

# 2

<b>Function Group</b>	PLC LINK
<b>Number</b>	M1350-M1356, M1360-M1439, D1355-D1370, D1399, D1415-D1465, D1480-D1991
<b>Contents:</b>	
1.	PLC LINK supports COM2 (RS-485) with communication of up to 16 slaves and access of up to 50 words. (DVP-12SE V1.6 and DVP-26SE V2.0 can connect to up to 32 slaves, and read/write up to 100 words.)

2. Special D and special M corresponding to Slave ID1~ Slave ID8: (M1353 = OFF, access available for only 16 words)

MASTER PLC															
SLAVE ID 1		SLAVE ID 2		SLAVE ID 3		SLAVE ID 4		SLAVE ID 5		SLAVE ID 6		SLAVE ID 7		SLAVE ID 8	
Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in
Special D registers for storing the read/written 16 data (Auto-assigned)															
D1480	D1496	D1512	D1528	D1544	D1560	D1576	D1592	D1608	D1624	D1640	D1656	D1672	D1688	D1704	D1720
D1495	D1511	D1527	D1543	D1559	D1575	D1591	D1607	D1623	D1639	D1655	D1671	D1687	D1703	D1719	D1735
Data length for accessing the Slave (Max 16 pieces of data, no access is performed when SV = 0)															
D1434	D1450	D1435	D1451	D1436	D1452	D1437	D1453	D1438	D1454	D1439	D1455	D1440	D1456	D1441	D1457
Starting reference of the Slave to be accessed*															
D1355	D1415	D1356	D1416	D1357	D1417	D1358	D1418	D1359	D1419	D1360	D1420	D1361	D1421	D1362	D1422
M1355 = ON, Slave status is user-defined. Set the linking status of Slave manually by M1360~M1367.															
M1355 = OFF, Slave status is auto-detected. Linking status of Slave can be monitored by M1360~M1367															
M1360		M1361		M1362		M1363		M1364		M1365		M1366		M1367	
Data interchange status of Slaves.															
M1376		M1377		M1378		M1379		M1380		M1381		M1382		M1383	
Error flag for errors occurred when reading and writing (ON = normal; OFF = error)															
M1392		M1393		M1394		M1395		M1396		M1397		M1398		M1399	
“Reading completed” flag (turns “Off” whenever access of a Slave is completed)															
M1408		M1409		M1410		M1411		M1412		M1413		M1414		M1415	
“Writing completed” flag (turns “Off” whenever access of a Slave is completed)															
M1424		M1425		M1426		M1427		M1428		M1429		M1430		M1431	
↓		↓		↓		↓		↓		↓		↓		↓	
Slave PLC*															
SLAVE ID 1		SLAVE ID 2		SLAVE ID 3		SLAVE ID 4		SLAVE ID 5		SLAVE ID 6		SLAVE ID 7		SLAVE ID 8	
Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in
D100	D200	D100	D200	D100	D200	D100	D200	D100	D200	D100	D200	D100	D200	D100	D200
D115	D215	D115	D215	D115	D215	D115	D215	D115	D215	D115	D215	D115	D215	D115	D215

3. Special D and special M corresponding to Slave ID9~ Slave ID16: (M1353 = OFF, access available for only 16 words)

MASTER PLC															
SLAVE ID 9		SLAVE ID 10		SLAVE ID 11		SLAVE ID 12		SLAVE ID 13		SLAVE ID 14		SLAVE ID 15		SLAVE ID 16	
Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in
Special D registers for storing the read/written 16 pieces of data (Auto-assigned)															
D1736	D1752	D1768	D1784	D1800	D1816	D1832	D1848	D1864	D1880	D1896	D1912	D1928	D1944	D1960	D1976
D1751	D1767	D1783	D1799	D1815	D1831	D1847	D1863	D1879	D1895	D1911	D1927	D1943	D1959	D1975	D1991
Data length for accessing the Slave (Max 16 pieces of data, no access is performed when SV = 0)															
D1442	D1458	D1443	D1459	D1444	D1460	D1445	D1461	D1446	D1462	D1447	D1463	D1448	D1464	D1449	D1465
Starting reference of the Slave to be accessed*															
D1363	D1423	D1364	D1424	D1365	D1425	D1366	D1426	D1367	D1427	D1368	D1428	D1369	D1429	D1370	D1430
M1355 = ON, Slave status is user-defined. Set the linking status of Slave manually by M1368~M1375.															
M1355 = OFF, Slave status is auto-detected. Linking status of Slave can be monitored by M1368~M1375															
M1368	M1369	M1370	M1371	M1372	M1373	M1374	M1375								
Data interchange status of Slaves															
M1384	M1385	M1386	M1387	M1388	M1389	M1390	M1391								
Access error flag (ON = normal; OFF = error)															
M1400	M1401	M1402	M1403	M1404	M1405	M1406	M1407								
"Reading completed" flag (turns "Off" whenever access of a Slave is completed)															
M1416	M1417	M1418	M1419	M1420	M1421	M1422	M1423								
"Writing completed" flag (turns "Off" whenever access of a Slave is completed)															
M1432	M1433	M1434	M1435	M1436	M1437	M1438	M1439								
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
Slave PLC*															
SLAVE ID 9		SLAVE ID 10		SLAVE ID 11		SLAVE ID 12		SLAVE ID 13		SLAVE ID 14		SLAVE ID 15		SLAVE ID 16	
Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in
D100	D200	D100	D200	D100	D200	D100	D200	D100	D200	D100	D200	D100	D200	D100	D200
D115	D215	D115	D215	D115	D215	D115	D215	D115	D215	D115	D215	D115	D215	D115	D215

4. Special D and special M corresponding to Slave ID1~ID8: (M1353 = ON, access available for up to 50 words) (DVP-12SE V1.6 and DVP-26SE V2.0 supports 100 words at most.)

