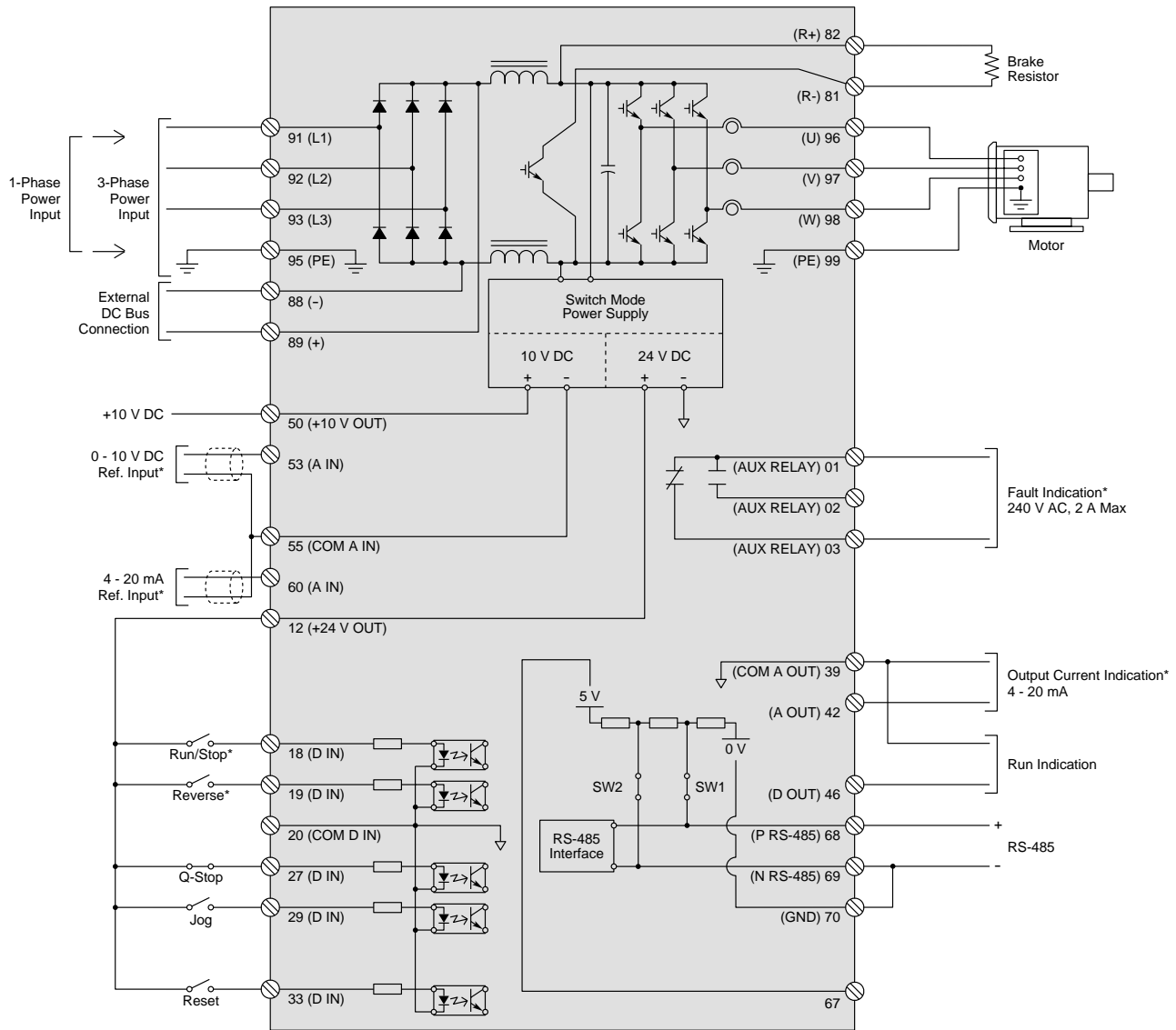
The components that make up the electrical isolation, as described below, also comply with the requirements concerning higher isolation and the relevant test as described in EN 50178. The galvanic isolation can be shown in three locations (see drawing below), namely:

1. Power supply (SMPS) including signal isolation of  $V_{dc}$  indicating the intermediate current voltage.
2. Gate drive that runs the IGBTs (trigger transformers/opto-couplers).
3. Current transducers (Hall effect current transducers).

# VLT 2800 Engineering Data – Typical Interconnection Diagram



Shown below is how a VLT 2800 typically interfaces with other components in an industrial system. The terminal numbers and functions are identical on all VLT 2800 drives. The analog and digital input terminals, and the analog and relay output terminals are all programmable. The functions shown here are typical, but show only a small portion of the total capability.

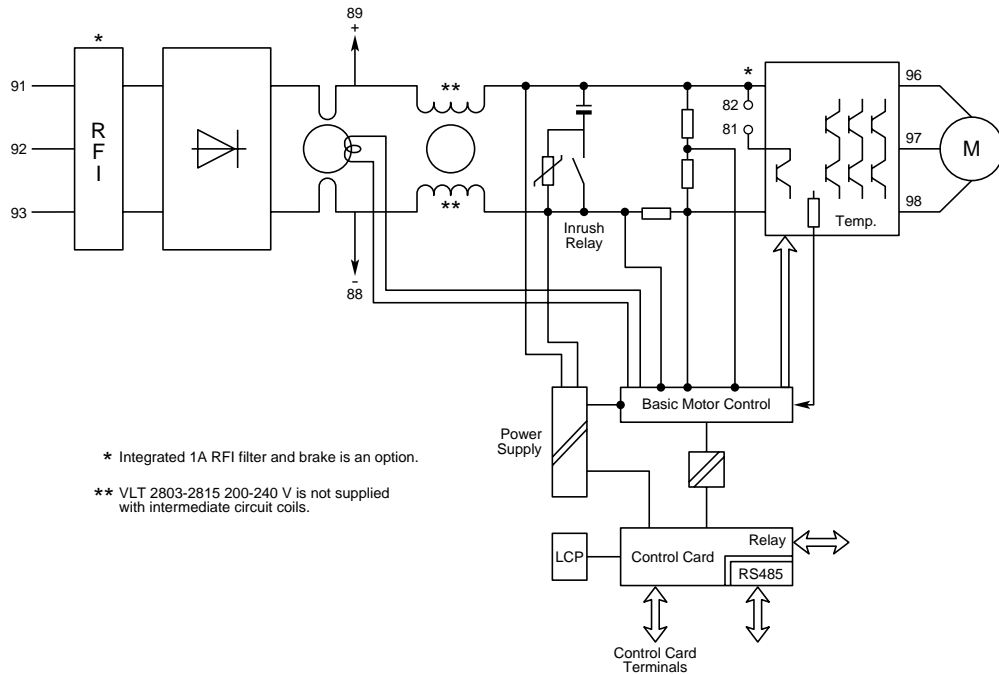


\*The operation of all control inputs and outputs is programmable. Typical terminal functions are shown.

# VLT 2800 Engineering Data – I/O



## VLT 2800 Installation



## VLT 2800 I/O