MASTER PLC															
SLAVE ID 1		SLAVE ID 2		SLAVE ID 3		SLAVE ID 4		SLAVE ID 5		SLAVE ID 6		SLAVE ID 7		SLAVE ID 8	
Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in
M1353 = ON, enable access up to 50 words.															
The user can specify the starting register for storing the read/written data in registers below.															
D1480	D1496	D1481	D1497	D1482	D1498	D1483	D1499	D1484	D1500	D1485	D1501	D1486	D1502	D1487	D1503
M1356 = ON, the user can specify the station number of Slave ID1~ID8 in D1900~D1907															
D1900		D1901		D1902		D1903		D1904		D1905		D1906		D1907	
Data length for accessing the Slave (Max 50 pieces of data, no access is performed when SV = 0)															
D1434	D1450	D1435	D1451	D1436	D1452	D1437	D1453	D1438	D1454	D1439	D1455	D1440	D1456	D1441	D1457
Starting reference of the Slave to be accessed*															
D1355	D1415	D1356	D1416	D1357	D1417	D1358	D1418	D1359	D1419	D1360	D1420	D1361	D1421	D1362	D1422
M1355 = ON, Slave status is user-defined. Set the linking status of Slave manually by M1360~M1367.															
M1355 = OFF, Slave status is auto-detected. Linking status of Slave can be monitored by M1360~M1367															
M1360		M1361		M1362		M1363		M1364		M1365		M1366		M1367	
Data interchange status of Slaves															
M1376		M1377		M1378		M1379		M1380		M1381		M1382		M1383	
Error flag for errors occurred when reading and writing (ON = normal; OFF = error)															
M1392		M1393		M1394		M1395		M1396		M1397		M1398		M1399	
"Reading completed" flag (turns "Off" whenever access of a Slave is completed)															
M1408		M1409		M1410		M1411		M1412		M1413		M1414		M1415	
"Writing completed" flag (turns "Off" whenever access of a Slave is completed)															
M1424		M1425		M1426		M1427		M1428		M1429		M1430		M1431	
↓		↓		↓		↓		↓		↓		↓		↓	
Slave PLC*															
SLAVE ID 1		SLAVE ID 2		SLAVE ID 3		SLAVE ID 4		SLAVE ID 5		SLAVE ID 6		SLAVE ID 7		SLAVE ID 8	
Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in
D100	D200	D100	D200	D100	D200	D100	D200	D100	D200	D100	D200	D100	D200	D100	D200
↓		↓		↓		↓		↓		↓		↓		↓	
D115	D215	D115	D215	D115	D215	D115	D215	D115	D215	D115	D215	D115	D215	D115	D215

5. Special D and special M corresponding to Slave ID9~ID16: (M1353 = ON, access available for up to 50 words) (DVP-12SE V1.6 and DVP-26SE V2.0 supports 100 words at most.)

MASTER PLC															
SLAVE ID 9		SLAVE ID 10		SLAVE ID 11		SLAVE ID 12		SLAVE ID 13		SLAVE ID 14		SLAVE ID 15		SLAVE ID 16	
Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in
M1353 = ON, enable access up to 50 words.															
The user can specify the starting register for storing the read/written data in registers below.															
D1488	D1504	D1489	D1505	D1490	D1506	D1491	D1507	D1492	D1508	D1493	D1509	D1494	D1510	D1495	D1511
M1356 = ON, the user can specify the station number of Slave ID9~ID16 in D1908~D1915															
D1908		D1909		D1910		D1911		D1912		D1913		D1914		D1915	
Data length for accessing the Slave (Max 50 pieces of data, no access is performed when SV = 0)															
D1442	D1458	D1443	D1459	D1444	D1460	D1445	D1461	D1446	D1462	D1447	D1463	D1448	D1464	D1449	D1465
Starting reference of the Slave to be accessed*															
D1363	D1423	D1364	D1424	D1365	D1425	D1366	D1426	D1367	D1427	D1368	D1428	D1369	D1429	D1370	D1430
M1355 = ON, Slave status is user-defined. Set the linking status of Slave manually by M1368~M1375.															
M1355 = OFF, Slave status is auto-detected. Linking status of Slave can be monitored by M1368~M1375															
M1368		M1369		M1370		M1371		M1372		M1373		M1374		M1375	
Data interchange status of Slaves															
M1384		M1385		M1386		M1387		M1388		M1389		M1390		M1391	
Access error flag (ON = normal; OFF = error)															
M1400		M1401		M1402		M1403		M1404		M1405		M1406		M1407	
"Reading completed" flag (turns "Off" whenever access of a Slave is completed)															
M1416		M1417		M1418		M1419		M1420		M1421		M1422		M1423	
"Writing completed" flag (turns "Off" whenever access of a Slave is completed)															
M1432		M1433		M1434		M1435		M1436		M1437		M1438		M1439	
↓		↓		↓		↓		↓		↓		↓		↓	
Slave PLC*															
SLAVE ID 9		SLAVE ID 10		SLAVE ID 11		SLAVE ID 12		SLAVE ID 13		SLAVE ID 14		SLAVE ID 15		SLAVE ID 16	
Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in
D100	D200	D100	D200	D100	D200	D100	D200	D100	D200	D100	D200	D100	D200	D100	D200

D115	D215	D115	D215	D115	D215	D115	D215	D115	D215	D115	D215	D115	D215	D115	D215
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\*Note:

- Default setting for starting reference of the Slave (DVP-PLC) to be read: H1064 (D100)
- Default setting for starting reference of the Slave (DVP-PLC) to be written: H10C8 (D200)

6. Special D and special M corresponding to Slave ID17~ID24: (M1353 = ON, access available for up to 100 words) (Model supported: DVP-12SE V1.6 and DVP-26SE V2.0)

MASTER PLC															
SLAVE ID 17		SLAVE ID 18		SLAVE ID 19		SLAVE ID 20		SLAVE ID 21		SLAVE ID 22		SLAVE ID 23		SLAVE ID 24	
Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in
DVP-SE supports M1353. When M1353 is On, 32 stations in the Link and the function of reading/writing more than 16 data (SET M1353) are enabled. The user can specify the starting register for storing the read/written data in registers below.															
D1576	D1592	D1577	D1593	D1578	D1594	D1579	D1595	D1580	D1596	D1581	D1597	D1582	D1598	D1583	D1599
If M1356 is ON, users can set the station numbers of slave ID17~ID24 in D1916~D1923. The master station sends commands according to the station numbers set.															
D1916		D1917		D1918		D1919		D1920		D1921		D1922		D1923	
Number of data	Number of data	Number of data	Number of data	Number of data	Number of data	Number of data	Number of data	Number of data	Number of data	Number of data	Number of data	Number of data	Number of data	Number of data	Number of data
D1544	D1560	D1545	D1561	D1546	D1562	D1547	D1563	D1548	D1564	D1549	D1565	D1550	D1566	D1551	D1567
Start Communication Address															
D1512	D1528	D1513	D1529	D1514	D1530	D1515	D1531	D1516	D1532	D1517	D1533	D1518	D1534	D1519	D1535
LINK in SLAVE PLC?															
M1440		M1441		M1442		M1443		M1444		M1445		M1446		M1447	
Action flag for SLAVE PLC from MASTER PLC															
M1456		M1457		M1458		M1459		M1460		M1461		M1462		M1463	
"Read/write error" flag															
M1472		M1473		M1474		M1475		M1476		M1477		M1478		M1479	
"Reading completed" flag (turns "Off" whenever read/write a station is completed)															
M1488		M1489		M1490		M1491		M1492		M1493		M1494		M1495	
"Writing completed" flag (turns "Off" whenever read/write a station is completed)															
M1504		M1505		M1506		M1507		M1508		M1509		M1510		M1511	
↓		↓		↓		↓		↓		↓		↓		↓	
SLAVE ID 17		SLAVE ID 18		SLAVE ID 29		SLAVE ID 20		SLAVE ID 21		SLAVE ID 22		SLAVE ID 23		SLAVE ID 24	
Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in
D100	D200	D100	D200	D100	D200	D100	D200	D100	D200	D100	D200	D100	D200	D100	D200
↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
D115	D215	D115	D215	D115	D215	D115	D215	D115	D215	D115	D215	D115	D215	D115	D215

- Default start communication address D1512 ~ D1519 to be read = H1064 (D100)
- Default start communication address D1528 ~ D1535 to be written = H10C8 (D200)

7. Special D and special M corresponding to Slave ID25~ID32: (M1353 = ON, access available for up to 100 words) (Mode supported: DVP-12SE V1.6 and DVP-26SE V2.0)

MASTER PLC															
SLAVE ID 25	SLAVE ID 26	SLAVE ID 27	SLAVE ID 28	SLAVE ID 29	SLAVE ID 30	SLAVE ID 31	SLAVE ID 32								
Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in
DVP-SE supports M1353. When M1353 is On, 32 stations in the Link and the function of reading/writing more than 16 data (SET M1353) are enabled. The user can specify the starting register for storing the read/written data in registers below.															
D1584	D1600	D1585	D1601	D1586	D1602	D1587	D1603	D1588	D1604	D1589	D1605	D1590	D1606	D1591	D1607
If M1356 is ON, users can set the station numbers of slave ID25~ID32 in D1924~D1931. The master station sends commands according to the station numbers set.															
D1924	D1925	D1926	D1927	D1928	D1929	D1930	D1931								
Number of data	Number of data	Number of data	Number of data	Number of data	Number of data	Number of data	Number of data	Number of data	Number of data	Number of data	Number of data	Number of data	Number of data	Number of data	Number of data
D1552	D1568	D1553	D1569	D1554	D1570	D1555	D1571	D1556	D1572	D1557	D1573	D1558	D1574	D1559	D1575
Start Communication Address															
D1520	D1536	D1521	D1537	D1522	D1538	D1523	D1539	D1524	D1540	D1525	D1541	D1526	D1542	D1527	D1543
LINK in SLAVE PLC?															
M1448	M1449	M1450	M1451	M1452	M1453	M1454	M1455								

Action flag for SLAVE PLC from MASTER PLC							
M1464	M1465	M1466	M1467	M1468	M1469	M1470	M1471
"Read/write" error flag							
M1480	M1481	M1482	M1483	M1484	M1485	M1486	M1487
"Reading completed" flag (turns "Off" whenever read/write a station is completed)							
M1496	M1497	M1498	M1499	M1500	M1501	M1502	M1503
"Writing completed" flag (turns "Off" whenever read/write a station is completed)							
M1512	M1513	M1514	M1515	M1516	M1517	M1518	M1519

↓	↓	↓	↓	↓	↓	↓	↓
SLAVE ID 25	SLAVE ID 26	SLAVE ID 27	SLAVE ID 28	SLAVE ID 29	SLAVE ID 30	SLAVE ID 31	SLAVE ID 32
Read out	Write in	Read out	Write in	Read out	Write in	Read out	Write in
D100	D200	D100	D200	D100	D200	D100	D200
D115	D215	D115	D215	D115	D215	D115	D215

- Default start communication address D1520 ~ D1527 to be read = H1064 (D100)
- Default start communication address D1536 ~ D1543 to be written = H10C8 (D200)

8. Explanation: (16 slave stations at most can be supported.)

- a) PLC LINK is based on MODBUS communication protocol.
- b) Baud rate and communication format of all phariferal devices connected to the Slave PLC should be the same as the communication format of Master PLC, no matter which COM port of Slave PLC is used.
- c) When M1356 = OFF(Default), the station number of the starting Slave (ID1) can be designated by D1399 of Master PLC through PLC LINK, and PLC will automatically assign ID2~ID16 with consecutive station numbers according to the station number of ID1. For example, if D1399 = K3, Master PLC will send out communication commands to ID1~ID16 which carry station number K3~K18. In addition, care should be taken when setting the station number of Slaves. All station numbers of slaves should not be the same as the station number of the Master PLC, which is set up in D1121/D1255.
- d) When both M1353 and M1356 are ON, the station number of ID1~ID16 can be specified by the user in D1900~D1915 of Master PLC. For example, when D1900~D1903 = K3, K3, K5, K5, Master PLC will access the Slave with station number K3 for 2 times, then the slave with station number K5 for 2 times as well. Note that all station numbers of slaves should not be the same as the station number of the Master PLC, and M1353 must be set ON for this function.
- e) Station number selection function (M1356 = ON) is supported by versions of ES2/EX2 v1.4.2 or later, SS2/SX2 v1.2 or later, and SA2 v1.0 or later.

9. Explanation: (32 slave stations at most can be supported. The models which are supported now are DVP-12SE V1.6 and DVP-26SE V2.0)

- a) PLC LINK is based on MODBUS communication protocol.
- b) Baud rate and communication format of all phariferal devices connected to the Slave PLC should be the same as the communication format of Master PLC, no matter which COM port of Slave PLC is used.
- c) When M1356 = OFF (Default), the station number of the starting Slave (ID1) can be designated by D1399 of Master PLC through PLC LINK, and PLC will automatically assign ID2~ID16 with consecutive station numbers according to the station number of ID1. (When M1356 = ON, the station number of the starting Slave (ID1) can be designated by D1399 of Master PLC through PLC LINK, and PLC will automatically assign ID2~ID32 with consecutive station numbers according to the station number of ID1). For example, if D1399 = K3, and M1353 = Off, Master PLC will send out communication commands to ID1~ID16 which carry station number K3~K18. If D1399 = K3, and M1353 = On, In addition, Master PLC will send out communication commands to ID1~ID32 which carry station number K3~K34. In addition, care should be taken when setting the station number of Slaves. All station numbers of slaves should not be the same as the station number of the Master PLC, which is set up in D1121/D1255.
- d) When both M1353 and M1356 are ON, the station number of ID1~ID32 can be specified by the user in D1900~D1931 of Master PLC. For example, when D1900~D1903 = K3, K3, K5, K5, Master PLC will access the Slave with station number K3 for 2 times, then the slave

with station number K5 for 2 times as well. Note that all station numbers of slaves should not be the same as the station number of the Master PLC (D1121/D1255), and M1353 must be set ON for this function.

- e) When M1356 is ON, the station number selection function is enabled.
10. Operation:
  - a) Set up the baud rates and communication formats. Master PLC and all connected Slave PLCs should have the same communication settings. COM1\_RS-232: D1036, COM2\_RS-485: D1120, COM3\_RS-485: D1109.
  - b) Set up Master PLC ID by D1121 and the starting slave ID by D1399. Then, set slave ID of each slave PLC. The ID of master PLC and slave PLC cannot be the same.
  - c) Set data length for accessing. (If data length is not specified, PLC will take default setting or the previous value as the set value. For details of data length registers, please refer to the tables above)
  - d) Set starting reference of the Slave to be accessed. (Default setting for starting reference to be read: H1064 (D100); default setting for starting reference to be written: H10C8 (D200). For details of starting reference registers, please refer to the tables above)
  - e) Steps to start PLC LINK:
    - Set ON M1354 to enable simultaneous data read/write in a polling of PLC LINK.
    - M1355 = ON, Slave status is user-defined. Set the linking statuses of slave ID 1~slave ID 16 (slave ID 1~slave ID 32) manually by M1360~M1375 (M1360~M1375 and M1440~M1455). M1355 = OFF, the linking statuses of slave ID 1~slave ID 16 (slave ID 1~slave ID 32) are auto-detected. The linking statuses of slave ID 1~slave ID 32 can be monitored by M1360~M1375, and M1440~M1455.
    - Select auto mode on PLC LINK by M1351 or manual mode by M1352 (Note that the 2 flags should not be set ON at the same time.) After this, set up the times of polling cycle by D1431.
    - Finally, enable PLC LINK (M1350)
11. The Operation of Master PLC:
  - a) M1355 = ON indicates that Slave status is user-defined. Set the linking status of slave ID 1~slave ID 16 (slave ID 1~slave ID 32) manually by M1360~M1375 (M1360~M1375 and M1440~M1455).
  - b) M1355 = OFF indicates that the linking statuses of slave ID 1~slave ID 16 (slave ID 1~slave ID 32) are auto-detected. The linking statuses of slave ID 1~slave ID 32 can be monitored by M1360~M1375, and M1440~M1455.
    - Enable PLC LINK (M1350). Master PLC will detect the connected Slaves and store the number of connected PLCs in D1433. The time for detection differs by number of connected Slaves and time-out setting in D1129.
    - M1360~M1375 indicate the linking statuses of slave ID 1~slave ID 16. If M1353 is ON, M1360~M1375 and M1440~M1455 will indicate the linking statuses of slave ID 1~slave ID 32.
    - If no slave is detected, M1350 will be OFF and PLC LINK will be stopped.
    - PLC will only detect the number of slaves at the first time when M1350 turns ON.
    - After auto-detection is completed, master PLC starts to access each connected slave. Once slave PLC is added after auto-detection, master PLC cannot access it unless auto-detection is conducted again.
  - c) Simultaneous read/write function (M1354) has to be set up before enabling PLC LINK. Setting up this flag during PLC LINK execution will not take effect.
  - d) When M1354 = ON, PLC takes Modbus Function H17 (simultaneous read/write function) for PLC LINK communication function. If the data length to be written is set to 0, PLC will select Modbus Function H03 (read multiple WORDs) automatically. In the same way, if data length to be read is set to 0, PLC will select Modbus Function H06 (write single WORD) or Modbus Function H10 (write multiple WORDs) for PLC LINK communication function.
  - e) When M1353 = OFF, PLC LINK accesses the Slave with max 16 words, and the data is automatically stored in the corresponding registers. When M1353 = ON, up to 100 words are accessible and the user can specify the starting register for storing the read/written data.  
For example, if the register for storing the read/written data on Slave ID1 is specified as D1480 = K500, D1496 = K800, access data length D1434 = K50, D1450 = K50, registers



of Master PLC D500~D549 will store the data read from Slave ID1, and the data stored in D800~D849 will be written into Slave ID1.

- f) Master PLC conducts reading before writing. Both reading and writing is executed according to the range specified by user.
- g) Master PLC accesses slave PLCs in order, i.e. data access moves to next slave only when access on previous slave is completed.
- h) Modbus Function H03 will be replaced by Modbus Function H04 for read/write function code. M1700~M1715 are corresponding to Slave ID 1~16 orderly; when the status is ON, the read/write function code can be changed from H04 to H04 for the following series.

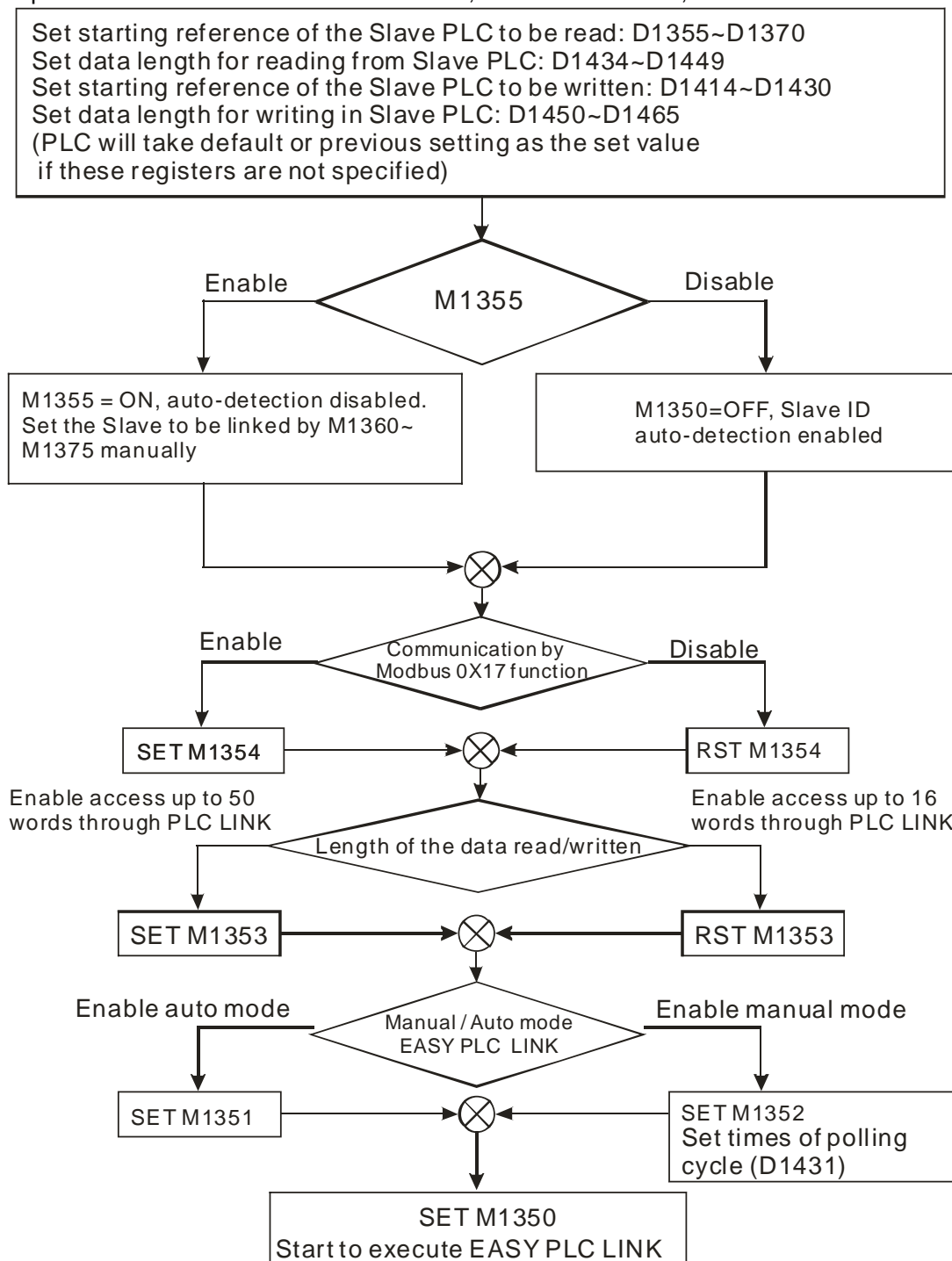
Series	ES2/ EX2	ES2-C	ES2-E	12SA2/ SX2	SS2	12SE	26SE	28SA2
<b>Firmware version</b>	V3.48	V3.48	V1.0	V3.0	V3.60	--	V2.0	V3.0

M1700~M1731 are corresponding to Slave ID 1~32 for 26SE series.

12. Auto mode and Manual mode:

- a) Auto mode (M1351): when M1351 = ON, Master PLC will access slave PLCs as the operation described above, and stop the polling till M1350 or M1351 is OFF.
- b) Manual mode (M1352): When manual mode is selected, times of polling cycle in D1431 has to be set up. A full polling cycle refers to the completion of accessing all Slaves. When PLC LINK is enabled, D1432 starts to store the times of polling. When D1431 = D1432, PLC LINK stops and M1352 is reset. When M1352 is set ON again, PLC will start the polling according to times set in D1431 automatically.
- c) Note:
  - Auto mode M1351 and manual mode M1352 cannot be enabled at the same time. If M1351 is enabled after M1352 is ON, PLC LINK will stop and M1350 will be reset.
  - Communication timeout setting can be modified by D1129 with available range  $200 \leq D1129 \leq 3000$ . PLC will take the upper / lower bound value as the set value if the specified value is out of the available range. D1129 has to be set up before M1350 = ON.
  - PLC LINK function is only valid when baud rate is higher than 1200 bps. When baud rate is less than 9600 bps, please set communication time-out to more than 1 second.
  - The communication is invalid when data length to be accessed is set to 0.
  - Access on 32-bit high speed counters (C200~C255) is not supported.
  - Available range for D1399: 1 ~ 230. PLC will take the upper / lower bound value as the set value if the specified value exceeds the available range.
  - D1399 has to be set up before enabling PLC LINK. Setting up this register during PLC LINK execution will not take effect.
  - Advantage of using D1399 (Designating the ID of starting Slave):  
In old version PLC LINK, PLC detects Slaves from ID1 to ID16. Therefore, when PLC LINK is applied in multi-layer networks, e.g. 3 layers of networks, the Slave ID of 2<sup>nd</sup> and 3<sup>rd</sup> layer will be repeated. When Slave ID is repeated, i.e. the same as Master ID, the Slave will be passed. In this case, only 15 Slaves can be connected in 3<sup>rd</sup> layer. To solve this problem, D1399 can be applied for increasing the connectable Slaves in multi-layer network structure.

13. Operation flow chart: In the flow chart below, there are 16 slaves, and 50 words are accessed.

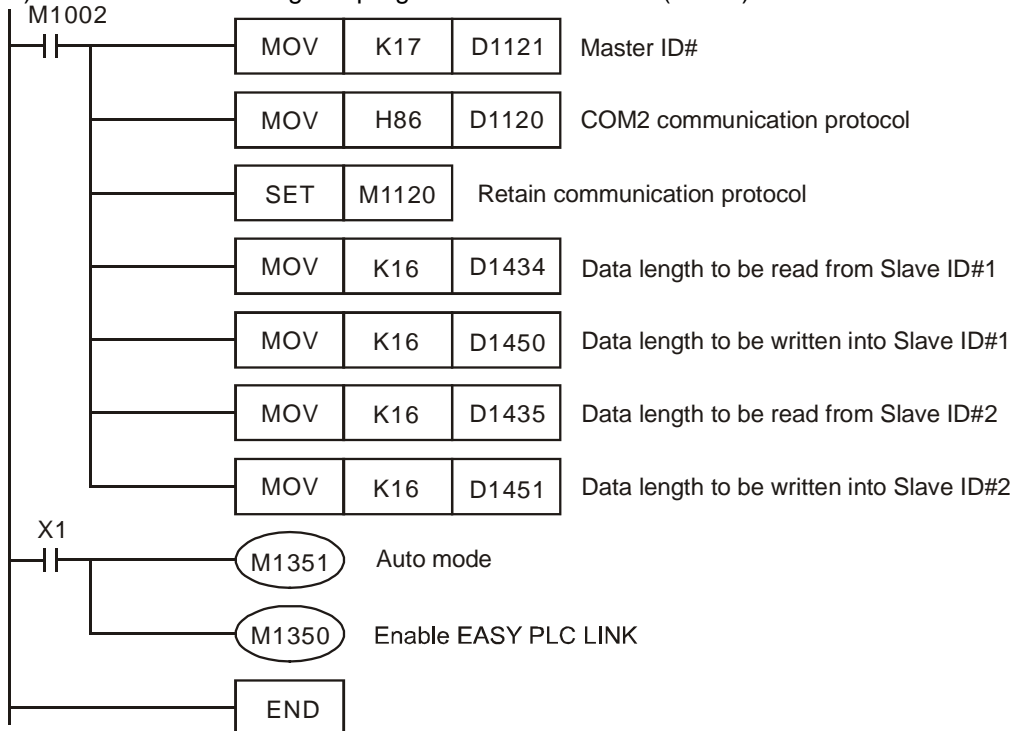


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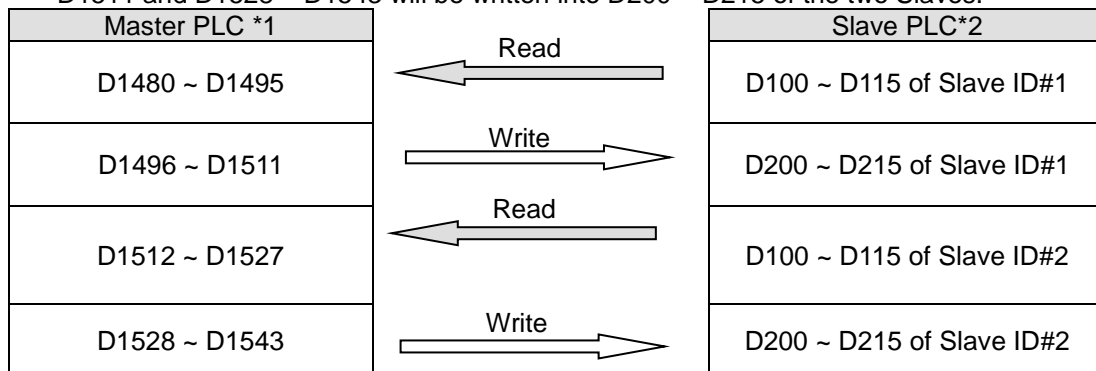


14. Example 1: Connect 1 Master and 2 Slaves by RS-485 and exchange 16 data between Master and Slaves through PLC LINK

a) Write the ladder diagram program into Master PLC (ID#17)



- b) When X1 = On, the data exchange between Master and the two Slaves will be automatically executed by PLC LINK. The data in D100 ~ D115 in the two Slaves will be read into D1480 ~ D1495 and D1512 ~ D1527 of the Master, and the data in D1496 ~ D1511 and D1528 ~ D1543 will be written into D200 ~ D215 of the two Slaves.



- c) Assume the data in registers for data exchange before enabling PLC LINK (M1350 = OFF) is as below:

Master PLC	Preset value	Slave PLC	Preset value
D1480 ~ D1495	K0	D100 ~ D115 of Slave ID#1	K5,000
D1496 ~ D1511	K1,000	D200 ~ D215 of Slave ID#1	K0
D1512 ~ D1527	K0	D100 ~ D115 of Slave ID#2	K6,000
D1528 ~ D1543	K2,000	D200 ~ D215 of Slave ID#2	K0

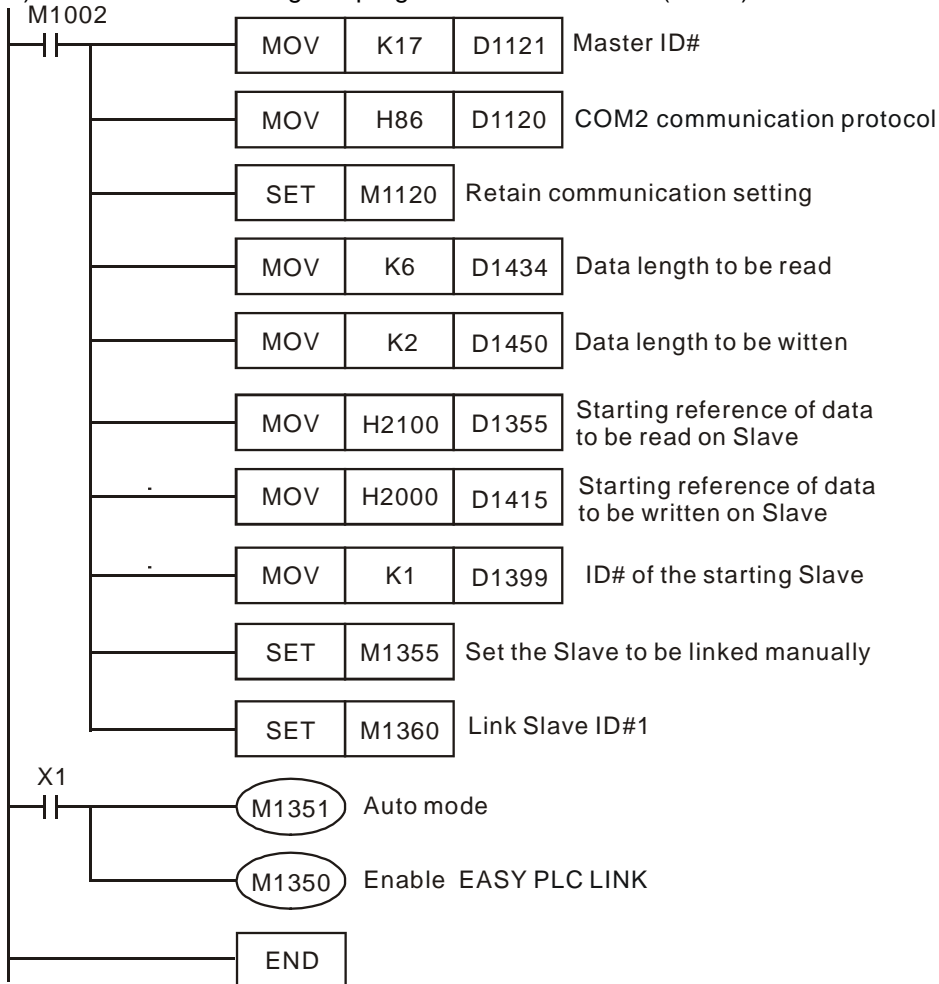
After PLC LINK is enabled (M1350 = ON), the data in registers for data exchange becomes:

Master PLC	Preset value	Slave PLC	Preset value
D1480 ~ D1495	K5,000	D100 ~ D115 of Slave ID#1	K5,000
D1496 ~ D1511	K1,000	D200 ~ D215 of Slave ID#1	K1,000
D1512 ~ D1527	K6,000	D100 ~ D115 of Slave ID#2	K6,000

Master PLC	Preset value	Slave PLC	Preset value
D1528 ~ D1543	K2,000	D200 ~ D215 of Slave ID#2	K2,000

- d) Up to 16 Slaves can be accessed through PLC LINK. For allocation of D100 ~ D115 and D200 ~ D215 in each Slave PLC, please refer to the tables of Special M and Special D of this function in previous pages.
15. Example 2: Connect DVP-PLC with VFD-M inverter and control the RUN, STOP, Forward operation, Reverse operation through PLC LINK.

a) Write the ladder diagram program into Master PLC (ID#17)



- b) M1355 = ON. Set the Slave to be linked manually by M1360~M1375. Set ON M1360 to link Slave ID#1.
- c) Address H2100-H2105 maps to registers D1480-D1485 of PLC. When X1 = ON, PLC LINK executes, and the data in H2100-H2105 will be displayed in D1480-D1485.
- d) Address H2000-H2001 maps to registers D1496-D1497 of PLC. When X1 = ON, PLC LINK executes, and the parameter in H2000-H2001 will be specified by D1496-D1497.
- e) Commands of VFD can be specified by changing the value in D1496. (e.g. D1496 = H12=>VFD forward operation; D1496 = H1=> VFD stops)
- f) Frequency of VFD can be specified by changing the value in D1497. (e.g. D1497 = K5000, set VFD frequency as 50kHz.)
- g) In addition to VFD AC motor drives, devices support MODBUS protocol such as DTA/DTB temperature controllers and ASDA servo drives can also be connected as Slaves. Up to 16 Slaves can be connected.
16. TD1354 is a PLC link scan cycle (unit: 1ms), and max. display value is K32000. D1354 = K0 when PLC Link stops or when the first scan is completed.